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ENVIRONMENTAL PRE-FEASIBILITY SCOPING STUDY AND TERMS OF REFERENCE REPORT

CES

ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES

TAILINGS STORAGE FACILITY, RELOCATION CHANNEL, AND ROAD DIVERSION AT THE PROPOSED NATAKA HEAVY MINERALS DEPOSIT, NAMPULA PROVINCE, MOZAMBIQUE

Environmental Pre-Feasibility Scoping Study and Terms of Reference Report

Prepared for:

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REVISIONS TRACKING TABLE

CES Report Revision and Tracking Schedule

Document Title:	Environmental Pre-Feasibility Scoping Study and Terms of Reference for the proposed Tailings Storage Facility, Relocation Channel, and Road Diversion at the Proposed Nataka Heavy Minerals Deposit, Nampula Province, Mozambique		
Client Name and Address:	Kenmare Moma Mining (Mauritius) Limited and Kenmare Moma Processing (Mauritius) Limited, Av. Marginal 4985, Prédio Zen, 4º Andrar Esq., Maputo, Mozambique		
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NON-TECHNICAL SUMMARY

INTRODUCTION AND BACKGROUND

The heavy mineral ore bodies of Namalope and Pilivili, located in the Nampula Province, north-eastern Mozambique are currently being mined by Kenmare Moma Mining (Mauritius) Limited and Kenmare Moma Processing (Mauritius) Limited (collectively referred to as “Kenmare”). These ore bodies are a finite resource and mining at the Namalope deposit is forecast to be completed by 2025. Kenmare therefore need to relocate the existing mining operations to the Nataka deposit, which is a proven resource. The Nataka deposit is located approximately 8 km south-west of Namalope, within Kenmare’s existing concession. The relocation of the mining operations is required to ensure that the provision of feedstock to maintain the current production rate of 1.2 million tonnes of ilmenite plus the co-products zircon and rutile can continue.

This report relates to the proposed infrastructure associated with the mine and includes the following:

- Tailings Storage Facility (TSF);
- Relocation Channel to move the Wet Concentrator Plant (WCP – A) to the new mining area at Nataka;
- Road diversion; and
- Infrastructure Terrace

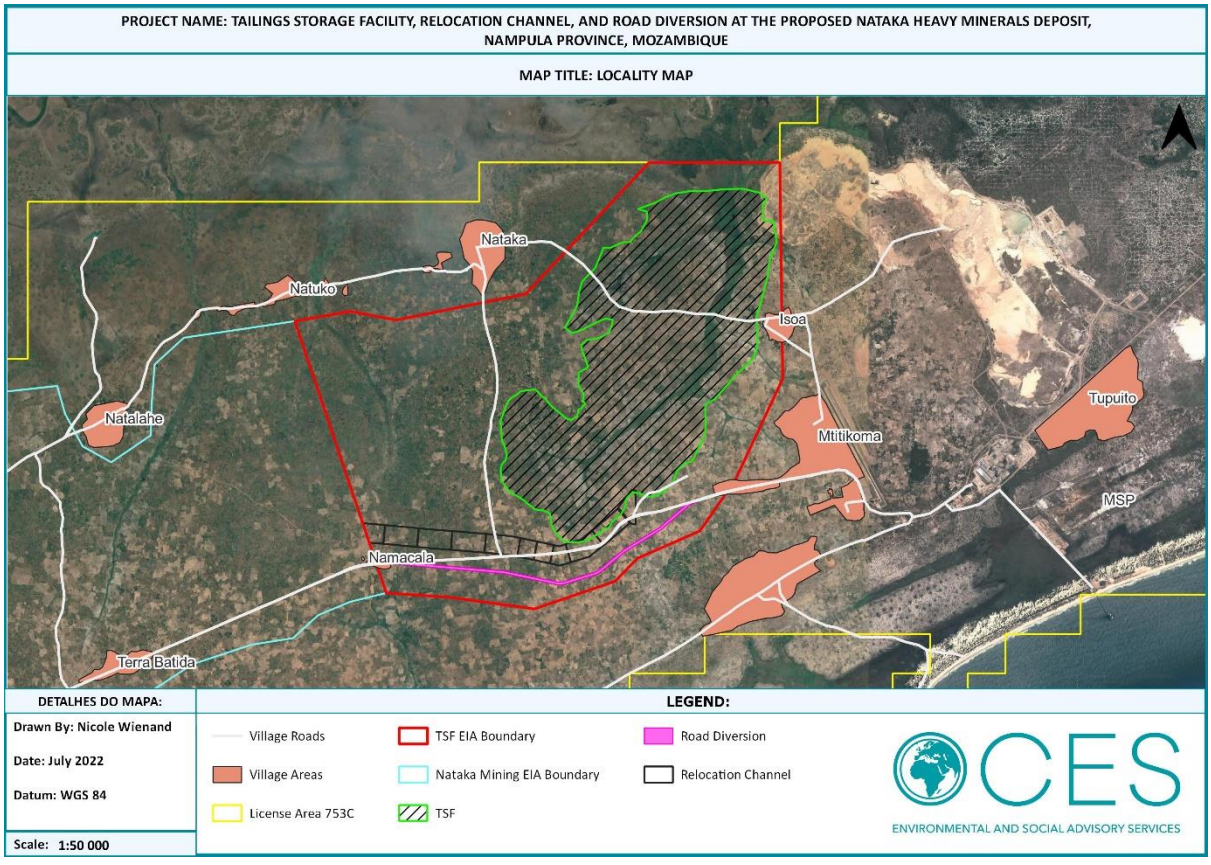

Figure 1: Locality Map:

PROJECT DECRIPTION

Tailings Storage Facility (TSF)

Test work indicated that the Nataka slimes consolidates (settles) at a very slow rate, preventing the containment of the slimes in paddocks within the mine path, due to both safety and practical considerations. Due to this slow settling, it will not be possible to rehabilitate the backfilled mine void in an acceptable time frame, as the slimes could take decades to settle, leaving depressions that will need to be repeatedly filled and shaped. By concentrating the slimes into a few larger storage areas, the slimes can continue settling over long time, and the facility can be managed to make efficient use of evaporative drying. This is preferable from both a safety and land take perspective. However, it does mean that land used for the TSF cannot be returned to the community and the TSF therefore results in a permanent loss of land.

Inflows of water to the TSF facility include the following:

- Runoff from the non-diverted natural catchment area upgradient of the TSF impoundment.
- Direct precipitation on the TSF.
- Net decant water from the deposited slimes (estimated as the difference between the water pumped with the slimes as a slurry slime minus the water that remains trapped with the slimes mass).

Outflows from the TSF facility includes the following:

- Evaporation from the TSF and decant pond.
- Pumped outflows from the decant pond.
- Seepage water reporting to the subsurface drains.

Relocation Channel

WCP-A and other infrastructure will need to be moved from the existing operations at Namalope to the new proposed operations at Nataka. It is proposed that that the main infrastructure, the dredgers and Wet Concentrator Plant is moved via a narrow dredge channel connecting the existing operations to the new proposed mine. This relocation channel will be approximately 6.5 km in length and on average 220 m in width which will allow the dredgers to mine through the lower grade areas to reach the high-grade zone at the proposed Nataka deposit as fast as possible. Mining in this channel will be minimised as far as is safe and practical, and with due consideration for infrastructure and services requirements.

Road Diversion

A small section of the existing road that runs from Mitticoma Village to the intersection of the Mecane - Pilivilli Village Road will need to be diverted around the proposed mine path. The approximate length of the diversion is anticipated to be 4 km with an approximate width of 30 m. Based on preliminary designs there will be enough cut and fill to balance the material for

the underlying layer works. However, should it be required additional red sand can be obtained from existing borrow pits in the area. This will be confirmed during the ESHIA process.

Infrastructure Terrace

The infrastructure terrace which will include a HMC Positive Displacement (PD) pumping station (3 PD pumps with one pipeline), slimes PD pump to transfer slimes to the Isoa Valley TSF (5 PD pumps with one pipeline, only to be implemented in the end of the relocation channel), raw water dam, fixed thickeners and flocculant plant (3 x 65m diameter thickeners only applicable to the fixed thickener scenario), Heavy Machinery Equipment (HME) Workshop, Stores, Offices and Ablutions, Wash Bay, Sand Trap, Oil Separator and Water Tanks, Process water dam, HMC Stacker, Reclaim Conveyor and bin discard with reclaim ramp and High Voltage (HV) Yard and substation. Depending on detailed planning it is possible that more than one eastern infrastructure terrace will be required. If this is the case then the original infrastructure terrace will need to be decommissioned and rehabilitated.

The exact position and size of the infrastructure terrace is not currently defined and will depend on the outcome of the environmental assessment and associated technical studies currently being undertaken by Kenmare.

MOTIVATION

Due to the anticipated depletion of ore which is currently being mined at the Namalope Heavy Minerals Mine located in Nampula Province, north-eastern Mozambique, Kenmare Moma Mining (Mauritius) Limited and Kenmare Moma Processing (Mauritius) Limited (collectively referred to as “Kenmare”) need to relocate the existing mining operations to a new mining area, a proven resource referred to as the Nataka deposit, located directly west of Namalope, within Kenmare’s existing concession. The relocation of the mining operations will ensure the provision of feed required to maintain the production rate of 1.2 million tonnes of ilmenite plus the co-products zircon and rutile, thus sustaining the capacity of the existing Mineral Separation Plant (MSP).

Mozambique is a developing country in southern Africa that has been steadily rebuilding its economy and civic institutions since ending a 16-year civil war in 1992. Despite the impressive economic growth over the past decade, and the forecasts for continued economic growth, Mozambique still faces some significant challenges. It ranks 180 out of 189 countries on the 2018 UNDP Human Development Index and approximately 60% of the population of 23.7 million live on less than $USD1.25/day.

Mozambique is experiencing a period of economic growth due to recent discoveries of predominantly gas, coal, rubies and graphite. It is envisaged, and hoped by many, that this growth will be achieved in a manner which is beneficial to all of Mozambique's citizens and will permanently elevate the country from being amongst the World’s poorest. The principal driver by which this growth is to be achieved is through foreign direct investment into the resources and mineral sector.

The expansion of the Kenmare Operations to the Nataka site will assist Kenmare to continue employing local people and Mozambique nationals, as operations will continue, and mine

closure would not be required. In addition, the construction phase of the proposed project will also result in a limited number of additional employment opportunities within the general project area. The proposed development will also ensure Kenmare is able to continue with its current levels of tax payments and will continue to implement various Corporate Social Responsibility projects to uplift the project affected communities, the details of which will be determined in consultation with the communities on site.

To achieve this expansion Kenmare have determined that the best option is to mine the Nataka deposit. However, this deposit contains significantly more fine material (slimes) and the only way to manage this during the mining process is to construct a large tailings storage facility. The preferred location for this TSF has considered technical, practical, environmental and social aspects.

ALTERNATIVES

A different type of development: Since the core business of the project developer is mining and as the surrounding areas are already being utilised for this purpose, the fundamental alternative of a development other than the required associated mining infrastructure (i.e. TSF, road diversion and relocation channel) is therefore technically not feasible in this instance. For this reason, no fundamental alternative to the proposed development will be considered.

A different location: Using natural valleys as a TSF site minimises the size of the wall required per unit of storage volume. Ten valley sites were evaluated in terms of wall construction, pumping distance, storage volume and environmental and social impact. Only four valleys are large enough to contain the 20-year slimes produced by the Nataka mine path, but three were discarded because of their severe community and environmental impacts, or for practical reasons, being too far from the mining area. Isoa valley was the most favourable of the remaining locations and was selected.

Design: Several design alternatives have been assessed as part of a pre-feasibility study completed for the proposed project. These include the following:

Relocation Channel vs Road Transport: The first method considered was mining through a relocation channel in the low-grade area of Nataka. This channel has been designed to be practical, minimise distance and maximise linear advance. It is scheduled to take about two years to cross. The WCP-A can also be relocated directly to the start of the canal via road or a pre-constructed canal. Direct relocation provides the opportunity to target the higher-grade western area of the footprint early on (as opposed to the eastern side which is closer). However, while the road relocation helps close a short-term ilmenite shortfall, it does not add significant value and it complicates mining and backfill at start-up. It is also a potential fatal flaw as WCP-A might not be relocatable by road due to its size. Dredging via a relocation channel is thus the preferred method.

Tailings and Slimes Management: Two primary options for slimes deposition were considered, namely continuous slimes paddocks within the mine path, and long term TSFs. Test work indicated that Nataka slimes consolidate at a very slow rate, and this prohibits land-return to the community. Dedicated TSFs for slimes were therefore recommended over in-path paddock deposition. However, in some specific situations in-path paddocks may still be

required, for example when mining in particularly high slimes areas. As such both options as well as a combination of these options will be assessed further in the ESHIA.

Layout: For mining projects layout alternatives are very limited, as the location of the mine is determined by the presence of the resource to be exploited. Thus, the layout of the mining path is based on geological exploration, which is used to define the extent of a commercially exploitable resource. The presence of the minerals therefore dictates the layout of the mine path. Further layout options might include for example the location of access roads and other associated infrastructure. Alternative layout options will be explored in the ESIA.

No-Go: According to the ESHIA Regulations, the option of doing nothing, not proceeding with the proposed development (i.e., the No-go Option), must be assessed during the ESHIA.

ECOLOGICAL SENSITIVITY

Hydrology:

The Nataka project area includes several tertiary tributaries that flow into one of the two main secondary tributaries of the Larde River. These linear drainage features mainly slope from south to north and drain the site into the Larde floodplain. In the southern extent there is an isolated drainage line that flows seaward. The floodplain of the Rio Larde is a major geomorphic feature to the north but falls outside the boundary of the deposit area.

There are several wetland systems within the project area. Although a number of these wetlands have been impacted by vegetation clearing largely for agricultural purposes, they still support considerable biodiversity and provide a range of valuable ecosystem services such as water supply for domestic use (washing and drinking) and subsistence agriculture.

Vegetation:

The vegetation present within the study area is a mosaic of Miombo Woodland and transformed land which is comprised of machambas. Due to the past and present shifting cultivation practices a mosaic of vegetation types occur. A vegetation classification has not been done at this stage, but based on a preliminary field visit the following communities were identified:

- Secondary savannah – most abundant
- Miombo woodland/thicket – isolated patches
- Vegetation of drainage line – restricted to drainage lines
- Floodplain grassland – restricted to the Larde floodplain area.

Fauna:

During the brief dry season screening survey undertaken in 2021, four reptiles, three amphibians, three mammals and 44 bird species were recorded. Two SCC were observed on site; the Martial Eagle (EN) and the Pallid Harrier (NT). Species that need further investigation in the ESHIA include confirmation of the presence of the Mole-rat species, the Zambezi Flapshell Terrapin (Cycloderma frenatum) (EN), the Temminck's Pangolin (Smutsia

temminckii) (VU) and several vulnerable bird species. A faunal assessment will be conducted as part of the ESHIA process.

Protected Areas:

There are fifty-eight (58) protected areas in Mozambique, covering a total land surface area of 233,249 km^2 (Integrated Biodiversity Assessment Tool - IBAT). A portion of the project area falls within the Primeiras and Segundas Environmental Protection Area (APAIPS), one of the largest protected marine areas in Africa with a marine reserve of approximately 10,411 km^2. The APAIPS includes 10 islands, the strip of ocean between these islands and the shore, as well as several estuaries and rivers within the 19.3 km stretch inland.

The management of Conservation Areas in Mozambique is primarily the responsibility of the National Conservation Administration (ANAC). However, management of the APAIPS is based on a participatory approach and incorporates government, communities, private sector, civil society and others (Biofund, 2022). The Management Plan for the APAIPS (Plano de Maneio da Área de Protecção Ambiental do Arquipélago das Ilhas Primeiras e Segundas 2014-2019) provides guidance on specific activities within the protected area to minimise threats to biodiversity and identifies various zones within the Environmental Protection Area with different levels of environmental protection. The document indicates that there are several approved mine concession areas within the designated area and includes specific guidance on how such activities should be managed.

Other than the APAIPS, the nearest protected area in proximity to the project area is the Gile Game Reserve, located approximately 53 km north-west of the project area.

SOCIAL SENSITIVITY

Four villages are located within and directly adjacent to the project's boundaries and access routes. The villages are:

- Natuko
- Nataka
- Mtitikoma
- Tibane

These villages will all be directly affected by the project and are referred to as project affected communities (PAC).

RISKS IDENTIFIED

A total of twenty-seven (27) potential risks were identified for the proposed project. Of these twenty-seven potential risks, ten (10) were classified as being of high negative significance, thirteen (13) were classified as being of moderate negative significance and one (1) was classified as low negative significance prior to mitigation. Additionally, two (2) were classified as high positive and one (1) as moderate positive (see table below). In terms of risks, with the implementation of sound mitigation measures, most of the potential risks identified can be reduced to minor or medium. However, seven (7) risks were classified as major, and it is these

risks that require careful consideration during the ESHIA phase. Three of these risks are biophysical in nature, and relate to impacts on groundwater quantity and quality, disturbance to drainage lines and the Larde River, and impacts of mining on soil productivity. The remaining four are social risks relating to in-migration, impacts related to disrupting community access routes, risks associated with involuntary resettlement, and loss of land and access to resources.

Issue	Significance Rating	Mitigation Potential	Anticipated Risk
PS 2 – Labour and Working Conditions			
National and Regional Benefits	**Moderate (+)**	Easily Achievable	**Minor**
Creation of Employment	**Moderate (+)**	Easily Achievable	**Minor**
Working Conditions	**Low (-)**	Achievable	**Minor**
Occupational Health and Safety	**Moderate (-)**	Difficult	**Medium**
Social Development	**High (+)**	Easily Achievable	**Minor**
In-migration	**Moderate (-)**	Very Difficult	**Major**
PS 3 - Pollution Prevention and Abatement			
General and Hazardous Waste	**Moderate (-)**	Achievable	**Minor**
Surface water and stormwater contamination	**High (-)**	Easily Achievable	**Medium**
Water Use	**High (-)**	Easily Achievable	**Minor**
Groundwater Quantity & Quality	**Low (-)**	Very Difficult	**Minor**
Noise	**Low (-)**	Achievable	**Minor**
Air Quality	**Low (-)**	Achievable	**Minor**
Energy Use	**Low (-)**	Achievable	**Minor**
Landscape and Visual Quality	**Moderate (-)**	Achievable	**Minor**
PS 4 – Community Health, Safety and Security			
Access	**High (-)**	**Difficult**	**Major**
Safety	**Very High (-)**	**Achievable**	**Extreme**
Traffic Impacts	**Low (-)**	**Achievable**	**Minor**

Issue	Significance Rating	Mitigation Potential	Anticipated Risk
Community Health and communicable disease	**Moderate (-)**	**Achievable**	**Minor**
PS 5 – Land Acquisition and Involuntary Resettlement			
Resettlement	**High (-)**	**Difficult**	**Major**
Loss of land and access to resources	**High (-)**	**Difficult**	**Major**
Changes to social systems and structures	**Moderate (-)**	**Achievable**	**Minor**
PS 6 – Biodiversity Conservation and Sustainable Natural Resource Management			
Permanent loss of vegetation and biodiversity	**Moderate (-)**	**Difficult**	**Major**
Habitat fragmentation and loss of fauna	**Moderate (-)**	**Difficult**	**Medium**
Disturbance to drainage lines and the Larde River	**High (-)**	**Difficult**	**Major**
Impacts of mining on soil productivity	**High (-)**	**Difficult**	**Major**
PS 8 – Cultural Heritage			
Graves	**Moderate (-)**	**Achievable**	**Minor**

WAY FORWARD

Specialist studies (including field surveys) will be completed within the study area. However. The existing information available for the broader area will be used to contextualise the site and any issues such as Species of Conservation Concern (SCC) that might be identified.

The following specialist studies will be undertaken to supplement and inform the ESIA:

1. Vegetation Assessment
2. Terrestrial Faunal Assessment
3. Soils, Land and Natural Resource Use and Agriculture
4. Groundwater Assessment
5. Surface Water Assessment (including baseline survey)
6. Wetland Assessment
7. Socio-economic Impact Assessment including Cultural and Heritage Assessment
8. Health Impact Assessment

9. Air Quality Assessment (including baseline)
10. Rehabilitation Strategy

Upon completion of the specialist studies, a Draft ESHIA and a Draft Environmental &Social Management Plan will be compiled and the information contained therein will be circulated to all stakeholders for comment prior to submission of these reports to the authorities for decision making purposes.

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LIST OF ACRONYMS AND ABBREVIATIONS

AfDB	African Development Bank
AfRSG	African Rhino Specialist Group
AIA	Avaliação de Impacto Ambiental or Environmental Impact Assessment
AP	Action Plan
ASL	Above Sea-Level
CBD	Convention on Biological Diver¬sity
CES	Coastal and Environmental Services
CITES	Convention on International Trade and Endangered Species of Wild Fauna and Flora
CR	Critically Endangered
DINAB	Direcção Nacional do Ambiente or National Directorate of the Environment (within the Ministry of Land and Environment)
DUAT	Direito de Uso e Aproveitamento da Terra or Right to Use and Benefit from Land (a state-granted land right)
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment (Regulations)
EMPr	Environmental Management Programme
EN	Endangered
EPDA	Estudo de Pré-viabilidade Ambiental e Definiao de Ambito or Environmental Pre-feasibility Scoping Study
EPFI	Equator Principles Financial Institutions
E & S	Environmental and Social
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Programme
ESMS	Environmental and Social Management System
FPIC	Free, Prior and Informed Consent
GDP	Gross Domestic Product
GHG	Greenhouse Gas
HIV	Human Immunodeficiency Virus
HM	Heavy Mineral
HMC	Heavy Mineral Concentrate
IBA	Important Bird Area
IBAT	Integrated Biodiversity Assessment Tool
I&AP	Interested and Affected Party
ICPC	International Cable Protection Committee
IFC	International Finance Corporation
ILO	International Labour Organisation
INE	Instituto Nacional De Estatistica
IUCN	International Union for Conservation of Nature
KM	Kilometre
KMAD	Kenmare Moma Associação de Desenvolvimento
LC	Least Concern
MSP	Mineral Separation Plant
MTA	Ministério da Terra e Ambiente or Ministry of Land and Environment
NGO	Non-Government Organisation
NT	Near-threatened
OHL	Overhead Line

PAC	Project Affected Community
PFS	Pre-Feasibility Study
PPP	Public Participation Process
PS	Performance Standards
PSEPA	Primeiras and Segundas Environmental Protection Area
RP	Resettlement Plan
SCC	Species of Conservation Concern
STD	Sexually Transmitted Disease
ToR	Terms of Reference
TSF	Tailings Storage Facility
UN	United Nations
UNDP	United Nations Development Programme
US$	United States Dollar (currency)
VU	Vulnerable
WCP	Wet Concentration Plant
WHO	World Health Organisation

1 INTRODUCTION

1.1 PROJECT OVERVIEW

The heavy mineral ore bodies of Namalope and Pilivili, located in the Nampula Province, north-eastern Mozambique are currently being mined by Kenmare Moma Mining (Mauritius) Limited and Kenmare Moma Processing (Mauritius) Limited (collectively referred to as “Kenmare”). These ore bodies are a finite resource and mining at the Namalope deposit is forecast to be completed by 2025. Kenmare therefore need to relocate the existing mining operations to the Nataka deposit, which is a proven resource (Figure 1.1). The Nataka deposit is located approximately 8 km south-west of Namalope, within Kenmare’s existing concession. The relocation of the mining operations is required to ensure that the provision of feedstock to maintain the current production rate of 1.2 million tonnes of ilmenite plus the co-products zircon and rutile can continue.

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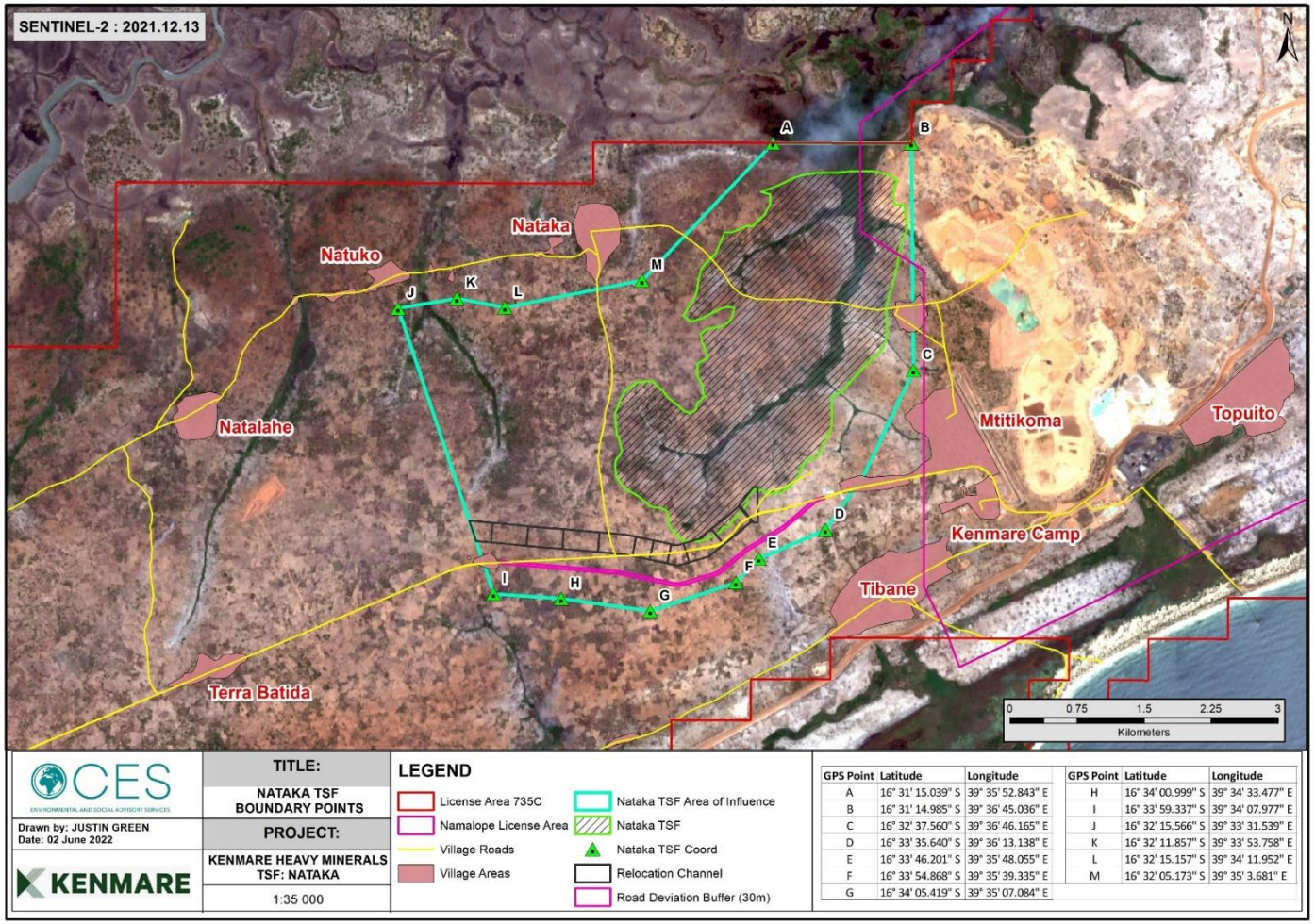
- Relocation Channel in order to move the Wet Concentrator Plant (WCP) - A to the new mining area at Nataka;
- Road diversion; and
- Infrastructure Terrace.

1.2 ENVIRONMENTAL PERMITTING PROCESS

An environmental permitting process to obtain an environmental license is required for all public and private sector activities that can directly or indirectly influence the environment in Mozambique. The proposed project is therefore subject to a regulated Environmental and Social Impact Assessment (ESIA) process. This Estudo de Pré-viabilidade Ambiental e Definição de Âmbito (EPDA), translated as an Environmental Pre-feasibility Scoping Study, is required at the start of the EIA process, which also requires a mandatory stakeholder engagement process referred to as the Public Participation Process (PPP). This provides the opportunity for anyone with an interest in, or who may be affected by the proposed project, to become involved.

It should be noted that a separate ESIA Process is currently being undertaken for the proposed mining operation at the Nataka Heavy Minerals Deposit Project.



GPS Point	Latitude	Longitude	GPS Point	Latitude	Longitude
A	16° 31' 15.039" S	39° 35' 52.843" E	H	16° 34' 00.999" S	39° 34' 33.477" E
B	16° 31' 14.985" S	39° 36' 45.036" E	I	16° 33' 59.337" S	39° 34' 07.977" E
C	16° 32' 37.560" S	39° 36' 46.165" E	J	16° 32' 15.566" S	39° 33' 31.539" E
D	16° 33' 35.640" S	39° 36' 13.138" E	K	16° 32' 11.857" S	39° 33' 53.758" E
E	16° 33' 46.201" S	39° 35' 48.055" E	L	16° 32' 15.157" S	39° 34' 11.952" E
F	16° 33' 54.868" S	39° 35' 39.335" E	M	16° 32' 05.173" S	39° 35' 3.681" E
G	16° 34' 05.419" S	39° 35' 07.084" E			

Figure 1.1: Locality of the proposed TSF, Relocation Channel, and Road Diversion at the proposed Nataka Heavy Minerals Deposit, Nampula Province, Mozambique.

1.3 THE PROPONENT AND CONSULTING COMPANY

The proponent for this project is Kenmare Moma Mining (Mauritius) Limited and Kenmare Moma Processing (Mauritius) Limited.

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The Consultants

This document has been prepared by Coastal and Environmental Services Mozambique Lda (CES). CES is a company registered in Mozambique, with the Ministério da Terra e Ambiente (MTA) (Appendix 2) and has the requisite knowledge, experience and multidisciplinary specialists to conduct environmental impact assessments and prepare environmental management programs.

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1.4 EXPERTISE OF KEY TEAM MEMBERS

Dr A.M. (Ted) Avis – Project Leader / Reviewer

Ted Avis is a leading expert in the field of Environmental Impact Assessments, having project-managed numerous large-scale Environmental and Social Impact Assessment (ESIAs) to international standards (e.g. International Finance Corporation). Ted was principal consultant to Corridor Sands Limitada for the development of all environment aspects for the US$1billion Corridor Sands Project. Ted has also managed ESIA studies and related environmental assessments of similar scope in Kenya, Madagascar, Egypt, Malawi, Zambia and South Africa. He has also worked on large scale Strategic Environmental Assessments in South Africa and has been engaged by the International Finance Corporation (IFC) on a number of projects. Ted was instrumental in establishing the Environmental Science Department at

Rhodes University whilst a Senior lecturer in Botany, based on his experience running honours modules in ESIA practice and environment. He is an Honorary Visiting Fellow in the Department of Environmental Sciences at Rhodes. He was one of the first certified Environmental Assessment Practitioners in South Africa, gaining certification in April 2004. He has delivered papers and published in the field of ESIA, Strategic Environmental Assessment and Integrated Coastal Zone Management and has been a principal of CES since its inception in 1990, and Managing Director since 1998. Ted holds a PhD in Botany, and was awarded a bronze medal by the South African Association of Botanists for the best PhD adjudicated in that year, entitled “Coastal Dune Ecology and Management in the Eastern Cape”

Dr Chantel Bezuidenhout – Project Manager

Dr Chantel Bezuidenhout holds MSc and PhD degrees in Botany (estuarine ecology) and a BSc degree in Botany and Geography from Nelson Mandela Metropolitan University (South Africa). Dr Bezuidenhout has been an Environmental Consultant for over 10 years and as such has been focusing on environmental management and impact assessment. She is well versed in environmental legislation and has managed a number of environmental, social and health impact assessments and management plans for heavy mineral mining in South Africa and Madagascar. These projects have been completed to international standards (IFC and World Bank). In addition, Dr Bezuidenhout has also completed ESHIA’s for a number of open cast mines in Zambia and Mozambique. These projects were also completed to IFC Standards and have been granted environmental authorizations from their host countries. All the ESIAs that have been managed by Dr Bezuidenhout included community consultations and as such she has been involved in various forms of community engagements in the rural African settings. Dr Bezuidenhout has also been extensively involved in the data collection and report writing for land and natural resource use assessments in both Madagascar and Mozambique. The data gathering component involves extensive community meetings as well as focus group meetings to establish land use (including agriculture) and natural resources use within the communities and wider regions. Dr Bezuidenhout has recently completed an extensive land survey as part of a RAP process for a heavy minerals mine in Mozambique and an in-kind land survey for a large infrastructure project in Tanzania, and as such is well-versed with the relevant process. She is a Principal Consultant and Branch Manager of the CES Port Elizabeth Office.

Ms Lina Buque – Report Writer

Lina is a skilled and experienced public facilitator and socio-economic and environmental consultant with over 10 years of experience working in Mozambique. She has a Master of Environmental Science degree from the Universidade de São Paulo, Brazil. Her research area was in socio-environmental conservation and development, focusing on environmental education. Lina has experience in both environmental and social best practice performance monitoring and management. Her expertise includes project management, ESIA’s, public engagement and social facilitation, environmental compliance monitoring and resettlement planning. As a senior environmental consultant with CES, she has worked on a number of ESIA processes for the mining, forestry and oil and gas sectors, facilitating stakeholder engagement and resettlement processes, socio-economic surveys and developing Resettlement Action Plans (as per the IFC guidelines). She has completed a practical training course in Land Acquisition, Resettlement and Social Sustainability that was presented by the

World Bank. She has also gained notable experience in environmental and social performance monitoring management for the mining and oil and gas sectors to date.

Ms Nicole Wienand – Report Writer

Ms Nicole Wienand (SACNASP Reg No. 130289) is an Environmental Consultant with over 3 years' experience based in the Port Elizabeth branch. Nicole obtained her BSc Honours in Botany (Environmental Management) from Nelson Mandela University (NMU) in December 2018. She also holds a BSc Degree in Environmental Management (Cum Laude) from NMU. Nicole's honours project focused on the composition of subtidal marine benthic communities on warm temperate reefs off the coast of Port Elizabeth and for her undergraduate project she investigated dune movement in Sardinia Bay. Since her employment with CES in January 2019, Nicole has specialised in the field of ecology and botanical specialist assessments, ensuring that these specialist assessments are undertaken and prepared in accordance with the Protocols for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity (GN R. 320), Plant Species and Animal Species (GN R. 1150). Nicole has undertaken numerous Ecological Impact Assessments for a range of developments including Wind Energy Facilities (WEFs), Overhead Lines (OHL) and infrastructure, working closely with developers to ensure a development which is environmentally sustainable as well as financially and technically feasible.

1.5 THE ESIA PROCESS IN MOZAMBIQUE

The ESIA [1] process, regulated by the Mozambique Environmental Impact Assessment (EIA) Regulations (Decree No. 54/2015) and translated as the Avaliação de Impacto Ambiental (AIA) Regulations, is applicable to all public and private activities. The MTA (Ministério da Terra e Ambiente or Ministry of Land and Environment), through the Direcção Nacional do Ambiente (DINAB) and translated as the National Directorate of the Environment, within the Ministry of Land and Environment, is the authority responsible for environmental assessment.

The Mozambican EIA Regulations (Article 4) define four project categories which determine the level of environmental assessment required. The project being considered here is a **Category A** (Annexure II) Project and is subject to a **full ESIA** as defined by the regulations, due to the nature, scale and location of the proposed project (Categorisation Letter N/Ref. No 613/SPA/RLA/22 received 6 June 2022, refer to Appendix 1).

The PPP guidelines are set out in Ministerial Decree No. 130/2006 and are compulsory for all Category A Projects. Article 15 of the Regulations on the Process of Environmental Impact Assessment defines the PPP as an activity that involves public hearings and consultation. The PPP implies delivery of timely information regarding projects to all directly and indirectly interested and affected parties (I&APs), responding to public requests for explanations on the project and the formulation of suggestions.

[1]Whilst the Mozambican legislation is labelled the "EIA Regulations", this report refers to the mandatory process called for in the regulations as the ESIA process which encompasses socio-economic and bio-physical impact assessments.

Public participation provides an opportunity for stakeholders to learn more about the proposed project and provide their opinions. These need to be incorporated into the ESIA process and should be used to guide further phases of the assessment, and to help mitigate potential conflict situations early in the planning process.

There are six (6) main steps in the ESIA process which are outlined in Figure 1.2 below.

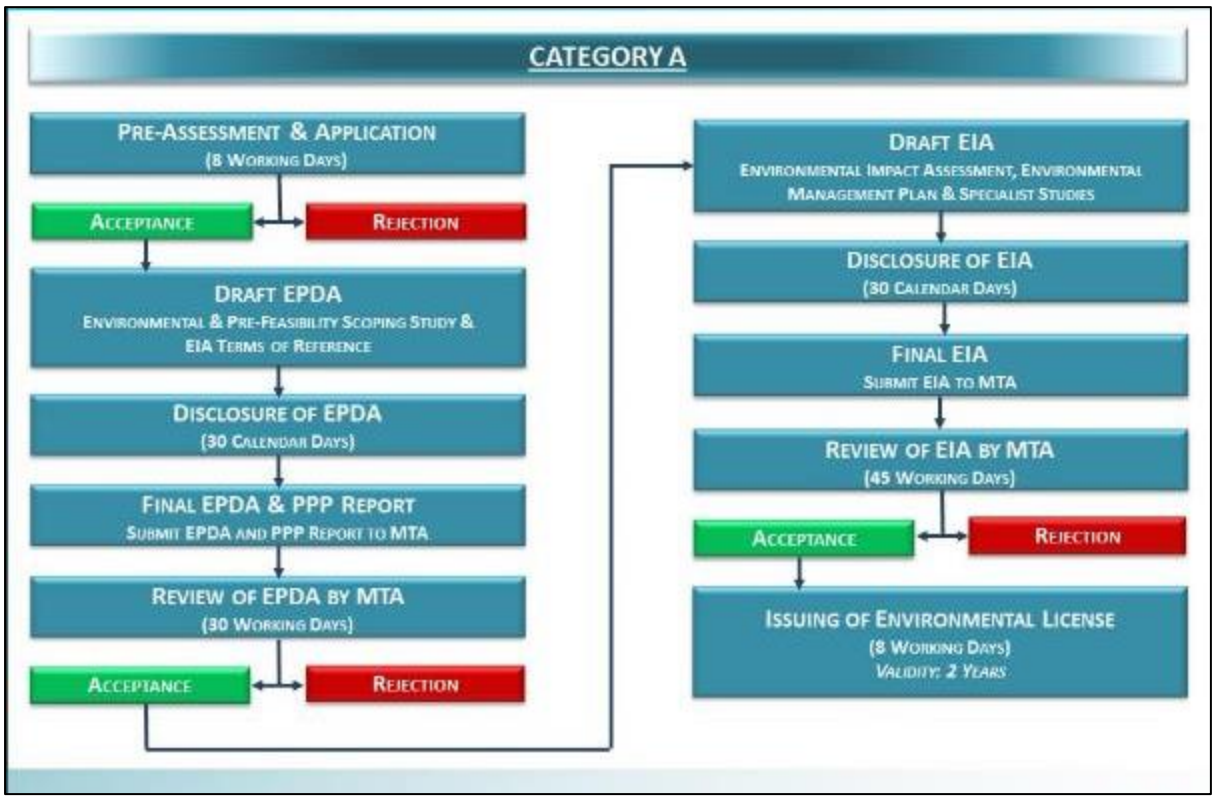

Figure 1.2: Summary of ESIA process to be followed for a Category A project.

Step 1: Pre-Evaluation (Application and Screening)

The first step is environmental screening and is required to define the extent and type of environmental assessment required for a given project. All activities must be screened against Annexure I, II, III and IV as defined in Article 4 of the Environmental Assessment Regulation in order to determine under which project Category (A^+, A, B or C) the proposed activity is to be assessed. Factors that are considered during the screening include:

- Scale and type of project;
- Location and sensitivity of the site; and
- Nature and magnitude of potential impacts.

The ESIA Regulations require the completion of a Preliminary Environmental Information form (titled “Environmental Information for the Pre-Assessment of Development Projects” and available as Annex VI of the ESIA Regulations) before the ESIA process may commence. This form, commonly referred to as the AIA form, requires the following information:

- Name of activity.
- Identity of applicant.
- Address and contact details of applicant.
- Location of proposed activity – Street; Town; Locality; District; Province.
- Type of area.
- Zoning information.
- Description of activity – Infrastructure; Associated Activities; Brief description of technology required for construction and operation; Type origin and quantity of labour; Type, origin and quantity of raw materials; Chemical Products to be used; Type, quantity and origin of water and electricity to be used; Other resources required; Land holding (legal status of physical area required); Alternative locations (reason for choosing the proposed location and identification of at least two alternative locations); Brief environmental description of the area and region; and Supplementary information in the form of maps and diagrams.

The Preliminary Environmental Information (AIA) form was submitted to MTA on the 9th of May 2022 and a categorisation letter was issued by the authorities on the 6th of June 2022 (N/Ref. No 613/SPA/RLA/22). A copy of the categorisation letter is provided in Appendix 1.

Step 2: Environmental Pre-feasibility Scoping Study and Terms of Reference

An Environmental Pre-feasibility Scoping Study (EPDA) (this report) is obligatory for all Annexure I and II activities as defined by Article 10 of the Environmental Assessment Regulations. The key objectives are to:

- Identify any fatal flaws and environmental risks associated with the implementation of the activity.
- Define the scope of the ESIA process and develop a Terms of Reference (ToR) for this phase should no fatal flaws be identified.

An EPDA report should be produced and should, at the minimum, include the following:

- A non-technical summary highlighting the key issues and conclusions (refer to page ii of this document).
- Details of the proponent and ESIA study team (refer to Section 1.3 of this document).
- Spatial extent of the proposed activity in terms of both direct and indirect influences as well as the pre-development land use in this study area (refer to Figure 1.1, Chapter 2 & Section 3.5 of this document).
- A description of the activity and the different actions to be undertaken, with respect to possible alternatives at the planning, exploration, construction and decommissioning stages (refer to Section 2.4 of this document).
- Identification of important biophysical and socio-economic characteristics of the affected environment (refer to Chapter 3 & 4 of this document).
- Identification of any potential fatal flaw and analysis of the project's environmental and social risks (refer to Chapter 6 of this document).
- Identification of all aspects that need to be addressed in the ESIA study phase, and presentation of the terms of reference for specialist studies. These must describe, in detail, the issues to be investigated by each specialist study during the next phase of the ESIA process (refer to Chapter 7 of this document).

Step 3: Authority Review of the Environmental Pre-feasibility Scoping Study and Terms of Reference

The EPDA and ToR report will be presented in Portuguese to MTA for review. The authority may request additional information and should provide comment and recommendations within 30 days of receiving the final report.

Step 4: The Public Participation Process (EPDA and ESIA Phase)

The PPP involves consultation with the wider public. The process facilitates the dissemination of information about the project and identification of indirectly and directly affected I&APs. The proponent is required to undertake the PPP throughout the ESIA process. This includes providing sufficient advertising and affording I&APs an opportunity to participate in public meetings during both the EPDA and ESIA phases of the project. The PPP will be undertaken based on any directives given by the relevant authority, and the results of the process will be summarised in a final Public Participation Report. A public meeting must be advertised at least 15 days in advance, to which all I&APs must be invited and the technical reports of the EPDA and ESIA must be made available for public comment.

Public meetings will be held for the disclosure of the draft EPDA and ESIA at the villages that will be directly affected by the project activities as well as at the District Administrator offices. Two mandatory disclosure session will be undertaken for the proposed project, one during the EPDA Phase of the proposed project and one during the ESIA Phase of the proposed project.

Step 5: Environmental Impact Study and Environmental Management Programme (EMPr)

Undertaking the ESIA process is the responsibility of the proponent and the ESIA team and will be undertaken in line with the ToR set out in this EPDA. The study will be summarised in

an Environmental and Social Impact Assessment Report (ESIA). To address the issues raised during the EPDA process, the ESIA study will include specialist studies to provide a detailed and thorough examination of key environmental impacts. Once completed, these findings will be synthesized into the ESIA.

All specialist studies will include specific recommendations aimed at avoiding, or where this is not possible, reducing negative impacts and maximizing positive impacts during the construction, operation and decommissioning phases of the proposed development. These recommendations will be synthesized into an Environmental Management Programme (EMPr).

Step 6: Authority Review of the Environmental Impact Report and Environmental Management Programme

The Environmental Impact Report, Specialist Studies Volume and Environmental Management Programme will be presented to MTA for review. The review should be undertaken within 45 days of receiving the final reports. Upon completion of the review, MTA will provide a final Record of Decision. Based on Article 19 of the Environmental Assessment Regulations this may be one of the following:

- Positive record of decision;
- Total rejection of the activity based on the outcomes of the reports and the final environmental impact statement; or
- Partial rejection of the activity based on the outcomes of the reports and the final environmental impact statement.

In providing an environmental license, the relevant authority may seek to place conditions of approval that are legally binding on the proponent. Furthermore, the authority may request changes to the project scope or additional ESIA studies.

According to Article 20 of the Mozambique ESIA Regulations (Decree No. 54/2015) the licensing steps are as follows:

- Issuance of provisional environmental license - environmental license issued after the approval of the EPDA and the AIA;
- Issuance of the installation environmental license - License issued after the approval of the ESIA and the presentation of the resettlement plan (if applicable); and
- Issuance of the environmental operating license - license issued after verification/inspection of full compliance with the ESIA after construction and full implementation of the Resettlement Plan (if required).

1.6 APPLICABLE MOZAMBICAN LEGISLATION

A summary of the ESIA process for a Category A project is presented in Figure 1.2Figure 1.2 above and a summary of the national legislation applicable to the proposed development is provided below in

Table 1.1. It should be noted that the list provided below is not exhaustive, is not a legal register, and has been restricted to documents that have direct relevance to either the environment and/or communities.

Table 1.1: List of applicable national legislation.

LEGISLATION	DATE OF ENACTMENT	APPLICABILITY TO THE PROJECT
NATIONAL LEGISLATION		
Constitution of the Republic of Mozambique	2004	Dictates the right to environment for each citizen in section 7.1: "*All citizens shall have the right live in a balanced environment and shall have the duty to defend it*".
INDUSTRIAL LICENSING AND LABOUR LAW		
General Investment Act	Law 3/1993 of June 24th	International businesses are required to abide by commercial laws of the operating country.
Investment Law Regulation	Decree 43/2009 of 21st August	The Investment Law promotes improvement in the implementation of investment projects in order to make them more attractive to investors by simplifying the process for approval of investments and reducing existing bureaucracies in this area.
Labour Act	Law no. 23/2007 of August 1st	International businesses are required to abide by labour regulation of the operating country.
ENVIRONMENTAL FRAMEWORK LAW, ESIA, INSPECTIONS AND AUDITS		
Environment Act	Law 20/1997 of October 1st (As amended by the Decree 42/2008)	The project will have an environmental impact, and as such will fall under the ambit of the Environmental Act. The Act is the foundation for legal requirements pertaining to the protection of the country's environment. Article 2 defines the legal basis for use and management of the environment and its objectives to achieve sustainable development in the country.
Environmental Impact Assessment (EIA) Regulations	Decree 54/2015 of December 31st	This outlines the process and rules to be followed when conducting an EIA (referred to as an ESHIA process in this report). It describes the type of project categories based on the size and impacts of the project, the responsibility of the applicant, authorities and Environmental Consultant, the Public Participation Process (PPP) and the Environmental Licensing Process.
Addendum to the EIA Regulations no. 45/2004	Ministerial Diploma 198/2005 of September 28th	The environmental authorization required prior to commencements of this project will be regulated by these EIA regulations and the General Directive.
General Directive for EIA	Ministerial Diploma 129/2006 of July 19th	
General Directive for the Public Participation Process in the ESIA process	Ministerial Diploma 130/2006 of July 19th	Public participation forms a crucial part of the ESIA process and is mandatory for category A+, A and B projects. At least two public consultation rounds must take place and a final PPP report that addresses all questions, concerns and comments raised by I&APs must be submitted with the ESIA report to the authorities.

LEGISLATION	DATE OF ENACTMENT	APPLICABILITY TO THE PROJECT
Regulations for Environmental Inspections	Ministerial Decree 11/2006 of June 15th	The Regulation apply to both public and private activities influencing, directly or indirectly, environmental components. In particular, the regulation defines the types and contents of environmental audits, the related necessary competences and auditors' profiles. Moreover, it regulates environmental audit reports and defines sanctions and penalties for non-compliance. Auditing and monitoring form crucial parts of the ESIA process, and as such this act directly impacts on the regulatory requirements to which the proponent must adhere
Environmental Audit Process	Ministerial Decree 32/2003 of August 12th	
Extracts from the Penal Code	16 September 1886	These regulations define the consequences of environmental non-compliance and infringements.
Norms of application of fines and other sanctions prescribed in the Environmental legislation	Ministerial Diploma 1/2006 of January 4th	
Law on Crimes against the Environment	Ministerial Diploma of 2006/7	
SOCIAL		
Protection of the Mozambican Cultural Heritage	Law No. 10/1988 of December 22nd	The purpose of this law is to protect the tangible and intangible assets of the Mozambican cultural heritage – e.g. monuments, buildings of historical, artistic and scientific value and natural elements of scientific interest and of particular aesthetic value. This law extends to any cultural assets that may be discovered on Mozambican territory, in particular, in the soil, subsoil, inland bodies of water or the continental shelf. These can include monuments, groups of buildings with historic, artistic, or scientific importance, places or locations (with sacred, archaeological, historic, aesthetic, ethnologic, or anthropologic interest), and natural elements (physical and biological formations of particular interest from an aesthetic or scientific point of view).
Archaeological Heritage	Decree 27/1994 of July 20th	Heritage Resources may be disturbed and impacted by the mining activities and, as such, fall under the ambit of these regulations.
Regulation on the Protection of the Archaeological Heritage	Decree 27/97 of July 20th.	
Regulation of Resettlement Process Resulting from Economic Activities	Decree 31/2012 of August 8th	These regulations were passed in 2012. The regulations consist of 28 articles which formulate the procedures for any resettlement in Mozambique, and especially articulate the assistance required from government during a resettlement process.

LEGISLATION	DATE OF ENACTMENT	APPLICABILITY TO THE PROJECT
Land Act	Law19/97 of October 1st	The Land Act provides the legal framework for land ownership, as well as the control of land and natural resources in Mozambique. The process of determining land rights is also explained by this law. As Kenmare Resources will require land use rights (DUAT) in order to establish the proposed mining operation, this law is relevant.
Land Act Regulations	Decree 1/2003 of February 18th	Land appropriation and ownership rights are pivotal to the project's implementation. Consultations between the applicants for land and the local community are mandatory before a decision to grant title use is made by the provincial governor or higher authority.
Land Planning Act	Law 19/2007 of July 18th	The Land Planning Act (Law 19/2007 of July 18) creates a legal framework for land planning. The Act defines the mechanisms for preparation, approval, implementation, monitoring and supervision of land-use plans, as well as the responsibilities associated therewith.
Regulation of the Land Planning Act	Decree no. 23/2008	This Act sets out measures and regulatory procedures to ensure the provisions of the Land Planning Act are complied with.
WATER RESOURCES		
Water Act	Law 16/1991 of August 3rd	The statutory legal framework regulating water use.
Water License and Concessions Regulations	Decree 43/2007 of October 30th	A water use license or concession will be required for the construction and operation of this project.
Water Policy	Decree 46/2007 of August 21th	
WASTE, EFFLUENT AND EMISSION		
Regulation on Environmental Quality and Effluents Emissions	Decree 18/2004 of June 2nd and respective amendments approved by Decree 67/2010 of 31 December)	This decree defines air quality and emission standards, classifies water according to its uses and defines quality control standards and emission requirements with special regard to potable water. It also provides standards for soil quality and noise emissions.
Waste Management Regulations	Ministerial Decree 13/2006 of June 15th	Labour and construction camps, as well as permanent accommodation and lodgings will be subject to these waste regulations.
Regulations for the management of solid municipal waste	Decree 94/2014 of December 31st	This decree establishes the rules for the management of solid municpal waste and is applicable to every individual as well as all private and public companies within the country that produce solid municipal waste. Article 10 (Duty of Information) specifies that in the event of any solid waste spills, the Municipal Council must be informed within 24 hours of the incident occurring. Article 11 and 12

LEGISLATION	DATE OF ENACTMENT	APPLICABILITY TO THE PROJECT
		deals with the obligations of producers and operators of solid waste as well as the transportation of this waste.
Regulation on management of hazardous waste	Decree N.83/2014 of December 31	This decree establishes the general rules for the production, management and disposal of hazardous waste in Mozambique. It applies to all entities involved in the disposal, management, import or distribution of hazardous waste and establishes fees and penalties for non-compliance.
Regulations on the management and control of plastic bags	Decree 16/2015 of August 5th	Management Regulations and Plastic Bag Control applies to all public and private entities, natural and legal persons involved in the production, import, sale and use of plastic bags in the country.
BIODIVERSITY AND WILDLIFE		
Wildlife and Forestry Act	Law 10/1999 of July 7th	This Regulation applies to protection activities, storage, use, exploitation and production of forest and wildlife resources, and covers the marketing, transportation, storage and primary processing, trade or industrial applications of these resources.
Wildlife and Forestry Regulations	Decree 10/1999 of July 6th	The law is divided into nine chapters. Of relevance to this ESIA are the following chapters: 1. Chapter 2 on the Protection of Forest and Wildlife Resources; and 2. Chapter 3 on Sustainable Forest Resources, Exploitation Regimes and Sustainable Wildlife Conservation Regimes.
The Regulations on the Law of Wildlife and Forestry	Decree 12/2002	These regulations provide further guidance to The Wildlife and Forestry Act (1999).
National Strategy and Action Plan for the Conservation of Biological Diversity for Mozambique	Formulated by MICOA (now MTA) and passed by the Council of Ministers in August 2003	Biodiversity and wildlife management will form part of the mitigation measures for the project
Regulations on Pesticide Management	Decree No. 6 of 2009	The Regulation aims at guaranteeing that human health and the environmental quality standards are upheld, according to environmental legal proceedings approved by Law No. 20/97. It includes the management, composition, classification and inspections to be carried out on pesticides. The annexes specify offences and penalties to be paid for illegal activities.
Control of Exotic Invasive Species Act	Law 25/2008 of 01 July	Weed control required throughout the construction and operation phases will be directly regulated by this act.
Biodiversity Counterbalances	Decree 55/2022 of 19 May	This legal instrument arises as a requirement of the Environmental Impact Regulations (Decree 54/2015 of 31 December) and enable the Government of Mozambique to ensure that Category A+ or A projects that will result in residual negative impacts on important biodiversity (e.g. threatened species or ecosystems) implement biodiversity offset management plans (conservation projects) to ensure no net loss / a net gain in biodiversity.

LEGISLATION	DATE OF ENACTMENT	APPLICABILITY TO THE PROJECT
		This Directive establishes the principles, methodologies, requirements and procedures for the correct implementation of of Biodiversity Offsets, integrated in the environmental impact assessment process.
Creating the environmental protected areas of Primeiras islands in the District of Pebane and Segundas islands in the Districts of Angoche and Moma	Decree No. 42/2012 of 12 December 2012.	The Primeiras and Segundas Environmental Protection Area/ Área de Protecção Ambiental das Ilhas Primeiras e Segundas (APAIPS) was promulgated by Decree No. 42/2012 issued on 12 December 2012. The area is rich in biodiversity and is an integral part of the East African Marine Eco-Region which stretches from southern Somalia to the Kwazulu-Natal coast in the Republic of South Africa. This area ensures connectivity between coastal and marine habitats, both physically and ecologically, with emphasis on: • Mangrove forests along the various estuaries; • Seagrass beds; • Coral reefs; • Large sand banks forming part of Sofala Bank; Water gradients from the coast to depths of over 1000 meters in less than 25 to 35 km from the coast harboring various plant and wildlife species
Conservation Law	Law No. 16/2014 of 20 June 2014	This law establishes the basic principles and rules for the protection, conservation and sustainable use of biological diversity within conservation areas, as well as the integrated administration of these conservation areas to promote the sustainable development of the country. It applies to all values and natural resources existing in the national territory and in waters under national jurisdiction, including all public or private entities that directly or indirectly may influence the national system of conservation areas in the country. In addition, it regulates the management of conservation areas, protection zones, recovery and restoration of biological diversity, management of endangered species, resettlement and rates, and setting respective inspection and sanction regimes. The Law is divided as follows: General principles (Chap. I); Management of Conservation Areas (Chap. II); Protection Areas (Chap. III); Recuperation and restoration of biological diversity (Chap. IV); Endangered Flora and Fauna species (Chap. V); Resettlement (Chap. VI); Taxes (Chap. VII); Inspection (Chap. VIII); Offence and penalties (Chap. IX); Final provisions (Chap. X).
MINING ACTIVITIES		
Technical Health and Safety Regulations of Geological and Mining Activities	Decree No. 61/2006 of 26 December	The Regulations on Health and Safety on Mining Activities (Decree 61/2006, of 26 December 2006) set out the rules and procedures for the safety of employees during mining operations, amended by Decree 34/2019, of 2 May 2019. Article 259 (Tailings Storage Facility) states that construction, operation and closing of tailings storage in the area of mineral resources shall follow a project approved by the relevant authorities. Points 1 to 9 describes a risk-based approach to

LEGISLATION	DATE OF ENACTMENT	APPLICABILITY TO THE PROJECT
		the management of TSFs including tailings management standards and procedures to adhere to the Mozambican National Regulation for Tailings Dams. It also mentions to comply with safety requirements the identification of geotechnical risk are recommended.
Hiring regulations of Foreign Nationals in the Oil Sector and Mining	Decree n.º63 / 2011 of 7 December	Establishes the legal framework including the mechanisms and procedures for employing foreign nationals under the Petroleum and Mining Law, as long as those activities have been approved by the competent authority. This decree dictates that for short-term activities not exceeding 180 days, hiring of skilled foreign workers can be carried out without a permit from the Minister of Labour, provided the Ministry of Labour is notified within 15 days of the employee entering in the country.
The Mining Law	20/2014 of 18 August	Law No. 20/2014, of 18 August entered into force on the same date the Mining Act (Law No. 14/2002 of 26 June) was repealed, sets out the legal framework for the mining sector. It aims to ensure greater competitiveness and transparency, preserve the environment, ensure the protection of the rights and obligations of the holders of mining rights, safeguard national interests and benefit affected communities.
Mining Law Regulations	Ministerial Decree 31/2015 of 31 December	The purpose of these regulations is to regulate the use and re-use of mineral resources to ensure that the best and safest mining and socio-environmental practices are adhered to, to allow for transparency and to ensure the sustainable long term development of mineral resources and subsequent raising of revenues in favour of Mozambique.
Environmental Regulations for Mining Activities	Ministerial Decree 26/2004 of August 20th	This law defines the norms for the prevention, control, mitigation and compensation of adverse effects that mining activities might cause to the environment. It also provides specific environmental protection measures, defines the required environmental management instruments (e.g. the EIA process) and the use of licenses.
Mining Working Regulations	Decree 13/2015 of 03 July	The new regulation of mining work addresses a major gap in the legislation on professional work in this area that has generated employment for Mozambican citizens, although there are also a significant number of foreign workers in the sector. To fill the gap in the legislation, the Mining Work Regulation were promulgated to govern labour relations between mining and oil sector employers, including subcontractor companies, and their employees, whether Mozambican or foreign. It also provides for supervision of employment conditions.

1.7 APPLICABLE INTERNATIONAL LEGISLATION

1.7.1 The Equator Principals

The Equator Principles (Table 1.2 below) are a financial industry benchmark for determining, assessing and managing social and environmental risks to projects. They are intended to ensure that projects financed by the Equator Principles Financial Institutions (EPFI) are developed in a manner that is socially responsible and reflects sound environmental management practices. Currently there are 132 financial institutions in 38 countries across the globe that have adopted the Equator Principles (https://equator-principles.com/members-reporting).

Table 1.2: The Equator Principles (EP III - June 2013).

EQUATOR PRINCIPLE	SUMMARY
Principle 1: Review and Categorisation	When a Project is proposed for financing, the EPFI will as part of its internal environmental and social review and due diligence categorise it based on the magnitude of its potential environmental and social risks and impacts. Such screening is based on the environmental and social categorisation process of the International Finance Corporation (IFC). Using categorisation, the EPFI's environmental and social due diligence is commensurate with the nature, scale and stage of the Project, and with the level of environmental and social risks and impacts. The categories are: • **Category A** – Projects with potential significant adverse environmental and social risks and/or impacts that are diverse, irreversible or unprecedented. • **Category B** – Projects with potential limited adverse environmental and social risks and/or impacts that are few in number, generally site-specific, largely reversible and readily addressed through mitigation measures. • **Category C** – Projects with minimal or no adverse environmental and social risks and/or impacts.
Principle 2: Environmental and Social Assessment	For all Category A and Category B Projects the EPFI will require the client to conduct an Assessment process to address, to the EPFI's satisfaction, the relevant environmental and social risks and impacts of the proposed Project (which may include the illustrative list of issues found in Exhibit II [1]). The Assessment Documentation should propose measures to minimise, mitigate, and offset adverse impacts in a manner relevant and appropriate to the nature and scale of the proposed Project. The Assessment Documentation will be an adequate, accurate and objective evaluation and presentation of the environmental and social risks and impacts, whether prepared by the client, consultants or external experts. For Category A, and as appropriate, Category B Projects, the Assessment Documentation includes an Environmental and Social Impact Assessment (ESIA). One or more specialised studies may also need to be undertaken. Furthermore, in limited high risk circumstances it may be appropriate for the client to complement its Assessment Documentation with specific human rights due diligence. For other projects, a limited or focused environmental or social assessment (e.g. audit), or straightforward application of environmental siting, pollution standards, design criteria, or construction standards may be carried out.

EQUATOR PRINCIPLE	SUMMARY
	For all projects, in all locations, when combined Scope 1 and Scope 2 Emissions are expected to be more than 100 000 tonnes of CO_2 equivalent annually, an Alternatives Analysis must be conducted to evaluate less Greenhouse Gas (GHG) intensive alternatives.
Principle 3: Applicable Environmental and Social Standards	The Assessment process should, in the first instance, address compliance with relevant host country laws, regulations and permits that pertain to environmental and social issues. EPFIs operate in diverse markets: some with robust environmental and social governance, legislation systems and institutional capacity designed to protect the people and the natural environment; and some with evolving technical and institutional capacity to manage environmental and social issues. The EPFI will require that the Assessment process evaluates compliance with the applicable standards as follows: • For projects located in Non-Designated Countries, the Assessment process evaluates compliance with the then applicable IFC Performance Standards on Environmental and Social Sustainability (Performance Standards) and the IFC / World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines) (Exhibit III [2]). • For projects located in Designated Countries, the Assessment process evaluates compliance with relevant host country laws, regulations and permits that pertain to environmental and social issues. Host country laws meet the requirements of environmental and/or social assessments (Principle 2), management systems and plans (Principle 4), Stakeholder Engagement (Principle 5) and, grievance mechanisms (Principle 6). The Assessment process will be established to the EPFI's satisfaction the Project's overall compliance with, or justified deviation from, the applicable standards. The applicable standards (as described above) represent the minimum standards adopted by the EPFI. The EPFI may, at their sole discretion, apply additional requirements.
Principle 4: Environmental and Social Management System and Equater Principles Action Plan	For all Category A and Category B Projects the EPFI will require the client to develop or maintain an Environmental and Social Management System (ESMS). Further, an Environmental and Social Management Plan (ESMP) will be prepared by the client to address issues raised in the Assessment process and incorporate actions required to comply with the applicable standards. Where the applicable standards are not met to the EPFI's satisfaction, the client and the EPFI will agree an Equator Principles Action Plan (AP). The Equator Principles AP is intended to outline gaps and commitments to meet EPFI requirements in line with the applicable standards.
Principle 5: Stakeholder Engagement	For all Category A and Category B Projects the EPFI will require the client to demonstrate effective Stakeholder Engagement as an ongoing process in a structured and culturally appropriate manner with Affected Communities and, where relevant, other stakeholders. For Projects with potentially significant adverse impacts on Affected Communities, the client will conduct an Informed Consultation and Participation process. The client will tailor its consultation process to: the risks and impacts of the Project; the Project's phase of development; the language

EQUATOR PRINCIPLE	SUMMARY
	preferences of the Affected Communities; the decision-making processes; and the needs of disadvantaged and vulnerable groups. This process should be free from external manipulation, interference, coercion and intimidation. To facilitate Stakeholder Engagement the client will, commensurate to the Project's risks and impacts, make the appropriate Assessment Documentation readily available to the Affected Communities, and where relevant other stakeholders, in the local language and in a culturally appropriate manner. The client will take account of and document the results of the Stakeholder Engagement process, including any actions agreed resulting from such process. For Projects with environmental or social risks and adverse impacts disclosure should occur early in the Assessment process, in any event before the Project construction commences, and on an ongoing basis. EPFIs recognise that indigenous peoples may represent vulnerable segments of project-affected communities. Projects affecting indigenous peoples will be subject to a process of Informed Consultation and Participation, and will need to comply with the rights and protections for indigenous peoples contained in relevant national law, including those laws implementing host country obligations under international law. Consistent with the special circumstances described in with adverse impacts on indigenous people will require their Free, Prior and Informed Consent (FPIC).
Principle 6: Grievance Mechanism	For all Category A and, as appropriate, Category B Projects, the EPFI will require the client, as part of the ESMS, to establish a grievance mechanism designed to receive and facilitate resolution of concerns and grievances about the Project's environmental and social performance. The grievance mechanism is required to be scaled to the risks and impacts of the Project and have Affected Communities as its primary user. It will seek to resolve concerns promptly, using an understandable and transparent consultative process that is culturally appropriate, readily accessible, at no cost, and without retribution to the party that originated the issue or concern. The mechanism should not impede access to judicial or administrative remedies. The client will inform the Affected Communities about the mechanism in the course of the Stakeholder Engagement process.
Principal 7: Independent Review	*Project Finance*: For all Category A and, as appropriate, Category B Projects, an Independent Environmental and Social Consultant, not directly associated with the client, will carry out an Independent Review of the Assessment Documentation including the ESMPs, the ESMS, and the Stakeholder Engagement process documentation in order to assist the EPFI's due diligence and assess Equator Principles compliance. The Independent Environmental and Social Consultant will also propose or opine on a suitable Equator Principles AP capable of bringing the Project into compliance with the Equator Principles, or indicate when compliance is not possible. *Project-Related Corporate Loans*:

EQUATOR PRINCIPLE	SUMMARY
	An Independent Review by an Independent Environmental and Social Consultant is required for Projects with potential high risk impacts including, but not limited to, any of the following: • Adverse impacts on indigenous peoples • Critical habitat impacts • Significant cultural heritage impacts • Large-scale resettlement In other Category A, and as appropriate Category B, Project-Related Corporate Loans, the EPFI may determine whether an Independent Review is appropriate or if internal review by the EPFI is sufficient. This may take into account the due diligence performed by a multilateral or bilateral financial institution or an OECD Export Credit Agency, if relevant.
Principle 8: Covenants	An important strength of the Equator Principles is the incorporation of covenants linked to compliance. For all Projects, the client will covenant in the financing documentation to comply with all relevant host country environmental and social laws, regulations and permits in all material respects. Furthermore for all Category A and Category B Projects the client will covenant the financial documentation: • To comply with the ESMPs and Equator Principles AP (where applicable) during the construction and operation of the Project in all material respects; and • To provide periodic reports in a format agreed with the EPFI (with the frequency of these reports proportionate to the severity of impacts, or as required by law, but not less than annually), prepared by in-house staff or third party experts that (i) document compliance with the ESMPs and Equator Principles AP (where applicable), and (ii) provide representation of compliance with relevant local, state and host country environmental and social laws, regulations and permits; and • To decommission the facilities, where applicable and appropriate, in accordance with an agreed decommissioning plan. Where a client is not in compliance with its environmental and social covenants, the EPFI will work with the client on remedial actions to bring the Project back into compliance to the extent feasible. If the client fails to re-establish compliance within an agreed grace period, the EPFI reserves the right to exercise remedies, as considered appropriate.
Principle 9: Independent Monitoring	*Project Finance*: To assess Project compliance with the Equator Principles and ensure ongoing monitoring and reporting after Financial Close and over the life of the loan the EPFI will, for all Category A and, as appropriate, Category B Projects, require the appointment of an Independent Environmental and Social Consultant, or require that the client retain qualified and experienced external experts to verify its monitoring information, which would be shared with the EPFI. *Project-Related Corporate Loans*: For Projects where an Independent Review is required under Principle 7 the EPFI will require the appointment of an Independent Environmental and Social Consultant after Financial Close, or require that the client retain qualified and experienced external experts to verify its monitoring information which would be shared with the EPFI.

EQUATOR PRINCIPLE	SUMMARY
Principle 10: Reporting and Transparency	*Client Reporting Requirements*: The following client reporting requirements are in addition to the disclosure requirements in Principle 5. For all Category A and, as appropriate, Category B Projects: • The client will ensure that, at a minimum, a summary of the ESIA is accessible and available online. • The client will publicly report GHG emission levels (combined Scope 1 and Scope 2 Emissions) during the operational phase for Projects emitting over 100,000 tonnes of CO_2 equivalent annually. Refer to Annex A for detailed requirements on GHG emissions reporting. *EPFI Reporting Requirements:* The EPFI will report publicly, at least annually, on transactions that have reached Financial Close and on its Equator Principles implementation processes and experience, taking into account appropriate confidentiality considerations. The EPFI will report according to the minimum reporting requirements detailed in Annex B.

Notes:

[1] **Exhibit II:** Illustrative List of Potential Environmental and Social Issues to be addressed in the Environmental and Social Assessment Documentation.

[2] **Exhibit III:** IFC Performance Standards on Environmental and Social Sustainability and the IFC / World Bank Group Environmental, Health and Safety Guidelines

The IFC Performance Standards to which the Equator Principles refer, specifically in Exhibit III, are those that were published and took effect on the 1st of January 2012.

1.7.2 International Finance Corporation Performance Standards

The IFC is a member of the World Bank Group and is the largest global development institution focused exclusively on the private sector in developing countries. Established in 1956, the IFC is owned by 184 member countries and provides funding for emerging markets to create jobs, generate tax revenues, improve corporate governance and environmental performance, and contribute to the local communities.

The IFC published its Performance Standards (PS) on Environmental and Social Sustainability in April 2006 and published comprehensive Guidance Notes in July 2007. Since then, the Performance Standards and Guidance Notes have been revised, and the updated versions were published and took effect from January 2012. The updated Performance Standards are listed and described in Table 1.3 below.

Table 1.3: The IFC Performance Standards.

PERFORMANCE STANDARD	KEY OBJECTIVES
PS 1: Assessment and management of environmental and social risks and impacts *(Updated 14 June 2021)*	• To identify and evaluate environmental and social risks and impacts of the project. • To adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimize and, where residual impacts remain, compensate/offset for risks and impacts to workers, Affected Communities, and the environment. • To promote improved environmental and social performance of clients through the effective use of management systems. • To ensure that grievances from Affected Communities and external communications from other stakeholders are responded to and managed appropriately. • To promote and provide means for adequate engagement with Affected Communities throughout the project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated.
PS 2: Labour and Working Conditions	• To promote the fair treatment, non-discrimination, and equal opportunity of workers. • To establish, maintain, and improve the worker-management relationship. • To promote compliance with national employment and labour laws. • To protect workers, including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties, and workers in the client's supply chain. • To promote safe and healthy working conditions, and the health of workers. • To avoid the use of forced labour.
PS 3: Resource efficiency and pollution prevention	• To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities. • To promote more sustainable use of resources, including energy and water. • To reduce project related GHG emissions.
PS 4: Community Health, Safety and Security	• To anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances. • To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the Affected Communities.

PS 5: Land Acquisition and Involuntary Resettlement	• To avoid, and when avoidance is not possible, minimize displacement by exploring alternative project designs.
	• To avoid forced eviction.
	• To anticipate and avoid, or where avoidance is not possible, minimize adverse social and economic impacts from land acquisition or restrictions on land use by:
	  ○ Providing compensation for loss of assets at replacement cost and
	  ○ Ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected.
	• To improve, or restore, the livelihoods and standards of living of displaced persons.
	• To improve living conditions among physically displaced persons through the provision of adequate housing with security of tenure at resettlement sites.

PERFORMANCE STANDARD	KEY OBJECTIVES
PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources *(Updated 27 June 2019)*	• To protect and conserve biodiversity. • To maintain the benefits from ecosystem services. • To promote the sustainable management of living natural resources through the adoption of practices that integrates conservation needs and development priorities.
PS 7: Indigenous Peoples	• To ensure that the development process fosters full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods of Indigenous Peoples. • To anticipate and avoid adverse impacts of projects on communities of Indigenous Peoples, or when avoidance is not possible, to minimize and/or compensate for such impacts. • To promote sustainable development benefits and opportunities for Indigenous Peoples in a culturally appropriate manner. • To establish and maintain an ongoing relationship based on Informed Consultation and Participation (ICP) with the Indigenous Peoples affected by a project throughout the project's life-cycle. • To ensure the Free, Prior, and Informed Consent (FPIC) of the Affected Communities of Indigenous Peoples when the circumstances described in this Performance Standard are present. • To respect and preserve the culture, knowledge, and practices of Indigenous Peoples.
PS 8: Cultural Heritage	• To protect cultural heritage from the adverse impacts of project activities and support its preservation. • To promote the equitable sharing of benefits from the use of cultural heritage.

1.7.3 IFC Environmental, Health and Safety General Guidelines

The Environmental, Health and Safety (EHS) General Guidelines provide an organized, hierarchical, best-practice approach to managing environmental, health and safety issues at facility or project level, which in broad terms comprises the following steps:

- Identifying EHS project hazards and associated risks as early as possible in the facility development or project cycle.
- Understanding the likelihood and magnitude of EHS risks, based on the nature of the project activities and the potential consequences to workers, communities, or the environment if hazards are not adequately managed.
- Prioritising risk management strategies with the objective of achieving an overall reduction of risk to human health and the environment, focusing on the prevention of irreversible and / or significant impacts.
- Favouring strategies that eliminate the cause of the hazard at its source to avoid the need for EHS controls.
- When impact avoidance is not feasible, incorporating engineering and management controls to reduce or minimize the possibility and magnitude of undesired consequences.

- Preparing workers and nearby communities to respond to accidents, including providing technical and financial resources to control such events effectively and safely, and subsequently restoring workplace and community environments to a safe and healthy condition.
- Improving EHS performance through a combination of ongoing monitoring of facility performance and effective accountability.

The Guidelines are organised in four main sections:

1. Environmental
2. Occupational Health and Safety
3. Community Health and Safety
4. Construction and Decommissioning.

1.7.4 IFC EHS Guidelines for Mining

The IFC EHS Guidelines for Mining (10 December 2007) are applicable to this project. The guidelines detail industry-specific impacts and ways to manage them. They cover environmental, occupational health and safety, community health and safety, performance indicators, and monitoring.

1.7.5 The African Development Bank Environmental Guidelines for Mining Projects (June 1995)

The Common Terms Agreement signed between Kenmare and the African Development Bank (AfDB) stipulates that all Kenmare activities must adhere to the June 1995 AfDB Environmental Guidelines for Mining Projects. The guidelines stipulate the requirements for environmental impact assessments in order to identify all issues likely to result from mining projects. The guidelines list several issues to be considered during the pre-implementation, operation and post mining phases for medium and large-scale mining projects. These requirements are largely covered in the IFC Performance Standards discussed above. In addition, the guidelines stipulate guidelines for air and water pollutants as well as noise and vibrations recommended limit. In cases where different standards are required by different lending agencies (e.g., IFC vs AfDB) the most stringent standard will be applied.

1.7.6 World Bank Environment, Health and Safety Guidelines for Mining and Milling – Open pit

As with the AfDB guidelines, the Common Terms Agreement signed by Kenmare stipulates that Kenmare activities must adhere to the World Bank's Environment, Health and Safety Guidelines for Mining and Milling – Open Pit. These guidelines specifically address various aspects of mining such as tailings disposal, liquid effluent quality guidelines, residual heavy metals, ambient air quality guidelines, erosion and sediment control, mine reclamation, sewage sludge disposal, solid waste disposal, health and safety in the workplace and training amongst others. As stated in the previous section, in cases where several guideline values provide different values for a given parameter, the most stringent will be applied.

1.7.7 World Health Organisation Guidelines for Drinking Water Quality (2011)

The primary purpose of the WHO Guidelines for drinking-water quality is the protection of public health and it provides the recommendations for managing the risk from hazards that may compromise the safety of drinking-water. The Ministerial Diploma of 18/2004 was adapted from the WHO drinking water guidelines and will be adopted for managing the drinking water quality supplied for the construction and operational phases of the project.

1.7.8 International Conventions

Mozambique is a signatory to a number of international conventions. Those applicable to this project are summarised in Table 1.4 below.

Table 1.4: International conventions applicable to the project.

CONVENSIONS	RATIFIED
BIODIVESITY	
Convention on International Trade and Endangered Species of Wild Fauna and Flora (CITES)	1973
Convention on Biological Diversity (CBD)	1992
Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention)	2 Proclaimed RAMSAR Sites 1971
African Convention on the Conservation of Nature and Natural Resources	1968
African Convention on the Conservation of Nature and Natural Resources	2003
Convention on the Conservation of Migratory Species of Wild Animals	2009
WASTE	
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	1989
Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa	1991
CLIMATE CHANGE	
Kyoto Protocol to the UN Framework Convention on Climate Change	1998
UN Framework Convention on Climate Change (read with Kyoto Protocol)	1992
Vienna Convention for the Protection of the Ozone Layer	1985
Montreal Protocol on Substances that Deplete the Ozone Layer	1987
International Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa	1994
CULTURAL HERITAGE	
UN Convention Concerning the Protection of World Cultural and Natural Heritage	1972
OTHER	
Constitutive Act of the African Union	2000
Stockholm Convention on Persistent Organic Pollutants	2001
International Convention on Civil Liability for Oil Pollution Damage	1992
Treaty Establishing the African Economic Community	1991
African Charter on Human and Peoples' Rights	1981
United Nations Convention on the Law of the Sea	1982
SADC Protocol on Mining	1997

1.7.9 International Labour Organization

Core Principles

The International Labour Organisation (ILO) Declaration on Fundamental Principles and Rights at Work, adopted in 1998, commits Member States to respect and promote principles and rights in four categories, often referred to as the Core Principles, which are:

- Freedom of association and the effective recognition of the right to collective bargaining.
- The elimination of forced or compulsory labour.
- The abolition of child labour.
- The elimination of discrimination in respect of employment and occupation.

Basic Terms and Conditions of Employment

Relevant Conventions under this general heading are as follows:

- Convention (C1) Limiting the Hours of Work in Industrial Undertakings to Eight in the Day and Forty-eight in the Week, 1921.
- Convention (C26) concerning the Creation of Minimum Wage-Fixing Machinery, 1930.
- Convention (C155) concerning Occupational Safety and Health and the Working Environment, 1983, together with Protocol (P155) of 2002 to the Occupational Safety and Health Convention, which came into force in 2005, and the Convention (C187) concerning the Promotional Framework for Occupational Safety and Health, which came into force in 2009.

Code of Practice on HIV/AIDS and the World of Work

This Code of Practice was developed by the ILO in order to assist with the prevention of the spread of HIV/AIDS, to mitigate its impact on workers and their families and to provide social protection to help cope with the disease. It covers key principles, such as:

- The recognition of HIV/AIDS as a workplace issue;
- Non-discrimination in employment;
- Gender equality;
- Screening and confidentiality;
- Social dialogue; and
- Prevention, care and support, as the basis for addressing the epidemic in the workplace.

2 PROJECT DESCRIPTION

2.1 INTRODUCTION AND PROJECT BACKGROUND

The proposed project is located directly west of Kenmare's existing Namalope Mine, within Kenmare's existing concession (Concession No. 735 C) (refer to Figure 1.1 above). The relocation of the existing mining operations at Namalope is required to ensure that the provision of feedstock to maintain the current production rate of 1.2 million tonnes of ilmenite plus the co-products zircon and rutile can continue. In order to support the proposed mining operation, the following infrastructure is required:

- Tailings Storage Facility (TSF);
- Relocation Channel in order to move the Wet Concentrator Plant (WCP) - A to the new mining area at Nataka;
- Road diversion; and
- Infrastructure Terrace.

2.1.1 Tailings Storage Facility (TSF)

Two primary options for slimes deposition were considered, namely continuous slimes paddocks located within the mine path, and long term storage in TSFs. Test work indicated that the Nataka slimes consolidates (settles) at a very slow rate, preventing the containment of the slimes in paddocks due to both safety and practical considerations. Due to the slow consolidation it will not be possible to rehabilitate the backfilled mine void in an acceptable time frame, with settlement continuing for decades after mining, leaving depressions that will need to be repeatedly filled and shaped. By concentrating the slimes into a few larger storage areas the slimes can continue with the consolidation process over a longer time frame and the facility can be managed to make efficient use of evaporative drying. This is preferable from both a safety and land take perspective. However, it does mean that land used for the TSF cannot be returned to the community and therefore results in a permanent loss of land. Dedicated TSFs for slimes storage was therefore recommended over in-path paddock deposition.

Ten valley sites were evaluated in terms of wall construction, pumping distance, storage volume and environmental and social impact Only four valleys are large enough to contain the 20-year slimes produced by the Nataka mine path, but all were discarded because of their severe community and environmental impacts, or for practical reasons, being too far from the mining area. Isoa valley was the most favourable of the remaining locations and was thus selected. However, as it does not have sufficient capacity to contain all the slimes for life of mine, it will only be used for the first ten years of mining. A second TSF will be required, and this will be located in the mined-out void and is referred to as an in-path TSF. As this TSF will be located within the mine path of the Nataka deposit, its impacts will be assessed in the Nataka ESHIA. This in-path TSF differs from the previously discussed paddock slimes containment option in that a mine void of sufficient size is left open to serve as a slimes

containment facility that will be operated using the same principles of evaporative drying and long term consolidation.

During mining, mineral concentration and separating the tailings into sand (the coarser sand is predominantly quartz) and slimes (the finer material, which is predominantly clay) occurs continuously. The only additives to the material prior to deposition as tailings is water and a biodegradable flocculent (settling agent). Fine tailings (slimes) will be placed in the off-mine path tailings facility (the TSF) and possibly some of the slimes will be backfilled within the mined areas. A tailings facility is however necessary as there is too much slimes to be able to deposit it back into the mined out areas.

Coarse tailings will be used as the material for the construction of a TSF containment wall. This type of construction is used across the heavy minerals industry. A starter wall may be built with earthfill material to provide the initial slimes and water containment if sand tailings is not available or if the wall design specifies earthfill for specific geotechnical reasons. As preparation for the wall construction, topsoil will be cleared from the wall footprint, subsurface material may be compacted if required and subsurface drains will be installed. If any earthfill material is required for starter wall construction, it will be sourced from a location within the TSF boundary, which will eventually be covered with slimes.

The reclaim water pond is located to the rear (upstream) end of the impoundment so that bleed and rain water will pond against the in situ dune material and not against the constructed containment wall. The location of the reclaim pond will gradually move from east to west as the slimes level rises. The return water pumps are frequently relocated to effectively recycle water to the Wet Concentrator Plant (WCP) for re-use and/or release water to the environment, providing that water quality is suitable for discharge. The suitability of discharging this water to the environment will be assessed in this ESHIA. Platforms, access ramps and trenches will be constructed in the TSF basin area to facilitate reclaimed water pumping operations.

The purpose of sub-surface drains under the wall frootprint is to enhance the stability of the wall, and to recover process water deposited with the sand while construction is in progress. Minimal seepage will occur from the slimes into the wall due to the low permeability of the slimes (consisting mainly of clay). By placing the reclaim pond against the dune and depositing slimes from the wall side, the slimes will form a sloping beach away from the wall and bleed and rain water will generally not pond against the wall. The seepage water reporting to the susurface drains will be collected in a collection sump located immediately downstream of the TSF containment wall. The water will also be pumped back to the WCP or discharged to the environment (only in extreme rainfall events) downstream of the facility, depending on water quality.

Inflows of water to the TSF facility include the following:

- Runoff from the non-diverted natural catchment area upgradient of the TSF impoundment.
- Direct precipitation on the TSF.

- Net decant water from the deposited slimes (estimated as the difference between the water coming with the slurry slimes minus the water that remains trapped with the slimes mass).

Outflows from the TSF facility includes the following:

- Evaporation from the TSF and decant pond.
- Pumped outflows from the decant pond.
- Seepage water reporting to the subsurface drains.

2.1.2 Relocation Channel

In order for the proposed mine at the Nataka deposit to operate, WCP-A and other infrastructure will need to be moved from the existing operations at Namalope to the new proposed operations at Nataka. It is proposed that that the infrastructure is moved via a narrow dredge channel connecting the existing operations to the new proposed mine.

The Nataka PFS evaluated several options for relocating the WCP-A to the Nataka deposit (refer to Section 2.4: Alternatives included below). Figure 1.1 present the preferred option for the relocation channel. This relocation channel will be approximately 6.5 km in length and on average 220 m in width which will allow the dredger to mine through the lower grade areas to reach the high-grade zone at the proposed Nataka deposit as fast as possible. Mining in this channel will be minimised as far as is safe and practical, and with due consideration for infrastructure and services requirements.

2.1.3 Road Diversion

A small section of the existing road that runs from Mitticoma Village to the intersection of the Mecane - Pilivilli Village road will need to be diverted around the proposed mine path. The approximate length of the diversion is anticipated to be 4 km with an approximate width of 30 m (refer to Figure 1.1). Based on preliminary designs there will be enough cut and fill to balance the material for the underlying layer works. However, should it be required additional red sand can be obtained from existing borrow pits in the area. This will be confirmed during the ESHIA process.

2.1.4 Infrastructure Terrace

The infrastructure terrace which will include a HMC Positive Displacement (PD) pumping station (3 PD pumps with one pipeline), slimes PD pump to transfer slimes to the Isoa Valley TSF (5 PD pumps with one pipeline, only to be implemented in the end of the relocation channel), raw water dam, fixed thickeners and flocculant plant (3 x 65m diameter thickeners only applicable to the fixed thickener scenario), Heavy Machinery Equipment (HME) Workshop, Stores, Offices and Ablutions, Wash Bay, Sand Trap, Oil Separator and Water Tanks, Process water dam, HMC Stacker, Reclaim Conveyor and bin discard with reclaim ramp and High Voltage (HV) Yard and substation. Depending on detailed planning it is

possible that more than one eastern infrastructure terrace will be required. If this is the case then the original infrastructure terrace will need to be decommissioned and rehabilitated.

The exact position and size of the infrastructure terrace is not currently defined and will depend on the outcome of the environmental assessment and associated technical studies currently being undertaken by Kenmare.

2.2 Project Inputs and Outputs

2.2.1 Water Supply

It is estimated that the project will use approximately 1,200 m^3/hr of water over a period of 2 years. Water will be obtained from Lake Mavele (situated within the existing Namalope mining area), boreholes at Namalope, surface water streams at Nataka and groundwater within the deposit site.

2.2.2 Energy Requirements

Power required for the proposed operations will be distributed from an existing substation via 110 kV or 22 kV powerlines. The estimated power requirements for the project is calculated to be a maximum of 300 kWhrs.

2.2.3 Employment Opportunities

A total of 68 individuals will be employed during the construction phase and 45 individuals will retain employed during the operation phase (Table 2.1).

Table 2.1: Maximum number of individuals that will be employed during each phase.

TYPE	CONSTRUCTION PHASE	OPERATION PHASE
Skilled	7	10
Semi-Skilled	14	25
Unskilled	47	10
Total	**68**	**45**

During the construction phase, semi-skilled workers will be sourced from local villages; skilled workers will be sourced mainly from contracting companies; and supervisory and management positions will generally be recruited from outside the local villages. Current operating employment will be maintained once the plant transfer is completed.

2.3 Rationale for this Development

Due to the anticipated depletion of ore which is currently being mined at the Namalope Heavy Minerals Mine located in Nampula Province, north-eastern Mozambique, Kenmare Moma Mining (Mauritius) Limited and Kenmare Moma Processing (Mauritius) Limited (collectively referred to as “Kenmare”) need to relocate the existing mining operations to a new mining area, a proven resource referred to as the Nataka deposit, located directly west of Namalope,

within Kenmare's existing concession. The relocation of the mining operations will ensure the provision of feed required to maintain the production rate of 1.2 million tonnes of ilmenite plus the co-products zircon and rutile, thus sustaining the capacity of the existing Mineral Separation Plant (MSP).

In order for the mine at the Nataka deposit to operate, WCP-A and other infrastructure will need to be moved from the existing operations at Namalope West to the new proposed operations at Nataka. It is proposed to do this via a narrow dredge channel connecting the existing operations to the new proposed mine. In addition, a tailings storage facility is necessary to manage the increased slimes percentage of the Nataka orebody.

Mozambique is a developing country in southern Africa that has been steadily rebuilding its economy and civic institutions since ending a 16-year civil war in 1992. Despite the impressive economic growth over the past decade, and the forecasts for continued economic growth, Mozambique still faces some significant challenges. It ranks 180 out of 189 countries on the 2018 UNDP Human Development Index and approximately 60% of the population of 23.7 million live on less than $USD1.25/day.

Mozambique is experiencing a period of economic growth due to recent discoveries of predominantly gas, coal, rubies and graphite. It is envisaged, and hoped by many, that this growth will be achieved in a manner which is beneficial to all of Mozambique's citizens, and will permanently elevate the country from being amongst the World's poorest. The principal driver by which this growth is to be achieved is through foreign direct investment into the resources and mineral sector.

The expansion of the Kenmare Operations to the Nataka site will assist Kenmare to continue employing local people and Mozambique nationals, as operations will continue and mine closure would not be required. In addition, the construction phase of the proposed project will also result in a limited number of additional employment opportunities within the general project area. The proposed development will also ensure Kenmare is able to continue with its current levels of tax payments and will continue to implement various Corporate Social Responsibility projects to uplift the project affected communities, the details of which will be determined in consultation with the communities on site.

To achieve this expansion Kenmare have determined that the best option is to mine the Nataka deposit. However, this deposit contains significantly more fine material (slimes) and the only way to manage this during the mining process is this construct a large tailings storage facility. The preferred location for this TSF has considered technical, practical, environmental and social aspects, as outlined in section 2.4 below.

2.4 PROJECT ALTERNATIVES

2.4.1 Fundamental Alternatives

Fundamental alternatives are developments that are totally different from the proposed project and usually involve a different type of development on the proposed site, or a different location for the proposed development.

A different type of development: Since the core business of the project developer is mining and as the surrounding areas are already being utilised for this purpose, the fundamental alternative of a development other than the required associated mining infrastructure (i.e. TSF, road diversion and relocation channel) is therefore technically not feasible in this instance. For this reason, no fundamental alternative to the proposed development will be considered.

A different location: Alternative areas within the general project area for the location of the TSF was assessed as part of the PFS undertaken for the project and are described and discussed from an environmental and social perspective in further detail below.

TSF site selection

Using natural valleys as a TSF site minimises the size of the wall required per unit of storage volume. The sites considered for a Nataka TSF were thus limited to the valleys present in the lease area (shown in Figure 2.1).

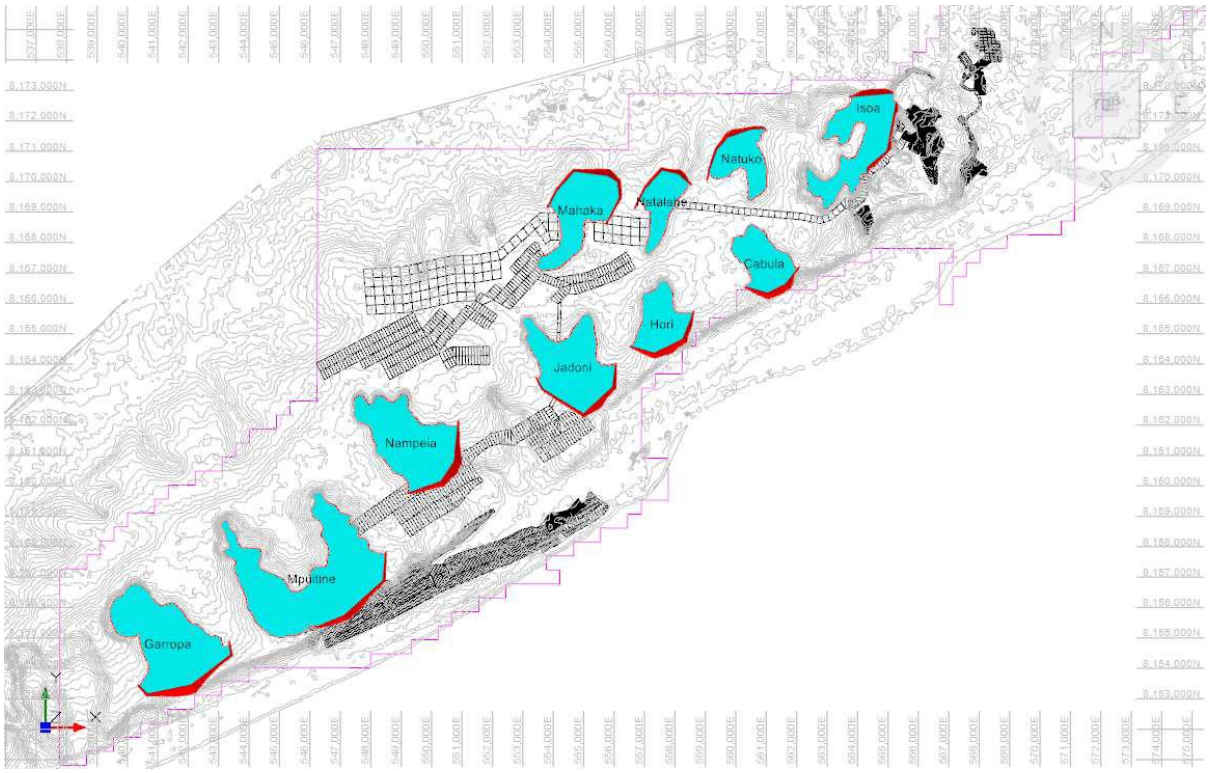

Figure 2.1: Valleys considered for TSF sites

Only four valleys are large enough to contain the 20-year slimes produced by the Nataka path, but all were discarded because of their severe community, safety and environmental impacts, or for being too far from the mining area, or for being within the mining area and sterilising part of the resource (refer to Table 2.3 included below).

Isoa valley is the most favourable of the remaining locations and was thus selected for the main TSF, however it cannot contain 20 years' of slimes and a second TSF will be needed in the mined-out void (subject to a separate environmental application).

Table 2.3: Relocation Trade-Off Method Results.

OPTION	DISGARD REASON
Mpuitine	Severe community impact (4 villages) Disrupts Mualadi Estuary Sterilises mine path before 2030
Garropa	Too far from mining (~20km) Disrupts Mualadi Estuary
Nampeia	Severe community impact (Pilivili village downstream of TSF and within failure path) Disrupts Mualadi Estuary Sterilises mine path before 2030
Jadoni	Significant community impact and high relocation cost Disrupts Mualadi Estuary
Isoa	Preferred Options (not discarded)
Mahaka	Significant community impact and high relocation cost
Hori	Moderate community impact Disrupts Mualadi Estuary
Cabula	Moderate community impact (small community, but has recently relocated machambas) Disrupts Mualadi Estuary
Natuko	Too small Moderate community impact (~$10M)
Natalahe	Too small Moderate community impact (~$10M)

2.4.2 Incremental Alternatives

Incremental alternatives are modifications or variations to the design of a project that provide different options to reduce or minimise environmental impacts and maximise benefits. There are several incremental alternatives that can be considered, including the design or layout of the activity, technology to be used in the activity, and the operational aspects of the activity.

Design: Several design alternatives have been assessed as part of the PFS undertaken for the proposed project. These are further elaborated on below:

Relocation Channel vs Road Transport

The intended mining footprint is disconnected from the current operations at Namalope. This means WCP-A and its related assets need to be relocated from Namalope to Nataka.

The first method considered for this is mining through a relocation channel in the low-grade area of Nataka. This channel has been designed to be practical, minimise distance and maximise linear advance. It is scheduled to take about two years to cross.

The WCP-A can also be relocated directly to the start of the canal via road or a pre-constructed canal. Direct relocation provides the opportunity to target the higher-grade western area of the footprint early on (as opposed to the eastern side which is closer).

Various options were compared from a cost perspective, as well a cashflow assessment, which determined when costs will be offset from revenue generated from mining. WCP-A Canal relocations (options 2 and 4) both reduce the financial value (the Net Present Value – NPV) of the operation due to significant up-front capital expenditure with few financial benefits. Relocating to the west where the grades are higher instead of the east costs much more than the benefits derived from the higher grades. The canal options are consistently more expensive than the road relocation options (Options 3 and 5). However, while the road relocation helps close a short-term ilmenite shortfall, it does not add significant value and it complicates mining and backfill at start-up. It is also a potential fatal flaw as WCP-A might not being relocatable by road due to its size. Dredging via a relocation channel is thus the preferred method of accessing the intended mining footprint.

Table 2.2: Relocation Trade-Off Method Results.

OPTION	DISGARD REASON
1. Dredge via Channel	Preferred Option (not discarded)
2. Canal East	Significantly reduces financial value (~$40M less NPV) compared to road alternative (Option 3).
3. Road East	WCP-A. Brings costs forward and complicates mining / backfill start-up without adding financial value compared to dredging via a channel (Option 1).
4. Canal West	Significantly reduces financial value (~$60M less NPV) compared to road alternative (Option 5).
5. Road West	Incurs additional capex without adding financial value compared to East alternative (Option 3).

These alternatives will be assessed further as part of the Environmental, Social and Health Impact Assessment as the various specialist studies are still underway and data from these will ultimately guide the preferred options from an environmental and social perspective.

Tails and Slimes Management

Primary slimes deposition options

Two primary options for slimes deposition were considered, namely continuous slimes paddocks within the mine path and two long term TSFs, one within the mine path (in-path TSF) and one outside the mine path.

WCP-A currently employs a continuous slimes paddock system at Namalope. It consists of three paddocks behind the dredge path. In this system coarse tails are used to construct paddock berms. A slimes / tails mixture is pumped to the oldest paddock, from where water is systematically decanted through newer paddocks to the dredge pond. The paddocks are eventually capped with coarse tails, on which slimes drying cells are constructed. Settled slimes are pumped from the paddocks to the drying cells to create more settling space in the paddocks.

Nataka's increased dune height and much higher slimes grade will put additional strain on the above system. It is anticipated that up to nine paddocks would be required, which will incur prohibitive pumping distances and costs and incur unacceptable geotechnical risk while it is uncertain if it will contain all the slimes. Upfront desliming, subsequent thickening and depositing pure thickened slimes instead of mixed sand and slimes can improve the containment efficiency of the paddocks. However, consolidation modelling has shown that the Nataka slimes consolidates very slowly. This prevents the use of paddocks due to both safety and practical considerations. Due to the slow consolidation it will not be possible to rehabilitate the backfilled mine void in an acceptable time frame, with settlement continuing for decades after mining, leaving depressions that will need to be repeatedly filled and shaped. Concentrating the slimes into a few larger storage areas is preferable from both a safety and land-take perspective. However, it does mean that land used for the TSF cannot be returned to the community and therefore results in a permanent loss of land. Dedicated TSFs for slimes storage was recommended over in-path paddock deposition as it was found to be the only technically feasible alternative.

Layout: For mining projects layout alternatives are very limited, as the location of the mine and its associated infrastructure is determined by the presence of the resource to be exploited. In this instance the layout of the mining path is based on geological exploration, which is used to define the extent of a commercially exploitable resource. The presence of the minerals therefore dictates the layout of the mine related infrastructure. Alternative layout options will be explored in the ESHIA.

2.4.3 No-Go Alternative

According to the ESHIA Regulations, the option of doing nothing, not proceeding with the proposed development (i.e., the No-go Option), must be assessed during the ESHIA.

3 DESCRIPTIONS OF THE BIOPHYSICAL ENVIRONMENT

As part of the pre-feasibility studies for the Kenmare Nataka Project, a terrestrial ecological screening assessment was conducted on behalf of Kenmare (CES, 2021). The findings informed this description of the biophysical environment.

3.1 CLIMATE

The project site is characterised by a tropical climate with two distinct seasons; a wet season that occurs from November to March, and a dry season from April to October.

The average annual temperature in Moma is 25.4°C. The warmest month is December (with an average temperature of 28.1°C) and the coolest month is July (with an average temperature of 21.7°C) (source: www.climatedata.eu). The area receives an annual average of 1,176 mm of rainfall. January receives the greatest rainfall and October receives the least rainfall during the year.

3.2 TOPOGRAPHY

The TSF area is comprised of two main drainage lines that flow in a north-east direction and exit the concession area on the northern border.

The site is sloped downwards from the northern edge of the site (65 m asl) into the first drainage area (43 m asl) before rising into a semi cleared vegetated hill that reaches an elevation of 10 m asl. The hilltop once again slopes to the south into the second main drainage area, the lowest elevation of the site (26 m asl), before rising up to the main village road on the southern edge, also the highest elevation of the site (82 m asl) (Figure 3.1).

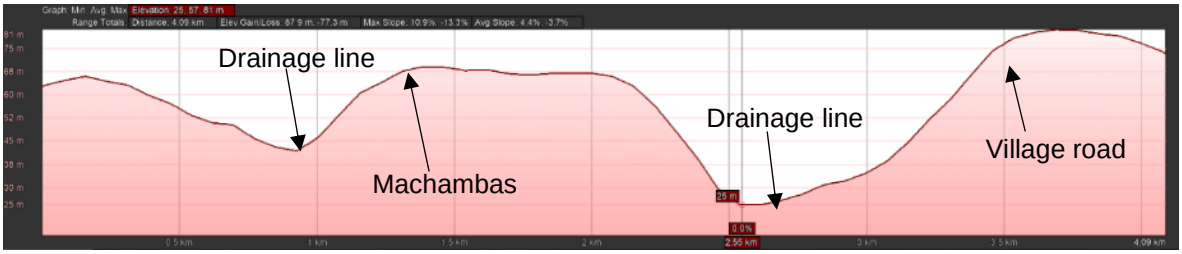

Figure 3.1: Gradient of the project area from north to south.

The western half of the site is comprised of a large drainage line approximately 70 m in width. The channel has an elevation of approximately 28 m (asl) rising steeply to the east before reaching its peak elevation on the Nataka village access road (93 m asl). The hilltop recedes to the east into the proposed TSF area before reaching its lowest point in the drainage channel at an elevation of 15 m (asl). The drainage channel flows north from this point before reaching the edge of the site (

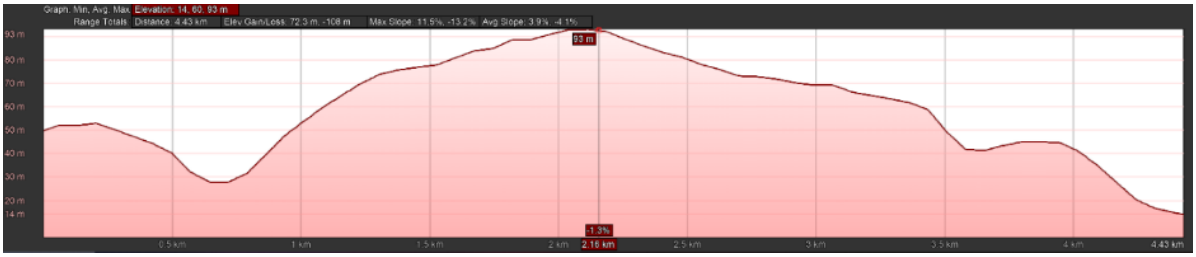
Graph: Min, Avg, Max Elevation: 14, 60, 93 m
Range Totals: Distance: 4.43 km Elev Gain/Loss: 72.3 m, -108 m Max Slope: 11.5%, -13.2% Avg Slope: 3.9%, -4.1%
93 m
80 m
70 m
60 m
50 m
40 m
30 m
20 m
14 m
93 m
-13%
2.18 km
0.5 km
1 km
1.5 km
2 km
2.5 km
3 km
3.5 km
4 km
4.43 km

Figure 3.2).

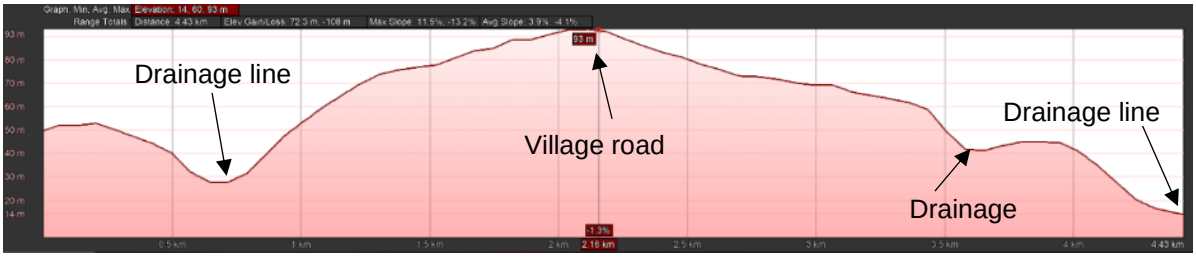

Figure 3.2: Gradient of the project area from west to east.

3.3 GEOLOGY AND SOILS

The Nataka deposit is a large accumulation of heavy minerals in the aeolian sediments of the Old Red Dune, centred approximately 8 km west of the Namalope Project. The mineralisation consists of thick, uniform zones of orange to red-brown silty sand. Geological evaluations indicate that while some zones of the deposit exceed 4% total heavy mineral (THM), the average grade of the deposit is 3.0% THM (Kenmare Nataka Pre-feasibility Study, March 2011).

The dunes consist of both hydrated (yellow) and dehydrated, oxidised (red) soils, the latter having greater iron oxide content (Plate 3.1 and 3.2). The dominant soil forms in the Nataka area are Fernwood (the grey and pale brown sands) on the lower slopes, and Hutton (red sands) and Clovelly (brown sands with yellow subsoil) on mid and top slopes where the soil is sandy. The drainage areas have slightly heavier (mainly silt, but with some clay) soils. Clay lamellae (bands in which clay has accumulated) in the subsoil are likely to occur in areas which are wet for most of the year.

The sandy texture of the soils (particularly in the upper rooting zone) has a dominating influence on the following physical properties of the soils:

- Low water holding capacity.
- Low cation exchange capacity (which in turn imparts a low fertility to the soil).
- Rapid permeability.
- Poor cohesion between grains which makes the soil susceptible to erosion.

Plate 3.1: Cassava field on oxidised red sands.

Plate 3.2: Cassava field on hydrated yellow sands [Note drainage line in the background].

3.4 HYDROLOGY

The broader project area includes several tertiary tributaries that flow into one of the two main secondary tributaries of the Larde River. These linear drainage features mainly slope from south to north and drain the project area into the Larde floodplain (Plate 3.3). A large drainage line and several smaller tributaries bisects both alternatives for the proposed TSF and drain towards the north-east (Figure 3.3).

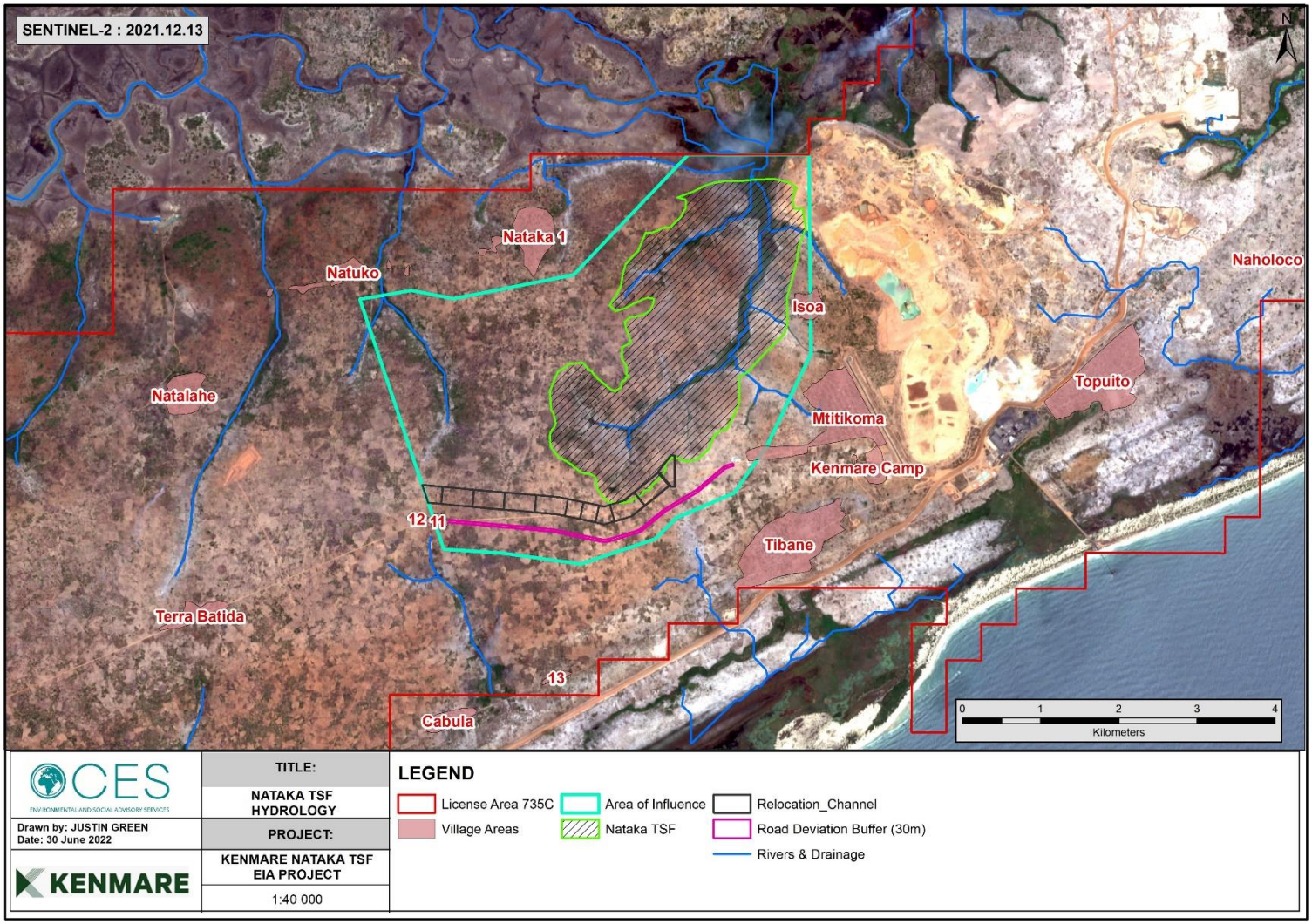

Figure 3.3: Hydrology of the project area of influence.

Wetland Consulting Services (Pty) Ltd. conducted a preliminary wetland assessment of the broader Nataka Heavy Minerals Deposit project area. Several wetland systems were identified. Although a number of these wetlands have been impacted by vegetation clearing largely for agricultural purposes, they still support considerable biodiversity and provide a range of valuable ecosystem services such as water supply for domestic use (washing and drinking) and subsistence agriculture. Most of these wetlands can be classified as Valley Bottom Wetlands and within the TSF area are typically relatively shallow gradient wetland systems located along valley floors.

Water inputs into the wetland systems comprise diffuse flows, groundwater contributions and seepage from adjacent valley side-slopes. Valley bottom wetlands are typically groundwater fed, with baseflow, and in the TSF area have seasonal to perennial surface flow, emerging from groundwater seepage at the heads and margins of the systems all along their length.

Plate 3.3: Drainage line which flows north towards the Larde River Floodplain, in proximity to Mahaca Village.

Common plant species observed within the wetland habitat of the project area include *Paspalum species, Cyperus articulates, C. prolifer, Imperata cylindrica, Leersia hexandra, Pycreus polystachyos, Panicum parvifolium, P. repens, Leersia hexandra, Eragrostis ciliaris, Cyclosurus interruptus, Heteropogon sp., Pennisetum sp., Nymphaea nouchali, Typha capensis,* and *Phragmites australis*, amongst others (Wetland Consulting Services (Pty) Ltd, 2021).

The main hydrological processes identified within the sub-catchments of the broader project area include:

- Rainfall
- Infiltration
- Groundwater Recharge

- Evapotranspiration
- Groundwater return flow; and
- River discharge.

Wetlands and drainage features directly impacted by the proposed TSF will be delineated and further investigated during the ESIA phase.

3.5 LAND USE

The soils strongly influence land use, which is dominated by cultivation in the traditional shifting pattern of rural Africa. As a result, a mosaic of exotic and indigenous fruit trees and crops cover the area, with small patches of the original indigenous Miombo woodland, forest or thicket remaining. The few isolated patches of miombo woodland are likely used for collecting plants and trees for firewood and construction materials. The soils have a very low water holding capacity. While soil fertility is a significant factor affecting crop productivity, the combination of adverse climatic conditions and low water holding capacity of the soils is important as it reduces yields significantly.

The common tree crops grown are mango and cashew with some banana and papaya in the drainage lines. Oranges and mandarins, as well as coconuts, are grown in the villages. Many of the cashew trees remain as remnants in woodlands and outside the current cultivated areas, but these are generally low yielding. Cassava is the dominant field crop grown (Plate 3.1), and other main crops include maize, groundnut and Njugo bean (Feijao joco, Voandzea sellowiana). Some people are also likely to grow pigeon pea (Cajanus cajan), cow pea (Vigna sp.) sugar cane, sweet potatoes, pineapples and vegetables such as onions, tomatoes, garlic, potatoes, etc.

All agricultural work is done by hand, with fire used to clear unusable plants. Land is allocated by the village secretary, and each family makes use of a few hectares. Usually, a piece of cleared land is used for three to four years before it is abandoned. Between one and four hectares of crops, but mainly cassava, can be cultivated at a time. Once abandoned it returns to secondary savanna, to be cultivated again after an unknown rest period. No use is made of fertilisers or organic materials to build up the soil fertility. The organic matter in the soils of the area is concentrated in a thin (100mm) top layer.

3.6 VEGETATION

The vegetation present within the study area is a mosaic of Miombo Woodland and transformed land which is comprised of machambas. Areas that have been transformed have been mapped for the sake of completion, but no further descriptions are provided (Figure 3.4). Due to the past and present shifting cultivation practices described above, a mosaic of vegetation types occur. A vegetation classification has not been done at this stage, but based on a preliminary field visit the following communities were identified:

- Secondary savannah – most abundant

- Miombo woodland/thicket – isolated patches
- Vegetation of drainage line – restricted to drainage lines
- Floodplain grassland – restricted to the Larde floodplain area.

The Miombo woodland occurs as very fragmented patches in the TSF site. Based on the species composition this appears to have been closed Miombo Woodland or even forest prior to clearing commencing by local communities. The small remaining patches of Miombo Woodland typically have a canopy cover of 50-75% with an understory of grass species and herbs (Plate 3.4). Tree height ranges from 3-4m with emergents reaching up to 6m.

A total of 145 species from 48 families were recorded within the entire project area during the terrestrial ecological screening assessment, but it is unlikely that all of these will be represented in the smaller and more disturbed TSF site. Of the 145 recorded species, nine (9) are classified as Species of Conservation Concern (SCC) including *Afzelia quanzensis* (NT), *Bosqueiopsis carvalhoana* (near-endemic), *Brachystegia oblonga* (endemic, CR), *Catunaregam stenocarpa* (near-endemic), *Glyphaea tomentosa* (endemic, LC), *Grewia transzambesica* (endemic, LC), *Ozoroa obovata* (near-endemic, LC), *Paropsia braunii* (NT), *Vitellariopsis* cf. *kirkii* (VU). The chances of encountering these on the TSF site is lower than in the Nataka site, as most of the area to be directly affected by the TSF has been cleared (Figure 3.4).

There are no dominant species that characterise Miombo Woodland, however common species throughout the site include shrubs and trees such as *Xylotheca tettensis, Ozoroa obovata, Annona senegalensis, Xylopia gracilipes, Ancylobothrys petersiana, Carissa macrocarpa, Commiphora serrata, Grewia sulcata, Pteleopsis myrtifolia, Rourea orientalis, Tetracera boiviniana, Hymenocardia ulmoides, Cassia afrofistula, MIllettia stuhlmanii, Phyllocosmus lemaireanus, Vitex doniana, Afzelia quanzensis, Albizia adianthifolia, Dalbergia nitidula, Strychnos madagascariensis, Strychnos spinosa, Grewia transzambezica, Ochna mossambicensis, Antidesma vernosum, Securidaca longepedunculata, Pavetta decumbens, Tarenna junodii, Blighia unijugata, Deinbollia oblongifolia* and *Manilkara concolor.*

Plate 3.4: Patches of miombo woodland found within the project site.

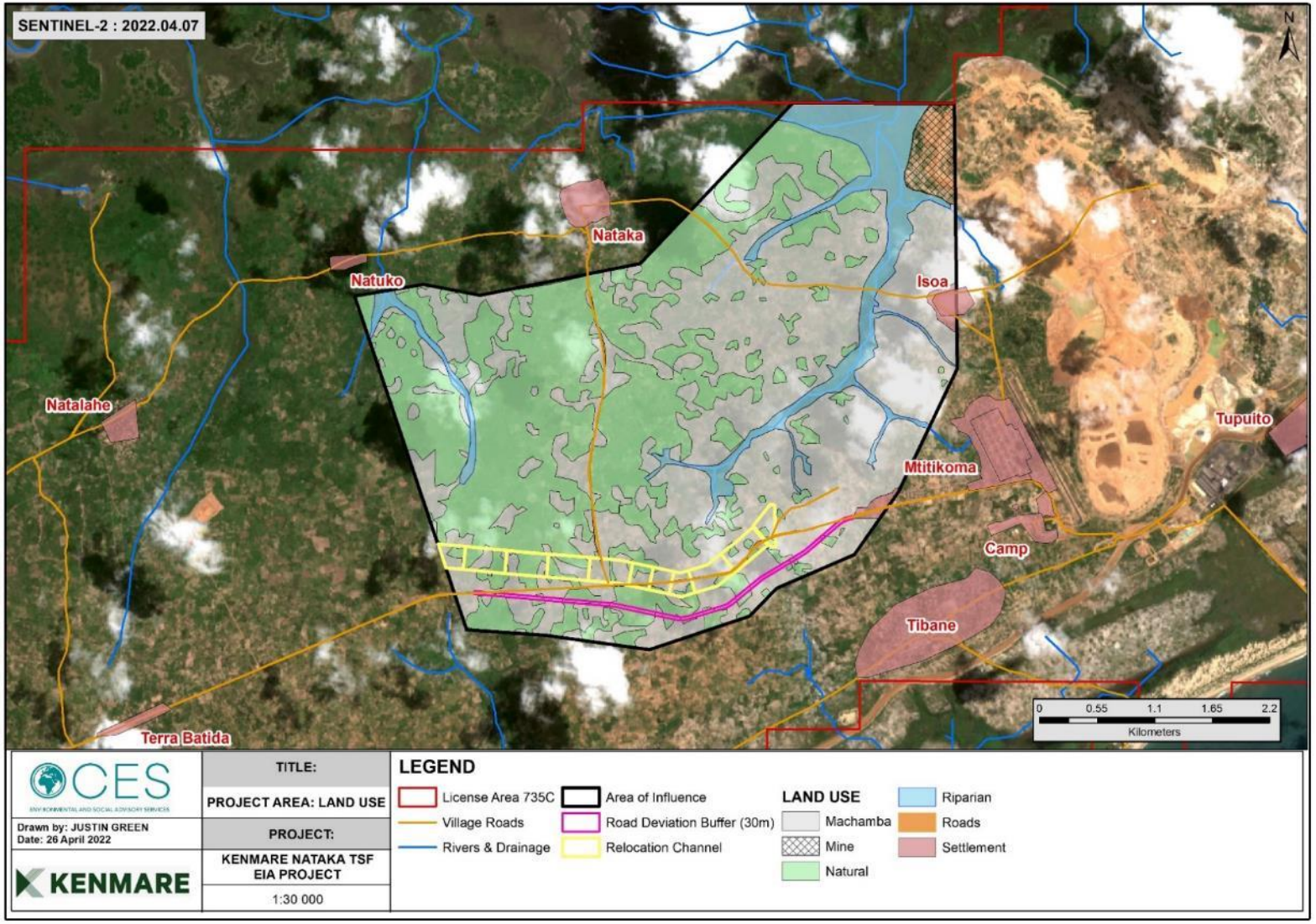

Figure 3.4: Preliminary vegetation map of the proposed study area.

3.7 FAUNA

Mozambique has approximately 1,196 terrestrial vertebrate faunal species of which 726 species are birds (61%), 214 species are mammals (18%), 171 species are reptiles (14%) and 85 species are amphibians (7%) (MITADER, 2015).

3.7.1 Herpetofauna

Reptiles in Mozambique show a higher diversity in the central and southern regions, the "hotspots" for endemic reptiles are found to occur east of the Great Inselberg Archipelago in Zambézia Province, in Bazaruto and Inhambane Archipelagos, along the coast of Gaza and Maputo Provinces and in the centre of Sofala Province (Schneider *et al.*, 2005). Estimates of endemic reptile species found to occur in Northern Mozambique ranges between 1 to 11 species. For amphibians there is a lack of data to determine the diversity hotspots in Mozambique (Schneider *et al.*, 2005).

According to Farooq and Conradie (2015) the scientific knowledge of herpetofauna diversity in the northern Mozambique region is poor. They attribute this to the country's history of a long civil war which rendered much of the region physically inaccessible and thus has been under-sampled and the number of herpetofauna species is likely underestimated. In support of this a study conducted by Ohler and Frétey (2014) used molecular and behavioural characteristics of samples from surrounding regions and found several new taxa to occur in Africa, thus more species are found to occur in the region than had been previously been reported.

There is a discrepancy when it comes to the actual number of herpetofauna species in Mozambique, with each source consulted citing different species counts (**Error! Reference source not found.**).

Table 3.1: Number of herpetofaunal species in Mozambique according to various sources.

Herpetofauna	AmphibiaWeb database (2016)	Reptile Database Utez, 2016	MITADER 2015	Farooq & Conradie 2015	Schneider *et al*. 2005
Amphibians	86	-	85	69	84
Reptiles	-	234	171	221	280

Threats to herpetofauna included anthropogenic activities such as using reptile and amphibians as food sources, the use of their skin for medicinal purposes, habitat destruction and collecting certain species for the pet trade (MITADER, 2015).

Three amphibian species were recorded from the rivers in the project area including the East African Puddle Frog (*Phrynobatrachus acridoides*), Dwarf Puddle Frog (*Phrynobatrachus mababiensis*) and Dwarf Grass Frog (*Ptychadena taenioscelis*).

Four reptiles were observed onsite, the Variable Skink (*Trachylepis varia*) (Plate 3.5), Flathead Leaf-toed Gecko (*Hemidactylus platycephalus*), Intermediate Plated Lizard (*Gerrhosaurus intermedius*) and Puff Adder (*Bitis arietans*).

Mozambique hosts 11 threatened amphibian species including two critically endangered, five endangered and four vulnerable species. Mozambique also hosts six endemic species and one data deficient species (IUCN, 2021). None of these species has a distribution range which includes the project area. Mozambique host 21 reptile species of conservation concern (SCC), including 14 threatened (2 CE, 5 EN, 7 VU) and seven near threatened reptile species.

Mozambique also hosts 26 endemic species and six data deficient species (IUCN, 2021). Of these only the Zambezi Flapshell Terrapin (Cycloderma frenatum) (EN) has a distribution which includes the project area (van Dijk, 2016). Since the Zambezi Flapshell Terrapin is listed as endangered, has a distribution range that includes the site and there is suitable habitat present on site (confirmed during the site visit), the faunal survey will determine whether there is evidence of this species on, or directly adjacent to the site.

Plate 3.5: Variable Skink (*Trachylepis varia*) recorded from the project area.

3.7.2 Mammals

According to the National Strategy and Action Plan of Biological Diversity of Mozambique (MITADER, 2015), 214 terrestrial mammal species occur in Mozambique. Conversely, Schneider *et al*. (2005) state that 271 mammal species occur in Mozambique. However, this value includes both terrestrial and marine mammals. Generally, large mammals are restricted to conservation areas. Three mammals were recorded from the project area.

Mole-rat mounds were found in several locations across the project area. Mole-rats are part of the Bathyergidae family and species with a distribution that includes the project area are the Silvery Mole-rat (*Heliophubius argenteocinereus*) and the Mashona Mole-rat (*Fukomys darlingi*). It is important to note that there have been several discoveries of mole-rat species new to science in recent years (Faulkes *et al*. 2017; TAG, 2012), thus this species as a whole has been under studied, especially in Mozambique. It is therefore recommended that the mole rat species is specifically assessed during the ecological assessment to be undertaken for the ESHIA to confirm the species currently occupying the site.

Gerbil tunnels were seen, and two gerbil species have a distribution that includes the project area. Bushveld Gerbil (*Gerbillliscus leucogaster*) and Gorangoza Gerbil (*Gerbillliscus inclusa*). It is therefore recommended that the species of Gerbil be confirmed during the ecological assessment to be undertaken for the ESHIA.

Spoor of a small carnivore was observed in the road. Given the small size it is expected to be a Genet, likely the Common Large-spotted Genet (*Genetta maculate*).

Mozambique hosts 32 mammal species of conservation concern (SCC), 19 threatened (1 CE, 7 EN, 11 VU) and 13 near threatened. Mozambique also hosts three endemic mammal species and 11 data deficient mammal species (IUCN, 2021). The project area is within the distribution range of three threatened, two near threatened and one data deficient terrestrial vertebrate mammal species. These are presented in detail below. This record includes the distribution range of the Black Rhino (*Diceros bicornis*) (CE) and the White Rhino (*Ceratotherium simum*) (NT). The IUCN SSC African Rhino Specialist Group (AfRSG) does not release detailed information on rhinos for security reasons, and only whole countries of occurrence are indicated on the range map. Thus, although the site 'triggers' the *Diceros bicornis* range only one individual has been sighted in Mozambique since the 2008 IUCN African Rhino Specialist Group (AfRSG) meeting (Emslie, 2020).

- **Leopard** (*Panthera pardus pardus*) (VU) has an incredibly wide range that spans across continents. They are found across sub-Saharan Africa to North Africa in Egypt (Stein *et al*. 2020). This is due to their wide habitat tolerance and highly varied diet. Habitats include woodland, grassland, savannah and mountain habitats, but they also occur widely in coastal scrub, shrubland and semidesert (Stein *et al*. 2020). It is unlikely that the Leopard occurs in the project area and if it does it is unlikely to support globally important concentrations of the Leopard and thus would not be considered to be a trigger for critical habitat under Criterion 1.
- **Temminck's Pangolin** (*Smutsia temminckii*) (VU) has a widespread distribution from south-eastern Chad, through South Sudan, much of East Africa and southern Africa.

South Africa is estimated to have 16,329–24,102 mature individuals (Pietersen *et al*. 2016) but abundances in other regions of Africa are unknown. The population is decreasing due to ongoing exploitation of this species for traditional medicine and bushmeat, with future population reduction estimated at 30–40% over a 45-year period. This species inhabits savannas and woodlands in low-lying regions, in areas with moderate to dense scrub, provided there is sufficient prey (ants and termites) as well as dens or above-ground debris in which to shelter. The Temminck's Pangolin habitat and prey is present in the project area (confirmed during the site visit). Local communities must be consulted as part of the Ecological Assessment and/or by Kenmare's social department to establish if this species occurs in the project site. Criterion 1 of the guidance notes on PS6 of the IFC Performance Standards states that "Areas that support globally important concentrations of an IUCN Red-listed Vulnerable (VU) species, the loss of which would result in the change of the IUCN Red List status to EN or CR and meet the thresholds in GN72(a)" may also be a trigger for critical habitat. Although the Pangolin is listed as VU on the IUCN red data list, it seems unlikely that the potential loss of these individuals at the Nataka site (if present) will result in a change of the IUCN Red List Category, as this species has a relatively large distribution area. Although unlikely to be a trigger for critical habitat, it is recommended that the presence of this species is further investigated as part of the faunal assessment to be undertaken for the project, as it is a CITES listed species.

- **African Clawless Otter** (*Aonyx capensis*) (NT) is widely distributed from the Western Cape in SA northwards throughout East Africa and stretching from Senegal to Ethiopia (Jacques *et al*., 2015). African Clawless Otters are predominantly aquatic and seldom found far from water, inhabiting forests, grasslands and wetlands. Freshwater is an essential habitat requirement, and they only occur in marine habitats where there is access to fresh water (Jacques *et al*., 2015). African Clawless Otters have been found in towns and cities and have been recorded utilising rivers as corridors to move through a city. They can occupy rivers with high pollution and eutrophication levels (Ponsonby, unpublished, 2018; Jacques *et al.,* 2015). The African Clawless Otter was recorded at the Pilivili site in August 2021 in the wetlands and coastal thicket habitat, thus it has been recorded in the general project area. In addition, habitat for this species exists in the project area (confirmed during the site visit). This species will not trigger critical habitat as it is Near Threatened and has a large distribution range.
- **Light-winged Lesser Bat** (*Scotoecus albofuscus*) (DD) has been widely, but patchily recorded over much of West Africa and East Africa, with some records from Central Africa (Jacobs, 2019). The range is poorly known, and the species might be more widespread. Little information is available on the population abundance, size of this species and habitat but it has been recorded from woodlands, and probably also occurs in dry savanna habitats (Jacobs, 2019). Light-winged Lesser Bat is classified as data deficient (DD). The difficulty with DD species is that there is no available information on these species in terms of population size, habitat and distribution (i.e., rare, endemic or range restricted species) to determine its conservation (threat) status. This could present an opportunity for Kenmare to provide valuable information to science. It should be noted that the field of bats is extremely specialised, and thus should Kenmare opt to make a contribution, a bat survey would need to be conducted to determine its presence on site.

A detailed ecological impact assessment, inclusive of trapping, night-time surveys and interviews with communities will need to be conducted to obtain additional information on the mammal species listed above, and in particular the Temminck's Pangolin.

3.7.3 Birds

According to BirdLife International (2021), a total of 674 bird species occur within the project area, but Lepage (2016) accounts for a much higher diversity, listing 747 species (including rare vagrants and accidentals). Ornithological studies for the southern and central areas of Mozambique are well documented (Parker, 1999; 2005a; SABAP2). However, very few ornithological studies have been conducted in northern Mozambique, particularly in the provinces to the north of the Zambezi River. Regardless of the discrepancies between published species lists, Mozambique undoubtedly has a rich diversity of avifauna. It is estimated that approximately 319 bird species are likely to occur within the Greater Moma Region where the project area is located. The field survey of the Pilivilli project site (Branch, 2017) recorded 183 bird species and the majority are likely to occur within the project area.

During the field survey 44 bird species were recorded. Of note is the presence of predatory birds including the African Goshawk (*Accipiter tachiro*), Black-chested Snake Eagle (*Circaetus pectoralis*), Black-winged Kite (*Elanus caeruleus*) and the endangered Martial Eagle (*Polemaetus bellicosus*).

Species recorded in the Miombo Woodland habitat include the Crowned Hornbill (*Lophoceros alboterminatus*), Southern Red-billed Hornbill (*Tockus rufirostris*), Gorgeous Bushshrike (*Telophorus viridis*), Square-tailed Nightjar (*Caprimulgus fossii*), Brown-hooded Kingfisher (*Halcyon albiventris*), Amethyst Sunbird (Chalcomitra amethystine), Lilac-breasted Roller (*Coracias caudatus*), Little Bee-eater (*Merops pusillus*), African Hoopoe (*Upupa africana*), Arrow-marked Babbler (*Turdoides jardineii*), Green-winged Pytilia (*Pytilia melba*) and Red-faced Mousebird (*Urocolius indicus*).

Common birds in the Miombo Woodland vegetation include the Black-crowned Tchagra (*Tchagra senegalus*), Brown-crowned Tchagra (*Tchagra australis*), Sombre Greenbul (*Andropadus importunus*), Emerald-spotted Wood Dove (*Turtur chalcospilos*), and Tropical Boubou (*Laniarius major*).

The machambas hosted smaller birds such as Bronze Mannikins (*Lonchura cucullate*), Blue Waxbill (*Uraeginthus angolensis*) and Tawny-flanked Prinia (*Prinia subflava*) as well as the Southern Fiscal (*Lanius collaris*), Dark-capped Bulbul (*Pycnonotus tricolor*) and Pied Crow (*Corcus ablus*).

The large wetland area north of Nataka Village hosted two Saddle-billed Storks (*Ephippiorhynchus senegalensis*), two Stripped Pipits (*Anthus lineiventris*) and several Collared Pratincoles (*Glareola pratincole*). This wetland is significant in extent and could potentially host large populations of waterbirds during the wet season.

Mozambique has 16 Important Bird Areas (IBA) covering an area of 1 708 800 Ha. The IBAs provide refuge for 13 globally threatened species, 15 biome-restricted species, and 10 range-

restricted species (BirdLife Int., 2021). The closest IBA to the project area is the Moebase Region (40, 000ha) located approximately 80km south-west of the project area.

Mozambique hosts 29 globally threatened and two country endemic species. The project area is within the distribution range of 11 threatened and seven near threatened species. The Cape Gannet is a coastal species and will not occur on site (Birdlife Int., 2018). The Martial Eagle (EN) was observed on site and the Pallid Harrier (NT) was observed 500m east of the project boundary.

3.8 PROTECTED AREAS

According to the Integrated Biodiversity Assessment Tool (IBAT), there are a total of fifty-eight (58) protected areas in Mozambique, covering a total land surface area of 233,249 km^2. A portion of the project area falls within the Primeiras and Segundas Environmental Protection Area (APAIPS), one of the largest protected marine areas in Africa with a marine reserve of approximately 10,411 km^2. The APAIPS includes 10 islands, the strip of ocean between these islands and the shore, as well as several estuaries and rivers within the 19.3 km stretch inland. The management of Conservation Areas in Mozambique is primarily the responsibility of the National Conservation Administration (ANAC). However, management of the APAIPS is based on a participatory approach and incorporates government, communities, private sector, civil society and others (Biofund, 2022). The Management Plan for the APAIPS (Plano de Maneio da Área de Protecção Ambiental do Arquipélago das Ilhas Primeiras e Segundas 2014-2019) provides guidance on specific activities within the protected area to minimise threats to biodiversity and identifies various zones within the Environmental Protection Area with different levels of environmental protection. The document indicates that there are a number of approved mine concession areas within the designated area and includes specific guidance on how such activities should be managed.

Other than the APAIPS, the nearest protected area in proximity to the project area is the Gile Game Reserve, located approximately 53 km north-west of the project area.

4 DESCRIPTION OF THE SOCIO-ECONOMIC ENVIRONMENT

4.1 LOCAL ADMINISTRATION

Mozambique's local government is comprised of both formal and traditional authorities. District Administrators fall below the provincial level government and are responsible for overseeing a number of Chiefs of Administrative Posts (Synergia, 2016). Administrative posts are divided into localities, and each of these are headed by a Chefe de Localidade (a chief responsible for overseeing the locality and who reports to the Administrative Chief). Community leaders fall below the Chefe de Localidade and include both traditional leaders, selected based on traditional rules, and elected leaders. Figure 4.1: Local government structure.Figure 4.1 illustrates the local government administrative structure.

In Mozambique land is normally held by the Government, although the Government recognises the role of customary tenure. The land is therefore still largely regulated and controlled by local chiefs and elders.

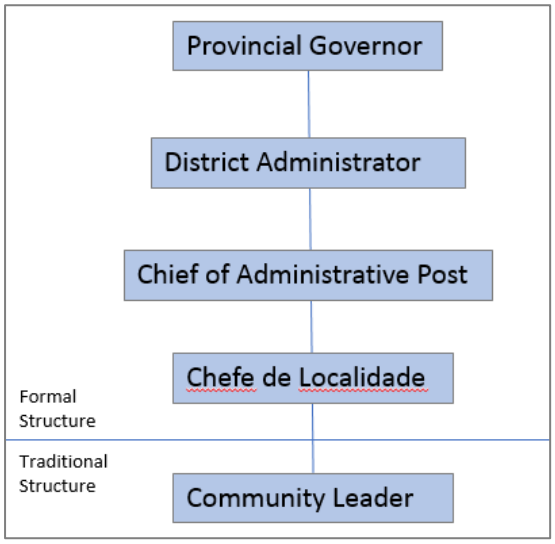

Figure 4.1: Local government structure.

4.2 PROJECT AFFECTED COMMUNITIES

Four (4) villages are located within and directly adjacent to the TSF project's boundaries and access routes. The location of these communities in relation to the project and its related infrastructure is illustrated in Figure 4.2. The villages are:

- Natuko
- Nataka
- Mtitikoma
- Tibane

These villages will all be directly affected by the project and are referred to as project affected communities (PAC).

4.3 DEMOGRAPHICS

Nampula province is the most heavily populated province in Mozambique, with a population of approximately 5,2 million (21% of the total population in Mozambique) according to the 2017 census undertaken by Instituto Nacional De Estatistica (INE). This figure rose from 4 million in 1997 which indicates a population growth of around 3% per year (Club of Mozambique, 2019; INE, 2020).

Based on recent monitoring by Nomad Consulting (2022), they concluded that the rapid development associated with Kenmare operations has resulted in changes to the population structure and demographics of the villages within and around the project area. While the study found that family structure and household size has not changed significantly over the last 10 years, the population growth rate for Nataka was significant, amounting to 2.1% between 2017-2021. According to the Governo Do Districto de Moma (2013), the population of Nataka in 2013 was 1,468, increasing to 1,600 in 2021. Nearby villages displayed a similar trend, with Mtiticoma and Thipane having an 11.3% and 6.6% population growth rate respectively. These increase are attributed to population influx by (1) Kenmare staff and family, (2) project contractors, (3) economic migrants, (4) intra-district movement, and (5) natural population growth. These trends are typical of areas with major developments in Africa.

According to Nomad Consulting (2022), approximately 60% of the population within and surrounding the project area is younger than 18 years of age.

4.4 HOUSEHOLD LIVELIHOODS, INCOME AND EXPENDITURE

Agriculture, fishing and forestry in Mozambique contributed 24% to the gross domestic product (GDP) in 2019 (Statista, 2020). It is therefore considered an important contributor towards the country's economy, especially subsistence agriculture which employs the majority of the country's workforce, particularly in rural areas.

Prior to the establishment of the mine, the employment opportunities within the project area were limited. The increase in employment opportunities associated with the establishment and operation of the mine has had positive spin-offs in the local economy and growth of local villages (Nomad Consulting, 2022).

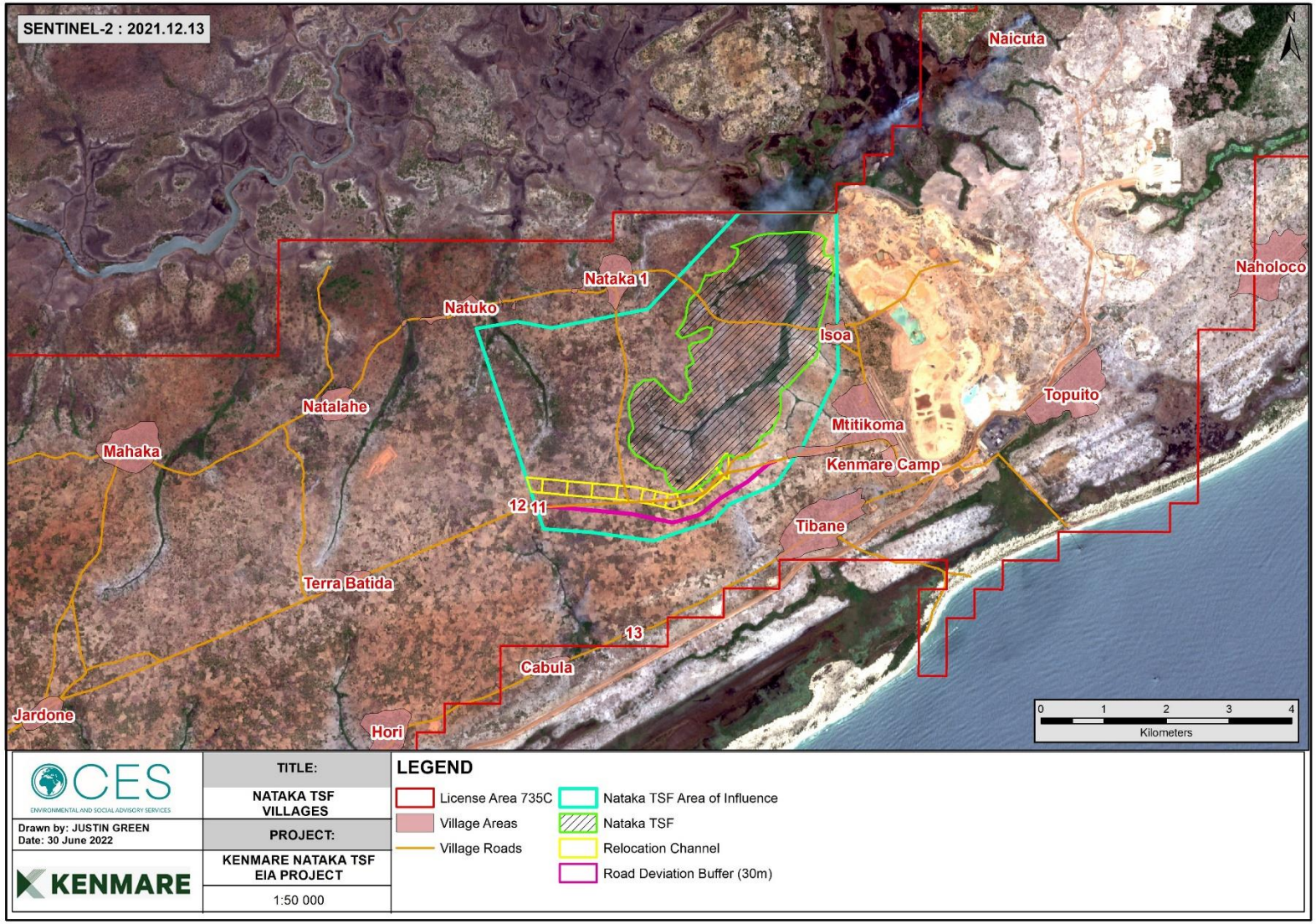

Figure 4.2: Villages identified within the project area.

Despite the increase in employment opportunities associated with Kenmare's operations, survival strategies and livelihoods are still largely dependent on local resources, with limited reliance on natural resources from further afield. The villages within the project area tend to rely predominantly on resource use and extraction at the local level. Although the environment is presently being degraded, from an ecological and species diversity perspective, the local population are still able to extract sufficient natural resources to sustain a subsistence way of life. The mine has however created a centre of employment and the villages surrounding the mine site provide substantial labour cadres. Wage income has gained importance within the broader project area as an alternative livelihood to subsistence-based agriculture.

The marked increase in cash income available has seen an increase in the demand for goods and services, and subsequently the markets to provide them. Although this is more marked in the villages in the immediate vicinity of the currently developed mine site, it also extends in a more limited manner to the villages in the Nataka area.

The Social and Resettlement Monitoring (Nomad Consulting, 2022), found that there has been an increase in the percentage of households claiming salaries as a source of income within the broader project area, increasing from 2.5% in 2017 to almost 12% in 2021. This might not be related to direct employment associated with mining operations, but rather the indirect increase in economic activity associated with the mine. The 2021 monitoring found that 65% of income from members within the broader project area was from the sale of agricultural and related products, while 11% was from the sale of fish, and 4.5% was from self-employment.

Household assets and expenditure are important indicators of household wealth (Nomad Consulting, 2022). Social monitoring within the broader project area undertaken between 2011 and 2014, indicated an increase in asset ownership which was most likely attributed to the increase in disposable income linked to the temporary employment opportunities created during the construction phase of the mine. The 2021 social monitoring indicated that asset holdings since the completion of the construction phase were either stable or had declined. Common assets include bicycles, motorcycles, televisions, cell phones, radios, handheld hoes and fishing nets (Nomad Consulting, 2022).

4.5 EDUCATION

Prior to the establishment of the mine, access to education was limited due to the lack of school facilities and educational materials. Historically, school facilities consisted of makeshift wattle-and-daub structures. Kenmare has built primary schools in Thipane, Mtiticoma, Naholoco, Nathaca, Matalahe, Pilivili, Mulimuni, and Thibane, as well as a polytechnic (technical training school) in Topuito. A programme to upgrade the Pilivili school to a secondary school is underway with some secondary classes already being offered (Nomad Consulting, 2022). Socio-economic data collected in the broader areas indicates that education levels have improved significantly since Kenmare's investment in education, as the number of students enrolled at local primary schools increases annually.

4.6 AGRICULTURE

Crops produced on the machambas surrounding the villages and towards the drainage lines are mainly maize, beans and cassava, with the latter being the staple crop in the project area, as it is for the surrounding area in general. Livestock bred for consumption in the project area is generally restricted to chickens, goats and ducks.

4.7 GRAVES

Graves are extremely important in the local cultural environment. Villages generally have one or more cemeteries located within its boundaries as well as on the outskirts thereof. Graves fall within the domain of the traditional authority, and traditional leadership is strongly reinforced around related issues. Graves and cemeteries within the project area will have to be documented in order to make recommendations about protecting or moving graves likely to be disturbed by project activities. The current relocation process employed by Kenmare for the Namalope and Pilivilli areas are well established and resulted in the successful, and generally conflict free, relocation of these cemeteries.

5 STAKEHOLDER AND COMMUNITY ENGAGEMENT PROCESS

5.1 INTRODUCTION

The Public Participation Process (PPP) involves consultation with the wider public. The process facilitates the dissemination of information about the project and identification of indirectly and directly affected I&APs.

The PPP will be outlined in detail in the PPP Report which will provide accounts of all the meetings held during the EPDA phase of the ESIA. It will then be expanded after the EIR public disclosure meetings to report on the full engagement process. The final PPP document with all the relevant minutes of the meetings and attendance registers will be submitted to MTA, together with the other full ESIA reports.

Through the PPP process all I&APs will be made aware of the project and its possible negative implications, and the process will assist them to understand the project and its potential benefits to them. A poorly executed PPP can result in disputes and disagreements between communities, the developer and government authorities and lead to the disruption of established social structures.

As part of this process, public consultation meetings will be organized where all I&APs are invited and will be provided with an opportunity to express and record their concerns, expectations and comments relating to the proposed project.

5.2 NATIONAL LEGISLATION

Stakeholder engagement is a legal requirement for Category A projects and MTA have prepared a Directive for the Stakeholder Engagement process published as Ministerial Diploma 130/2006 of 19 July. This is further reinforced by the new Regulations on Resettlement Process resulting from Economic Activities (Decree 31/2012, of 8 August). Article 13 of this Regulation points out the need to ensure Public Participation throughout the entire process of development and implementation of Resettlement Action Plans for projects.

The PPP phase of the ESIA will:

- Identify the stakeholders.
- Disseminate information to stakeholders.
- Manage a dialogue with the proponent of the activity.
- Assimilate and consider public comments received.
- Provide feedback in response to the outcomes of the dialogue and inputs to demonstrate how these have been taken into account in the design of the activity.

5.3 PUBLIC PARTICIPATION PROCESS

The main objective of the EPDA public consultation meetings is to disclose the main findings of the EPDA, present the potential impacts and risks identified at this time and explain the EIA process and what specialist studies will be undertaken.

Disclosure of both the EPDA and ESIA reports will comprise open public meetings in the surrounding villages and at the administrative centres of Larde and Moma and involve the following steps:

- Preparation of the list of stakeholders.
- Preliminary consultations with communities, government and non-governmental organizations.
- Submission of EPDA and ESIA to the relevant institutions and making the reports available for consultation before the public meetings.
- Preparation and delivery of invitation letters to relevant stakeholders.
- Realisation of public consultation meetings in the affected communities.

Prior to the public meetings, a draft of this EPDA document will be made available on a public website and hard copies will be distributed at key locations for the public to view. The details of the public meetings will be advertised in newspapers and on local radio stations.

6 PRELIMINARY ENVIRONMENTAL AND SOCIAL RISK ASSESSMENT

6.1 RISK ASSESSMENT METHODOLOGY

To guide the development of the ToR for specialist studies and the ESIA, a structured risk assessment approach was applied to identify environmental and social (E&S) issues and assess the significance of these issues. Risk was assessed by combining significance with the potential difficulty to mitigate issues, with “degree of difficulty to mitigate” interpreted in terms of effectiveness, practicality and cost effectiveness. Thereafter a risk matrix was applied to arrive at a final risk rating.

This methodology is described more fully below. It is important to note that the risk assessment, which is done at a high level, differs from the impact assessment which will be used by the specialists during the ESIA phase. The **environmental significance** scale evaluates the importance of a particular impact. This evaluation needs to be undertaken in the relevant context, as an impact can either be ecological or social, or both. The evaluation of the significance of an impact relies heavily on the values of the person making the judgement. For this reason, impacts of especially a social nature need to reflect the values of the affected society. A four-point impact significance scale was applied (**Error! Reference source not found.**).

Table 6.1: Environmental significance rating scale.

Significance		Description
Very High (+)	Very High (-)	These impacts would constitute a major and usually permanent change to the (natural and/or social) environment, and usually result in severe/very severe effects, or beneficial/very beneficial effects.
High (+)	High (-)	These impacts will usually result in long term effects on the social and/or natural environment. Impacts rated as high will need to be considered by the project decision makers as constituting an important and usually long-term change to the (natural and/or social) environment. These would have to be viewed in a serious light.
Moderate (+)	Moderate (-)	These impacts will usually result in medium to long term effects on the social and/or natural environment. Impacts rated as moderate will need to be considered by the project decision makers as constituting a fairly important and usually medium-term change to the (natural and/or social) environment. These impacts are real but not substantial.
Low (+)	Low (-)	These impacts will usually result in medium to short term effects on the social and/or natural environment. Impacts rated as low are generally fairly unimportant and usually constitute a short-term change to the (natural and/or social) environment. These impacts are not substantial and are likely to have little real effect.

The **degree of difficulty of mitigating** the various impacts ranges from very difficult to easily achievable. The four categories used are listed and explained in **Error! Reference source not found.** below. The practical feasibility of the measures, financial feasibility of the

measures, and their potential effectiveness was taken into consideration in deciding on the appropriate degree of difficulty.

Table 6.2:Degree of mitigation difficulty rating scale.

Difficulty	Description
Very difficult	The impact could be mitigated but it would be very difficult to ensure effectiveness and/or to technically/financially achieve
Difficult	The impact could be mitigated but there will be some difficulty in ensuring effectiveness and/or implementation
Achievable	The impact can be effectively mitigated without much difficulty or cost
Easily achievable	The impact can be easily and effectively mitigated

The **risk matrix** determines the overall level of risk associated with an impact by comparing the significance of the impact with its difficulty of mitigation is shown in **Error! Reference source not found.** below.

Table 6.3: Risk matrix derived from the pairing of the significance of the impact and the difficulty of mitigation.

Mitigation Potential	Impact Significance			
	Low	Moderate	High	Very High
Very difficult	Medium Risk	Major Risk	Extreme Risk	Extreme Risk
Difficult	Minor Risk	Medium Risk	Major Risk	Extreme Risk
Achievable	Minor Risk	Minor Risk	Medium Risk	Major Risk
Easily achievable	Minor Risk	Minor Risk	Minor Risk	Medium Risk

Impacts that are of high to very high significance and difficult to very difficult to mitigate are considered to be ‘extreme’ environmental or social risks to the project. Those impacts that are less significant and easier to mitigate are rated as ‘major’ to ‘medium’ to ‘minor’ i.e. generally impacts of low to moderate significance for which mitigation is achievable to easily achievable. Impacts may potentially be of very high significance, but if the mitigation is easily achievable, they are rated as ‘medium’ risks, as per **Error! Reference source not found.**. The implications of the risk categories are explained in **Error! Reference source not found.**.

Table 6.4: Risk categories.

Risk	Description
Extreme	Significant mitigatory actions would be required to reduce these risks. In some cases, it may not be possible to reduce these extreme risks meaning they are likely to prevent the option from being used (raised as red flags in this assessment).
Major	These risks are of a serious nature, and without effective mitigation measures would be major hindrances to the project. These would need to be monitored and managed, and in combination Major risks may necessitate the use of a different option to achieve the projects objectives.
Medium	These risks are of a less serious nature but still important, and need to be reduced to As Low As Reasonably Possible (ALARP) for the benefit of the environment or social network affected. In isolation these risks are generally insufficient to prevent the project from proceeding.

Minor	These risks are generally acceptable to the project and environment, and mitigation is desirable but not essential. Best industry practice, however, should be followed and the risks mitigated to prevent a cumulative effect of such impacts.

6.2 RISK ASSESSMENT

Refer to Table 6.5 below for the results of the assessment of biological and social risks associated with the proposed project, which are discussed in accordance with the requirements of the IFC's Performance Standards 2 to 8, (excluding 7) below. The execution of an ESHIA for the proposed project that is aligned to the IFC Performance Standards will ensure compliance with PS 1, as the scope of work includes meeting Mozambican requirements for public consultation as well as compliance with IFC stakeholder engagement requirements. This helps to achieve the guiding principle of free prior and informed consent. An Environmental and Social Management Programme (ESMP), including a monitoring programme, will be compiled as part of the ESHIA, as a necessary condition for compliance with PS 1. This ESMP will link into Kenmare's existing management system and plans. A sufficiently detailed project description will be presented as part of the next stage of this ESHIA when greater information on the project is available.

Table 6.5: Summary of bio-physical and socio-economic risks associated with the proposed project.

Issue	Significance Rating	Comment	Mitigation Potential	Mitigation	Risk
PS 2 – Labour and Working Conditions					
National and Regional Benefits	**Moderate (+)**	The development of the TSF, Relocation Channel and Road Diversion is required to support the proposed mining operations at the Nataka Heavy Minerals Deposit which will result in the creation of both direct and indirect economic opportunities. The improved access to the area will indirectly increase the amount of cash inflow to the affected villages and smaller settlements within the project area and may further create opportunities for the sale of goods and services to the mine and mine employees. Services will be upgraded and the road infrastructure around the proposed Nataka mining area will be expanded, potentially improving access and basic service provision for residents in the project area. The project will result in direct economic spin-offs at both provincial and national levels and any income generated from the mining operation will significantly increase the tax base of Mozambique. The mitigation measures to enhance these benefits are considered to be easily achievable at the national and local level.	**Easily Achievable**	• Where feasible, Mozambican nationals must be given preference especially when unskilled and semi-skilled labour is required.	**Minor**
Creation of Employment	**Moderate (+)**	A total of 68 individuals will be employed during the construction phase and 45 individuals will retain employed during the operation phase. The creation of employment opportunities is considered a moderate positive opportunity associated with the project, and conversely a minor risk.	**Easily Achievable**	• Where feasible, Mozambican nationals must be given preference especially when unskilled and semi-skilled labour is required. • Implement appropriate training initiatives to improve and increase skills set in the project area.	**Minor**

Issue	Significance Rating	Comment	Mitigation Potential	Mitigation	Risk
Working Conditions	**Low (-)**	The workforce is a valuable asset, and therefore a sound worker-management relationship is a key ingredient to the sustainability and success of the project. Failure to establish and foster a sound worker-management relationship can undermine worker commitment and retention and can jeopardize the project. Conversely, through a constructive worker-management relationship, and by treating the workers fairly, and providing them with safe and healthy working conditions, Kenmare have created and will create tangible benefits.	**Achievable**	• Continue to implement Kenmare's Human Resources (HR) policies in accordance with, and guided by, the requirements of IFC PS2.	**Minor**
Occupational Health and Safety	**Moderate (-)**	There are areas of high risk to personal safety, due to heavy equipment and plant, dust, significant vehicle movements, etc. Additionally, sudden failure of the TSF could release large quantities of unstable tailings and water which could cover mine personnel and/or community members in the immediate vicinity. Such an incident could result in the loss of lives and serious injury.	**Difficult**	• Implement the existing Occupational Health and Safety management plan for workers and modify if required for the Nataka TSF. • Undertake a TSF Risk Assessment prior to construction. Follow a best practice risk assessment approach (such as the Australian Standard AS ISO 31000:20 "Risk Management Guideline" or the World Bank Groups Technical Note 7 on "Tailings Storage Facilities".	**Medium**
Social development	**High (+)**	The Kenmare Moma Associação de Desenvolvimento (KMAD) is an independent not-for-profit development organization which supports and contributes to the development of the community close to the mine, assists community members to improve their livelihoods and wellbeing, and in so doing maximises	**Easily Achievable**	• None identified.	**Minor**

Issue	Significance Rating	Comment	Mitigation Potential	Mitigation	Risk
		the social benefits associated with Kenmare's mining operations.			
In-migration	**Moderate (-)**	The project could continue to result in an in-migration of job seekers into the area, which has been shown to occur based on social monitoring results (Nomad Consulting, 2022). This could result in continued pressure on local social services such as schools and clinics. Existing procedures in place have not prevented in-migration, and hence this impact will probably be of moderate significance. The fact that migration, while negatively impacting on service provision, has not otherwise been regarded as a central negative feature for local communities, prevents it being regarded as of high significance. These issues will be dealt with in the socio-economic impact assessment, but currently procedures are in place that seem to be effective which will be implement during all phases of the proposed project.	**Very Difficult**	• Continue to invest in social infrastructure such as schools and other initiatives to reduce pressure on local social services and clinics infrastructure.	**Major**
PS 3 - Pollution Prevention and Abatement					
General and Hazardous Waste	**Moderate (-)**	During the construction and operational phase general and hazardous wastes (food, glass, paper, wood, metal, oils and lubricants) will be generated. Waste must be disposed of in designated waste sites. Additionally, project activities may cause the spillages of hazardous materials, which will be limited if best practices are enforced. Sewage will need to be treated and disposed of correctly to avoid impacts on ground and surface water resources.	**Achievable**	• Implement the existing Solid and Hazardous Waste Management Plan and modify for the Nataka TSF if required.	**Minor**

Issue	Significance Rating	Comment	Mitigation Potential	Mitigation	Risk
Surface water and stormwater contamination	**High (-)**	Surface and stormwater can become contaminated through contact with slimes and fine material leaking or being discharge from the TSF either intentionally (e.g. during high rainfall events) or unintentionally (upset conditions). This sediment and fine material could subsequently enter surface water resources, and possibly underlying groundwater, although this is unlikely as the fines will not continue to move through the sand.	**Achievable**	• Surface water must be protected from coming into contact with any sediments and water containing high slimes that might be discharged from the TSF. • Stormwater runoff from the TSF needs to be carefully managed, and any intentional discharges can only be done if it can be demonstrated through water quality monitoring that the discharged water meets the required standards. • Preventative measures, such as coffer dams, might need to be installed if, during detailed TSF design, unintentional discharges are identified as a significant risk (e.g. overtopping).	**Medium**
Water Use	**High (-)**	It is estimated that the project will use approximately 1,200 m^3/hr of water over a period of 2 years. Water will be obtained from Lake Mavele, boreholes at Namalope, surface water streams at Nataka and groundwater within the deposit site.	**Easily Achievable**	• Establish a water balance. • Ensure water use in aligned with IFC sector specific EHS guidelines for mining. • Develop a Sustainable Water Supply Management Plan. • Careful planning and Consultation with community members.	**Minor**
Groundwater Quantity and Quality	**Low (-)**	Groundwater quality and quantity is not likely to be affected by the TSF. However the two year mining of the relocation channel may have an impact on groundwater quality and quantity.	**Easily Achievable**	• Groundwater monitoring proximate to the TSF must be undertaken to measure both quantity and quality parameters.	**Minor**

Issue	Significance Rating	Comment	Mitigation Potential	Mitigation	Risk
Noise	**Low (-)**	The TSF is unlikely to cause any significant increase in ambient noise levels in the surrounding areas. However, the mining of the relocation channel might increase noise levels over the short term (i.e. 2 years).	**Easily Achievable**	• Implement standard industry practice to reduce noise levels if required.	**Minor**

Air Quality	**Low (-)**	The increase in dust generation and concentrations due to TSF construction and mining of the relocation channel as well as associated activities (e.g. vehicle movement) will be short term and are unlikely to impact on community and worker health.	**Achievable**	• Implement all current mitigation measures, including:
				  ○ Speed restrictions.
				  ○ Wet road surfaces near villages during windy conditions.
				  ○ Revegetate the wall of the TSF as soon as practically and feasibly possible.
					Minor

Energy Use	**Low (-)**	The estimated power requirements for the operation of the TSF and the mining of the relocation channel is minimal compared to the full mining operations.	**Achievable**	• Correctly size motors and water pumps. • Maintain all vehicles in good working order.	**Minor**
Landscape and Visual Quality	**Moderate (-)**	The establishment of the TSF, relocation channel and road diversion will cause significant changes to the current landscape. Vegetation will be cleared, the topography will be altered, large industrial structures will be built, and vehicles and earth moving equipment will be visible in the landscape.	**Achievable**	• Implement good housekeeping to minimize disruption. • Rehabilitate the walls of the TSF as soon as possible. • Rehabilitate the surface of the TSF as soon as it is safe to do so.	**Minor**
PS 4 – Community Health, Safety and Security					

Issue	Significance Rating	Comment	Mitigation Potential	Mitigation	Risk
Access	**High (-)**	The access to the footprint area of the TSF and the relocation channel, as well as any safety zone defined around these facilities will need to be restricted for safety reasons. The relocation channel will be rehabilitated so people would be able to move into the area within a two year period. The road diversion is permanent, but a road already exists close to the diversion. The TSF will permanently affect existing access routes that local communities rely on which could make access to natural resources and neighbouring villages more difficult and time consuming. A small section of the existing road that runs from Mitticoma Village to the intersection of the Mecane - Pilivilli Village road will need to be diverted around the proposed mine path. The approximate length of the diversion is anticipated to be 4 km with an approximate width of 30 m.	**Difficult**	• Construction of new access roads / detour routes where required. • Use of warning / traffic signs where necessary. • It is not possible to mitigate the access issues related to the TSF, but it is possible to do so for the road.	**Major**
Safety	**Very High (-)**	The TSF poses a significant safety risk to individuals who enter the site and run the risk of falling into the impoundment area. The wet clay in suspension is similar to mud and falling into this could be fatal. Failure of the TSF containment embankment will release large quantities of unstable slimes and water which could drown villagers or hamlets downstream. The death or injury of a local resident would be of very high significance.	**Difficult**	• This must be mitigated by restricting access to the TSF. Ways of achieving this need to be investigated, as fences are likely to be cut down when the wire is scavenged for use by villagers. • Consider planting a wide band of spiny vegetation around the TSF to make access very difficult, in addition to fencing the inner perimeter. Although exotic, sisal is a suitable species to use.	**Extreme**

Issue	Significance Rating	Comment	Mitigation Potential	Mitigation	Risk
				• Further design and construction of the TSF must continue to comply with The Global Industry Standards on Tailings Management, as well as the International Committee on Large Dams (ICOLD) guidelines, which are already been applied". • Ensure that there is ongoing engagement with affected communities to reinforce their understanding of the hazards and risks associated with drowning in the TSF.	
Traffic Impacts	**Low (-)**	There will not be a significant increase in the amount of vehicle movements associated with the TSF and the mining of the relocation channel , and hence the risk of increased vehicle accidents due to TSF vehicle movement is low.	**Easily Achievable**	• Implement the Kenmare traffic safety policy. The success of this policy is indicated by the lack of any community related fatalities, and the reporting of all incidents. • Third parties providing delivery service must be compelled to comply with this policy. • Implement speed restrictions. • Use of warning / traffic signs.	**Minor**
Community Health and communicable disease	**Moderate (-)**	In-migration and increases in the labour force employed in the area may impact negatively on the health standards of people in villages in the mine expansion area. However, the TSF is unlikely to be a major contributor to this risk, and the associated effects on community health. .	**Achievable**	• A Health Impact Assessment must be undertaken. • Implement and undertake health awareness campaigns in surrounding villages as part of the social initiative.	**Minor**
PS 5 – Land Acquisition and Involuntary Resettlement					

Issue	Significance Rating	Comment	Mitigation Potential	Mitigation	Risk
Resettlement	**High (-)**	Resettlement can include either the physical displacement of people due to the re-location of their homestead, or economic displacement through the loss of economic activities and livelihoods. Any resettlement would be involuntary, and unless implemented correctly, can cause severe long-term hardship, impoverishment and environmental damage unless adequately managed through a resettlement action plan. The establishment of the TSF, relocation channel and road diversion will not result in the physical relocation of any households, but the TSF will result in economic displacement and the permanent loss of agricultural fields.	**Difficult**	• Development and implement a Resettlement Action Plan. • Implement a comprehensive Stakeholder Engagement Plan. • Comply with IFC Performance Standard 5 on involuntary resettlement. • Implement a resettlement action plan to mitigate this impact. • Ensure that lessons learnt from previous resettlement programmes are applied during the Nataka TSF resettlement programme..	**Major**
Loss of land and access to resources	**High (-)**	The loss of productive land and resources, as well as the possible loss of homesteads, is likely to be one of the impacts of greatest concern to the affected population. Access to land and the resources that flow from this land is of critical importance to sustaining a livelihood in communities that are extremely vulnerable as a result of poverty and their isolation from income-generating activities. Vulnerable households will be more significantly affected, and although planned and assisted relocation might mitigate this to a certain extent it is anticipated that the impact will be of high significance for the following reasons: • Reduced capacity for household survival. • Increased pressure on surrounding land and resources. • Increased morbidity and malnutrition.	**Difficult**	• As above • Develop a Livelihoods Restoration Plan.	**Major**

Issue	Significance Rating	Comment	Mitigation Potential	Mitigation	Risk
		• Increased pressure on women to sustain the household. • Permanent loss of machambas, ancestral ties and agricultural fields within the TSF footprint and safety zone. • Loss of traditional claims to land. • Increased potential for conflict over access to land and resources. • Permanent loss of access to wood resources within the TSF footprint and safety zone. • Loss of communal resources, and. • Increased pressure on local fisheries.			
Changes to social systems and structures	**Moderate (-)**	Social systems and structures that have evolved in the Moma area over generations are not static but have responded dynamically to the changing social environment. The TSF itself will contribute to the overall significant social changes that will take place as a result of the influence of the project on the various village social systems and structures .	**Achievable**	• Undertake a comprehensive social impact assessment to identify issues and concerns. • Identify suitable social and environmental interventions and projects to minimize social disruption.	**Minor**
PS 6 – Biodiversity Conservation and Sustainable Natural Resource Management					

Issue	Significance Rating	Comment	Mitigation Potential	Mitigation	Risk
Permanent Loss of vegetation and biodiversity	**Moderate (-)**	The proposed establishment of the TSF, relocation channel and road diversion will result in the direct loss of indigenous vegetation. The loss of indigenous vegetation will in turn result in the loss of biodiversity and Species of Conservation Concern. This loss will be permanent in the TSF area.	**Very Difficult**	• The rehabilitation of indigenous vegetation or the re-establishment of cassava and other crops on the TSF will not be possible, as the land surface will remain wet and unsafe for many years, In addition, the clay soils present significant challenges to plant growth. Thus, this loss of vegetation will be permanent or long-term, and different, wetland species will replace the current vegetation types. • Mitigation measures identified in the vegetation impact assessment must be implemented during the relevant phases of the proposed development.	**Major**
Habitat fragmentation and loss of fauna	**Moderate (-)**	The loss of indigenous vegetation is associated with habitat loss and fragmentation. The loss and fragmentation of habitats can lead to the loss of viable populations, especially in animals requiring large home ranges. Fragmentation has serious impacts on forest and woodland specialists; however fragmentation on wetlands has minimal impacts as most fauna are seasonal inhabitants. Current land use patterns have already had a significant impact on the existing fauna both due to traditional shifting agriculture which results in habitat fragmentation and hunting.	**Difficult**	• Rehabilitation of the TSF will be difficult, so this fragmentation will be permanent. • Mitigation measures identified in the faunal impact assessment must be implemented during the relevant phases of the proposed development.	**Medium**
Disturbance to drainage lines	**High (-)**	The TSF area includes drainage lines, streams wetlands and other watercourses. These linear drainage features mainly slope from south to north and drain the site into the Larde floodplain. The	**Difficult**	• All erosion control mechanisms should be regularly maintained.	**Major**

Issue	Significance Rating	Comment	Mitigation Potential	Mitigation	Risk
and other watercourses		establishment of the TSF, and to a lesser extent the relocation channel and road diversion will result in the loss of a number of these tributaries. Furthermore, project related activities could result in the erosion, sedimentation or subsequent degradation of the watercourse systems and associated riparian vegetation, both during intentional releases and unintentional releases during upset conditions		• Re-vegetation of the TSF walls and its surface must be done as soon as possible . • Preventative measures, such as coffer dams, might need to be installed if, during detailed TSF design, unintentional discharges are identified as a significant risk (e.g. overtopping).	
Impacts of the TSF on soil productivity	**High (-)**	The fine material (clay) deposited in the TSF will not be suitable for crops, and the re-establishment of indigenous vegetation will be difficult, especially on the surface of the TSF.	**Difficult**	• Research will be required to determine what wetland species might be suitable to revegetate the surface of the TSF.	**Major**
PS 8 – Cultural Heritage					
Graves	**Moderate (-)**	Graves are an integral part of families and communities. The physical removal or relocation of graves is a sensitive impact that could cause social disorientation and psychological insecurity to communities. Relocation could also increase social tension within the household, disrupting social stability.	**Achievable**	• Any relocation must take place with the full participation of affected families and communities, and all costs related thereto must be covered by the developer.	**Minor**

7 TERMS OF REFERENCE FOR SPECIALIST STUDIES

Although CES has a wealth of biophysical and socio-economic baseline data for the broader Namalope, Pilivilli, Nataka & Congolone areas and will draw on this as far as possible, it is still necessary to complete specialist studies (including field surveys) within the specific study area as part of this process. However, the existing information available for the broader area will be used to contextualise the site and any issues such as Species of Conservation Concern (SCC) that might be identified.

7.1 SPECIALIST STUDIES REQUIRED AS PART OF THE PROJECT

The following specialist studies will be undertaken to supplement and inform the ESIA:

- Vegetation Assessment
- Terrestrial Faunal Assessment
- Soils, Land and Natural Resource Use and Agriculture
- Groundwater Assessment
- Surface Water Assessment (including baseline survey)
- Wetland Assessment
- Socio-economic Impact Assessment including Cultural and Heritage Assessment
- Health Impact Assessment
- Air Quality Assessment (including baseline)
- Rehabilitation Strategy

The following sections define the tasks that will be undertaken to assess the potential impacts the project would have within the particular field of expertise and lists the specific Terms of Reference (ToR) for each specialist study. It is the responsibility of the specialist to determine the best approach, methodologies, and analysis to ensure that all issues are adequately covered and assessed, including all issues raised by Interested and Affected Parties (I&APs).

7.1.1 Vegetation Assessment

The proposed project will result in the loss of indigenous vegetation during both the construction and operational phase. Vegetation is an important aspect of the landscape and the ecological functioning of the area and provides important habitats for many faunal species particularly birds, insects, and reptiles. The clearance of vegetation associated with the proposed project will therefore have an impact on ecological processes, the availability of faunal habitat, ecosystem services and Species of Conservation Concern, amongst others. The removal of indigenous vegetation will create ‘open’ habitats which favours the establishment of undesirable vegetation (alien plant species) in areas that are typically very difficult to eradicate which could pose a threat to surrounding ecosystems. As such, baseline

data on the vegetation of the area is needed to assess impacts related to this loss of vegetation, and to facilitate rehabilitation.

The specific terms of reference for the vegetation assessment are as follows:

- To record the plant species that occur within the project area, based on field surveys.
- To identify any species of special concern, namely species with conservation status or which are endemic to the area.
- To comment on the conservation status of specific plant species.
- To compile a broad-scale vegetation or habitat map of the area. This vegetation map should indicate the extent that mining activities would affect each vegetation or habitat type, such as the impacts on wetlands located in the concession area.
- To record as many plant species of ethnobotanical significance as possible, and to integrate this information into the Soils, Land & Natural Resource Use and Agricultural Assessment.
- To assess the level of dependence of the local inhabitants on the vegetation of the immediate and surrounding areas, and the impact that the removal of this vegetation would have on the community. Close liaison with the social scientists will be essential.
- To identify alien invasive species and the levels of infestation, with particular focus on rehabilitation that would reduce the significance of this impact.
- To work in consultation with other specialists to ensure that the linkages between the various systems are understood.
- Assess the environmental significance of these impacts using a methodology compliant with international best practice.
- To provide practical and realistic recommendations to mitigate impacts with a particular focus on rehabilitation that would reduce the significance of vegetation loss.

7.1.2 Faunal Assessment

Vegetation clearance and associated construction activities (including noise and vehicular movement) could result in the mortality or disturbance of faunal species and the subsequent movement of species out of the area. Additionally, the loss of vegetation coincides with the loss of faunal habitat, which could impact on the feeding, breeding and rearing locales of faunal species within the project area during construction. It is therefore important to assess the level of impact on biodiversity, and especially the faunal groups that make use of the habitats that will be lost as a result of mining and vegetation clearance. Although the site has been severely depleted of indigenous faunal species due to hunting and previous loss of habitat, it is necessary to determine the baseline condition of the area to assess the impacts on faunal species arising through the further loss of habitat and food sources.

The specific terms of reference for the faunal assessment are as follows:

- Assess the conservation value of the various plant communities and ecological habitats in the area, in order to assess the significance of habitat loss on faunal groups as a result of the development.
- Define and map faunal habitats that are sensitive and require conservation. These may need to be defined as No-Go or Restricted Development areas.

- Review the mine path and compare it to the vegetation sensitivity maps. Any conflicts or areas that may be impacted will need to be noted and assessed
- Carry out a rapid survey to assess the diversity of amphibian, reptile, bird and mammal species in the area.
- Identify any rare or endangered faunal species that require consideration in the conservation programme.
- Describe the impacts of current land use, so that the potential impacts from the development on the natural environment can be understood in this context.
- Determine the impacts of the construction and operation of the proposed development on the faunal biodiversity in the area.
- The significance of the potential impacts and benefits must be assessed using the CES methodology. Any predictions will need to include the confidence in the impacts occurring, and the significance of these impacts occurring on the local fauna.
- Provide recommendations and mitigation measures that will reduce negative impacts on the local ecology and optimise conservation benefits.
- Develop a monitoring programme to ensure effective implementation of the recommended mitigation measures.

7.1.3 Soils, Agriculture, Land Use and Natural Resource Use Assessment

The objective of this study is to determine the condition of existing soils and land use patterns, and the impacts the proposed mining project would have on soils and land use patterns both within the concession and the surrounding areas.

The specific terms of reference for the Soils, Agriculture, Land Use and Natural Resource Use Assessment are as follows:

- Provide, at a reconnaissance level, a soils map of the proposed mining area.
- Identify and comment on the different land use patterns within the concession (e.g. productivity levels) and relate these to other areas of Mozambique for comparative purposes.
- Evaluate the land capability/suitability of the area at a reconnaissance level and comment on the productive potential of the area for agriculture and other land uses.
- Engage with the social scientists to ensure that questions related to land use are asked during the social impact assessment, to clarify the complexities associated with subsistence land use.
- Map existing land use and align land use categories with the vegetation map.
- Identify potential food, cash crop and afforestation species that could be used in the rehabilitation process.
- Ensure that the study deals with any other issues related to land use raised during scoping.
- Develop a monitoring programme to ensure effective implementation of the recommended mitigation measures.

7.1.4 Groundwater and Surface Water Assessment

Activities on site are expected to ultimately include a dredge mining operation with floating concentrator plant, supplementary mining such as dry mining, hydro mining (using a water cannon) and associated mining infrastructure including tailings disposal into a TSF and the mined-out dredge path and pumping and hauling of HMC to the MSP at its current location in Namalope. In terms of water resources, use of groundwater and surface water during mining activities could put pressure on local water supplies, either quantitatively (by reducing yield for local supplies) or qualitatively (by contaminating water sources and reducing fitness for use) or both. Mining will therefore impact on both surface and ground water resources. Kenmare has already initiated a geohydrological study, and thus this study must assess water quality and quantity impacts relating to surface water resources within the demarcated deposit area.

The specific terms of reference for the study are to:

- Ascertain the ecological state and functioning of the drainage network.
- Provide a basic characterisation of the water resources, including seasonal variations, based on existing information including baseline quantities and qualities
- Identify any environmental impacts on water resources that may result from the mining process.
- Identify significant impacts that may result either directly and indirectly from the use of water during mining.
- Comment on any risks of polluting surface and groundwater resources at the project site.
- Address the impact that dredge water may have on potable water supplies.
- Identify any other significant impacts that may result indirectly through the abstraction of water in the concession area.
- Determine whether there will be any cumulative impact on water resources.
- Determine the social implications of water abstraction.
- Develop a suitable surface hydrological model to simulate the surface hydrology of each sub-catchment to inform stormwater flows and wetness within the wetlands before mining, during operation and potentially for the post mining landscape. Obtain data from the geohydrologist on baseflow (groundwater return-flow) for input into the model.
- Work in consultation with other specialists to ensure that the linkages between the various systems are understood.
- Assess the significance of the impacts, and provide practical and realistic recommendations (from a cost perspective) to mitigate impacts
- Develop a monitoring programme to ensure effective implementation of the recommended mitigation measures.

7.1.5 Wetland Assessment

A preliminary wetland red flag study (WCS, 2021) was undertaken for the Nataka deposit, which highlighted several potential risks and impacts to wetlands that could materialise should mining proceed. Of critical importance is to develop a detailed understanding of wetland hydrology, the main driver of wetland formation and maintenance in the landscape, as well as likely changes to wetland hydrology brought about by mining. This understanding of the wetland hydrology will allow for interpretation and prediction of likely impacts to wetland habitat

and wetland biota, as well as assist in better predicting the likely implications for domestic and agricultural water supply and loss of agricultural resources associated with wetlands.

The specific terms of reference for the wetland assessment are as follows:

- A detailed pre-mining water quality baseline must be established for all affected wetland systems. This is critical to allow for evaluation of any changes in water quality during and after mining
- The baseline wetland assessment included as part of this study should be expanded to include field verification of all wetland systems likely to be affected by the proposed mining activities. Incorporation of findings from other specialist studies (specifically hydrological - including surface and groundwater modelling - assessments and ecological assessments) should be incorporated into the wetland assessment and a detailed impact assessment undertaken.
- Evaluate whether the wetlands are sustained by surface water or groundwater baseflow or by a combination of both sources. This will need to be a collaborative effort with the geohydrologist.
- Prepare a map demarcating the relevant local drainage area of the respective wetland/s, i.e. the wetland, its respective catchment and other wetland areas within a 500m radius of the study area to demonstrate, from a holistic point of view the connectivity between the site and the surrounding regions, i.e. the zone of influence.
- Prepare maps depicting demarcated wetland areas delineated to a scale of 1:10 000, together with a classification of delineated wetland areas.
- Determine the ecological state of wetland and riparian areas, and estimate their biodiversity, conservation and ecosystem importance. This determination must include avifaunal, herpetological or invertebrate studies.
- Recommend buffer zones and No-go areas around any delineated wetland areas based on the relevant legislation, best practice or professional judgement for those systems that are found to have ecological value and should be retained. This is particularly important where any wetlands or waterbodies provide ecological services, such as human food resources.
- Provide practical mitigation measures to minimise environmental and social impacts associated with disturbance of the wetland.
- Recommend specific actions that could enhance the wetland functioning in the areas, allowing the potential for a positive contribution by the project, e.g. useful of artificial wetlands in stormwater control
- Supply geo-referenced GIS shape files of the wetland / riverine areas.

7.1.6 Socio-economic Assessment

The project will result in national, regional and local economic benefits. Although this project involves the relocation of an existing operation and sustaining existing development, this project is envisaged to provide support for infrastructural development and, at a local level, will provide job opportunities and benefits arising from the multiplier effects associated with these.

The primary objectives of this study will be:

- To provide a detailed description of the socio-economic environment in and around the project area.
- To provide empirical socio-economic data to be used as a baseline for future monitoring.
- To analyse the potential impacts of the proposed project.
- To provide guidelines for limiting or mitigating negative impacts and optimising benefits of the proposed project, taking into account the experience gained during the Namalope project to date.

The specific terms of reference for the socio-economic assessment are as follows:

- Describe the local socio-economic environment, with particular reference to the communities that will be directly affected by the project.
- Undertake focus group meetings with vulnerable groups to ensure that their concerns and needs are understood.
- Assess the significance of potential environmental and social impacts on the local populace and the District.
- Identify project-related impacts and provide recommendations for mitigating negative impacts and optimising positive impacts, taking into account experience gained from the Namalope project.
- Assess the social significance of these impacts and provide mitigation measures.
- Describe the direct and indirect economic benefits of the project at local, regional and national levels. As an option, consider using economic models that could quantify direct and indirect economic benefits, as well as backward and forward linkages, multiplier effects and real benefits that might arise from employment opportunities.
- Investigate possible effects on livelihoods, income levels, education levels, food security and other factors relevant to the affected communities' ability to participate in the potential economic benefits the project may offer.
- If necessary, undertake the required surveys to quantify the number of households (and people) that may need to be resettled as a result of the project.
- Consult with stakeholders should be done in such a way as to contribute to the formulation of a Resettlement Action Plan (RAP) or Livelihood Restoration Plan.
- Evaluate how the project could contribute to community upliftment programmes.
- Develop a monitoring programme to ensure effective implementation of the recommended mitigation measures.
- Social impact study to specifically include impacts due to loss/reduction of domestic water supply, loss of water supply for crop watering, loss of wetland habitat and organic soils for cultivation.

7.1.7 Cultural and Heritage Assessment

The project may result in the loss of cultural and heritage sites, and in order to comply with IFC Performance Standard 8 an assessment is required to:

- Determine the likelihood of encountering archaeological and cultural remains of significance in the project area.
- Identify and map (where applicable) the location of any significant archaeological remains or cultural sites (in consultation with the social specialists).
- Assess the sensitivity and significance of archaeological remains and cultural sites in the project area.
- Together with the social specialist, gain an understanding of cultural beliefs and practices, particularly those relating to sites of cultural significance that could be affected.
- Identify mitigation measures to protect and maintain any valuable archaeological sites and remains, and any culturally important areas that may exist within the project area.
- Identify any sites of historical or cultural importance, and establishment of no-go areas.
- Gain an understanding of cultural beliefs and practices, particularly those relating to sites of cultural significance that could be affected.
- Develop a monitoring programme to ensure effective implementation of the recommended mitigation measures.

7.1.8 Health Impact Assessment

The first phase in developing an evidence-based community health action plan for the project involves a scoping survey that will be undertaken and will inform the baseline data collection and also the risk and impact assessment process. The scoping HIA report will include:

- Profiling of the potentially affected communities and impact areas of concern. This will be completed in conjunction with the social assessments.
- Analysing environmental health areas that include health determinants and health outcomes. This will incorporate both health impacts as well as health needs. This is the preferred IFC methodology, which has been adopted to ensure a systematic method is used.
- Review of past activities and reports undertaken during the Namalope project.
- Identification of relevant data gaps that may exist in the baseline data. This phase will allow the clear terms of reference to be determined for the comprehensive health impact assessment and future development of the community health management plan.
- Identification of key stakeholders and development of a key stakeholder's forum to support the development of the management plan in the next phase.

An integrated approach will be adopted, in which health data collection (in the form of household surveys and focus group discussions) will be incorporated as part of the social impact assessments. Quantitative and qualitative data will be used to undertake an impact assessment. The scoping-level survey must not involve any physical medical examinations or tissue / blood sampling.

7.1.9 Air Quality Assessment (including baseline)

The terms of reference for the baseline assessment include the following:

- Assess the current levels of air pollution (including dust) and characterise current air quality on sensitive receptors within the two project sites.
- Identify other risk sources of air pollution from the project, especially dust from mining activities and vehicle entrainment.
- Identification of air quality-sensitive receptors, including any nearby residential dwellings and proposed receptors.
- Collection of local weather conditions either from local weather station sources or by modelled MM5 data;
- Preparation of three years of raw meteorological data. The required meteorological data includes hourly average wind speed, wind direction and temperature data.
- Simulation of wind field, mixing depth and atmospheric stability.
- The legislative and regulatory context, including emission limits and ambient air quality standards, and with specific reference to Mozambique.
- Assessment of baseline air pollutant measurements.

The terms and reference for the air quality assessment are to:

- Quantify all particulate emissions using local meteorological data, and the proposed throughput for the operational phase of the project.
- Predict, using suitable dispersion modelling or other appropriate methodologies, the air concentrations and emissions fallout and dust fallout due to each of the identified sources.
- Quantify all emissions arising from the plant and transport of materials and products.
- Assess what the impact of the project will be on ambient air quality. This will mean determining increased levels of pollution in the area and ranking them in terms of severity, frequency, locality and impact on the receiving environment.
- Assess the environmental significance of these impacts, including climate change.
- Ensure compliance with the IFC General EHS Guidelines (April 2007) and IFC EHS Guidelines for Mining (December 2007).
- Provide recommendations on ways in which Greenhouse Gas (GHG) emissions can be reduced or offset.
- Suggest ways to avoid, mitigate, or ameliorate the impacts by discussing modifications or improvements to process design with production engineers.
- Develop a monitoring programme to ensure effective implementation of the recommended mitigation measures

7.1.10 Rehabilitation Strategy

The formulation of a rehabilitation strategy and plan for the proposed project site is required. This rehabilitation strategy needs to:

- Consider post mining consolidation settlement in consultation with other specialists

addressing the tailings deposition.

- Identify a strategy for rehabilitation toward sustainable land-use after mining by consulting with local communities on their objectives for the rehabilitated land as well as balancing this with development of biodiversity and carbon sequestration requirements.
- Take into account actual experience at Namalope to date by undertaking a survey of the existing rehabilitation programme at Namalope, reviewing this programme and providing specific recommendations for rehabilitating disturbed areas in and around the TSF.
- Develop a monitoring programme to ensure effective implementation of the recommended mitigation measures.

8 CONCLUSIONS AND WAY FORWARD

8.1 CONCLUSIONS

A total of twenty-seven (27) potential risks were identified for the proposed project. Of these twenty-seven potential risks, seven (7) were classified as having a significance of high negative, eleven (11) were classified as being of moderate negative and six (6) was classified as low negative prior to mitigation. Additionally, one (1) was classified as high positive and two (2) as moderate positive (Table 8.1). In terms of risks, with the implementation of sound mitigation measures, the majority of the potential risks identified can be reduced to minor or medium. However, one (1) risk was identified as extreme and seven (7) risks were classified as major, and it is these risks that require careful consideration during the ESIA phase. Three of these risks are biophysical in nature, and relate to impacts on groundwater quantity and quality, disturbance to drainage lines and the Larde River, and impacts of mining on soil productivity. The remaining four are social risks relating to in-migration, impacts related to disrupting community access routes, risks associated with involuntary resettlement, and loss of land and access to resources,

Table 8.1: Summary of the potential risks associated with the project.

Issue	Significance Rating	Mitigation Potential	Anticipated Risk
PS 2 – Labour and Working Conditions			
National and Regional Benefits	**Moderate (+)**	Easily Achievable	**Minor**
Creation of Employment	**Moderate (+)**	Easily Achievable	**Minor**
Working Conditions	**Low (-)**	Achievable	**Minor**
Occupational Health and Safety	**Moderate (-)**	Difficult	**Medium**
Social Development	**High (+)**	Easily Achievable	**Minor**
In-migration	**Moderate (-)**	Very Difficult	**Major**
PS 3 - Pollution Prevention and Abatement			
General and Hazardous Waste	**Moderate (-)**	Achievable	**Minor**
Surface water and stormwater contamination	**High (-)**	Easily Achievable	**Medium**
Water Use	**High (-)**	Easily Achievable	**Minor**
Groundwater Quantity & Quality	**Low (-)**	Very Difficult	**Minor**
Noise	**Low (-)**	Achievable	**Minor**
Air Quality	**Low (-)**	Achievable	**Minor**
Energy Use	**Low (-)**	Achievable	**Minor**
Landscape and Visual Quality	**Moderate (-)**	Achievable	**Minor**
PS 4 – Community Health, Safety and Security			
Access	**High (-)**	**Difficult**	**Major**

Issue	Significance Rating	Mitigation Potential	Anticipated Risk
Safety	**Very High (-)**	**Achievable**	**Extreme**
Traffic Impacts	**Low (-)**	**Achievable**	**Minor**
Community Health and communicable disease	**Moderate (-)**	**Achievable**	**Minor**
PS 5 – Land Acquisition and Involuntary Resettlement			
Resettlement	**High (-)**	**Difficult**	**Major**
Loss of land and access to resources	**High (-)**	**Difficult**	**Major**
Changes to social systems and structures	**Moderate (-)**	**Achievable**	**Minor**
PS 6 – Biodiversity Conservation and Sustainable Natural Resource Management			
Permanent loss of vegetation and biodiversity	**Moderate (-)**	**Difficult**	**Major**
Habitat fragmentation and loss of fauna	**Moderate (-)**	**Difficult**	**Medium**
Disturbance to drainage lines and the Larde River	**High (-)**	**Difficult**	**Major**
Impacts of mining on soil productivity	**High (-)**	**Difficult**	**Major**
PS 8 – Cultural Heritage			
Graves	**Moderate (-)**	**Achievable**	**Minor**

8.2 WAY FORWARD

This EPDA and ToR has described the potential risks associated with the project and has provided detailed ToR for specialist studies that will be required during the ESIA phase. These studies are currently underway.

The report to be prepared for the ESIA will be divided into five volumes to cover the information as stipulated by Mozambican requirements. The volumes will be as follows:

- **Volume 1:** EPDA/Scoping Report (This Volume)
- **Volume 2:** Specialist Studies
- **Volume 3:** Environmental and Social Impact Assessment Report (ESIA)
  This volume is likely to include the following (but please note that the Table of Contents presented below is indicative and may change):

  1 INTRODUCTION
  2 ESIA PROCESS
  3 LEGAL FRAMEWORK
  4 PROJECT DESCRIPTION
  5 DESCRIPTION OF THE BIOPHYSICAL ENVIRONMENT
  6 DESCRIPTION OF THE SOCIO-ECONOMIC ENVIRONMENT
  7 KEY PHYSICAL IMPACTS

8 KEY BIOLOGICAL IMPACTS
9 KEY SOCIO-ECONOMIC AND HEALTH IMPACTS
10 CUMULATIVE IMPACTS
11 PROJECT ALTERNATIVES
12 CONCEPTUAL DECOMMISSIONING AND CLOSURE PLAN
13 EFFECTS OF THE PROJECT ON GLOBAL CLIMATE CHANGE
14 RECOMMENDATIONS AND CONCLUSIONS

- **Volume 4:** Public Participation Report
  Public consultation concludes with the preparation of a public consultation report, which will be submitted as part of the ESIA.
- **Volume 5:** Social and Environmental Management Programmes
  All recommendations cited in the ESIA report (resulting from the ESIA process) will be described in the Environmental Management Programme (EMP), which will provide details on the Environmental and Social Management Plans (ESMPs) that will be required to be implemented during the construction and operation phases of the project.
- Non-technical Summary document: This document will provide a short summary of the ESIA.

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APPENDIX 1 – CATEGORISATION LETTER

REPÚBLICA DE MOÇAMBIQUE
PROVÍNCIA DE NAMPULA
CONSELHO DOS SERVIÇOS PROVINCIAIS DE REPRESENTAÇÃO DO ESTADO
SERVIÇO PROVINCIAIL DO AMBIENTE

À
Kenmare Moma Mining (Mauritius) Limited
e Kenmare Moma Processing

Maputo

N/Ref. Nº 613 /SPA/RLA/22 Nampula, 06/06/2022

Assunto: **Resposta do Pedido de Pré- Avaliação Ambiental para Instalação de Armazenamento de Rejeitos e Canal de Transferência do proposto de Minerais Pesados de Nataka, Distrito de Larde, Província de Nampula.**

Para os devidos efeitos e demais providências, junto em anexo se envia a V.Excia o parecer técnico resultante da pré-avaliação do impacto ambiental da actividade supra citada, **categorizada para o nível A.**

Assim, o proponente deverá submeter ao MTA o EPDA acompanhado dos respectivos Termos de Referência (TdR) a cores em papel A4 e um suporte informático selado, feitos com base na Directiva Geral para a elaboração de Estudo de Impacto Ambiental aprovada pelo Diploma Ministerial nº129/2006 de 19 de Julho, para análise e tomada de decisão. Nada mais havendo do momento, aproveitamos a ocasião para endereçar as nossas cordiais saudações.

O Director do Serviço Provincial,

José Júlio Luís
/Técnico Superior N1/

Serviço Provincial do Ambiente, Av. do Trabalho, 1º Andar, Telefone 862103788- Nampula

Visto

08 / 06 /2022

A Chefe do Departamento

Delfina S. Falume

/Técnica Superior N1/

Parecer Técnico do Relatório de Pre- Avaliação Ambiental para Instalação de Armazenamento de Rejeitos e Canal de Transfêrencia do proposto depósito de minerais pesados de Nataka, Distrito de Larde, Província de Nampula.

Introdução

À luz do Regulamento sobre o Processo de Avaliação de Impacto Ambiental e, com o propósito de tornar célere o processo de licenciamento ambiental de projectos de Desenvolvimento socioeconómicos da Província, especificamente o projecto de **Instalação de Armazenamento de Rejeitos e Canal de Transferência no Proposto Deposito de Minerais,** requerido pela kenmare Moma Mining ، Mauritius، Limitada, situada na Av. Da Marginal, nº 4985, Prédio Zen, 4ºEsquerdo, Maputo, contactados pelo Tel.Nº25821499701, deslocou-se uma equipa composta por dois técnicos do Serviço Provincial do Ambiente, para realizar uma pré-avaliação ambiental de modo a aferir a viabilidade ambiental da actividade em alusão, em conformidade com alínea a) do nº 1 do artigo 8 do Decreto 54/2015, de 31 de Dezembro. Para o qual se elaborou o presente relatório de pré-avaliação nos fundamentos que se seguem abaixo:

1. **Localização do projecto**

O projecto localiza-se no Posto Administrativo de Topuito, Distrito de Larde, Província de Nampula, aproximadamente a 8 km a sudoeste da mina de Namalope, pertencente a kenmare, dentro da concessão nº 735C. Nesta fase serão abrangidas quatro (4) comunidades, tais como: Natuko, Nataka, Mtitikoma e Tibane, com extensão da área aproximadamente a 3.500ha.

O mesmo será localizada nas seguintes coordenadas geográficas.

N/Ordem	Latitude Sul	Longitude Este
01	16° 31′15.039"	39° 35′ 52.843"
02	16° 31′.14.985"	39° 36′45.036"
03	16° 32′37.560"	39° 36′46.165"
04	16° 33′35.640"	39° 36′13.138"
05	16° 33′46.201"	39° 35′48.055"
06	16° 33′54.868"	39° 35′39.335"

07	16° 34′5.419"	39° 35′7.084"
08	16° 34′0.999"	39° 34′33.477"
09	16° 33′59.337"	39° 34′7.977"
10	16° 32′15.566"	39° 33′31.539"
11	16° 32′11.857"	39° 33′53.758"
12	16° 32′15.157"	39° 34′11.952"
13	16° 32′5.173"	39° 35′3.681"

2. Ocupação do solo

Quanto a situação da ocupação do solo, a empresa é possuidora de uma Concessão Mineira sob número 735 concedida pelo Ministério de Recursos Minerais para efeitos de exploração de areias pesadas, num período de 25 anos (Data de emissão 26 de Agosto de 2004).

O investimento do projecto

O projecto para a sua implementação está declarado um valor de investimento de cerca de **120.000.000,00USD** (Cento e vinte milhões de dólares norte americanos).

3. Descrição da actividade

A área da instalação de armazenamento de rejeitos terá o solo superficial removido e empilhado antes da construção das paredes com areia para formar uma barragem para os rejeitos. Após o fechamento, uma camada superior da areia, em seguida o solo superficial será colocado sobre a instalação antes da revegetação.

As principais actividades incluem:

- ✓ A construção da barragem de armazenamento de rejeitos (com duas opções propostas: opção 1 com 620 hectares de extinção e opção 2 com 400 hectares de extensão);
- ✓ Desvio rodoviário proposto para 4km de comprimento e 30m de largura;
- ✓ Via de transferência da planta de concentração a húmido através de um canal estreito com o comprimento de 6,5km e 220 metros de largura.

Estima-se que o projecto utilizará aproximadamente 1200m^3/h de água escalonada por um período de dois anos e será obtida a partir do Lago Mavele, furos em Namalope, cursos de água superficiais em Nataka e água subterrânea no local de depósito.

A energia necessária para operações será distribuída a partir de uma subestação existente da linha de transmissão de 110kv 220kv. As necessidades estimadas de energia para o projecto terão no máximo de 300kwh.

Para a implementação do projecto serão empregadas 68 pessoas na fase de construção e 45 permanecerão durante a fase de operação.

4. Equipa envolvida na visita de campo

Do SPA participaram na visita de campo os senhores Boaventura Manuel e Gilberto Nipanga acompanhado através da senhora Lara Horne da empresa de consultoria que fará o estudo de impacto ambiental.

5. Objectivo da deslocação

Cumprimento do preceituado no Regulamento sobre processo de Avaliação do Impacto Ambiental, nº 1 do Artigo 8 Decreto 54/2015 de 31 de Dezembro.

6. Roteiro da visita

De acordo com o plano, foram vistas as seguintes áreas:

- O local para implantação da actividade (local de armazenamento de rejeitos);
- As comunidades abrangidas pelo projecto, e
- Área de influência directa e indirecta do projecto.

A visita ao local realizou-se na fase inicial, contudo enquadra-se no âmbito da pré-avaliação ambiental prevista no Artigo 8 do Decreto 54/2015 de 31 de Dezembro. Esta serviu para, entre outros assuntos, avaliar a situação sócio ambiental de referência do local de implantação do projecto.

7. Enquadramento Legal da actividade

A Línea f) do número 1 do Artigo 204 da Constituição da República, "promover e regulamentar a actividade económica e dos sectores sociais."

8. Constatações

- ✓ Dentro das comunidades afectadas, pratica-se agricultura de subsistência e é visível machambas com culturas;
- ✓ Existência de espécies perenes (mangueiras, coqueiros, cajueiros e diversas fruteiras);
- ✓ A área para implantação do armazenamento do rejeito é de 3.500ha;

- ✓ Próximo da área de implantação do projecto atravessa um riacho embora de regime periódico há focos de prática de agricultura;
- ✓ Existência de vias de acesso que permite a comunicação entre as comunidades;
- ✓ Verificou-se na área uma vegetação rasteira natural e arbustos;
- ✓ Não há questões fatais que possam impedir o processo de instalação dos rejeitos.

Foto1. Espécies perenes

Foto2. Residente com actividade de colheita

Foto3. Vias de acesso

Foto4. Vegetação rasteira

9. Conclusão

Face aos aspectos identificados durante a visita no local e a análise feita com base nos documentos que regulam o processo de licenciamento ambiental, a equipa técnica concluiu que, não há questões fatais de natureza ambiental que possam impedir o prosseguimento das actividades do projecto.

Nestes termos, avaliado as actividades propostas, o projecto deve ser objecto de estudo de impacto ambiental, categorizando-se para o nível A.

A anteceder o **EIA,** o proponente deverá submeter ao MTA o EPDA acompanhado dos respectivos Termos de Referência (TdR) a cores em papel A4 e um suporte informático selado, feitos com base

na Directiva Geral para a elaboração de Estudo de Impacto Ambiental aprovada pelo Diploma Ministerial nº129/2006 de 19 de Julho, para análise e tomada de decisão.

A equipa técnica

Gilberto Nipanga _____

Boaventura Manuel _____

Nampula, 06 de Junho de 2022

O Chefe do Departamento

Heles Adriano

/Técnico Superior N1/

APPENDIX 2: CES MTA CERTIFICATE

República de Moçambique

MINISTÉRIO DA TERRA E AMBIENTE

CERTIFICADO DE CONSULTOR AMBIENTAL

Nº. 17 / 2022

O Ministério da Terra e Ambiente, ao abrigo do Regulamento sobre o Processo de Avaliação do Impacto Ambiental, aprovado pelo Decreto nº 54/2015, de 31 de Dezembro, certifica que o (a) sr (a) _____

Coastal & Environmental Services Mozambique, Limitada

está devidamente credenciado (a) a exercer funções de Consultor Ambiental em Moçambique.

Maputo, aos 22 / 04 /2022 Validade até 22 / 04 /2025

CERTIFICADO DE CONSULTOR

Ivete Joaquim Maibaze

A Ministra