Submitted to: Jindal Mining Namibia (Pty) Ltd.
Attention: Mr Debananda Tripathy
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REPORT:

SCOPING REPORT FOR THE PROPOSED JINDAL IRON ORE MINE ON EPLS 4194 AND 4013

PROJECT NUMBER: ECC-148-464-REP-04-D

REPORT VERSION: REV 03

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Client Name:	Mr Debananda Tripathy
Ministry Reference:	APP-004009
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The report has been prepared by Environmental Compliance Consultancy Pty Ltd (ECC) (Reg. No. 2022/0593) on behalf of the Proponent. Authored by ECC employees with no material interest in the report's outcome, ECC maintains independence from the Proponent and has no financial interest in the Project apart from fair remuneration for professional fees. Payment of fees is not contingent on the report's results or any government decision. ECC members or employees are not, and do not intend to be, employed by the Proponent, nor do they hold any shareholding in the Project. Personal views expressed by the writer may not reflect ECC or its client's views. The environmental report's information is based on the best available data and professional judgment at the time of writing. However, please note that environmental conditions can change rapidly, and the accuracy, completeness, or currency of the information cannot be guaranteed.

EXECUTIVE SUMMARY

Environmental Compliance Consultancy (Pty) Ltd (ECC) has been appointed as the environmental assessment practitioner (EAP) by Jindal Mining Namibia (Pty) Ltd. (referred to as the Proponent or Jindal herein), to conduct an environmental and social impact assessment (ESIA) for the proposed construction and operation of an iron ore mine on EPLs 4013 and 4194, 50 km east of Windhoek, Khomas Region, Namibia. An environmental and social impact assessment (ESIA) has commenced in compliance with the requirements of the Environmental Management Act, 2007 and its regulations. This report presents the findings of the scoping study that forms part of the larger ESIA process.

SCREENING PHASE

The screening phase was conducted per the listed activities of the Environmental Management Act of 2007, and determined the most likely potential environmental and social impacts the Project would include:

- Surface and groundwater impacts
- Social impacts during construction, operations, and post-closure
- Habitat alteration and impacts on biodiversity
- Visual impacts affecting the sense of place
- Impacts on air quality
- Impacts on baseline noise levels
- Impacts on Heritage
- Impacts on the soil baseline characteristics

SCOPING PHASE

The scope of the assessment was established by conducting a preliminary evaluation of the proposed project in relation to the receiving environment. This evaluation was based on a desktop review, available site-specific literature, monitoring data, and site reports.

Public consultation for the project began on April 2, 2024. Advertisements for a public consultation meeting, held in Windhoek on April 16, 2024, at 18:00 at the Namibia Scientific Society, were placed in nationally distributed newspapers on April 2 and April 10, 2024. During this period, feedback from registered interested and affected parties (I&APs) and stakeholders highlighted key concerns including the need for specialist studies on noise, air quality, visual impact, hydrology, flora and fauna, and blast and vibration effects. Additionally, there were concerns about the impacts of mining operations and potential future expansion on neighbouring farms and residential areas, such as Drie Krone Nature Village, as well as issues related to water provision for mine operations and on-site residential facilities.

PROJECT DESCRIPTION

If the Jindal Iron Ore Project proves economically viable, it is anticipated to benefit the Namibian economy through revenues during the construction phase, royalties, and taxes throughout the life of the mine (LoM), as well as positive contributions to employment. The proposed project will include various mining and site infrastructure elements such as pits, an overburden dump facility, a stockyard, a mining office, a workshop, an administration building, a health and safety wing, exploration facilities, a store, a laboratory, a canteen, a processing plant, a conveyor line, a tailing pond, a filter press yard, a concentrate yard, and a dispatch line.

ENVIRONMENTAL AND SOCIAL BASELINE

Initial desktop baseline studies pertinent to the project will be included in the initial environmental assessment for the exclusive prospecting licence on which the project is located. This assessment will involve a detailed examination of the baseline, incorporating inputs from specialist studies commissioned as part of the environmental and social impact assessment process.

IMPACT IDENTIFICATION AND EVALUATION

The assessment will determine significant impacts, identify data gaps, define spatial and temporal scope, and establish the assessment methodology. The project's environmental and social impacts will be evaluated against baseline characteristics to ensure all significant impacts are identified and assessed. Impact significance is based on the sensitivity and value of affected receptors, the nature of the impact, and the magnitude of change, which can range from negligible to very high, and be either temporary or permanent, beneficial or adverse. A cumulative impact assessment (CIA) will address combined impacts from multiple project activities. Mitigation measures, both embedded and additional, will be implemented to reduce the significance of identified impacts.

TERMS OF REFERENCE

The ToR within the scoping report proposes the assessments that will be conducted to inform the assessment phase and will include the following:

- Soil impact assessment
- Geochemical assessment of ore and waste rock characterisation impact assessment
- Surface and groundwater impact assessment
- Biodiversity impact assessment
- Noise impact assessment
- Air quality impact assessment
- Traffic impact assessment
- Visual impact assessment
- Socioeconomic impact assessment
- Heritage impact assessment
- Blast and vibration assessment
- Climate change assessment

The scoping report and appendices were formally submitted to the competent authority - the Ministry of Mines and Energy (MME) and the Environmental Commissioner (EC) at the Ministry of Environment, Forestry and Tourism (MEFT) – as well as registered I&APs for a 14 day review period from the 21st of June 2024 to the 5th of July 2024.

A set of comments were received from the I&APs during the two-week public review period. These comments have been consolidated into a comments and responses addendum report, as an appendix. The scoping report and appendices were then finalized and submitted to the competent authority, MME and MEFT for a record of decision.

The final scoping report was submitted on the 12th of July 2024 to the competent authority – MME and the EC at MEFT - for a record of decision. The final scoping report was also circulated to registered I&APs for their review.

Upon receiving additional feedback from I&APs on the 18th of July 2024, the revised draft scoping report was amended to include that feedback and was re-issued for a further public review period of 7 days from the 13th of August 2024 to the 20th of August 2024. Following this additional 7-day public review period, additional comments received have been incorporated into the revised addendum report. The revised final scoping report is hereby being re-submitted to the competent authority – MME and the EC at MEFT – for a record of decision.

The next stage of this assessment is to conduct a detailed impact assessment. The draft ESIA report and appendices will be available to all stakeholders, and registered I&APs will be informed of its availability for review once finalised.

The ESIA report and appendices will be formally submitted to the competent authority, MME and MEFT for a record of decision.

The phases of the ESIA are provided in Figure 1.

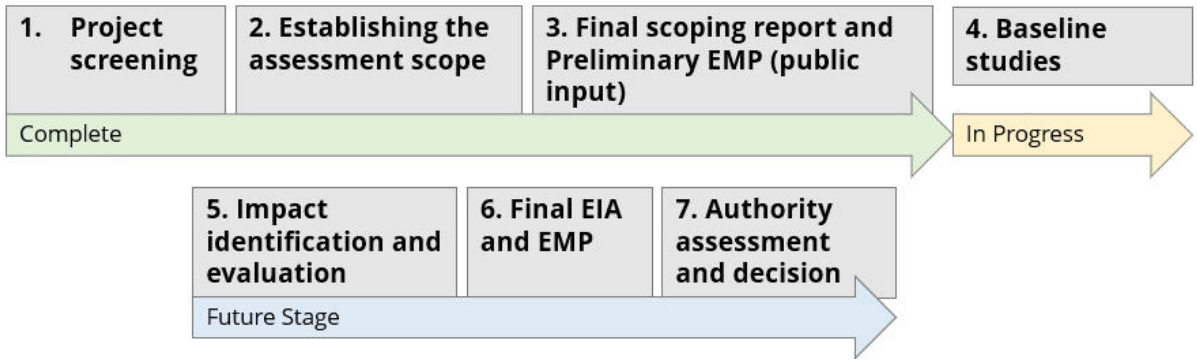

Figure 1 - Current and future phases of the ESIA process.

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TERMS AND ABBREVIATIONS

TERM OR ABBREVIATION	DESCRIPTION
@	at
°C	degrees Celsius
µm	micrometre
<	less than
%	percentage
AIDS	Acquired immunodeficiency syndrome
Airshed	Airshed Planning Professionals (Pty) Ltd
BID	background information document
CCTV	Closed-circuit television
CIA	cumulative impact assessment
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
cm	centimetre
COM	Chamber of Mines
COVID-19	Coronavirus disease
CSR	corporate social responsibility
dBA	Decibels
DEA	Directorate of Environmental Affairs
DTH	down-the-hole
EAP	environmental assessment practitioner
EC_1	electrical conductivity
EC_2	Environmental Commissioner
ECC_1	Environmental Compliance Consultancy (Pty) Ltd
ECC_2	environmental clearance certificate
EIA	environmental impact assessment
EMA	Environmental Management Act, No.7 of 2007
EMP	environmental management plan
EPL	exclusive prospecting licence
ESIA	environmental and social impact assessment
ESMP	environmental and social management plan
Fe	iron
GDP	gross domestic product
GIS	Geographic Information System
HIV	human immunodeficiency virus
HKIA	Hosea Kutako International Airport
HME	Heavy Mobile Equipment
I&APs	interested and affected parties
ICMM	International Council on Mining and Metals
IFC	International Finance Corporation
IUCN	International Union for Conservation of Nature
Jindal	Jindal Mining Namibia (Pty) Ltd

TERM OR ABBREVIATION	DESCRIPTION
KLCs	kinetic leach columns
km	kilometre
km^2	Kilometre squared
km/h	Kilometre per hour
L/Day	Litres per day
LIMS	Low-Intensity Magnetic Separation
LoM	life of mine
Ltd	Limited
LV	Light vehicles
m	metre
masl	meters above sea level
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
ML	Mining licence
mm	millimetre
Mm^3/annum	Million cubic metres per annum or year
MME	Ministry of Mines and Energy
MT	metric tons
Mtpa	million metric tons per annum
MW	megawatts
MWT	Ministry of Works and Transport
N	North
NAC	Namibia Airports Company
NAG	Net Acid Generation
NamPower	Namibian Power Corporation (Pty) Ltd
NamPol	Namibian Police
NAMCATS	Namibia Civil Aviation Technical Standard
NAMCAR	Namibia Civil Aviation Regulation
NCAA	Namibia Civil Aviation Authority
NCE	Namibia Chamber of Environment
NDP5	Fifth National Development Plan
NHC	National Heritage Council
NNE	North-Northeast
OB	overburden
PCD	pollution control dam
pH	potential of hydrogen
PM10/2.5	Fine particulate matter is defined as particles that are 10 or 2.5 microns or less in diameter
pty	Proprietary
QAQC	quality assurance and quality control
RC	Reverse-circulation
RGS	RGS Environmental (Pty) Ltd
RH	relative humidity

TERM OR ABBREVIATION	DESCRIPTION
ROM	Run-of-Mine
TB	Tuberculosis
ToR	terms of reference
TSF	tailings storage facility
WHO	World Health Organisation
WRD	waste rock dump
UAE	United Arab Emirates
UNICEF	United Nations International Children's Emergency Fund
XRD	X-ray diffraction

1 INTRODUCTION

1.1 COMPANY BACKGROUND

Environmental Compliance Consultancy (Pty) Ltd (ECC) has been appointed as the environmental assessment practitioner (EAP) by Jindal Mining Namibia (Pty) Ltd. (referred to as the Proponent or Jindal herein), to conduct an environmental and social impact assessment (ESIA) for the proposed construction and operation of an iron ore mine on exclusive prospecting licences (EPLs) 4013 and 4194, 50 km east of Windhoek, Khomas Region, Namibia, see Figure 2 below.

The advanced and successful exploration programme has resulted in the development of the Jindal Project. The proposed Project will be a conventional open pit mine with an iron ore extraction process.

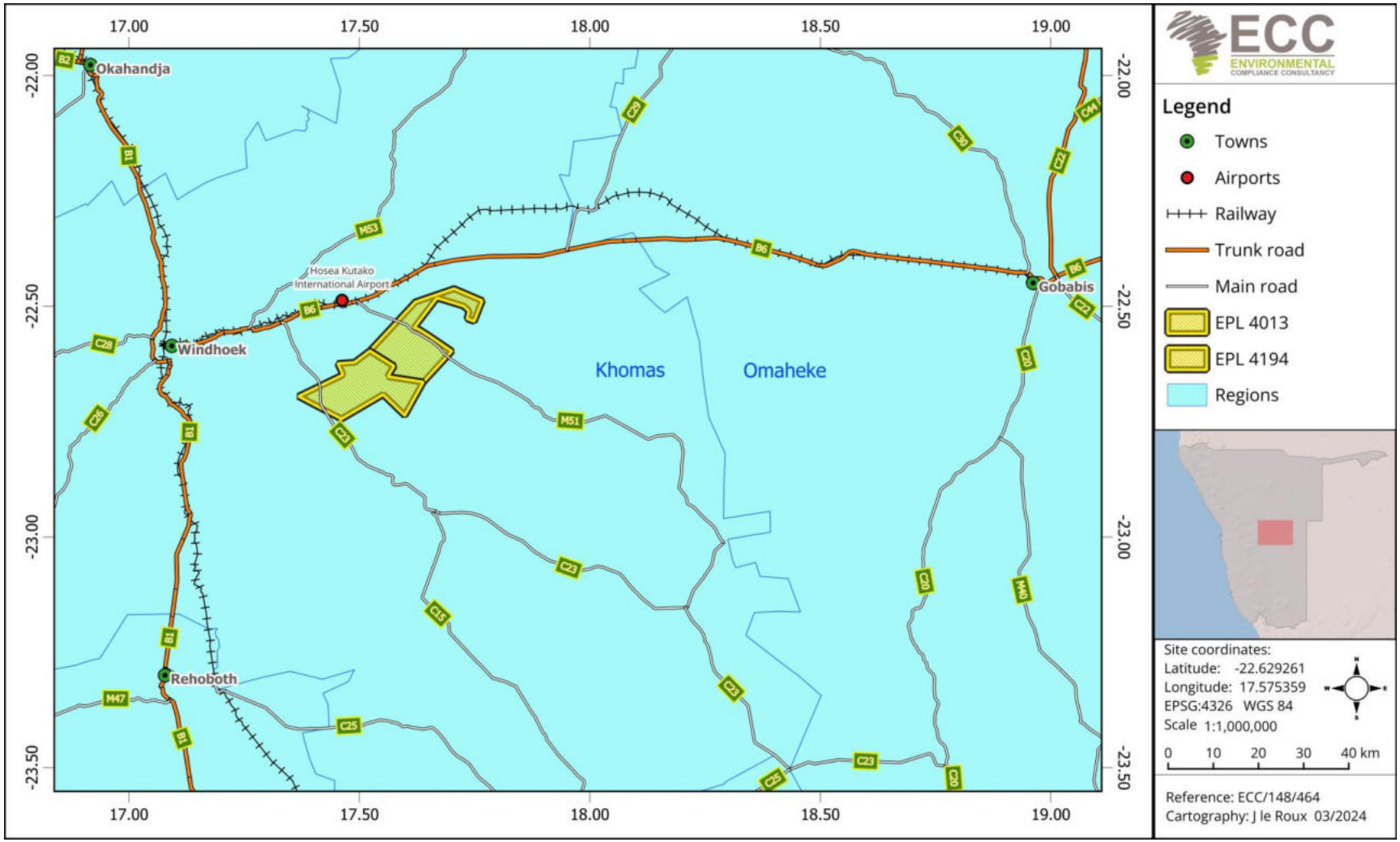


Figure 2 - Locality map of EPLs 4194 and 4013.

1.2 THE PROPONENT OF THE PROPOSED PROJECT

Jindal Mining Namibia (Pty) Ltd is a Namibian company and subsidiary of Jindal Steel and Power (Mauritius) and manages operations in Namibia. Jindal holds an 85 % stake in Brake Trading (Pty) Ltd and exercises managerial authority over the company, while Alexander Adolf Warne owns 10 % of Brake Trading, while Phoenix Minerals DMCC, UAE, owns the other 5 %, or shown in the infographic in Figure 3. Brake Trading (Pty) Ltd a subsidiary of Jindal holds the rights to exclusive prospecting licences (EPLs) 4013 and 4194.

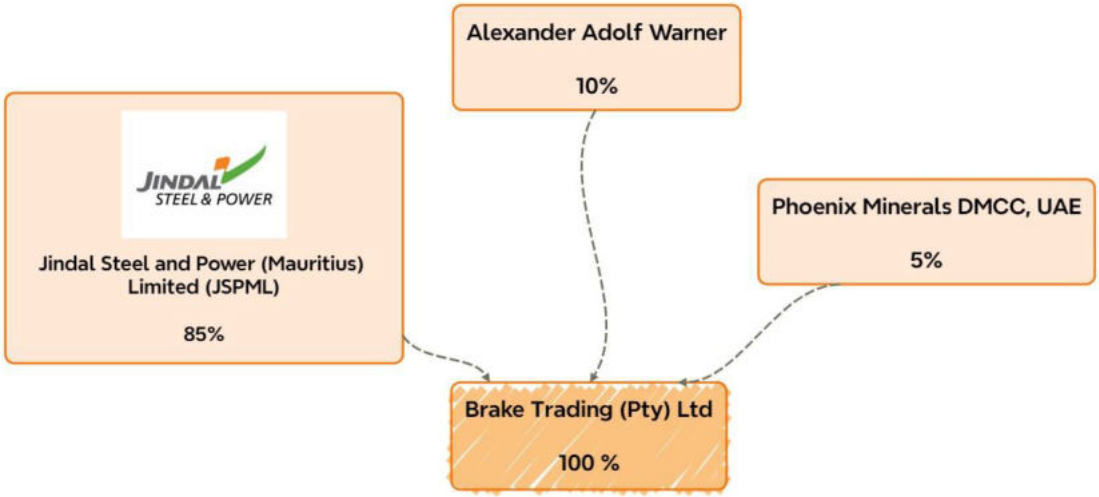


Figure 3 - Brake Trading (Pty) Ltd ownership structure.

The Proponents' details are provided in Table 1.

Table 1 - Proponents' details

Company Representative:	Contact Details:
Mr Debananda Tripathy Exploration Manager	Jindal Mining Namibia (Pty) Ltd.: PO Box 31490, Windhoek debananda.tripathy@jindalafrica.com

1.3 PURPOSE OF THE SCOPING REPORT

An environmental and social impact assessment (ESIA) has commenced in compliance with the requirements of the Environmental Management Act, 2007 and its regulations. This report presents the findings of the scoping study that forms part of the larger ESIA process.

In addition to describing the prescribed ESIA process, the report describes the baseline biophysical and socioeconomic environments, provides a project description, outlines the terms of reference for the assessment phase, and presents a preliminary environmental and social management plan (ESMP). The scope of the assessment was determined by undertaking a preliminary assessment of the proposed Project against the receiving environment, obtained through a desktop review, available site-specific literature, monitoring data, and site reports.

The scoping report and appendices were submitted to the public for review for a 14-day public review period and input on the impacts and the related ESIA terms of reference were received. After the public review period, the final scoping report with public input was submitted to the Ministry of Mines and Energy (MME) as the competent authority for the Project, and to the Environmental Commissioner (EC) at Ministry of Environment, Forestry and Tourism (MEFT) - Directorate of Environmental Affairs (DEA) for a record of decision.

1.4 Environmental and Social Assessment Practitioner

Environmental Compliance Consultancy (Pty) Ltd (ECC) (Reg. No. 2022/0593) has prepared this report and the ESMP on behalf of the Proponent.

This report has been authored by employees of ECC, who have no material interest in the outcome of this report, nor do any of the ECC team have any interest that could be reasonably regarded as being capable of affecting their independence in the preparation of this report. ECC is independent of the Proponent and has no vested or financial interest in the Project, except for fair remuneration for professional fees rendered which are based upon agreed commercial rates. Payment of these fees is in no way contingent on the results of this report, the assessment, or a record of decision issued by the Government. No ECC member or employee is or intends to be a director, officer, or any other direct employee of Jindal. No member or employee of ECC has or has had, any shareholding in Jindal.

All compliance and regulatory requirements regarding this report should be forwarded by email or posted to the following address:

Environmental Compliance Consultancy
PO Box 91193, Klein Windhoek, Namibia
Tel: +264 81 669 7608
Email: info@eccenvironmental.com

1.5 Environmental requirements

The Environmental Management Act, 2007, and its regulations stipulate that an environmental clearance certificate is required before undertaking any of the listed activities that are identified in the Act and its regulations. Potential listed activities triggered by the Project are provided in Table 2.

Table 2 – Activities potentially triggered by the Jindal Iron Ore Project

Source: Environmental Management Act, 2007, and its regulations

Listed activity as defined by the regulations of the Act	Relevance to the project
Energy generation, transmission, and storage activities The construction of facilities for: (1a) The generation of electricity. (1b) The transmission and supply of electricity.	– The mine will connect to the NamPower grid. – There is a possibility that a solar power station will be constructed for the generation of electricity. – The electricity that is generated will be used to supply electricity to the mine and the potential surplus redirected into the grid power system
Waste management, treatment, handling and disposal activities (2.1) The construction of facilities for waste sites, and the treatment and disposal of waste. (2.2) Any activity entailing a scheduled process referred to in the Atmospheric Pollution Prevention Ordinance Act, 1976. (2.3) The importing, processing, use and recycling, temporary storage, transit, or exporting, of waste.	– The proposed mining operations and process plant triggers this activity, as both fuel and hazardous substances are required for mining and processing activities. – A lined tailings storage facility will be constructed. – Licences will be obtained for all hazardous substances that will need to be stored on the site. – Additionally, there will be a laboratory on site that may generate hazardous waste.
Mining and quarrying activities (3.1) The construction of facilities for any process or activities that require a licence, right or other form of authorisation, and the renewal of a licence, right or other form of authorisation, in terms of the Minerals (Prospecting and Mining) Act, 1992. (3.2) Other forms of mining or extraction of any natural resources, whether regulated by law or not. (3.3) Resource extraction, manipulation, conservation, and related activities.	– This listed activity infers the provisions of the Minerals (Prospecting and Mining) Act 33 of 1992. The very nature of the Project is mining, which therefore triggers this listed activity. – The mine infrastructure will include mine (pits), dump facility, stockyard, mining office, workshop, admin building, health & safety wing, laboratory, canteen, process plant, conveyor line, filter press yard, concentrate yard, and dispatch line.

Listed activity as defined by the regulations of the Act	Relevance to the project
Forestry activities (4.) The clearance of forest areas, deforestation, afforestation, timber harvesting, or any other related activity that requires authorisation in terms of the Forest Act, 2001 (No. 12 of 2001) or any other law.	– Vegetation clearing will be required for site construction and infrastructure establishment. – During operations, vegetation clearing will be required as the Project develops. The necessary permits will be acquired as needed. – Clearing activities will need to align to the requirements of the Forestry Act, No. 12 of 2001 and Forest Amendment Act, No. 13 of 2005
Water resource developments (8.1) The abstraction of ground or surface water for industrial or commercial purposes. (8.2) The abstraction of groundwater at a volume exceeding the threshold authorised in terms of the law relating to water resources. (8.4) Construction of canals and channels, including the diversion of the normal flow of water in a riverbed, and water transfer schemes between water catchments and impoundments. (8.5) Construction of dams, reservoirs, levees, and weirs. (8.6) Construction of industrial and domestic wastewater treatment plants and related pipeline systems. (8.8) Construction and other activities in watercourses within flood lines. (8.9) Construction and other activities within a catchment area.	– This Project falls within a water-controlled area. – Ground and surface water may be abstracted or sourced for the operation. – Groundwater may be abstracted to support the operational activities through identified abstraction boreholes, with an approved abstraction permit, from the Department of Water Affairs, as required by the Water Resources Management Act of 2013 and Water Resource Management Regulations of 2023. – Potential Diversion of the Olifants River as this river runs through the planned area for their open pits. – Process water ponds will be constructed to provide water for the process plant. – A pollution control dam (PCD) will be constructed to catch and contain dirty water on site, this is in the processing plant. – Pipeline systems will be used to transport water or slurry within the site. – Use of wastewater from the Ujams wastewater treatment plant. – The processing plant will require approximately 1.3 to 1.5 Mm^3/annum of water

Listed activity as defined by the regulations of the Act	Relevance to the project
Hazardous substance treatment, handling, and storage (9.1) The manufacturing, storage, handling, or processing of hazardous substances defined in the Hazardous Substances Ordinance, 1974. (9.2) Any process or activity that requires a permit, licence, or other form of authorisation, or the modification of, or changes to, existing facilities for any process or activity that requires amendment of an existing permit, licence or authorisation, or which requires a new permit, licence or authorisation in terms of governing the generation or release of emissions, pollution, effluent, or waste. (9.4) The storage and handling of dangerous goods, including petrol, diesel, liquid petroleum, gas, or paraffin, in containers with a combined capacity of more than 30 cubic meters at one location. (9.5) Construction of filling stations or any other facility for the underground and above-ground storage of dangerous goods, including petrol, diesel, liquid, petroleum, gas, or paraffin.	– The proposed mining operations and process plant trigger this activity, as both fuel and hazardous substances are required for mining and processing activities. – Bulk fuel will be stored onsite for refuelling the mining fleet of approximately 30,000-50,000 L/Day in the first year of operation. – Consumer installation certificates are required for bulk fuel storage and dispensing. – Licences will be obtained for all hazardous substances that will need to be stored on the site. – An onsite metallurgical laboratory will be required for site operations and small quantities of various lab chemicals will be used and stored on site.
Infrastructure 10.1 The construction of: (b) public roads. (j) masts of any material or type, and of any height, including those used for telecommunication broadcasting and radio transmission.	– Towers for communication will need to be constructed, thus cables and telecommunication lines will be put in place. – Powerlines and telemetry for operational requirements, water and tailings slurry pumping will be required. – Possible Diversion of the M51.

2 APPROACH TO THE ASSESSMENT

2.1 PURPOSE AND SCOPE OF THE ASSESSMENT

This assessment aims to determine which impacts are likely to be significant; to scope the available data and identify any gaps that need to be filled; to determine the spatial and temporal scope; and to identify the assessment methodology.

2.2 THE ASSESSMENT PROCESS

The ESIA methodology applied to this assessment is compliant with the Namibia's EMA 2007. The ESIA methodology has been developed using the International Finance Corporation (IFC) standards and models, in particular, Performance Standard 1: 'Assessment and management of environmental and social risks and impacts' (International Finance Corporation, 2012 and 2017) as a guideline, as well as Namibian Draft Procedures and Guidance for EIA and EMP (Republic of Namibia, 2008); international and national best practice guidelines; and ECC's combined relevant ESIA experience.

Furthermore, this assessment was undertaken for the Proponent in accordance with Namibian legal requirements.

This assessment is a formal process whereby the potential effects that the Project may have on the biophysical, social, and economic environments are identified, assessed, and reported so that the significance of potential impacts can be considered when considering a record of decision for the proposed Project.

Final mitigation measures and recommendations are based on the cumulative experience of the consulting team and the client, considering the potential environmental and social impacts. The process followed, through the assessment, is illustrated in Figure 4, and is detailed further in the following sections.

1. Project screening

Complete

The first stage in the ESIA process is to undertake a screening exercise to determine whether the Project triggers listed activities under the Environmental Management Act, 2007, and its regulations. The screening phase of the Project is a preliminary analysis, to determine ways in which the Project might interact with the biophysical, social, and economic environments.

Stakeholder engagement:
- Registration of the project
- Preparation of the BID

2. Establishing the assessment scope

Complete

Where an ESIA is required, the second stage is to scope the assessment. The main aim of this stage is to determine which impacts are likely to be significant; to scope the available data and any gaps that need to be filled; to determine the spatial and temporal scope; and to identify the assessment methodology.

The scope of this assessment was determined through undertaking a preliminary assessment of the proposed Project against the receiving environment. Feedback from consultation with the public and the Proponent informs this process. The following environmental and social topics were scoped into the assessment, as there was the potential for significant impacts to occur. Impacts that are identified as potentially significant during the screening and scoping phase are taken forward for further assessment in the ESIA process. These are:

SOCIOECONOMIC ENVIRONMENT
- Employment
- Local businesses
- Visual impacts on sense of place
- Road traffic
- Heritage and culture

BIOPHYSICAL ENVIRONMENT
- Noise and air quality, including dust emissions
- Surface and groundwater
- Biodiversity
- Climate change
- Soils and
- Mine waste characterisation

The following topics were scoped out of the ESIA, and they are therefore not discussed further in this report.

An assessment of safety impacts or risks associated with developing the mine is not included within the scope of this assessment and will be addressed by the Proponent in a site-specific safety management plan.

3. Baseline studies

In Progress

A robust baseline is required, to provide a reference point against which any future changes associated with a Project can be assessed, and to allow suitable mitigation and monitoring to be identified.

The region and general area have been studied for various projects and assessments. This literature was available to be referenced. The Project site-specific area has been studied as part of the ESIA process, and the following has been conducted as part of this assessment:
- Field surveys
- Desktop studies
- Consultation with stakeholders
- Specialist field visits and ongoing studies

The environmental and social baselines are provided in this scoping study.

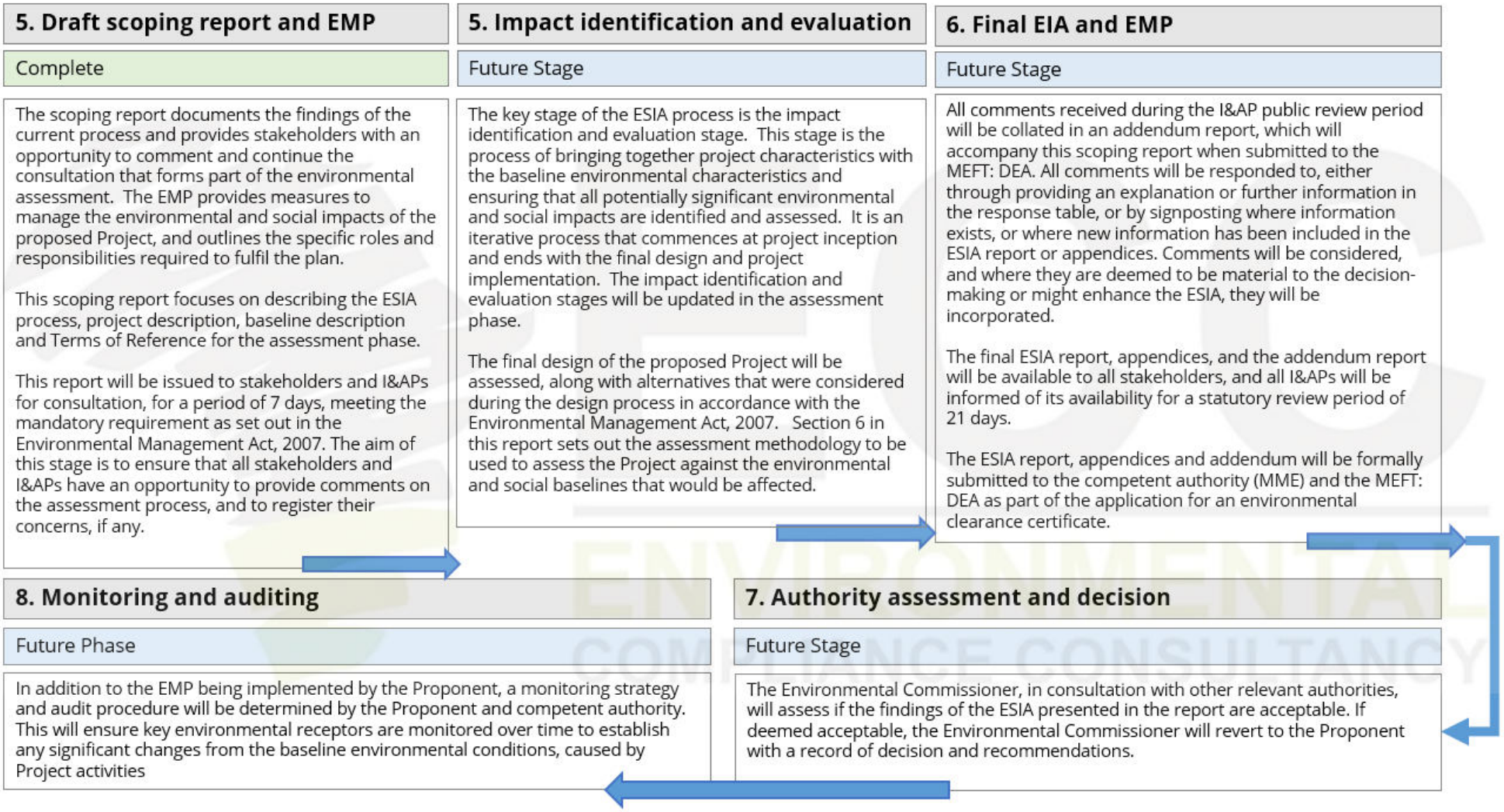


Figure 4 - ESIA Process Flowchart.

2.3 STUDY AREA

This ESIA study area has been defined according to the geographic scope of the receiving environment and potential impacts that could arise because of the proposed Project within that area. The receiving environment is a summary term for the biophysical and socioeconomic environment described in the baseline chapter. The study area extends beyond the mining licence boundary and includes the nearby receptors such as neighbouring lodges and the Hosea Kutako International Airport shown in Figure 5.

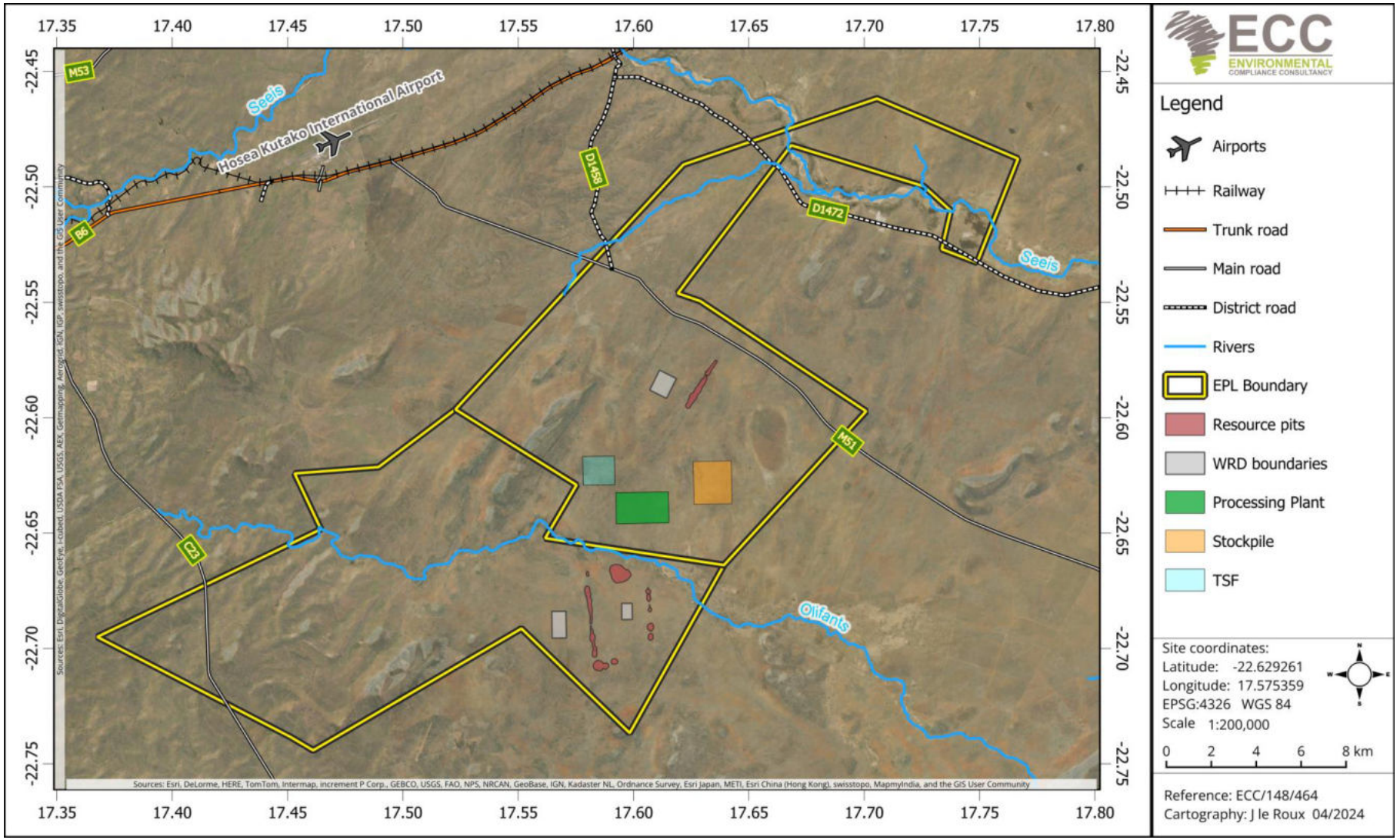


Figure 5 – Study Area.

2.4 PUBLIC CONSULTATION

Public participation and consultation are a requirement stipulated in Section 21 of the Environmental Impact Assessment Regulations (Regulations 21 and 23) of the EMA, 2007, for a project undertaking a listed activity and requires an environmental clearance certificate.

Consultation is a compulsory and critical component of the ESIA process for achieving transparent decision-making and can provide many benefits. Consultation is ongoing during the ESIA process. The objectives of the public participation and consultation process are to:

- Provide information on the Project and introduce the overall Project concept and plan in the form of a background information document (BID) (Appendix B).
- Determine the relevant government, regional and local regulating authorities.
- Listen to, understand community issues, and record concerns and questions.
- Explain the process of the ESIA and the timeframes involved and establish a platform for ongoing consultation.

Public consultation for the Project commenced on the 2nd of April 2024 when the Project was advertised in nationally distributed newspapers and the public was invited to register as interested and affected parties (I&APs).

Adverts for a public consultation meeting that was held in Windhoek on 16 April 2024 at 18:00 at the Namibia Scientific Society, were placed in nationally distributed newspapers and the notification of the assessment in terms of Regulation 21 of the Act was placed in the following newspapers on the 2nd of April 2024 and 10th of April 2024 in the following newspapers:

- The Republikein.
- The Namibian Sun; and
- Allgemeine Zeitung.

2.4.1 IDENTIFICATION OF KEY STAKEHOLDERS AND INTERESTED AND AFFECTED PARTIES

A stakeholder mapping exercise was undertaken to identify individuals or groups of stakeholders and the method in which they will be engaged during the ESIA process as shown in Figure 6.

Stakeholders were approached through direct communication (letters and phone calls), the national press, site notices, or directly by email. A summarized list of stakeholders that were engaged during the public consultation process is given below:

- Directly and indirectly, affected landholders.
- The public with an interest in the Project
- Ministry of Environment, Forestry and Tourism (MEFT)
- Ministry of Agriculture, Water and Land Reform (MAWLR)

- Ministry of Mines and Energy (MME)
- National Heritage Council (NHC)
- Ministry of Works and Transport (MWT)
- Khomas Regional Council
- City of Windhoek
- Roads Authority
- Namibia Airports Company (NAC) and Hosea Kutako International Airport (HKIA)
- Namibia Civil Aviation Authority (NCAA)
- Namibia Water Corporation Limited (NamWater)
- Namibia Power Corporation (Pty) Ltd (NamPower)
- Namibia Environmental and Wildlife Society (NEWS)
- Cellular network providers
- 3 Krone Nature Village
- COMSAR Properties (Pty) Ltd
- Etango Ranch
- Farm Binnenhain
- Farm Bismark-Grasland
- Farm Brack
- Farm Brack 438
- Farm Helga
- Farm Hoenau
- Farm Koanus
- Farm Neu Brack
- Farm Sonnleiten
- Gmunder Lodge
- Heja Lodge
- Hohewarte Guest Farm
- Marula Game Ranch
- Okabis Hunting
- Ondekarenmba – One Namibia
- Our Habitas Namibia Lodge
- Perivoli Rangeland Institute
- Progress Guest Farm
- Voigtland Guestfarm
- Zannier Hotels Omaanda

Appendix B provides a list of interested and affected parties, evidence of consultation, including notices of advertisements in national newspapers, minutes of public meetings, and a summary of the comments or questions raised by the public. A summary of the key concerns raised during the consultation process is provided in section 2.4.2.

The records of the public consultation process in the form of a summary report are provided in Appendix B and provides a list of interested and affected parties (I&APs'), evidence of consultation, including notes of public meetings, advertisements in national newspapers, and a summary of the comments or questions raised by the public.

The draft scoping report was submitted to the competent authority, and all interested and affected parties for their review. The public review period was open for 14 days from the 21st of June 2024 to the 5th of July 2024. A set of comments were received from the I&APs during the two-week public review period. These comments have been consolidated into a comments and responses addendum report, as Appendix C.

The final scoping report was submitted on the 12th of July 2024 to the competent authority - the Ministry of Mines and Energy (MME) and the Environmental Commissioner (EC) at the Ministry of Environment, Forestry and Tourism (MEFT) for a record of decision. The final scoping report was also submitted to registered I&APs for their comments.

Upon receiving feedback from the I&APs, the draft scoping report was revised and was reissued for another round of public review for 7 days from the 13th of August 2024 – the 20th of August 2024. Following this public review period, additional comments received have been incorporated into the revised addendum report to the revised draft scoping report. The revised final scoping report (this report) will be re-submitted to the competent authority – MME and the EC at MEFT for a record of decision.

2.4.2 SUMMARY OF ISSUES RAISED

Matters raised by registered I&APs in relevant stakeholder consultations and the public consultation meeting held in Windhoek on 16 April 2024 at 18:00 in the Namibia Scientific Society are considered typical for the nature, location and scale of the project, and these are summarised as follows:

- The importance of specialist studies to be conducted, specifically regarding impacts to noise, air quality, visual, hydrology, flora and fauna, and blast and vibration.
- The impacts of mining operations and mine expansion based on future potential exploration to neighbouring farms and residential properties such as the Drie Krone Nature Village.
- Concerns regarding water provisions for the mine operations and on-site residential facilities.

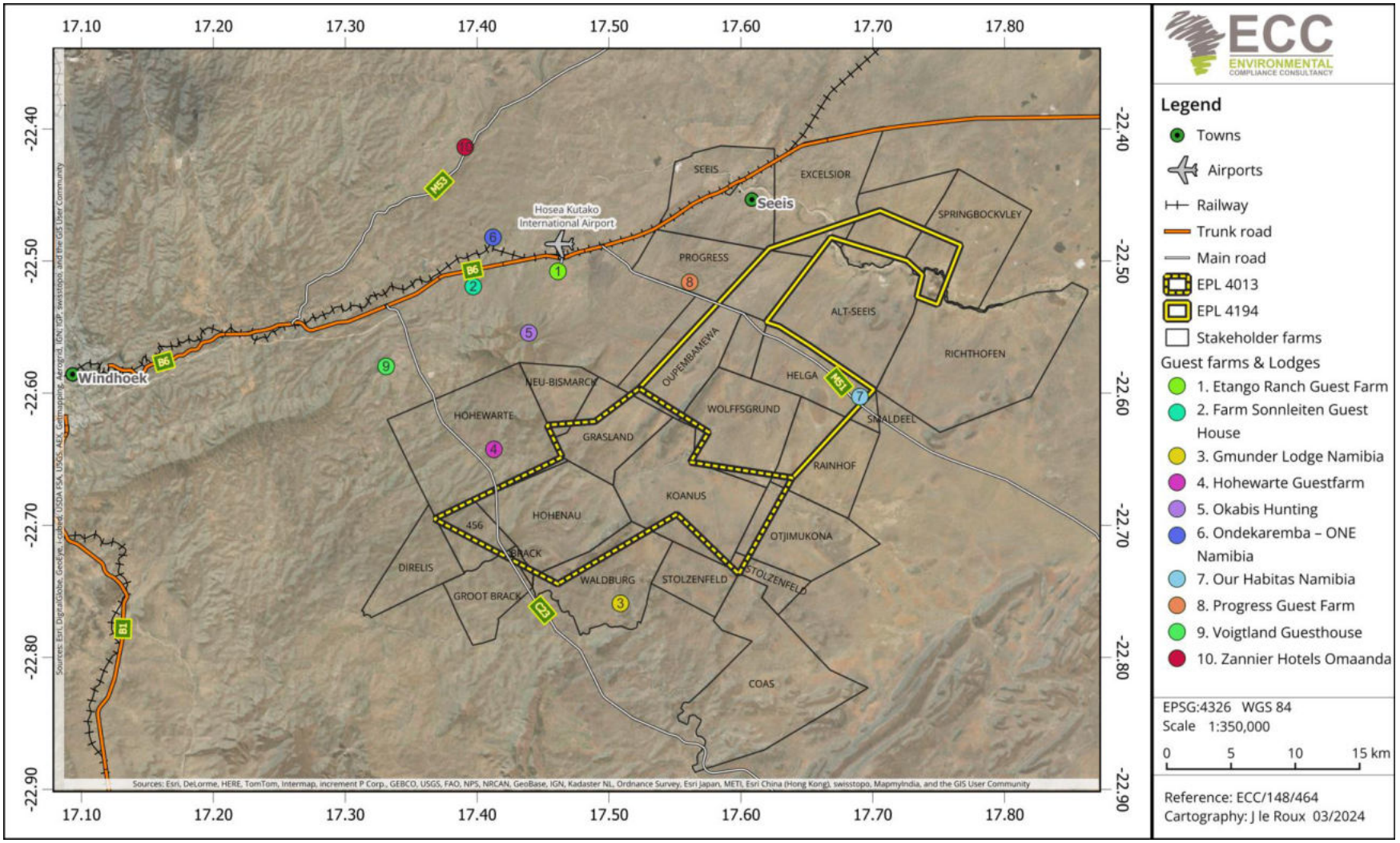


Figure 6 - Stakeholder map.

3 REVIEW OF THE LEGAL ENVIRONMENT

3.1 RELEVANT NATIONAL LEGISLATION

This chapter outlines the regulatory framework applicable to the proposed Project. As stated in Section 1, an environmental clearance is required for any activity listed in Government Notice No. 29 of 2012 of the EMA. The Proponent holds several current and valid environmental clearance certificates for the exploration phase of the Project.

The Project area is located within two conservancies and a reserve, while also being part of a groundwater-controlled area, as regulated under the Water Management Act of 1956.

A thorough review of relevant legislation has been conducted for the proposed Project. Table 3 below identifies relevant legal requirements specific to the Project. Table 4 provides the national policies and plan and Table 5 lists specific permits for the Project.

3.2 National Regulatory Framework

Table 3 - Details of the regulatory framework as it applied to the Jindal Iron Ore Project.

National Regulatory Framework	Summary	Applicability to the Project
Constitution of the Republic of Namibia (1990)	The constitution defines the country's position in relation to sustainable development and environmental management. The constitution states that the state shall actively promote and maintain the welfare of the people by adopting policies aimed at the following: "Maintenance of ecosystems, essential ecological processes and biological diversity of Namibia, and the utilisation of living, natural resources on a sustainable basis for the benefit of all Namibians, both present and future."	The Proponent is committed to the sustainable use of the environment and has aligned its corporate mission, vision, and objectives with the ambit of the Constitution of the Republic of Namibia (1990).
Minerals (Prospecting and Mining) Act No. 33 of 1992	The Act provides for the granting of various licences related to mining and exploration. Section 50 (i) requires: "An environmental impact assessment indicating the extent of any pollution of the environment before any prospecting operations or mining operations are being carried out, and an estimate of any pollution, if any, likely to be caused by such prospecting operations or mining operations."	The proposed mining activity requires an EIA to be carried out, as it triggers listed activities in the Environmental Management Act's regulations. Mining activities shall not commence until all conditions in the Act are met, which includes an agreement with the conservancy committees and conditions of compensation, if applicable. The Project shall be compliant with Section 76 of the Act regarding records, maps, plans and

National Regulatory Framework	Summary	Applicability to the Project
	The Act sets out the requirements associated with licence terms and conditions, such that the holder of a mineral licence shall comply with. The Act also contains relevant provisions for pollution control related to mining activities and land access agreements and provides provisions that mineral licence holders are liable for any damage to land, water, plant, or animal life, caused by spilling or pollution, and must take all such steps as may be necessary to remedy such spilling, pollution, loss, or damage, at its own costs.	financial statements, information, reports, and returns submitted.
Environmental Management Act, No.7 of 2007 and the Environmental Management Act Regulations (2012) including the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2011)	The Act aims to promote sustainable management of the environment and use of natural resources. The Act requires certain activities to obtain an environmental clearance certificate prior to Project development. The Act states that an EIA should be undertaken and submitted as part of the environmental clearance certificate application process. The MEFT is responsible for the protection and management of Namibia's natural environment. The Department of Environmental Affairs, under the MEFT, is responsible for the administration of the EIA process.	This environmental scoping report documents the findings of the scoping phase of the environmental assessment undertaken for the proposed Project. The process has been undertaken in line with the requirements under the Act and its regulations. Mining activities shall not commence until an Environmental Clearance Certificate has been issued in accordance with the provisions of the Environmental Management Act 2007.

National Regulatory Framework	Summary	Applicability to the Project
Water Resource Management Act, 2013 and the Water Resource Management Regulations, 2023	The Water Resources Management Act (No. 11 of 2013) has been billed and was promulgated in August of 2023. The regulations were also passed in August of 2023. This Act provides for the control, conservation and use of water for domestic, agricultural, urban, and industrial purposes; and to make provision for the control of certain activities on or in water. The Department of Water Affairs, within the Ministry of Agriculture, Water and Land Reform (MAWLR), is responsible for the administration of the Act.	The Act stipulates obligations to prevent the pollution of water and measures to minimise potential surface and groundwater pollution are contained in the EMP. Since the promulgation of the new act and regulations, the entire Namibia is now considered a water-controlled area. Therefore, the Project is obliged to have all permits relevant to its operations under this Act. Furthermore, any abstraction of water from boreholes requires an abstraction permit to be obtained from the Ministry of Agriculture, Water and Land Reform.
Soil Conservation Act, No. 76 of 1969	This Act makes provision for the prevention and control of soil erosion and for the protection, improvement, and conservation of soil and vegetation.	Land clearing is an unavoidable necessity for the proposed Project, as large areas will be cleared for mining infrastructure. Measures will be included in the EMP to conserve soil and vegetation that will be used as part of the rehabilitation phase of the Project.
The Forestry Act, No. 12 of 2001 as amended by the Forest Amendment Act, No. 13 of 2005	Section 22 deals with the protection of natural vegetation that is not part of the surveyed erven of a local authority area as defined.	The Project activities will require vegetation clearing.

National Regulatory Framework	Summary	Applicability to the Project
	Section 21 states that no person shall cut, destroy, or remove vegetation that is growing within 100 metres of a river, stream, or watercourse. Section 23 requires a permit from the Director for the clearance of vegetation on more than 15ha on any piece of land or several pieces of land situated in the same locality as that which has predominantly woody vegetation; or cut or remove more than 500 cubic metres of forest produce from any piece of land in a period of one year.	The Proponent will ensure that all required permits are in place before vegetation removal commences.
National Heritage Act, No. 27 of 2004.	The Act provides provision for the protection and conservation of places and objects with heritage significance. Section 55 compels mining companies to report any archaeological findings to the National Heritage Council. Subsection 9 allows the NHC to issue a consent, subject to any conditions that the Council deems necessary.	There is the potential for heritage-related objects to be found in the mining licence area. Therefore, the relevant stipulations in the Act will be taken into consideration and incorporated into the EMP. The 'chance find procedure' will be used when heritage sites are discovered.
Labour Act, No. 11 of 2007	The Labour Act, No. 11 of 2007 (Regulations relating to the Occupational Health & Safety provisions of Employees at Work, promulgated in terms of Section	The Project shall adhere to all labour provisions and guidelines, as enshrined in the Labour Act. The Project shall also develop and implement a comprehensive occupational health and safety

National Regulatory Framework	Summary	Applicability to the Project
	101 of the Labour Act, No. 6 of 1992 - GN156, GG 1617 of 1 August 1997)	plan to ensure adequate protection for its personnel throughout the Project lifecycle.
Road Traffic and Transport Act, No. 22 of 1999	This Act makes provision for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, and the control and regulation of road transport users across Namibia.	The Project will involve transportation activities in support of mining activities. The employees and support business shall adhere to national road regulations on public roads. The Proponent will ensure that the diversion of the M51 road will be conducted in compliance with the Act.
Hazardous Substances Ordinance, No. 14 of 1974	This Ordinance provides for the control of toxic substances and can be applied in conjunction with the Atmospheric Pollution Prevention Ordinance, No. 11 of 1976. This applies to the manufacture, sale, use, disposal, and dumping of hazardous substances, as well as their import and export.	The planned Project will involve the handling and storage of hazardous substances such as fuels, reagents, and industrial chemicals. The Proponent shall ensure safe handling, transfer, storage, and disposal protocols are developed, implemented, and audited throughout its operations. The Proponent is obliged to ensure that all permits under this Ordinance are obtained prior to Project commencement.
Civil Aviation Act, No. 6 of 2016	Section 55 of the regulations relates to safety and security protocols near aerodromes.	The Project is in proximity to Hosea Kutako International Airport (HKIA), and as such, the Proponent will ensure that all regulations

National Regulatory Framework	Summary	Applicability to the Project
		regarding safety and security near aerodromes are complied with.
The Atmospheric Pollution Prevention Ordinance, No. 11 of 1976	The Ordinance pertains to the prevention of air pollution, with a particular focus on public health, and contains detailed provisions on air pollution matters, including the control of noxious or offensive gases, atmospheric pollution by smoke, dust control, motor vehicle emissions, and other general provisions.	The nature of mining activities generates dust. Activities within the mining operations and processing plant will generate gases, odours, and air pollution. The Proponent will ensure that all measures reasonably practicable will be implemented to reduce and mitigate impacts on air quality, and this will be included in the EMP.

3.3 National Policies and Plans

Table 4 - Namibian national policies and plans applicable to the Jindal Iron Ore Mine Project.

Policy or plan	Description	Relevance to the Project
Vision 2030	Vision 2030 sets out the nation's development targets and strategies to achieve its national objectives. Vision 2030 states that the overall goal is to improve the quality of life of the Namibian people aligned with the developed world.	The proposed Project shall aim to meet the objectives of Vision 2030 and shall contribute to the overall development of the country through continued employment opportunities and ongoing contributions to the gross domestic product (GDP).

Policy or plan	Description	Relevance to the Project
Fifth National Development Plan (NDP5)	The NDP5 is the fifth in a series of seven five-year national development plans that outline the objectives and aspiration of Namibia's long-term vision. The NDP5 pillars are economic progression, social transformation, environmental sustainability, and good governance.	The planned Project supports meeting the objectives of the NDP5 through creating opportunities for continued employment.
The Harambee Prosperity Plan ii (2021 – 2025)	Second Pillar: Economic advancement – ensuring increasing productivity of priority key sectors (including mining) and the development of additional engines of growth, such as new employment opportunities.	The Project will contribute to the continued advancement of the mining industry and create an additional employment generation engine within the regional and national landscape.
Minerals Policy	The Minerals Policy was adopted in 2002 and sets guiding principles and direction for the development of the Namibian mining sector, while communicating the values of the Namibian people. The policy strives to create an enabling environment for local and foreign investments in the mining sector and seeks to maximise the benefits for the Namibian people from the mining sector while encouraging local participation. The objectives of the Minerals Policy are in line with the objectives of the Fifth National Development Plan which includes the reduction of poverty, employment creation, and economic empowerment in Namibia.	The planned Project conforms to the Policy, which has been considered through the ESIA process and the production of this report. The Proponent intends to continue to support local spending and procurement. The Project will comply with the general guidelines of the Policy through the adoption of various legal mechanisms to manage all aspects of the environment effectively and sustainably from the start. The ESIA is one such mechanism to ensure

Policy or plan	Description	Relevance to the Project
		environmental integrity throughout the planned Project's lifecycle.

Table 5 - Specific permits and licence requirements for the Project.

Permit or licence	Act / Regulation	Related activities requiring permits	Relevant Authority
Environmental clearance certificate	Environmental Management Act, No. 7 of 2007	Required for all listed activities shown in Table 2. Requires issuance of Environmental Clearance Certificate by the Environmental Commissioner.	Ministry of Environment, Forestry and Tourism (MEFT)
Mining licence	Section 90 (2) (A) of the Minerals Act, No. 33 of 1992	Written permission from the mining commissioner.	Ministry of Mines and Energy (MME)
Surface rights agreements (mine, infrastructure corridors)	Section 52(1)(A) of the Minerals Act, No. 33 of 1992	Included in the mining licence application.	Ministry of Mines and Energy (MME)
Permission to abstract water	A permit is issued under the Water Act, No. 54 Of 1956 (enforced)	Required to meet water requirements for mining and processing.	Ministry of Agriculture, Water and Land Reform (MAWLR)
Tailings waste disposal permit	A permit is issued under the Water Act, No. 54 of 1956 (enforced)	Required for the disposal of tailings.	Ministry of Agriculture, Water and Land Reform (MAWLR)
Wastewater discharge permit	A permit is issued under the Water Act, No. 54 Of 1956 (enforced) but form types that fall under the Water Act, No. 24 of 2004 are used.	Required for discharge of sewage and/or excess industrial or mine wastewater.	Ministry of Agriculture, Water and Land Reform (MAWLR)
Permit for the clearing of land	The Forest Act, 2001 (Act No. 12 of 2001)	This Act governs the removal of vegetation within 100 m of a water course, or removal of more than 15ha	Ministry of Agriculture, Water and Land Reform (MAWLR)

Permit or licence	Act / Regulation	Related activities requiring permits	Relevant Authority
		of woody vegetation, or the removal of any protected plant species.	
Permit for the destruction of heritage objects and artefacts	The Heritage Act, No. 27 of 2004.	This Act relates to interference with heritage artefacts during the Project life. Heritage sites could potentially be located within the proposed mining licence footprint, or along proposed pipeline or powerline routes.	National Heritage Council (NHC)
Application for power connection	Electricity Act 4 of 2007	The mine will require power to be supplied to them by NamPower.	Namibian Power Corporation (NamPower)
Consumer installation certificate for bulk fuel storage	Petroleum Products Regulations	A consumer installation certificate is required for bulk fuel storage and dispensing.	Ministry of Mines and Energy (MME)
Licence for explosives magazine	Minerals (Prospecting and Mining) Act, No. 33 of 1992; Mine Safety Regulations	This is also covered under the accessory works application.	Ministry of Mines and Energy (MME)
Permit for the storage and use of explosives, and the burning of packaging	Minerals (Prospecting and Mining) Act, No. 33 of 1992; Mine Safety Regulations	Necessary for explosives and blasting.	Ministry of Mines and Energy (MME)
Permit to carry out land use activities in the vicinity of aerodromes which are likely to impact the operational safety of the aerodrome	Namibia Civil Aviation Regulation & Namibia Civil Aviation Technical Standard (NAMCAR & NAMCATS-AH 139.01.34)	Required for all listed activities shown in Table 2.	Namibia Civil Aviation Authority (NCAA)

Permit or licence	Act / Regulation	Related activities requiring permits	Relevant Authority
Permit relating to obstacle restriction and removal	Namibia Civil Aviation Regulation & Namibia Civil Aviation Technical Standard (NAMCAR & NAMCATS-AH 139.11)	Required for all listed activities shown in Table 2.	Namibia Civil Aviation Authority (NCAA)
Permit relating to visual aids for donating obstacles	Namibia Civil Aviation Regulation & Namibia Civil Aviation Technical Standard (NAMCAR & NAMCATS-AH 139.13)	Required for all listed activities shown in Table 2.	Namibia Civil Aviation Authority (NCAA)

4 PROJECT DESCRIPTION

4.1 NEED FOR THE PROJECT

New mining activities could contribute to the national and local economies and may have a positive impact on the country's economy. Namibia's economy depends largely on mining. Should the Jindal Iron Ore Project prove economically viable, the Namibian economy can expect benefits from revenues during the construction phase, royalties and taxes during the life of mine (LoM), and a positive contribution towards employment. Based on current mine plans, between 100 and 300 people will be employed during construction, and approximately 600 for the operational phase, providing jobs and livelihoods for them, and their families, for a period of about 25 years.

4.2 EMPLOYMENT

The labour requirement for the proposed project is expected to be approximately 100 (first phase) to 300 people during the construction phase, and approximately 6300 during the operational phase. Most employees will be sourced locally with potentially a few expatriates with specific expertise as required. Some potential skilled employment opportunities for the project will include a civil-structural engineer, a specialist in high wall mining, an engineer specializing in drill & blast, a quality control engineer, a chemist with XRF operation for ROM & concentrate analysis, senior geologist overseeing QAQC, a process engineer, plant operations manager, instrumentation engineer, and project manager. A detailed labour plan covering all operation components will be developed as the project evolves. The labour complement for the mining component at this stage comprises the following:

- Management team
- Mine technical service team
- Mine support services team
- Production crew – drill and blast
- Production crew – load and haul
- Mine maintenance crew

4.3 GEOLOGY AND MINERALISATION

The local geology of the area is characterised by two geological settings of which the Hakos Group is most dominant, followed by a small section of the Rehoboth Group and associated rocks in the southwestern part of EPL 4013 as shown in Figure 7.

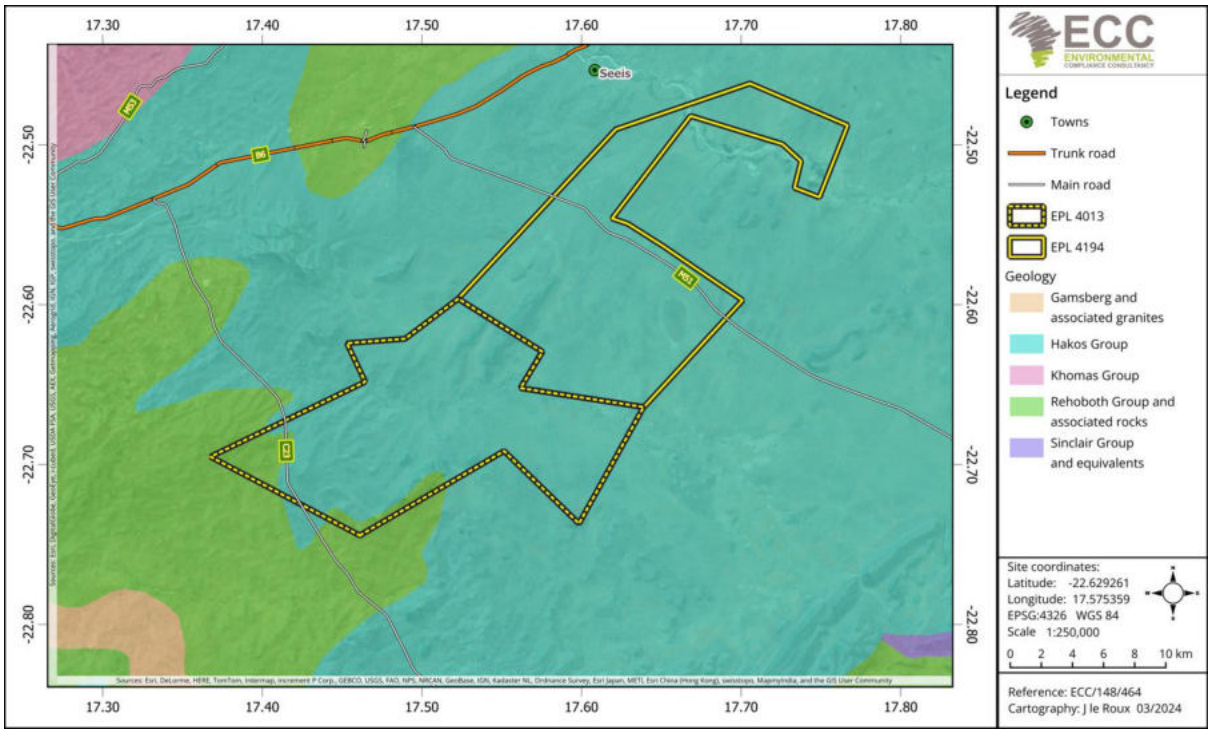


Figure 7 - Geological map of the proposed Project area in and around EPLs 4013 and 4194.

4.4 SITE LAYOUT

The proposed project will include the following mining and site infrastructure: mine (pits), OB dump facility, stockyard, mining office, workshop, admin building, health & safety wing, exploration, store, laboratory, canteen, processing plant, conveyor line, tailing pond, filter press yard, concentrate yard, and a dispatch line.

An optimal site layout has been developed based on designing the site around critical landform features such as topography and sensitive areas, while considering the efficiency required for the mining operation shown in Figure 5.

The assessment will be conducted per the indicative plans received from the proponent. After completing the assessment, some aspects of the proponent's plans may need to change to comply with the stated recommended mitigations.

Potential waste rock dump (WRD) locations are likely to be placed in the footwall and hanging wall of both pits, providing a flexible waste rock dumping strategy through the course of the mine life.

The tailings storage facility (TSF) will comprise a downstream-type facility, constructed from the waste rock excavated from the open pit. It is envisaged that the tailings facility will accommodate filtered tailings inside the waste rock embankments, with the transportation of tailings undertaken by either haulage or conveyors.

The initial stage of mining will primarily involve open pits and infrastructure development in the eastern section of EPL 4013 and the central to eastern area of EPL 4194, as illustrated in Figure 5.

4.5 MINING INFRASTRUCTURE AND SERVICES

4.5.1 OREBODY

The initial mining pit locations will be determined by economic and technical factors, including strip ratio, iron grade, magnetic susceptibility, hauling distance, accessibility, road construction feasibility, operational viability, and pit design. Two sites, Farm Helga and Farm Koanus, have been selected based on favourable conditions. This approach offers benefits such as enabling multiple mining faces, flexibility in scheduling and vehicle usage, ore blending for metallurgical efficiency, and production relief during adverse weather and road conditions. At this stage, it is assumed that the whole mining operation, except for the mine technical services function, will be outsourced to a reputable mining contractor company.

The degree of stability for slopes in an open pit mine is critically important to minimise the risks related to the safety of operating personnel and equipment, as well as the economic risk to the resource. Ore recovery must be maximised, and waste stripping kept to a minimum throughout the productive life of the operation. The resulting compromise is typically a balance between formulating designs that can be safely and practically implemented in the operating environment and establishing slope angles that are as steep as possible and consistent with the ore body geometry and rock conditions.

4.5.2 MINING METHOD AND EQUIPMENT

The regional aeromagnetic and detailed high-resolution ground magnetic survey indicates the presence of a magnetic zone within the licenced area. Further investigation via diamond drilling confirmed the presence of magnetite mineralisation, forming shallow ore lenses. Consequently, an extensive exploration program was initiated, yielding promising outcomes.

Utilizing available exploration data, a geo-model was constructed, revealing an estimated indicated/inferred resource of approximately 750 million metric tons (MT), predominantly accessible through open-pit mining with a low strip ratio. Initial plans entail the development of a mining operation with a capacity of around 7.0 million metric tons per annum (Mtpa) from an open pit, inclusive of in-pit crushing and conveyor transportation to the beneficiation plant.

Metallurgical testing indicated that magnetite liberation levels of 60 %-70 % can be achieved at P80 – 38 µm, with optimal recovery at a mass yield of 27 %. The resulting three-stage Low-Intensity Magnetic Separation (LIMS) concentrate meets blast furnace specifications, boasting grades of up to 70 % Fe with <1.5 % silica and minimal alumina content. Run-of-Mine (ROM) ore will undergo on-site beneficiation, initially crushed to <3.0 mm and further milling to P80

@ -38µm. Subsequently, the milled ore will pass through rotating low-intensity drum magnets (Wet LIMS) to produce a fine concentrate targeting 2 Mtpa.

Transportation of the iron ore concentrate to Walvis Bay will be facilitated via railway networks, where it will undergo either pelletisation or direct export to the international market.

The study involved specialists in geology, mining, mineral processing, metallurgy, and independent domain experts. Ongoing specialized studies include mineral characterization, geotechnical assessments for mining, and environmental impact assessments.

The overall scale of mining envisaged for the Project is a medium to large-sized mine. Waste and ore mining operations will utilise medium-sized backhoe excavators combined with a fleet of rigid dump trucks.

The conceptual process flow diagram is shown below in Figure 8.

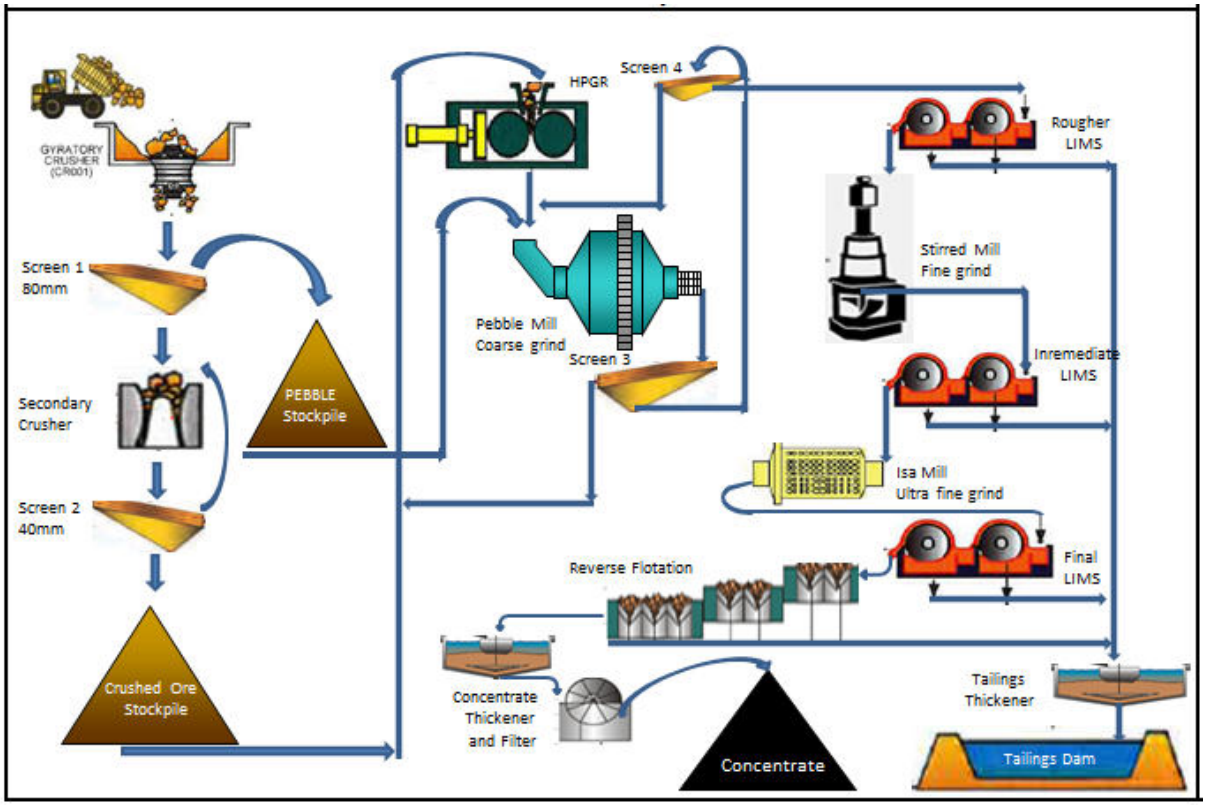


Figure 8 - Conceptual process flow diagram.

The initial management team will include a globally experienced contingent, to ensure that operation start-up is safe and efficient, and that ramp-up targets are met. An approved localisation plan will be established to train and equip the local workforce sufficiently, to enable and ensure a seamless transition of responsibilities over time. The bulk of the equipment operators are expected to be semi-skilled and will require training. The start-up strategy for mining operations takes account of this requirement.

The mine will operate 330 days per annum (allowing for lost days for public holidays and weather delays) on a 24-hour basis with three shifts rotating on an 8-hour duration.

4.5.2.1 Blast operations.

Blasting will be a core component of the mining operation. Blasting can modify and control material flow within the mining operation, including the feed size to the primary crusher. Blast performance must be assessed in terms of the following outcomes:

- Fragmentation, relating to the feed size supplied to the primary crusher, as well as oversized material and the requirement for rehandling of material, and secondary breakage.
- Shovel productivity, including wear and maintenance costs.
- Use of track dozers to condition the bench floor and rip high bottoms.
- Grade control.
- Primary crusher power consumption, throughput, and maintenance costs.
- Disruption to material flow during digging and crushing affects truck efficiency.

In areas where mining slopes remain intact for extended periods, it is good practice to minimise the fracturing of the high walls during blasting. In such identified areas, wall control blasting, also known as pre-splitting, can be considered. Pre-splitting was provided within the final pit boundary along the high wall, to create safe working conditions in the lower areas.

4.5.2.2 Drilling

Drilling is the first operation performed at most open-pit mining operations. In pit development drilling will be carried out using percussion (RC) or down-the-hole (DTH) for better grade control on the supply of ROM to the beneficiation plant.

4.5.2.3 Beneficiation Plant

Beneficiation involves refining raw materials, like iron ore, to enhance their physical or chemical attributes. This typically entails processes such as crushing and separating the ore into valuable components or waste using various methods, often in preparation for smelting. In the context of this specific mineral processing operation, achieving a liberation rate of 60 %-70 % for magnetite particles at a particle size of P80 – 38 µm allows for optimal recovery at a mass yield of 27 %. The concentrated product, obtained through a three-stage Low-Intensity Magnetic Separation (LIMS) process, conforms to blast furnace specifications, boasting grades of up to 70 % Fe with less than 1.5 % silica and minimal alumina content. The run-of-mine (ROM) ore undergoes beneficiation on-site, starting with crushing to sizes smaller than 3.0 mm followed by further grinding to achieve a particle size distribution of P80 @ -38 µm. Subsequently, the ground ore is subjected to Wet LIMS using rotating low-intensity drum magnets to produce a fine concentrate, targeting an output of 2 Mtpa.

4.5.2.4 Ancillary Equipment

Ancillary equipment may be required that falls outside of the primary production equipment scope, the ancillary equipment will assist and support the primary equipment, while ensuring

the maintenance and optimization of the primary equipment lifecycle. This ensures that primary equipment works easier and safer. Examples of such equipment are:

- Small trucks are used for maintenance activities.
- Light delivery vehicles are used to transport management, technical services, and maintenance personnel around the mine.
- Buses are used to transport operators from the change houses to the equipment in the field, and back.
- Lighting plants to increase visibility around the excavators during night-time. Pumping equipment for pit dewatering.

4.5.2.5 Other Mining Activities or Infrastructure

Additional support infrastructure and services will include:

- Mining office block
- Geological core shed
- Mining change house
- Warehouse
- HME workshop
- LV workshop
- Fuel facility.
- Explosive magazine and bulk emulsion storage facility
- Communication facilities (for radio, telephone, and internet connections)
- Powerline, substation, and/or solar power plant
- Water pipelines
- Sewage infrastructure
- Security control room
- Wastewater treatment plant
- Fire control room and fire brigade office.
- Watch towers.
- CCTV Control Room
- Survey station office.

4.5.3 PIT AND HAULAGE DESIGN

The Koanus deposit will be extracted from five pits: one in the Northern region, one in the Western region, and three in the Eastern region. The longest pit in the Western region measures 5.3 kilometres in length and 190 meters in depth. For the Helga deposit, the pit will have a maximum depth of approximately 100 meters and a length of 2.0 kilometres. The haul road is projected to be 15 meters wide with a gradient of 10%.

Waste rock will be required to construct mine infrastructure such as run-of-mine (ROM) pad and tailings storage dam walls. During normal operations, the ore feed will be achieved by a combination of ore tipped directly into the RoM bin by haul trucks from the pit. The RoM loader will add other appropriate ore material from RoM grade control stockpiles.

4.5.4 CONSTRUCTION PHASE

During the development of the mine, various infrastructure will be constructed:

- Construction of access tracks and roads, where existing tracks cannot be utilised for the fleet of mobile equipment.
- Vegetation clearing for the creation of tracks, open pit mine and survey access.
- Construction of the plant infrastructure, as well as the infrastructure for fuel and chemical storage.
- Diversion of the Oliphants River and other smaller water courses.
- Diversion of the M51 and other smaller roads.

4.5.5 SUPPORT INFRASTRUCTURE AND SERVICES

4.5.5.1 Admin building and office blocks

Prefabricated administrative and office blocks will be constructed to accommodate administration, office, and managerial staff. The facility will measure 3 563m by 12 885m. Each office will be equipped with an air-conditioning unit, and each block will include shared restroom facilities. The administrative and office blocks will feature a reception area, meeting room, training room, open-plan offices, and individual offices.

4.5.5.2 Geological core shed

A prefabricated office and storage facility, measuring 45m by 45m, will be constructed to preserve core trays and samples. The facility will include designated sections for a chip tray storage room and a sample storage room. Additionally, part of the space will be allocated for an on-site laboratory dedicated to grade control.

4.5.5.3 Warehouse

A central warehouse will be established to accommodate the inventory for the processing plant, as well as spare parts and tools for mechanical, electrical, civil, mining, and utility operations.

4.5.5.4 Heavy mobile equipment workshop

The facility will measure 60m by 60m, with a height of 9m to accommodate heavy vehicle maintenance. It will include designated rooms for spare parts, tools, the Head of Workshop, general workshop activities, discard bins, recycling bins, a scrap yard, lube oil storage, a discard yard, a tyre repair zone, and a washing zone.

4.5.5.5 Light vehicle workshop

The light vehicle workshop will be used for the maintenance of all mine light vehicles, including those operating in the processing plant areas. The structure will be a sheeted steel portal supported on concrete plinths. Similar wash bay facilities and arrangements for the heavy equipment workshop will be required for the light vehicle workshop and will need to be designed accordingly.

4.5.5.6 Fuel Facility

Diesel for mine operations will be delivered by trucks to a designated and designed site fuel facility. A site-based service provider will erect infrastructure and facilities for the storage and handling of fuel. The service provider will also be responsible for the supply, delivery, and management of stock for the life of mine. The Proponent will ensure the facility has the required installation certificates before commissioning the fuel facility.

The project will require approximately 30 000 to 50 000 Liters of fuel per day within the first year of operation.

4.5.5.7 Explosive Magazine and Bulk Emulsion Storage Facility

The number and capacity of magazines are determined based on the defined mine production schedule and on rock mass conditions in terms of strength and moisture.

The designs are based on an explosive supplier's recommendation and address all legal requirements.

An appointed contractor will be based on-site and will provide explosives and blasting services to the mine. The contractor will establish and be responsible for the explosive magazine infrastructure, office, and workshop infrastructure. Space provision has been made for both sites, and the siting of the explosive magazine will be in conformance with the requirements of the Namibian Labour Act, Namibian Mining Legislation, and Regional Explosives Standards or regulations.

4.5.5.8 Communication

Radio, telephone, and internet connections will be required for the mining operation. Infrastructure, including communication masts, will be installed, and provisions will be made with the relevant service providers.

4.6 UTILITIES

4.6.1 POWER SUPPLY

The closest power transmission point, located roughly 15 km away at the Auas substation, will serve as the main power source for the mine. This electricity will primarily be utilized for mining and housing complexes, with the bulk of power allocated to the beneficiation plant. An estimated power demand of around 15MW is anticipated.

4.6.2 WATER SUPPLY

An initial water supply of 7.5 million cubic meters per year (Mm^3/a) would be necessary. Alternatively, a gradual ramp-up over at least 7 years to reach full production would reduce this requirement to only 2 Mm^3/a, eventually decreasing to 1 – 1.5 Mm^3/a due to recycling.

Long drought periods of up to seven years, typically referred to as critical periods, are common to the Namibian climate. During a long critical period, the groundwater table drops significantly due to limited recharge, causing some boreholes to dry up. Similarly, surface water sources, which are already stressed, might not be able to support priority users, resulting in water restrictions being enforced to prevent the failure of the water resource.

Water will be extracted from the mine pits and catchment dams, and then transferred to the central process water storage facility situated at the tailings dam complex. This facility will include a settling dam for removing sediment from mine and tailings decant water, along with a storage and surge dam. Raw water will be obtained from boreholes and recycled wastewater from the UJAMS treatment plant for treatment.

The following key pipeline systems will be installed:

- A raw water pipeline originates from the water source.
- A tailings pipeline running from the beneficiation plant to the tailings dam.
- A process water pipeline connecting the process water dam to the beneficiation plant.
- A pipeline network for transporting water from the mine site and catchment areas to the process water complex.

4.6.3 RAILWAY SIDING

A new railway siding is proposed to connect the Jindal Iron Ore Mine site to the existing TransNamib rail network, with potential connections at either the Seeis or Neudamn sidings. The existing 460 km railway that connects Walvis Bay harbour to Seeis may also need to be upgraded, as it may lack the required capacity for transporting iron ore from the mine site to the coast for shipping to international destinations.

4.7 MINERAL AND NON-MINERALISED WASTE

4.7.1 WASTE ROCK

The WRD will be designed to fit into the existing contours to the extent practical for stability and ultimate closure rehabilitation. The natural contours of the terrain will be used to maximize volume placement for the pre-strip topsoil and the waste rock dump.

The construction process will adhere to the guidelines outlined in the environmental management plan (EMP). Staged construction and vegetation efforts will be carried out in alignment with the EMP to minimize the visual impact from the start of the project's life.

4.7.2 TAILINGS STORAGE FACILITY

The final design of the tailing storage facility (TSF) will be based on a set of specific and detailed studies associated with international best practices for the TSF design.

4.7.3 GENERAL WASTE

Waste will be separated at the source, stored in a manner that there can be no discharge of contamination to the environment, and either recycled or reused where possible. On-site facilities will be provided at a dedicated waste storage facility for sorting and temporary storage before removal and disposal to appropriate recycling or disposal facilities off-site (the Kupferberg landfill site for general and hazardous waste).

Industrial waste will be sorted on-site and disposed of at appropriate facilities. Hazardous waste includes but is not limited to, the following: fuels, chemicals, lubricating oils, hydraulic and brake fluid, paints, solvents, acids, detergents, resins, brine, solids from sewage, and sludge.

The waste types as set out in Table 6 will be generated by the project, a dedicated waste management and recycling facility will need to be built on site that specifically manages these waste types, including an incinerator.

Table 6 - Waste specification, Storage facilities and End-use.

Waste type	Waste specifics (example of waste types)	Storage facility	End-use
Non-hazardous solid waste (non-mineralised)	Wooden crates, pallets, cable drums, scrap metal, and general domestic waste such as food and packaging.	Dust bins in relevant work areas will be provided for different waste types. A waste management contractor will remove dust bins regularly to a dedicated waste handling and storage area.	Waste will be sorted further at a dedicated waste handling and storage area on site. Recyclable waste will be sent to a reputable recycling company. Some items may be distributed directly to the community if possible. The remainder of the waste will be transported by the waste management contractor to a permitted landfill facility which may be constructed on site for example within the WRD.
	Building rubble and waste concrete	Designated rubble collection points will be determined to which contractors will take rubble and concrete.	The waste management contractor will regularly remove the waste from the designated collection points to the footprint of the waste rock dump.

Waste type	Waste specifics (example of waste types)	Storage facility	End-use
Hazardous contaminated solid waste (non-mineralised).	Treated timber crates, printer cartridges, batteries, fluorescent bulbs, paint, solvents, tar, empty hazardous material containers etc.	Hazardous waste will be separated at source and stored in designated containers in bunded work areas. The waste management contractor will remove these drums regularly to a dedicated waste handling and storage area.	Hazardous waste will be disposed of at the permitted hazardous disposal site (for example in Kupferberg) by the waste management contractor.
	Hydrocarbons (oils, grease)	Used oil and grease will be stored in drums in bunded areas at key points in work areas. The waste management contractor will remove these drums regularly to a dedicated waste handling and storage area. The yard will have a dedicated used oil storage area which will include a concrete slab, proper bunding and an oil sump. The appointed bulk fuel supplier will collect used oil for recycling.	Used oil will be sent to a reputable recycling company for recycling.
	Sewage	Sewage will be collected and stored in a septic tank on site.	Sewage will be collected on a regular basis and transported for treatment to a dedicated sewage treatment facility which may be constructed on site.
Laboratory waste	Mineral samples, mineral assay samples, chemical fluids, glass, gloves and	Mineral waste samples that are not required to be kept will be disposed of at the tailing storage facility and at an	Hazardous laboratory waste will be collected regularly and transported to a hazardous disposal treatment facility (for example in Kupferberg).

Waste type	Waste specifics (example of waste types)	Storage facility	End-use
	general laboratory waste samples	approved mineral disposal landfill. A mineral waste management contractor will remove the waste on a regular basis to a waste handling and storage area.	Non-hazardous waste will be disposed of at an appropriate landfill which may be on-site.
Medical waste	Syringes, material with blood stains, bandages, etc.	Medical waste will be stored in sealed containers. A waste management contractor will remove these drums regularly to a dedicated waste handling and storage area.	Medical waste will be transported by the waste management contractor to a permitted medical waste treatment facility.

4.7.4 EFFLUENT AND WASTEWATER

Human effluent waste can be managed through two primary methods: soak pits or sewage supply to municipal or corporation facilities for recycling purposes. Soak pits involve the direct disposal of waste into designated pits in the ground, where natural processes help in its decomposition and filtration. Alternatively, sewage can be directed to municipal or corporation treatment plants, where it undergoes thorough processing to remove contaminants and pollutants, making it suitable for recycling and reuse. Both approaches offer viable solutions for the sustainable management of human waste, contributing to environmental conservation and public health enhancement.

4.8 ALTERNATIVES CONSIDERED

Best practice environmental assessment methodology calls for consideration and assessment of alternatives to a proposed project. In a project such as this, it is difficult to identify alternatives to satisfy the needs of the proposed project; the activities will be specific to the site.

The primary alternatives to be assessed, in addition to the mining infrastructure positions, will be the proposed diversion of the Oliphants River and the road diversion of the M51, which traverses the area where infrastructure may be placed. Additionally, the transportation of the iron ore fines may either be transported by rail or by road to Walvis Bay.

Different mine designs, processing plant possibilities, and various tailing disposal methods should undergo careful consideration in the project. Factors such as water availability, potential for acid mine drainage (AMD), long-term slope stability, and safety, will all be considered when evaluating the economic, technical, and environmental viability of the alternatives.

4.9 REHABILITATION

The Proponent has developed a mine rehabilitation plan as part of the mine closure plan that is consistent with the Namibian Mine Closure Framework and ICMM Integrated Mine Closure Good Practice Guide. These plans include estimated costs and are consistent with Namibian legislation and the draft Namibia Mine Closure Framework.

5 ENVIRONMENT AND SOCIAL BASELINE

5.1 BASELINE DATA COLLECTION

Initial desktop baseline studies relevant to the Project will form part of the initial environmental assessment to be conducted for the exclusive prospecting licence, on which the Project is situated. As part of this assessment, the baseline will be studied in detail, with inputs from specialist studies commissioned as part of the environmental and social impact assessment process.

5.1.1 DESKTOP AND FIELD SURVEYS

Initial desktop baseline studies were conducted for this scoping assessment, while field surveys and various specialist studies will be conducted to build a baseline dataset.

This section sets out the biophysical and socioeconomic environments in which the Project is situated. It is an important part of the scoping component of the assessment, as it determines if any knowledge gaps require additional information before the assessment phase is completed.

5.1.2 SPECIALIST STUDIES

The following specialist studies as outlined in Table 7 will be commissioned to determine the current state of the baseline environments. All specialist reports will be available as appendices to the assessment report.

Table 7 - Specialist studies conducted for the ESIA.

Study area	Purpose	Specialists
Terrestrial ecology	– Biodiversity, habitat and ecosystem services. – Identification of species of concern and sensitive areas. – Impacts of mining construction and operations on habitats and biodiversity.	– Peter Cunningham
Hydrology	– Water supply – Storm protection and river diversion – Impact on heritage aspects – Clean and dirty water management systems	– Umvoto & ECC
Groundwater	– Assess the potential for contamination of aquifers from TSF & WRD. – Provide a model to determine the impacts of drawdown and plume mobility. – Assess the sustainability of boreholes for water supply.	– Umvoto & ECC
Air quality	– Provide emission standards and dust suppression requirements.	– Airshed

Study area	Purpose	Specialists
	– Assess prevailing wind directions and possible effects of emissions on the process and/or personnel. – Model potential air quality impacts.	
Noise and sense of place	– Identification of possible receptors, and assess levels of noise to which they may be exposed during construction and operations	– ECC
Soils and land use	– Assess existing land use and potential impacts on surrounding land users. – A soil study informs the quality and quantity of material available for rehabilitation to a similar state on closure.	– ECC
Traffic	– The traffic impact assessment reviewed the potential traffic impacts and loading on routes associated with the mining activities. – Assessing the capacity of infrastructure and safety aspects of the mine entrance. – Assessing the need for an intersection upgrade at the mine entrance and providing a concept layout plan if necessary. – Assessing the impact of building a rail siding to connect the mine to the Trans Namib railway.	– ITS
Heritage and culture	– A heritage assessment is required to comply with Namibian national legislation and gain approval from the Heritage Council.	– Dr Alma Nankela
Visual and tourism	– Assessing the potential visual impacts of the proposed Project on the receiving environment.	– ECC
Social and economic	– Includes the assessment of various recreational, lodge, and commercial game farm activities in the Windhoek Rural, Dorabis and Seeis areas. – Site-level economic impacts. – Potential impact of Jindal's permanent workers camp on the local community.	– ECC
Geochemical sampling and analysis	– The geochemical analysis of waste rock, tailings, and overburden will be undertaken to assess the mineralogical composition, acid mine drainage potential, and metal concentration of the leachate of waste rock and tailings.	– ECC: RGS - Mine Waste and Management Consultants
Blast vibration impact	– Assessing the impact of blasting on receptors in the area.	– Blast Management and Consulting
Climate Change	– Assess the Project's greenhouse gas emissions and assess potential climate-related risks, vulnerabilities and opportunities.	– RDJ Consulting Services CC

5.2 LAND USE

The Project is in the Khomas region, close to the Hosea Kutako International Airport and several tourism facilities. The region is known for its agricultural activities, primarily small stock and cattle farming, along with game reserves and tourism-oriented farms, which are prevalent in the area.

5.3 GEOLOGICAL SETTING

Namibia can be categorised into two main geological regions: the western and eastern parts. The western region consists of various geological formations of different ages and compositions, formed under diverse environmental conditions. These formations originated from ancient ocean depths, movements of the earth's crust, collisions, or volcanic eruptions. Exposed in the west, they form rugged landscapes of mountains, hills, valleys, and plains with sparse vegetation, offering fascinating insights into Namibia’s geological history.

In contrast, eastern Namibia's formations are covered with more recent deposits, as noted by Mendelsohn et al. (2002). These deposits are loose, aeolian in origin, sandy, and unconsolidated. The eastern surface appears monotonous and uniform, covered with dense vegetation in the north, which decreases towards the south. Knowledge about these sediments primarily comes from water abstraction boreholes, rare outcrops, and formations exposed along drainage lines and around isolated pans.

While diamonds are a notable resource, most of Namibia's valuable mineral resources, including the oldest rocks, like metamorphic complexes and the Damara Supergroup, are found in the western part of the country.

The local geology of the area is characterised by three geological settings of which the Hakos Group is most dominant, followed by a small section of the Rehoboth group and associated rocks in the southwestern part of EPL 4013. The Hakos group is characterised by a diverse array of geological features primarily associated with the Damara Orogenic belt. This group consists predominantly of metamorphic rocks, including schists, quartzites, gneisses, and marbles, which are indicative of significant tectonic activity and metamorphic processes.
The geological setting is shown in Figure 7.

5.4 TOPOGRAPHY

The elevation gradually declines from the southwest of EPL 4013 to the northeast of EPL 4194. Rocky outcrops are primarily found on EPL 4013, with the highest point slightly exceeding 2000 meters above sea level (masl). In the northeastern part of EPL 4194, the lowest elevation is approximately 1560 masl, as depicted in Figure 9.

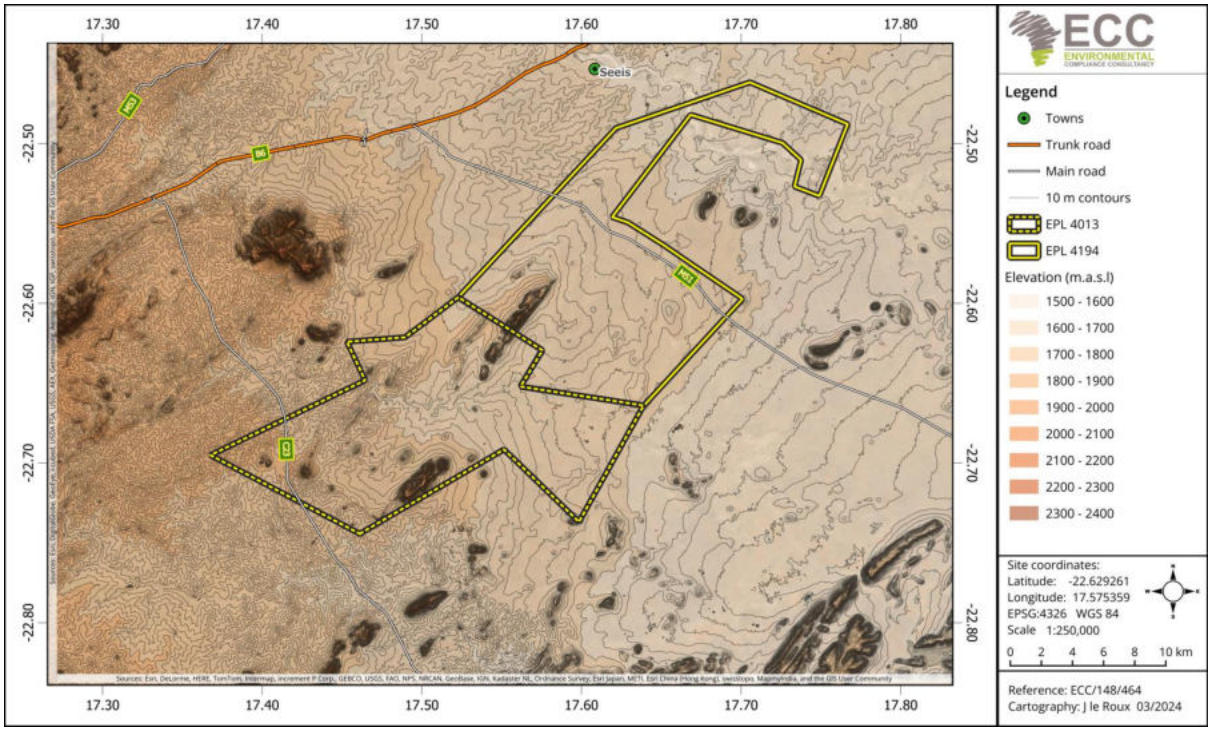


Figure 9 - Project Site Elevation.

5.5 BUILT ENVIRONMENT AND INFRASTRUCTURE

5.5.1 INFRASTRUCTURE AND BULK SERVICES

The C23 road south of the Project area carries large traffic volumes between Windhoek and Dordabis.

The M51 gravel road runs through the centre of EPL 4194. Bulk water might potentially be sourced from various sources (e.g. Dams like Oanob, local boreholes and the UJAMS wastewater treatment plant) and will be evaluated during the specialist studies. The project will source electricity from NamPower, which already has infrastructure in the area.

5.5.2 TRAFFIC AND TRANSPORT

The major existing roadways in proximity to the Project area include:

- C23 Road – Main Road, which is tarred with a lane per direction. Speed limit of 120 km/h. A site observation made for the C23 road is that fencing along the road is suggested to protect drivers and animals.
- M51 Road – Gravel district road, with a gravel lane per direction.

5.5.2.1 Site access

The current main road (C23) and district road (M51) run through the EPLs which makes both roads options for access. The M51 road will potentially need to be diverted. There are currently no details of how the road will be diverted.

5.6 SOCIO-ECONOMIC BASELINE

5.6.1 GOVERNANCE

Namibia was established in 1990 and is led by a democratically elected and stable government. The country ranked eighth out of 54 African countries in the Ibrahim Index of African Governance in 2022 for indicators that include: the quality of governance and the government's ability to support human development, sustainable economic opportunity, rule of law, and human rights (Mo Ibrahim Foundation, 2023).

As a result of sound governance and stable macroeconomic management, Namibia has experienced rapid socioeconomic development. Namibia has achieved the level of 'medium human development' and ranks 142nd on the Human Development Index out of 185 countries (United Nations Development Programme, 2024). Namibia's Multidimensional Poverty Index (MPI) in 2023 was 0.185 based on available data from 2013 (United Nations Development Programme, 2023). However, in 2023, the country's Gini Coefficient was calculated by the World Bank Group to be 59.1 making Namibia the second most unequal country in the world (Josef Sheehama, 2023).

Namibia is divided into 14 regions, subdivided by 121 constituencies.

5.6.2 DEMOGRAPHIC PROFILE

Namibia is one of the least densely populated countries in the world (3.7 persons per km^2). Vast areas of Namibia are without people, in contrast to areas of dense concentration, such as the central north and along the Kavango River. Windhoek, the capital, is the main urban area with the largest population, and the concentration of private and public head offices attracts Namibians from all parts of the country in search of a better life.

The national population growth rate is estimated at less than 2 %, which is lower than that of most African countries. Namibia's population is young; 56.1 % falls into the 15-59 age group, and 37 % of the total population is younger than 15. In 2018, it was estimated that 49.5 % of all Namibians are urbanised (i.e. living in an urban settlement). The last national census was conducted in 2023 and counted 3 million Namibians (Namibian Statistics Agency, 2023).
The populations of the Khomas and Erongo regions are projected to increase the most, with over a third of Namibia's population calculated to live in these two regions (Namibian Statistics Agency, 2023).

The urban population pyramid for Namibia is greatly dominated by middle-aged working groups (age group 20 – 35) and infants (0 – 4 years of age). The urban population of Khomas Region is high as people are drawn by pull factors such as improved economic activities and the growing expectations for better living conditions (Namibia Statistics Agency, 2019). Khomas Region occupies 4.5 % of the land surface area of Namibia and accommodates the

largest percentage (18 %) of the national population, with a male-to-female sex ratio of 49: 50 (Namibia Statistics Agency, 2019).

The Regional Indicator Demographic Survey conducted by Namibia Statistics Agency in 2016 indicated that the Khomas Region had a population of 415,780, a population density of 11.3 persons per km^2 and a population growth of 3.9% (Namibia Statistics Agency, 2017) as shown in Table 8. The report further postulates that 95 % of the Khomas Region population lives in Windhoek or nearby districts whilst the remainder of the population resides in the rural settlements (Namibia Statistics Agency, 2017). There is a diverse number of ethnic groups, however, Oshiwambo is the most spoken language (47 % of all households). The average literacy rate was estimated at 97 % in 2016 (Namibia Statistics Agency, 2017). Living in an urban environment implies better living conditions – in the Khomas Region, 100 % of all households have access to safe drinking water and 64 % of the households are electrified. On the contrary, 25% have no toilet facilities and 7 % of the population depend on open fires to prepare food (Namibia Statistics Agency, 2017).

Windhoek is the national capital and the capital of the Khomas Region. Regions in Namibia are divided into constituencies and currently, the Khomas Region is divided into ten constituencies. Windhoek is governed by a local authority in the form of a City Council. As the country's capital, Windhoek hosts many of the national head offices as well as the head offices of the Khomas Regional Council. Towns are governed through local authorities, in the form of municipalities. Places such as Groot Aub, Seeis and Dordabis are managed directly by the central authority.

Table 8 - Socioeconomic baseline study summary of key indicators as of the 2023 Census (Namibian Statistics Agency, 2023).

Indicator	Khomas Region
Population estimate 2023	494 605
Gender ratio	48.7 % male and 51.3 % female
Average household size	3.3 persons per household

5.6.3 HEALTH

Since independence in 1990, the health status of Namibia has increased steadily, with a remarkable improvement in access to primary health facilities and medical infrastructure. In 2015, the World Health Organisation (WHO) recommended strategic priorities for the health system in Namibia, which entailed improved governance, an improved health information system, emergency preparedness, risk reduction and response, preventative healthcare, and the combating of HIV/AIDS and Tuberculosis (TB) (WHO, 2016).

As with elsewhere in Namibia, HIV/AIDS remains a major reason for low life expectancy and is one of the leading causes of death in the region. HIV/AIDS remains the leading cause of

death and premature mortality for all ages, killing up to half of all males and females aged 40 to 44 years in 2013 (IHME, 2016).

TB is a leading killer of people infected by HIV/AIDS, and Namibia had a high burden in 2018; 35 % of people with TB were infected with HIV. The country is included among the top 30 high-burden TB countries in the world, with an estimated incidence rate of 423 per 100 000 people, and 60 fatalities per 100 000 people in 2018 (retrieved from www.mhss.gov.na).

5.6.4 EMPLOYMENT

The labour force participation rate is the proportion of the economically active population, given as a percentage of the working age portion of the population (i.e. older than 15 years of age) (Namibian Statistics Agency, 2019).

In 2018, 53.4 % of all working Namibians were employed in the private sector and 21.5 % by the state. State-owned enterprises employ a further 7.6 % and private individuals 16.6 %. Agriculture (combined with forestry and fishing) is the economic sector with the most employees, 23 % of all employed persons in Namibia work in this sector. Wages and salaries represented the main income source of 47.4 % of households in Namibia (Namibian Statistics Agency, 2019).

Low education levels affect employability and prevent many households from earning a decent income. Of all employed people in Namibia, 63.5 % do not have more than a junior secondary level qualification (Grade 10 and lower), and 11.8 % of all employed people have no formal education. In total, 29.1 % of those employed are in the category of “elementary occupation”, and 15.2 % in the category of “skilled agriculture”.

Overall, the rate of unemployment is estimated at 33.4 % for Namibia, using the broad definition of unemployment. The unemployment rate in rural and urban areas is almost the same, 33.4 % in urban areas and 33.5 % in rural areas. The highest unemployment rates are found amongst persons with education levels lower than junior secondary. The unemployment rate of persons with no formal education is 28.6 %, with primary education at 34.6 % and junior secondary education at 32.7 % (Namibian Statistics Agency, 2019).

According to the Namibian Chamber of Mines (COM) 2022 annual review report, the mining industry employed 16 147 people directly in the industry, which is an increase from the 15 426 reported figure in 2021 (an increase of 6.9 %). This employment consisted of 8 391 permanent employees, 742 temporary employees and 7 014 contractors. The mining industry spent 196 million Namibian dollars on skills expenditure, with 184 million Namibian dollars spent on CSR expenditure and 964.9 million Namibian dollars on exploration. These figures include developing and operational mines.

5.6.5 CRIME

Khomas region is one of the regions in Namibia with the highest crime rates, as suggested by the Namibian Police Force's (NamPol) documentation of 98 640 criminal cases throughout the 2021/2022 fiscal year. Notably, a sizable portion of these cases, totaling 32.8%, were concentrated within the Khomas region.

5.6.6 ECONOMIC AND BUSINESS ACTIVITY

Mining plays a pivotal role in the economy of Namibia. Since independence, it has consistently been the biggest contributor to Namibia's economy in terms of revenue (29.6 % in 2022) and accounts for 12.2 % of the country's GDP (COM, 2022 annual review report). Mining is one of the main contributors to GDP and one of the largest economic sectors of Namibia.

Khomas Region is urbanised, and agriculture is less prominent; unlike other regions where populations depend extensively on subsistence or mixed farming for better living standards. In Windhoek, most people are employed in a wide range of secondary economic sectors such as administration, services, manufacturing, guest farms and tourism-related establishments (Namibia Statistics Agency, 2019). Most international travellers arriving through the Hosea Kutako International Airport influence the microeconomic performance of many establishments through spending.

Economic progression has been underpinned by the lingering effects of COVID-19 (UNICEF, 2022).

5.7 HERITAGE AND CULTURE

A desktop search conducted on Namibian GIS data and information obtained from the Atlas of Namibia yielded the identification of only one significant heritage site within the project area, dating back within the last 2 000 years. Notably, no heritage sites were documented within records spanning from 1.8 million to 10 000 years ago, nor from 10 000 to 2 000 years ago (Bubenzer 2002 and Mendelsohn et al. 2002). However, the potential remains for archaeological discoveries within the two EPLs under consideration. Consequently, a specialised study will be undertaken to assess the archaeological potential within these EPLs.

5.8 NOISE

Noise is generally defined as unwanted sound transmitted through a compressible medium such as air. Sound, in turn, is defined as any pressure variation that the ear can detect. Human response to noise is complex and highly variable, as it is subjective rather than objective. The IFC General Environmental Health and Safety Guidelines on noise addresses the impacts of noise beyond the property boundary of the facility under consideration and provides noise level guidelines. The IFC states that noise impacts should not exceed levels or result in a maximum increase above background levels of 3 dBA at the nearest receptor location off-site (IFC, 2007). For a person with average hearing acuity, an increase of less than 3 dBA in the

general ambient noise level is not detectable. 3 dBA is, therefore, a useful significance indicator for a noise impact.

A noise baseline survey will be conducted, at designated points by Airshed Planning Professionals (Pty) Ltd., a firm that specialises in all aspects of air quality, ranging from neighbourhood concerns to regional air pollution impacts/ Airshed Planning Professionals (Pty) Ltd. will also be appointed to conduct the modelling and noise impact assessment process.

5.9 VISUAL AND SENSE OF PLACE

The proposed Project is situated in a sparsely populated area, surrounded by farms. However, the project location is in proximity to the Hosea Kutako International Airport as well as various tourism establishments as seen in Figure 6.

The Project's mining landforms will potentially be seen from sections along the C23 and M51 roads as well as nearby farms, residential properties and guest lodges. Project construction and operational processes may lead to excessive dust, and the waste rock dump and tailings storage facility will alter the landscape in perpetuity. The visual assessment to be undertaken will include the viewsheds for several receptors.

5.10 LIGHTING AND VISUAL MARKERS

Namibia is known for its clear night skies and excellent stargazing settings. Artificial lighting, floodlights and lighting for night-shift mining activities are expected to be visible from the Project site. The baseline of undisturbed night skies from lights will be altered during the construction and operations of the Project.

5.11 BIOPHYSICAL ENVIRONMENT BASELINE

5.11.1 CLIMATE AND METEOROLOGY

The Jindal iron ore mine Project is located to the south-southeast of Windhoek in an area that experiences generally warm daytime temperatures throughout the year, while the nights are cool to cold in winter. The average temperature for this area is between 19°C and 20°C. The mean maximum temperatures range between 21°C and 31°C and the mean minimum temperatures range between 6°C and 19°C. The hottest months of the year for this area are between November and December, while the coldest months of the year are between June and August.

The relative humidity (RH) during the most humid months during summer is 70 %, while the average rate of evaporation is between 3000-3200 mm per year. The average rainfall in this area during the year is between 300 to 400 mm and rainfall events are limited to the summer months, mainly between November and March as shown in Figure 10.

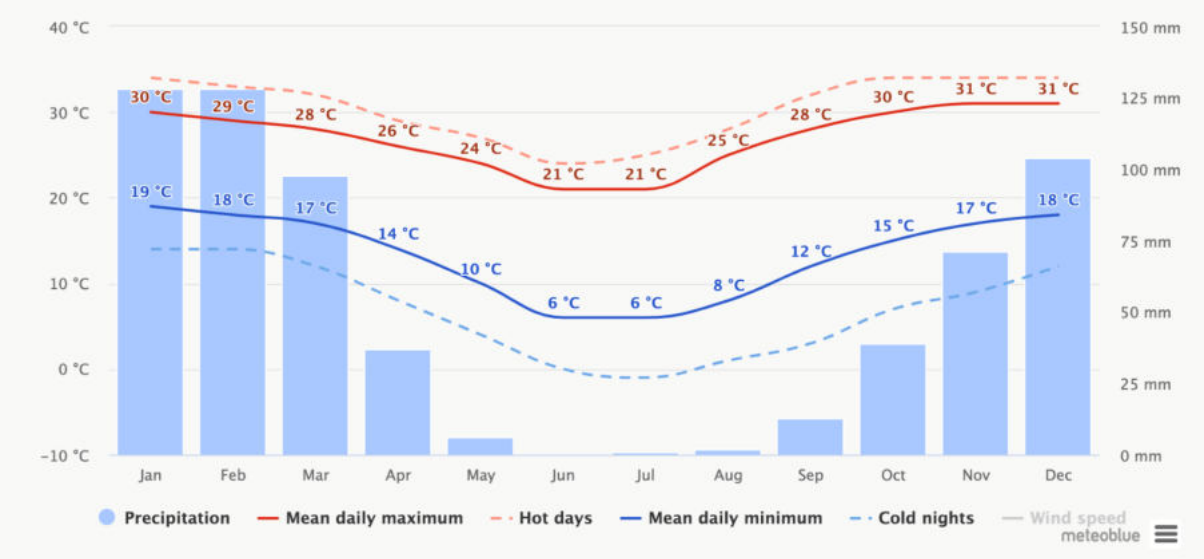


Figure 10 - Namibia's average precipitation and temperatures by month of the year (Source: meteoblue).

Climate and weather data from meteoblue (2024) for the proposed Project site have been used to give the most accurate data. This area has wind speeds between 0 and more than 38 km/h, where the months of July to October are known to have the strongest winds. Wind can occur any time of the day and the most predominant wind directions for this area are N and NNE as shown in Figure 11.

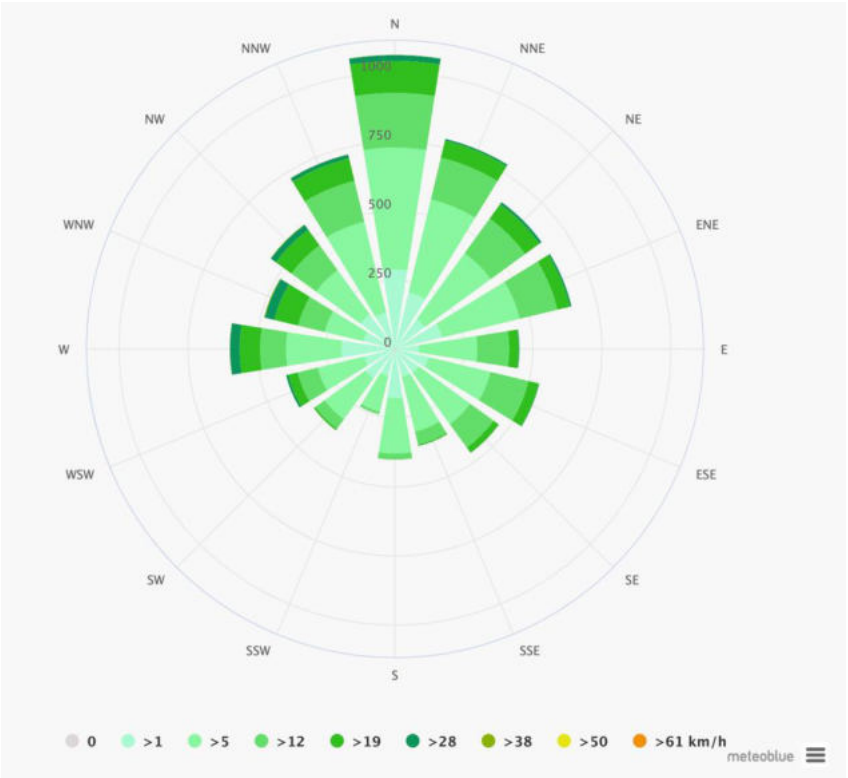


Figure 11 - Proposed Project area wind speeds and directions (meteoblue 2024).

5.11.2 CLIMATE CHANGE

Over the past four decades, there has been a consistent rise in temperatures within the project area as shown in Figure 12. 2019 marked a pinnacle, recording the highest temperatures ever documented since 1979, averaging 22°C. Data analysis reveals a pronounced upward trend in average temperatures, indicative of a broader global warming pattern. According to Jessica Lindsey and Luan Dahlman (2024), the Earth's temperature has increased by an average of 0.06°C per decade since 1850. However, since 1982, this rate has surged to over three times faster, reaching 0.36°C per decade, notably, 2023 stood out as the warmest year on record globally, as traced back to 1850.

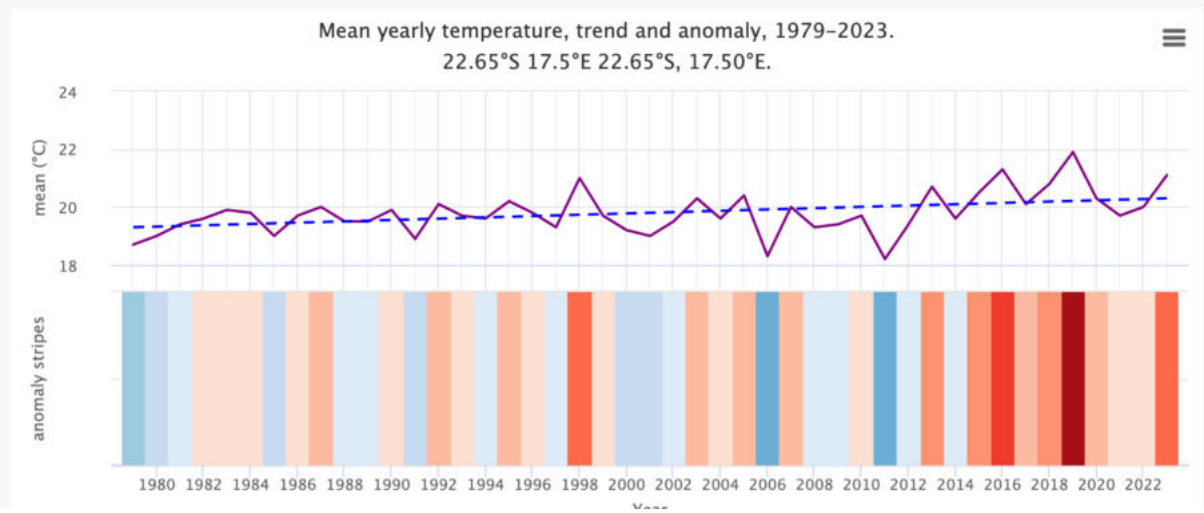


Figure 12 - Yearly temperature change around the Jindal EPLs (meteoblue, 2024).

5.12 SOIL

The Project area is primarily comprised of Regosols and Leptosols. Regosols feature medium or fine-textured soils, typically not exceeding a depth of 50 cm. These soils are prone to erosion, leading to sparse vegetation in the affected areas. This type of soil generally cannot provide vegetation with sufficient minerals or water (Mendelsohn et al., 2002).

In the southwestern part of EPL 4013, Leptosols define the landscape. Leptosols are typically formed in areas that are actively eroding, especially in hilly or undulating areas that cover a large part of the southern and north-western parts of Namibia. This type of soil is coarse-textured and offers limited depth due to the presence of hard-rock, highly calcareous or cemented layer within 30 cm of the surface. Leptosols are the shallowest soils in Namibia and often contain gravel. It has a low water-holding capacity so water run-off and water erosion can be very high in these areas if heavy rainfall occurs (Mendelsohn et al., 2002). Figure 13 shows an image of the soil profile of the area, based on mapping in the Atlas of Namibia. The mapping from the Atlas of Namibia is considered high level, and sampling done during this investigation can improve the area's soil mapping.

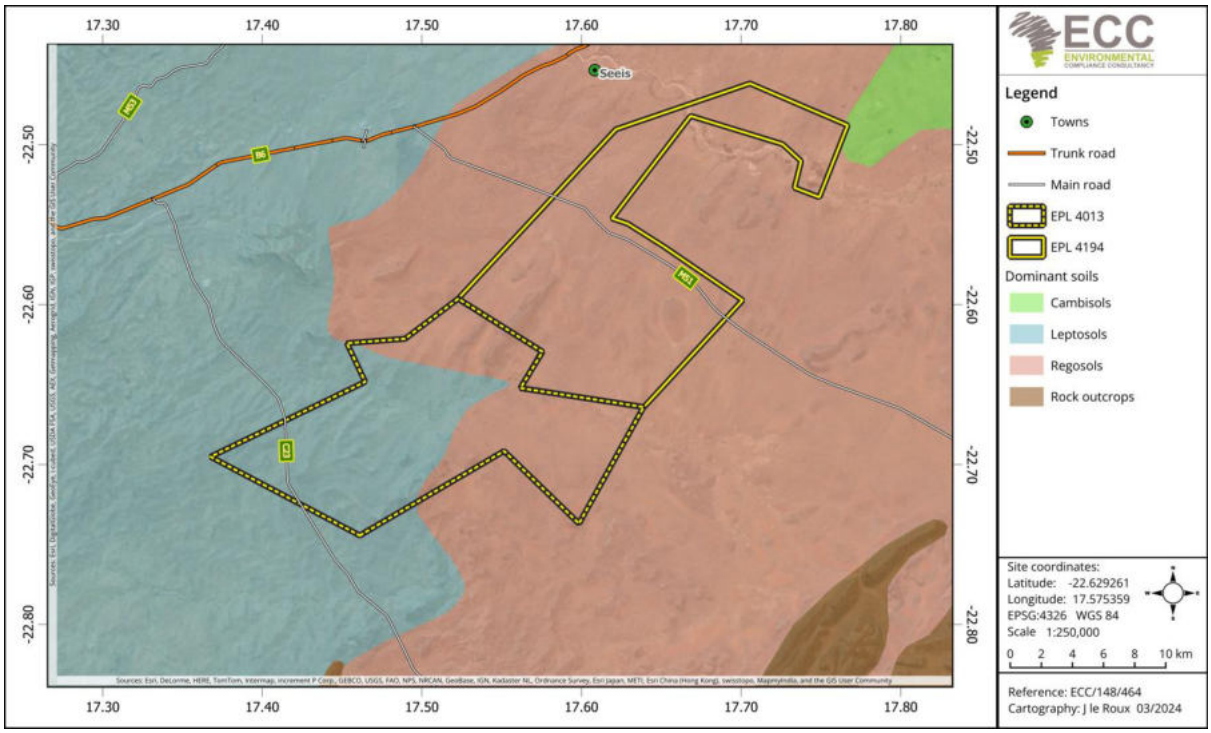


Figure 13 - EPL 4013 and 4194 soil profile.

5.13 WATER

The Hochfeld-Dordabis-Gobabis groundwater area stretches from east of Windhoek toward the Botswana and Namibian border. The EPLs are underlain by the Southeastern Kalahari groundwater basin and fall within the Auob catchment area. In general, this area has rock bodies with low to moderate groundwater potential (Christelis & Struckmeier 2011). A portion of both EPLs lies above fractured, fissured, or karsted aquifers, displaying moderate groundwater potential. In the north-eastern sector of EPL 4194, porous aquifers are present, exhibiting high groundwater potential (NA-MIS, 2024) as shown in Figure 14.

In the region east of Windhoek, both alluvial and fractured aquifers are present. Alluvial aquifers are situated along the riverbeds of the Seeis River and along most of the White Nossob's course. The Seeis water supply scheme (92) initially catered to the local police station's water needs and was later expanded to include the Hosea Kutako International Airport, located 10 km to the west. Despite its relatively shallow depth of 10-15 meters, the alluvium allows for high abstraction rates. This porous aquifer has a moderate potential and is regularly recharged by frequent floods in the Seeis River. The Seeis wellfield complements the Ondekaremba water scheme (74), which was established to serve the international airport. Boreholes at Ondekaremba tap into a fractured marble and quartzite aquifer of the Auas Formation (Khomas Subgroup), which is recharged by the Seeis River (Christelis & Struckmeier 2011).

As per the gazetted Water Management Resources Act No. 11 of 2013, which was promulgated in August of 2023 the entire groundwater areas of Namibia have been declared groundwater-controlled areas.

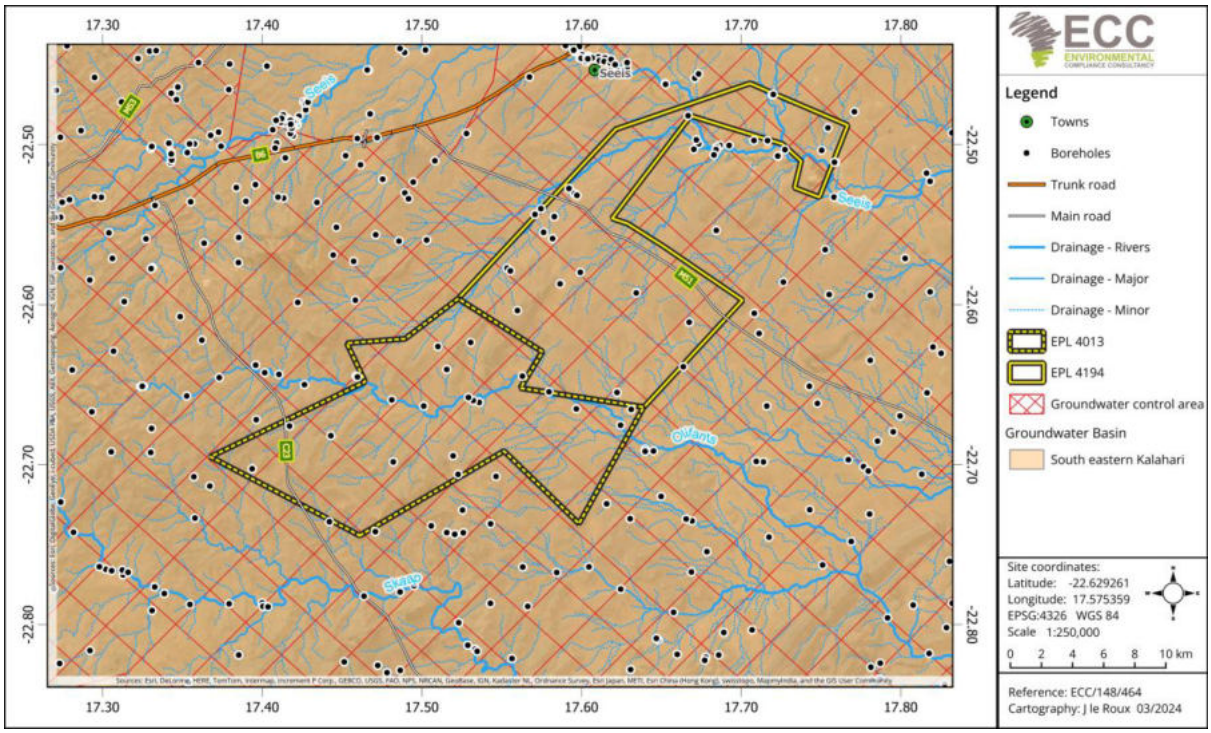


Figure 14 - Surface water flow showing ephemeral rivers, drainage lines, groundwater boreholes and the Project area.

5.14 BIODIVERSITY

Namibia's network of protected areas, communal conservancies, state forests, community forests, private game reserves and commercial farmlands provide immense biodiversity (Alberts, 2023). The Khomas region, situated in the centre of the country, encapsulates a microcosm of this biological diversity. Despite its semi-arid landscape, the Khomas region is home to a noteworthy variety of flora and fauna adapted to survive in this environment.

The region's biodiversity is characterized by its resilience and unique adaptations to the semi-arid environment such as the quiver trees (*Aloidendron dichotoma*) dotting the landscape, elusive predators such as the African Leopard (*Panthera pardus pardus*), and desert-adapted herbavoires such as the oryx (Oryx gazella) and Hartmann's mountain zebra (*Equus zebra hartmannae*).

Moreover, the Khomas region also hosts a diverse avifauna, with bird species taking refuge in its varied habitats, including rocky outcrops, dry riverbeds, and thorn and shrub vegetation. However, like many ecosystems worldwide, the biodiversity of the Khomas region faces threats from habitat fragmentation, climate change, and human activities and urbanisation.

Conservation efforts in the region are crucial for safeguarding its unique biodiversity and ensuring the continued existence of its endemic species.

5.14.1 FLORA

The EPLs fall within the highland shrubland vegetation cover. Vegetation in Namibia is strongly influenced by rainfall. The dominant vegetation structure on the EPLs is dense shrubland and falls within the Savanna biome (Bubenzer, 2002 & Mendelsohn et al., 2002). The plant diversity, ranging from 100 to over 400 species, and endemism, with between 1 and 25 endemic species, exhibit higher levels within EPL 4013, gradually increasing from the eastern boundary (EPL 4194) to the western extent. In this area, diversity and endemism are classified as moderate to high. (Bubenzer, 2002 & Mendelsohn et al., 2002).

A list of plant species that have been found or sampled near the proposed Project will be provided by the National Botanical Research Institute (NBRI) and incorporated into the final ESIA report. These plant species will not necessarily be found within the entire EPL but have been recorded in this part (southeast of Windhoek) of Namibia (Mendelsohn et al. 2002). In addition to the NBRI list, a specialist study will also be conducted focussing on both fauna and Flora.

5.14.2 FAUNA SPECIES

The overall terrestrial diversity for the Project is moderate compared to other parts of the country. The area within and surrounding the EPLs has a high bird diversity status of approximately 255 species, with moderate bird endemism (between 4 and 5 species) and represents an area with moderate mammal diversity of approximately 58 species (3 to 4 of these species are endemic). Three carnivore species have been recorded in the project area (Bubenzer, 2002, IUCN, 2021, Mendelsohn et al., 2002, Oberprieler and Cillié, 2008 & Stuart and Stuart, 2015).

Furthermore, the reptile diversity within this area is high with between 71 and 80 species (5 to 16 endemic species); the number of observed lizard species for this area is between 28 to 35 of which between 1 to 8 species are endemic and the different snakes recorded are between 30 to 39 species (5 to 8 endemic species).

This area also has a frog diversity of between 8 to 11 species, and a moderate to high scorpion diversity (12 to 17 species) (Bubenzer, 2002 & Mendelsohn et al., 2002).

Most bird species in Namibia fall under Schedule 4: Protected Game within the Namibian Conservation Ordinance No. 4 of 1975, except for the following excluded species: Weavers, Sparrows, Mousebirds, Redheaded Quela, Bulbul, and Pied crow as well as 19 huntable game bird species identified in Schedule 6 of the Nature Conservation Ordinance (Nature Conservation Ordinance No. 4 of 1975).

Many bird species are highly migratory and pass through Namibia sporadically, thus some of the species might be very rare to identify during the year, nonetheless could potentially be spotted within the EPL boundaries periodically. It is believed that the man-made earth-filled water dams in the area attract various water birds (either resident or migratory).

In this part of Namibia, approximately 93 bird species are either additionally protected under the regulations of the Exploitation of Marine Resources Act No. 241 of 2001, section 18 or listed within the CITES appendices. Some of these species might potentially be found or encountered near or within EPL boundaries during a given year (depending on the season and migratory patterns).

Of these species, six are Near-threatened, two are Vulnerable, seven are Endangered and one is Critically Endangered (White-backed Vulture) according to the IUCN red list of threatened species (CITES 2019, IUCN 2024, Irish 2024 & Oberprieler and Cillié 2008 & Regulations relating to the Exploitation of Marine Resources Act No. 241).

Various protected or threatened mammal species may occur on the project site of which one is classified as near threatened (Brown Hyena) and four are classified as vulnerable (Cheetah, Leopard, Pangolin, Black-footed cat) according to the IUCN red list of threatened species. The Cheetah is also classified as endangered in Namibia with an estimated number of 1500 adults and sub-adults according to the red list for carnivores in Namibia released in 2022 by NCE, MEFT and LCMAN (Melzheimer et al. 2022).

Furthermore, all tortoise species, rock monitors and pythons (dwarf and rock pythons) might potentially be encountered within the project boundaries and are protected under the Nature Conservation Ordinance No. 4 of 1975.

6 IMPACT IDENTIFICATION AND EVALUATION METHODOLOGY

6.1 INTRODUCTION

Chapter 2 provides an overview of the approach used in this ESIA process, and details each of the steps undertaken to date. Prediction and evaluation of impacts is a key step in the ESIA process. This chapter outlines the methods that will be followed, to identify and evaluate the impacts arising from the proposed Project. The findings of the assessment will be presented in the full assessment report.

This chapter provides comprehensive details of the following:

- The assessment guidance will be used to assess impacts.
- The limitations, uncertainties, and assumptions regarding the assessment methodology.
- How impacts will be identified and evaluated, and how the level of significance will be derived.
- How mitigation will be applied in the assessment, and how additional mitigation will be identified.
- The cumulative impact assessment (CIA) method that will be used.

This assessment will aim to determine which impacts are likely to be significant; to scope the available data and identify any gaps that need to be filled; to determine the spatial and temporal scope; and to identify the assessment methodology.

The scope of the assessment was determined by undertaking a preliminary assessment of the proposed Project against the receiving environment, and was obtained through a desktop review, available site-specific literature, monitoring data, and site reports, as set out in this scoping report

6.2 ASSESSMENT GUIDANCE

The following principal documents will be used to inform the assessment method:

- International Finance Corporation standards and models, in particular performance standard 1: 'Assessment and management of environmental and social risks and impacts' (International Finance Corporation, 2012 and 2017).
- International Finance Corporation Cumulative Impact Assessment (CIA) and Management Good Practice Handbook (International Finance Corporation, 2013).
- Namibian Draft Procedures and Guidance for EIA and EMP (Republic of Namibia, 2008).

6.3 LIMITATIONS, UNCERTAINTIES AND ASSUMPTIONS

The following limitations and uncertainties associated with the assessment methodology will be considered in the assessment phase:

- Topic-specific assessment guidance has not been developed in Namibia. A generic assessment methodology will be applied to all topics using IFC guidance and professional judgement.
- Guidance for CIA has not been developed in Namibia, but a single accepted state of global practice has been established. The IFC's guidance document (International Finance Corporation, 2013) will be used for the CIA.

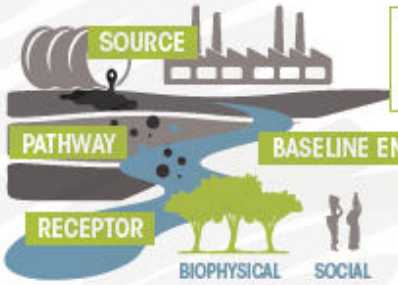
6.4 ASSESSMENT METHODOLOGY

The ESIA methodology applied to this assessment has been developed by ECC using the International Finance Corporation (IFC) standards and models, in particular performance standard 1: 'Assessment and management of environmental and social risks and impacts' (International Finance Corporation, 2017); Namibian Draft Procedures and Guidance for EIA and EMP (Republic of Namibia, 2008); international and national best practice; and over 25 years of combined ESIA experience. The methodology is set out in Figure 15.

The evaluation and identification of the environmental and social impacts require the assessment of the Project characteristics against the baseline characteristics, ensuring that all potentially significant impacts are identified and assessed.

The significance of an impact is determined by taking into consideration the combination of the sensitivity and importance/value of environmental and social receptors that may be affected by the proposed Project, the nature and characteristics of the impact, and the magnitude of any potential change. The magnitude of change (the impact) is the identifiable changes to the existing environment that may be negligible, low, minor, moderate, high, or very high; temporary/short-term, long-term or permanent; and either beneficial or adverse.

ECC IMPACT PREDICATION AND EVALUATION METHODOLOGY



ECC ESIA METHOD

- Predication and evaluation of impacts is a key step in the EIA process.
- The methods ECC follows to identify and evaluate the impacts arising from projects is outline in this diagram.

THE FOLLOWING PRINCIPLES ARE USED BY ECC FOR ASSESSMENTS

- International Finance Corporation standards and models, in particular Performance Standard 1, 'Assessment and management of environmental and social risks and impacts' (International Finance Corporation, 2017) (International Finance Corporation, 2012);
- International Finance Corporation CIA and Management Good Practice Handbook (International Finance Corporation, 2013) and,
- Namibian Draft Procedures and Guidance for EIA and EMP (Republic of Namibia, 2008).

DETERMINE THE SIGNIFICANCE OF AN IMPACT

SENSITIVITY AND VALUE OF A RECEPTOR

The sensitivity and value of a receptor is determined by identifying how sensitive and vulnerable a receptor is to change, and the importance of a receptor (internationally, nationally, locally)

NATURE AND CHARACTERISTICS OF THE IMPACT

The nature and characteristics of the impact is determined through consideration of the frequency, duration, reversibility and probability of the impact occurring.

MAGNITUDE OF CHANGE

The magnitude of change measures the scale or extent of the change from the baseline condition, irrespective of the value. The magnitude of change may alter over time, therefore temporal variation is considered (short-term, medium-term, long-term, reversible, irreversible environmental assessment methodology.

ECC – NATURE OF IMPACT

BENEFICIAL (POSITIVE)
An impact that is considered to represent an improvement on the baseline or introduces a positive change.

ADVERSE (NEGATIVE)
An impact that is considered to represent an adverse change from the baseline or introduces a new undesirable factor.

ECC – TYPE OF IMPACT

DIRECT
Impacts causing an impact through direct interaction between a planned project activity and the receiving environment/ receptors.

INDIRECT
Impacts that result from other activities that are encouraged to happen as a result / consequence of the Project. Associated with the project and may occur at a later time or wider area

CUMULATIVE
Impacts that arise as a result of an impact and effect from the project interacting with those from another activity to create an additional impact and effect

REVERSIBILITY

REVERSIBLE
Impacts are reversible and recoverable in the future

PARTLY REVERSIBLE
Some parts of the impact can be reversed while others remain

IRREVERSIBLE
Impacts which are not reversible and are permanent

DURATION

TEMPORARY
Transient; a period of less than 1 year

SHORT TERM
Impacts that are likely to last for the duration of the activity causing the impact and are recoverable (1-5 years)

MEDIUM TERM
Impacts that are likely to continue after the activity causing the impact and are recoverable (5-15 years)

LONG TERM
Impacts that are likely to last far beyond the end of the activity causing the damage (greater than 15 years with impact ceasing after decommissioning of the project)

PERMANENT

SCALE OF CHANGE - EXTENT / GEOGRAPHIC SCALE

ON-SITE
Impacts that are limited to the boundaries of the proposed project site

LOCAL
Impacts that occur in the local area of influence, including around the proposed site and within the wider community

REGIONAL
Impacts that affect a receptor that is regionally important by virtue of scale, designation, quality or rarity.

NATIONAL
Impacts that affect a receptor that is nationally important by virtue of scale, designation, quality or rarity.

INTERNATIONAL
Impacts that affect a receptor that is nationally important by virtue of scale, designation, quality or rarity.

MAGNITUDE OF CHANGE

VERY HIGH / UNKNOWN	Loss of resource, significantly affecting the long term quality and integrity of a resource; irreparable damage or loss of key characteristics, features or elements; or the magnitude is too great to quantify as it is unknown.
HIGH / MAJOR	Loss of resource, and quality and integrity of resource; severe damage to key characteristics, features or elements; or Large scale or major improvement of resources quality; extensive restoration or enhancement; major improvement of attribute quality.
MODERATE	Loss of resource, but not adversely affecting its integrity; partial loss of/damage to key characteristics, features or elements; or Benefit to, or addition of, key characteristics, features or elements; improvements of attribute quality.
LOW / MINOR	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (or maybe more) key characteristic, feature or element; or Minor benefit to, or addition of, one (or maybe more) key characteristic, feature or element; some beneficial effect on attribute quality or a reduced risk of a negative effect occurring.
NONE / NEGLIGIBLE	Very minor loss or detrimental alteration to one (or maybe more) characteristic, feature or element; or Very minor benefit to, or positive addition of, one (or maybe more) characteristic, feature or element.

PROBABILITY

IMPROBABLY (RARE)
The event may occur in exceptional circumstances yet, rarely occurs in the industry. The event could occur once every 100 years

LOW PROBABILITY (UNLIKELY)
The event has happened elsewhere yet, is unlikely to occur. The event could occur once every 10 years

MEDIUM PROBABILITY (POSSIBLE)
The event could occur under some circumstances. The event could occur once every 5 years.

HIGH PROBABILITY (LIKELY)
The event is expected to occur. The event could occur twice per year

DEFINITE (ALMOST CERTAIN)
The event will occur. The event could occur once per month

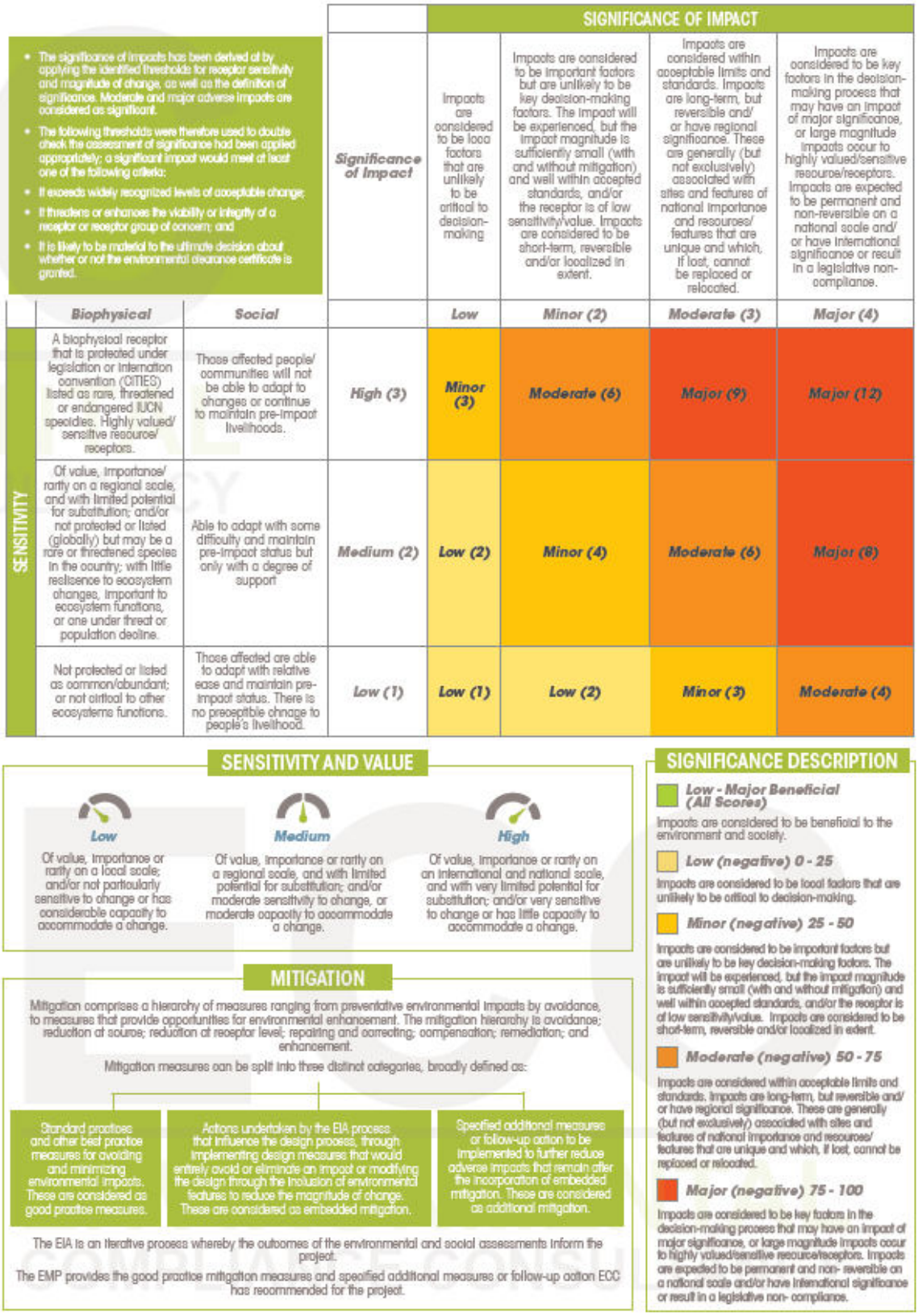


Figure 15 - ECC ESIA methodology based on IFC standards.

6.5 CUMULATIVE IMPACTS

6.5.1 CUMULATIVE IMPACT ASSESSMENT METHOD

Cumulative impacts may arise because of other Project activities, or due to the combination of two or more projects in the Project area. A cumulative impact assessment (CIA) will be undertaken by applying the IFC CIA Good Practice Handbook (International Finance Corporation, 2013), which recommends that a rapid CIA is undertaken.

A rapid CIA takes into consideration the challenges associated with a good CIA process, which include a lack of basic baseline data, uncertainty associated with anticipated development, limited government capacity, and the absence of strategic regional, sectoral, or integrated resource planning schemes.

The following five-step rapid CIA process will be followed:

Step 1: Scoping – Determine spatial and temporal boundaries

Step 2: Scoping – Identify valued environmental and social receptors and identify reasonably foreseeable developments

Step 3: Determine the present condition of valued environmental and social receptors (The baseline)

Step 4: Evaluate the significance of the cumulative impacts

Step 5: Identify mitigation measures to avoid or reduce cumulative impacts

The following information will be applied to the assessment in line with the above steps and IFC guidance:

- The spatial and temporal boundaries of the CIA are the extent of the EPL boundaries and the duration of the construction and operation phases of the proposed Project.
- Valued environmental and social receptors that may be affected.
- A review of existing and reasonable, anticipated and/or planned developments has been undertaken, which is based on the information presented in Chapter 4.
- The predicted future conditions of sensitive and common environmental and social receptors have been taken into consideration in the assessment.
- The assessment findings will be presented in the assessment report and will have the CIA applied in combination with professional judgment and published environmental assessment reports.
- A review of mitigation and monitoring measures will be undertaken, with any additional ones identified.

6.6 MITIGATION

Impacts that are identified throughout the ESIA process will be subjected to a process of impact mitigation, which is inherent in all aspects of the ESIA system. Embedded mitigation and good practice mitigation will be considered in the assessment. Additional mitigation

measures will be identified when the significance of an impact requires it and causes the impact to be further reduced.

The principle of impact mitigation comprises a hierarchy of measures ranging from preventative environmental impacts by avoidance, to measures that provide opportunities for environmental enhancement and will be applied to all impacts associated with the proposed Jindal Iron Ore Mine Project. The mitigation hierarchy is avoidance; reduction at source; reduction at receptor level; repairing and correcting; compensation; remediation; and enhancement. The environmental and social management plan (ESMP) for the Project provides good practice measures of impact mitigation and specifies additional measures or follow-up action where required. The preliminary ESMP is appended to this report (Appendix A – ESMP). On completion of the impact assessment, the mitigation measures from the impact assessment and recommendations from the specialist studies are then incorporated into the Final ESMP, which forms an appendix of the Final ESIA (Appendix A – ESMP).

Mitigation measures can be split into three distinct categories, broadly defined as:

- Actions undertaken by the ESIA process that influence the design process, through implementing design measures that would entirely avoid or eliminate an impact or modifying the design through the inclusion of environmental features to reduce the magnitude of change. These are considered embedded mitigation.
- Standard practices or other best practice measures for avoiding and minimising environmental impacts. These are considered good practice measures.
- Specified additional measures or follow-up actions to be implemented, to further reduce adverse impacts that remain after the incorporation of embedded mitigation. These are considered additional mitigation measures.
- Where additional mitigation is identified, a final assessment of the significance of impacts (residual impacts) will be conducted, taking into consideration the additional mitigation.

The ESIA is an iterative process whereby the outcomes of the environmental assessments inform the environmental management of the proposed Jindal Iron Ore Mine Project through the ESMP.

The preliminary ESMP in Appendix A provides an outline of the good practice measures and specified additional measures or follow-up actions to be undertaken. The project ESMP will be finalised on completion of the impact assessment process and included in the final ESIA report.

7 ASSESSMENT TERMS OF REFERENCE

A full environmental and social impact assessment (ESIA) is required for a mining operation like the proposed Jindal Iron Ore Mining Project. The scope of work for the impact assessment report is defined with due consideration of the range of potential impacts to be identified resulting from the proposed mining operations on EPLs 4013 and 4194 as outlined in the BID. As well as consideration of the concerns/comments raised through the public and stakeholder engagements proposed by the proponent.

The objectives of the ESIA:

- To address the issues and concerns raised by authorities, the public (both interested and affected parties) and the specialist consultants through the public consultation and scoping process.
- To identify and evaluate actual and potential impacts resulting from the Project and processing operations on EPLs 4013 and 4194 that potentially may influence the receiving environment.
- To recommend management, mitigation and monitoring programmes to be implemented before and during mining.
- To define an appropriate environmental and social management plan for the proposed operations on EPLs 4013 and 4194.

Various specialist studies will be undertaken, previous assessment studies will be reviewed and reassessed based on the findings from the public participation phase and any changes in the project scope in the time since the previous studies were completed. A final ESMP will be produced to manage residual impacts that cannot be mitigated through the Project evolution process.

The scope of the ESIA report that will be developed will comprise an updated impact assessment in two primary components based on both existing and new data from related specialist studies as shown in Table 9 below. The terms of reference (ToR) for the various studies are described in this chapter.

Table 9 - List of Specialist Study and Specialist Commissioned.

Study area	Purpose	Specialists
Terrestrial ecology	– Biodiversity, habitat and ecosystem services. – Identification of species of concern and sensitive areas. – Impacts of mining construction and operations on habitats and biodiversity.	– Peter Cunningham
Hydrology	– Water supply – Storm protection and river diversion – Impact on heritage aspects – Clean and dirty water management systems	– Umvoto & ECC

Study area	Purpose	Specialists
Groundwater	– Assess the potential for contamination of aquifers from TSF & WRD. – Provide a model to determine the impacts of drawdown and plume mobility. – Assess the sustainability of boreholes for water supply.	– Umvoto & ECC
Air quality	– Provide emission standards and dust suppression requirements. – Assess prevailing wind directions and possible effects of emissions on the process and/or personnel. – Model potential air quality impacts.	– Airshed
Noise and sense of place	– Identification of possible receptors, and assessment levels of noise to which they may be exposed during construction and operations	– ECC
Soils and land use	– Assess existing land use and potential impacts on surrounding land users. – A soil study informs the quality and quantity of material available for rehabilitation to a similar state on closure.	– ECC
Traffic	– The traffic impact assessment will review the potential traffic impacts and loading on routes associated with the mining activities. – Assess the capacity of infrastructure and safety aspects of the mine entrance. – Assess the need for an intersection upgrade at the mine entrance and provide a concept layout plan if necessary.	– ITS
Heritage and culture	– A heritage assessment is required, to comply with Namibian national legislature and gain approval from the Heritage Council.	– Dr Alma Nankela
Visual and tourism	– Assess the potential visual impacts of a proposed Project on the receiving environment.	– ECC
Social and economic	– Includes the assessment of various recreational, lodge, and commercial game farm activities in the Windhoek Rural, Dorabis and Seeis areas. – Site-level economic impacts. – Potential impact of Jindal's permanent workers camp on the local community.	– ECC
Geochemical sampling and analysis	– The geochemical analysis of waste rock, tailings, and overburden will be undertaken to assess the mineralogical composition, acid mine drainage potential, and metal concentration of the leachate of waste rock and tailings.	– ECC, RGS - Mine Waste and Management Consultants
Climate Change	– Assess the Project's greenhouse gas emissions and assess potential climate-related risks, vulnerabilities and opportunities.	– RDJ Consulting Services CC

Study area	Purpose	Specialists
Blast vibration impact	– Assessing the impact of blasting on receptors in the area.	– Blast Management and Consulting

7.1 BIODIVERSITY ASSESSMENT

The objective of the biodiversity assessment is to define the bio-physical (vertebrate fauna; including avian species & flora) environment relevant to the project area(s) and assess the significance and impact of construction and long-term operation of the various project components on the fauna and flora at the proposed site(s).

Scope of work:

- Comprehensive literature review, Site visit and Fieldwork:

A visit to the applicable project areas (only) will be required to identify, classify, and assess the environment(s) and types of biodiversity harboured. This shall include as a minimum:

a) Small mammal transects;
b) Defining larger mammal presence;
c) Reptile & amphibian transects (diurnal & nocturnal);
d) Bird transects to determine avian diversity in the area;
e) Flora transects to determine plant diversity in the area;
f) Surveying the proposed Project footprint, considering alternative layouts;
g) Propose mitigation measures, as necessary
h) Reporting

- Methods
    - Small mammal trapping will be conducted by using collapsible Sherman traps. Small mammals caught will be identified in situ, photographed, measured (when applicable to facilitate identification) and released unharmed at the site of capture;

      [Transects or grids (i.e. lengths, directions, etc.) will be determined at the site and the techniques used may be adapted according to the local environment]
    - Reptile & amphibian transects will be conducted during the day and night (using a gas lantern) to determine the diurnal & nocturnal reptile diversity. Reptiles & amphibians will be caught using an active capture technique ('reptile noosing') and identified in situ, photographed, measured (when applicable to facilitate identification) and released unharmed at the site of capture;

      [Transects (i.e. lengths, directions, etc.) will be determined at the site and the techniques used may be adapted according to the local environment]

- Larger mammal presence will be determined by direct observations including other signs – e.g. tracks, scats, carcasses, burrows, scrapes, etc. Camera traps will also be set to capture images of larger mammals in the area (if feasible);
- Bird transects (on foot & by vehicle) will be conducted during daylight hours using binoculars to ID and confirm species;

  [Transects (i.e. lengths, directions, etc.) will be determined at the site and the techniques used may be adapted according to the local environment]
- Flora transects to determine species composition will be conducted using the step point method. Tree and shrub densities will also be determined using standard quadrats (10x10m or 20x20m - depending on the terrain). The focus will be on the identification of unique species in the proposed development area. Samples may be collected for further identification if found necessary.

  [Transects & quadrats (i.e. lengths, directions, etc.) will be determined at the site and the techniques used may be adapted according to the local environment]

7.2 GROUNDWATER AND SURFACE WATER ASSESSMENT

The objective of the hydrological and hydrogeological impact assessment is to assess surface and groundwater issues relevant to the Project and look at the significance of development and environmental impact that the Project may have on the hydrological/hydrogeological environment and other users at the proposed site. There should be an assessment of the current baseline hydrology and hydrogeological conditions.

Scope of Work:

Phase 1

- The development of a scoping study to evaluate the current available data and information from previous studies and assessments.
- This should be supported by a comprehensive literature review of existing as well as "recent" relevant publications. Data from previous impact assessment reports should be used to inform the detailed assessment in phase two.
- A scoping report and desktop study report should be provided as a deliverable, including all figures, maps, and spatial and temporal data sets. The assessment should also address hydrological and hydrogeological issues relevant to the Project and assess the significance of development and environmental impact that the Project may have on the surface and groundwater environment at the proposed site, including general comments.

Phase 2

- Conduct a field-based hydrocensus of ~5 km radius of the site boundaries. Water point details (latitude, longitude, elevation, groundwater level, field-based water quality measures) are to be recorded and a list of interested and affected parties visited with all contact details etc. is to be compiled.

- Undertake groundwater sampling to determine baseline groundwater quality of identified aquifer(s). Results must be compared to relevant national and international groundwater quality standards.
- Conduct pumping tests and/or slug tests to determine aquifer properties and general yield potential.
- Determine the interconnectedness between groundwater and surface water resources (if any).
- Develop a conceptual groundwater model including details of recharge, groundwater flow directions, potential existing contamination points and activities.
- Develop a numerical flow and contaminant transport model (steady state) and assess resource availability, contamination plume migration and changes in groundwater level over the life of mine through a series of modelled scenarios. Impacts on other users in terms of quality and quantity need to be considered.
- Provide recommendations for a monitoring network (from existing boreholes identified in the hydrocensus) with clear monitoring objectives and frequencies.
- Identify short-, medium- and long-term impacts and receptors from the various mining infrastructure and activities (pits, tailings facilities, waste rock dumps, processing plant etc.) by undertaking an impact assessment. i) Compile a flood hydrology assessment for the mine site (this can be desktop-based with the best available information).
- Recommend strategic measures to be included in a groundwater and surface water management plan for the Project.

7.3 NOISE ASSESSMENT

The objective is to assess the potential noise impacts of the proposed project on surrounding sensitive receptors, including residents, businesses, wildlife, and the tourism sector. The assessment aims to identify potential impacts, evaluate increased noise effects, and provide recommendations to manage and mitigate these impacts.

Scope of work:

- A comprehensive literature review of relevant publications.
- Study of current baseline noise levels and impacts in the project area.
- Identification of affected receptors and their exposure levels.
- Assistance with monitoring site selection and baseline data analysis.
- Analysis of topography and emissions inventory.
- Attenuation modelling to predict noise propagation.
- Assessment of impacts using ECC's methodology.
- Provision of mitigation recommendations and alternatives.
- Compilation of a report in English.

7.4 HERITAGE AND CULTURAL ASSESSMENT

An archaeological and/or heritage assessment should be conducted to identify and assess potential impacts on archaeological/heritage resources arising from the proposed activities. This should be done taking into consideration the relevant laws, regulations, and ethical guidelines. Furthermore, measures for the preservation, protection, or mitigation of identified cultural resources should be proposed to conclude the assessment.

Scope of work:

- Review available literature pertinent to the proposed project's location.
- Undertake a desktop assessment, supported by a field-based survey to identify archaeological/heritage sites.
- Primary data will be collected during a pre-disturbance site assessment including the proposed project footprint and considering alternative layouts should this be needed. This only includes the most preferred access route option into the proposed project area. Development footprint areas will be surveyed on foot employing a parallel, transect-based survey according to visibility on the ground as far as possible.
- Furthermore, landscape features known to be associated with potential heritage resources will be scrutinised such as hills, rocky outcrops, vegetation, or sources of water.
- Receptor identification, nearby infrastructure and users, residents, tourist hot spots, and other receptors susceptible to impacts from the project raised in the study.
- Propose mitigation measures, as necessary and methodologies for dealing with the discovery of cultural artefacts or ruins with cultural heritage significance.
- Compilation of a report in English.

7.5 AIR QUALITY ASSESSMENT

The objective is to evaluate the potential air quality impacts of the Project on surrounding sensitive receptors, including residents, local projects/businesses, local aerodromes (e.g. H.K. International Airport) and the tourism sector. The assessment aims to identify impacts, assess baseline air quality levels, and provide recommendations to manage and mitigate potential impacts.

Scope of work:

- Study of air quality impacts (e.g., dust fallout, PM10/2.5) on the biophysical and social environment.
- Assessment of baseline air quality levels and sources.
- Review of legal requirements pertaining to air quality standards and regulations.
- Collection and analysis of relevant project data, including technical studies, meteorological data, and previous air quality assessments.
- Literature review of existing and recent publications relevant to air quality impacts in the project areas.

7.6 MINE-INDUCED BLAST AND VIBRATION ASSESSMENT

The objective is to assess the potential impacts of blasts and vibrations that emanate from operations at the proposed Jindal Iron Ore Mine site on nearby farms, communities, lodges, wildlife and the H.K. International Airport. The assessment will evaluate the cumulative impacts of project operations and provide recommendations to manage potential impacts.

Scope of work:

- Detailed analysis of impacts associated by the proposed mining activities.
- Collection of mine layout data and potential vibration level records.
- Identification of sensitive receptors within the project area.
- Evaluation of potential impacts on nearby farms, communities, lodges, wildlife, and the H.K. International Airport.

7.7 GEOCHEMISTRY OF ORE AND WASTE ROCK

The geochemical specialist will assess the potential of waste rock to produce acid that may lead to acid mine drainage during leech events and the impacts that this may have on the biotic environment and provide mitigation measures.

Scope of work:

- The assessment will require the review of existing information on available data provided by the proponent for waste rock, ore and tailing materials.
- All individual samples would be screened for total Sulphur, pH, EC, and Acid-Base Account with some confirmatory Sulphur speciation and Net Acid Generation (NAG) testing. Selected individual and/or composite samples will then be assessed for acidity/alkalinity, multi-elements (total and soluble), exchangeable cations, and major ions in leachate.
- Based on the results of the static geochemical analyses, more detailed kinetic geochemical analysis using kinetic leach columns (KLCs) will be established.
- Mineralogical analysis of selected materials using semi-quantitative X-ray diffraction (XRD), or other appropriate techniques should also be completed on a select subset of samples to assist in confirming and better understanding the geochemical nature of the materials in the proposed mining area.
- Provide alternatives and options if the proposed project options are not viable to reduce impacts.
- Applicable mitigation and management measures should be recommended subject to the significance of the impact.
- Compilation of a report in English.

7.8 TRAFFIC ASSESSMENT

A traffic assessment will be commissioned to assess the implications relevant to the project with regards to the current C23, M51 and B6 roads which are expected to be used as the official Jindal mine access route.

Scope of Work:
The increase in traffic volume from the proposed project also needs to be evaluated, to see whether the M51 and B6 routes would be able to manage an increase in traffic volume from the proposed Project and existing surrounding receptors. The deliverables include:

- Study of traffic impacts on the biophysical and social environment.
- Assessment of current baseline traffic levels and sources.
- Identification of affected receptors and exposure levels.
- Data collection on transport details, route conditions, and site surveys.
- Impact assessment to identify constraints and propose mitigation measures.
- Reporting including conceptual drawings and final assessment reports.

7.9 SOIL BASELINE ASSESSMENT

A soil baseline study will be conducted in-house to assess the soils present in the study area. The study will summarise the soil composition, fertility, land use potential, and erodibility of the Project area. The assessment will establish a reference point for future soil comparisons, for environmental monitoring and will contribute to the rehabilitation and mine closure designs and reports.

Scope of work:

- The report should define, and characterise the receiving baseline environment and determine the land use capability by assessing a combination of observations during a site survey.
- It should provide detailed information on the physical, chemical, and biological properties of the soil, including pH, nutrient levels (such as nitrogen, phosphorus, and potassium), organic matter content, and texture.
- Additionally, the report should assess existing land use and potential impacts on surrounding land users.
- The soil study will inform the quality and quantity of material available for rehabilitation to a similar state on closure.

7.10 CLIMATE CHANGE ASSESSMENT

A climate change assessment should be conducted to assess the Project's potential greenhouse gas emissions (Scope 1, 2 and 3) as well as assess the Project's potential climate-related risks and vulnerabilities. The assessment should also recommend mitigation and adaptation measures while considering potential co-benefits.

Scope of work:

- Assess the Project's greenhouse gas emissions by collecting data on the projected emissions across direct (Scope 1), indirect (Scope 2), and other indirect (Scope 3) sources, using methodologies such as the GHG Protocol to quantify emissions and identify hotspots.
- A comprehensive analysis of climate change impacts should evaluate physical, regulatory, market, and reputational effects on operations, supply chain, and stakeholders, considering both short-term and long-term impacts using climate models, scenario analysis, and risk assessment techniques. Additionally, the vulnerability and resilience the Project's business to climate-related risks will be evaluated by identifying specific vulnerabilities,
- Assess Jindal's adaptive capacity and existing risk management strategies and consider both physical and transition risks.
- Assess potential mitigation strategies and prioritize each based on feasibility, cost-effectiveness, and emissions reduction potential, with consideration of co-benefits. If viable strategies are not readily apparent, further analysis or research should be conducted to develop innovative solutions.

7.11 SOCIO-ECONOMIC ASSESSMENT

A socio-economic study will be conducted in-house to assess the impact of the current project along with other socio-economic activities in the area on the current socio-economic state of the area and its inhabitants.

Scope of work:
The assessment will look at the impact of the project associated with an influx of workers in the area (farms and lodges) and the residential town. It will also look at the impact the Project will have on job creation in the area (nearby village of Seeis and the city of Windhoek). The deliverables include:

- Receptor identification
- Baseline socio-economic assessment
- Mitigation recommendations
- Alternative options

8 CONCLUSION

This final scoping report provides the baseline data for the assessment phase of the ESIA. ECC will carry out an in-depth environmental and social impact assessment to ensure that all potentially significant impacts that may occur during the Project are identified.

These potential impacts will then be further analysed to establish mitigation and best practice methods to protect the environment and avoid unforeseen effects and environmental disturbances. These mitigation and best practice managing methods will then be outlined in a detailed environmental management plan.

The likely studies to be completed for the proposed Project assessment may include those set out in Table 10.

Table 10 - Likely studies to be completed for the proposed Project assessment.

STUDY AREA	PURPOSE
Terrestrial ecology	– Biodiversity and habitat – Identification of species of concern and sensitive areas – Impacts of mining construction and operations on habitats and biodiversity
Hydrology	– Water supply – Storm protection – Impact on downstream users – Clean and dirty water management systems
Air quality	– Provide emission standards and dust suppression requirements. – Assess prevailing wind directions and the effects of emissions on the process and/or personnel. – Model potential air quality impacts.
Noise and sense of place	– Identification of receptors and assess levels of noise to which they may be exposed during construction and operations.
Soils and land use	– Assess existing land use and potential impacts on surrounding land users. – A soil study informs the quality and quantity of material available for rehabilitation to a similar state on mine closure.

STUDY AREA	PURPOSE
Traffic	– A traffic study will focus on the potential traffic impacts and loading on routes associated with the mining activities. – Assessing the capacity of infrastructure and safety aspects of the mine entrance.
Heritage and Culture	– A heritage assessment is required, to comply with the Namibian National legislature.
Visual	– Assessing the potential visual impacts of the proposed project on the receiving environment.
Geochemical and sampling analytics	– The geochemical analysis of waste rock, tailings and overburden will be undertaken to assess the mineralogical composition, acid mine drainage potential and metal concentration of the leachate of waste rock tailings.
Blast and Vibration	– Assessing the impact of blasting on receptors in the area.
Climate Change	– Assess the Project's greenhouse gas emissions and assess potential climate-related risks, vulnerabilities and opportunities.
Socio-economic	– Assessing the impacts of the Project on the social fabric and local economy of Seeis, Dordabis and Windhoek.

Findings from the ESIA process will be reported in the ESIA and ESMP ready for public, stakeholder, competent authority, and government review for a record of decision.

BIBLIOGRAPHY

Jessica Lindsey, & Luann Dahlman. (2024, January 18). *Climate Change: Global Temperature*. National Oceanic and Atmospheric Administration - Climate.Gov.

Josef Sheehama. (2023, December 16). Namibia's Economic Performance in 2023. *The Namibian*.

Mo Ibrahim Foundation. (2023). *2022 Ibrahim Index of African Governance - Index Report*.

Namibian Statistics Agency. (2023). *2023 Population and Housing Census - Preliminary Report*.

United Nation Development Programme. (2023). *Global Multidimensional Poverty Index 2023 - Unstacking global poverty: Data for high impact action*.

Namibia Statistics Agency. (2019). *Namibia Labour Force Survey 2018*. Windhoek: Namibia Statistics Agency.

Namibia Statistics Agency. (2017). *Namibia Labour Force Survey 2016 Report*. Windhoek: Namibia Statistics Agency.

meteoblue. (2024). *Simulated historical climate & weather data for 22.65°S 17.5°E*. [online] Available at: https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/-22.647N17.504E [Accessed 23 Apr. 2024].

NA-MIS. (2024). *Namibia*. [online] Available at: https://na-mis.uit-sensoweb.de/mobile-maptest.html [Accessed 23 Apr. 2024].

Melzheimer J, Weise F, Schmidt-Kuentzel A, Marker L, Nghikembua M, Fleury G, Wachter BH & Portas R 2022. A conservation assessment of Cheetah Acinonyx jubatus. In: NCE, LCMAN, MEFT (eds) 2022. Conservation Status and Red List of the Terrestrial Carnivores of Namibia. Pp 14-22. MEFT, LCMAN & NCE, Windhoek, Namibia.

Stuart, C. and Stuart, M. (2015). Stuarts' field guide to mammals of southern Africa, including Angola, Zambia & Malawi. Cape Town: Struik Nature.

Irish, J. (2024). Namibia Biodiversity Database. [online] Namibia Biodiversity Database. Available at: http://biodiversity.org.na/index.php.

IUCN 2024. The IUCN Red List of Threatened Species. Version 2021-1. https://www.iucnredlist.org.

Ulrich Oberprieler and Burger Cillié (2008). The bird guide of Southern Africa. Pretoria: Game Parks Publishing.

APPENDIX A – PRELIMINARY ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

APPENDIX B – PUBLIC CONSULTATION DOCUMENT

APPENDIX C – ADDENDUM REPORT

APPENDIX D – EAP CVS