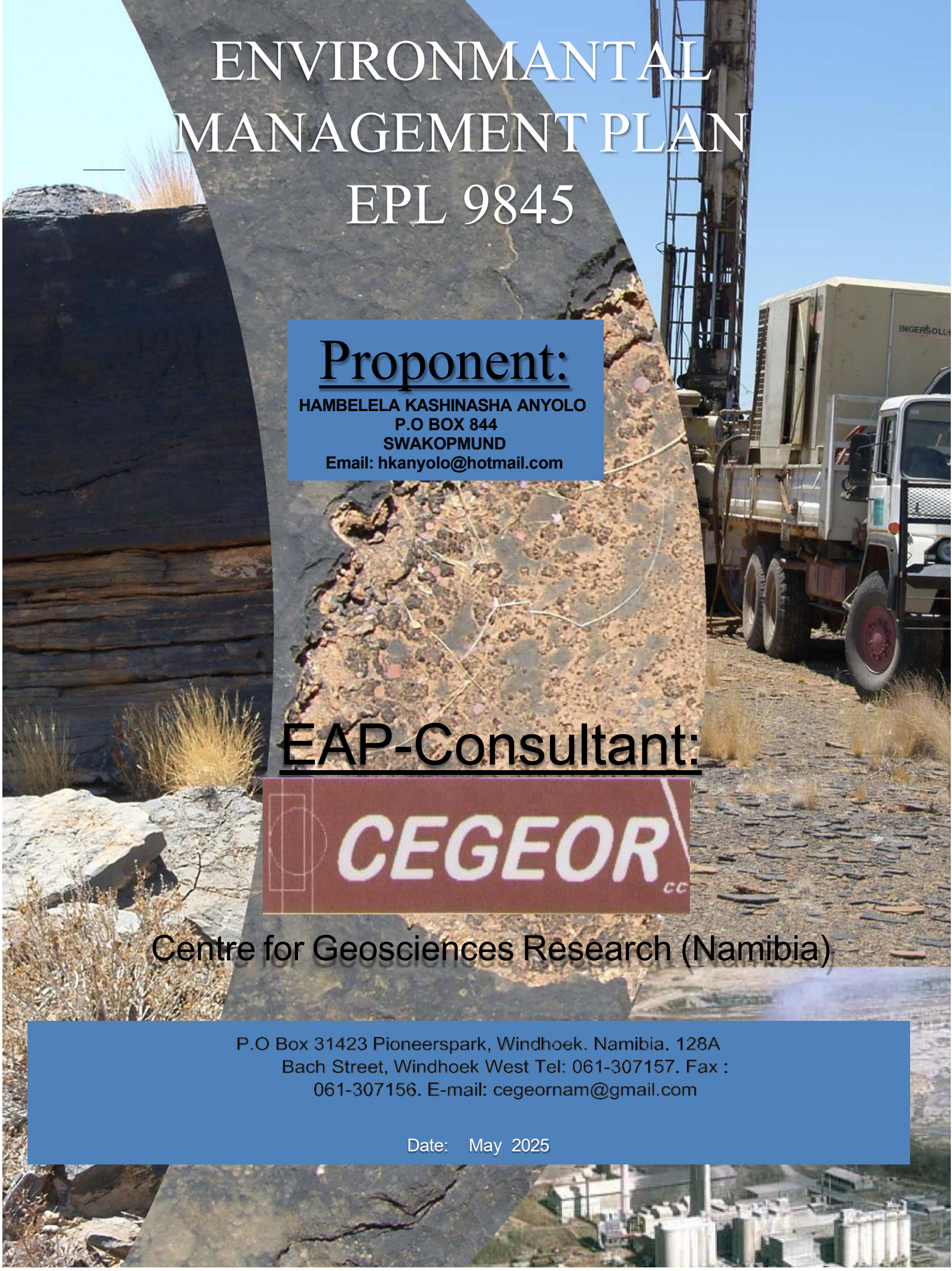
ENVIRONMANTAL MANAGEMENT PLAN EPL 9845



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PROJECT DETAILS

Title : Environmental Management Plan for the proposed Mineral exploration and survey in EPL 9845, Namibia

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Report Status : Environmental Management Plan for the proposed Mineral exploration and survey in EPL 9845, Namibia

NAME	Mulife Siyambango
RESPONSIBILITY	Project Leader
QUALIFICATIONS	B. Sc. in analytical, inorganic and physical chemistry, M. Sc. in Industrial Rocks and Minerals, MBA in Banking, Accounting and Strategic Management.
PROFESSIONAL REGISTRATION	ACSM (ENGLAND)

EXPERIENCE	Mr Siyambango is the director and founder of Centre Geosciences Research cc Mr Siyambango is a qualified geologist, and specialist in industrial minerals and rocks. Obtained a **MSc in Industrial Rocks and Minerals** with majors in Mineral Resource Assessment & Estimation; Mineral Extraction & Management Marketing of Industrial Rocks and Minerals, Geology and Technology of Industrial Rocks and Minerals. **Mr Siyambango** a fully trained and qualified Chemist with a **BSc** in **analytical, inorganic and physical chemistry**. Extensively trained and experienced in analytical instruments that are essential for mineral exploration and mineral processing. Academically and experienced trained Manager, with an **MBA** in **Banking, Accounting and Strategic Management**. The qualification supplements the economic assessment of commerciality of mineral resources for assessment of the bankability.

Contents

1. The Environmental Management Plan (EMP)

1.1 Objectives of the EMP

The Environmental Management Plan (EMP) provides a detailed plan of action required in the implementation of the mitigation measures for minimising and maximising the identified negative and positive impacts respectively. The EMP also provides the management actions with roles and responsibilities requirements for implementation of environmental management strategies by the HAMBELELA KASHINASHA ANYOLO through the contractor who will be doing the exploration and possible test mining. The EMP gives commitments including financial and human resources provisions for effective management of the likely environmental liabilities during and after the exploration. Regular assessments and evaluation of the environmental liabilities during the exploration and mining phases will need to be undertaken and will ensure adequate provision of the necessary resources towards good environmental management at various stages of the project development. Overall, the EMP forms the basis for the Environmental Contract to be signed between HAMBELELA KASHINASHA ANYOLO and the Government of the Republic of Namibia, hereby represented by the Ministry of Environmental and Tourism, Directorate of Environmental Affairs.

The Environmental Management Plan, described below, is based on the findings as outlined in the Baseline Environmental Report and Part 1 EIA of the Report. Within the framework of the existing Environmental Policy of HAMBELELA KASHINASHA ANYOLO , the EMP is to be incorporated in the Environmental Management System (EMS). The report also forms the basis for setting out the Terms of Reference for the EIA for the construction and production phases that may follow as part of the future project development. The EIA and the EMP incorporates the Environmental Policy of HAMBELELA KASHINASHA ANYOLO , Namibian Environmental Regulations and Policies as well as international environmental best practices in mineral exploration and possible test mining related activities.

1.2 General Guidance

(i) Access to private farmland can only be undertaken once permission from the landowners has been obtained and any damage to the fence must be repaired to the satisfaction of the landowner and under the supervision of the Environmental Coordinator;

(ii) Access to communal land can only be undertaken once permission from the local community has been obtained or informed, and any damage to the fence must be repaired to the satisfaction of the local community under the supervision of the Environmental Coordinator;

(iii) The field crew must try to avoid damage to vegetation and structures and must adhere to the recommendations contained in this EMP concerning conservation and preservation of natural features;

(iv) All crew members must be informed of special instructions from landowners concerning roads and trials, fences, gates, animals, and livestock etc. Every effort must be made to follow the landowner's instructions and the contractor must strive to avoid excessive damage to the roads, trails, pastures and cropland. Damages to gates, fences, or other structures must be reported to the Environmental Coordinator who will then inform the landowner and HAMBELELA KASHINASHA ANYOLO. The Environmental Coordinator must make sure that necessary repairs / remediation to environmental damage are undertaken in accordance with the recommended approach. In the absence of the recommended approach, the repair

/ remediation to environmental damage will need to be undertaken in accordance with best available practices;

(v) Making of fire in any other place other than the designated area such as a camping area is prohibited. Where the danger of fire is high, all vehicles must be equipped with spark arrestors and must carry operable fire extinguishers,

(vi) All communications (public relations) with the landowners and the local community must be channelled through one communication channel. The Environmental Coordinator should play a significant role in this regard and contractor's personnel must be courteous and considerate when dealing with land owners, local communities and members of the general public.

Specific Guidance

Waste Management

(i) In addition to addressing the prevention, detection, and cleanup of released waste, cleanup equipment; the location and availability of suitable alternative equipment; and a plan of operations need to be put in place to be headed by the Environmental Coordinator;

(ii) No littering the area along the profile, trails, and access roads must be left clean;

(iii) After drilling or sampling, any seriously disturbed grounds, if any, must be plugged, levelled and any type of waste shall be removed and the area must be checked by the Environmental Coordinator;

(iv) Pin flags, exploration stakes and flagging, trail markers, boxes, oil cans, and all other forms of litter must be removed;

(v) All solid and liquid waste generated from the exploration and possible test mining activities shall be reduced, reused, or recycled to the maximum extent possible. Burial of waste on state or private property during the exploration is not allowed and all waste must be disposed on approved waste disposal sites;

(vi) Trash may not be burned or buried, except at approved sites under controlled conditions in accordance with the regulations;

(vii) Disposal of wastewater into any public stream is prohibited;

1.3 Facilities and Structures

(i) The sitting of a camping facilities or base other than on a designated place requires approval / permission by the landowner / local community.

Local Hire

(i) To the extent that is available with sufficient skills, the mineral exploration and possible test mining operators are encouraged to employ local residents and subcontractors if needed.

1.4 Environmental Awareness Training

(i) The operator of the mineral exploration and possible test mining must include in any plan to undertake the proposed mineral exploration and possible test mining, an Environmental Awareness Training programme for all personnel, including subcontractors, involved in any activity to be coordinated by the Environmental Coordinator. The programme must be designed to inform each person working on the project of environmental, social, and cultural concerns which relates to the individual jobs and responsibilities;

(ii) The programme must employ effective methods to ensure that personnel understand and use techniques necessary to reduce the risk of fire, to preserve the environment, geological, archaeological, and biological resources. In addition, the programme must be designed to help personnel increase their sensitivity and understanding of community values, customs, and lifestyles in areas where they will be operating.

1.5 Prehistoric, Historic, and Archaeological Sites

(i) If prehistoric, historic, and archaeological sites or artefacts have been discovered in the process of conducting the mineral exploration and possible test mining within the EPL area the operator must inform the Environmental Coordinator who must evaluate and prepare an inventory of the discovery. The inventory must include consideration of information provided by local residents and documentation of oral history regarding prehistoric and historic uses of such sites. The Environmental Coordinator must submit the inventory to the relevant authorities. The Environmental Coordinator must make every reasonable effort to preserve and protect such site, structure, or object from damage until after consultation with the relevant

authorities / specialists have given directions as to the actions that need to be taken;

1.6 Implementation and Monitoring of the EMP

Management of the environmental elements that may be affected by the different activities is the full responsibility of the developer. The developer is responsible for implementing internal and external monitoring of the actions and management strategies developed. The developer is also responsible for the development and implementation of monitoring programme that will fit into the overall company's Environmental Management Systems (EMS) as well as for any future EIA and EMP with respect to the now identified cement and clinker project within the EPL 9845. All the responsibilities to ensure that the recommendations are executed accordingly rest with HAMBELELA KASHINASHA ANYOLO, in making sure that all members of the workforce including subcontractors and sub-contractors are aware of the EMP and the objectives.

2.0 Environmental Assessment Policy

The overall task of the Environmental Impact Assessment process is to ensure that the criteria of sustainable development are met and that all identified and potential environmental and social impacts have been addressed and mitigated where necessary. The term Environmental Impact Assessment, as interpreted in the Namibian Environmental Management Act 7 of 2007, includes the *"complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, and includes:*

(a) The natural environment that is the land, water and air, all organic and inorganic material and all living organisms; and

(b) The human environment that is the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values."

The Environmental Assessment policy for Sustainable Development and Environmental Conservation (1995) provides that all policies, projects and programmes should be subjected to an Environmental Assessment. The assessment must aim for a high degree of public participation, and consider the environmental costs and benefits of projects proposed. The proposed mineral exploration and surveying is among one of the activities that may not be undertaken without an Environmental Clearance Certificate and Environmental Impact Assessment (EIA) thereof. Legislation requires that an EIA be conducted to identify potential

environmental, social and health impacts associated with the proposed mineral exploration surveying programme. The EIA is to be undertaken within the framework of the existing environmental assessment process as described in the Environmental Assessment Policy for Sustainable Development and Environmental Conservation of 1995.

The Environmental Assessment procedure as outlined in the Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1995), set out to:

- Ensuring that the significant effects of activities on the environment are considered in time and carefully;
- Better inform decision makers and promote accountability for decisions taken;
- Consider broad range of options and alternatives when addressing specific policies, programmes and projects;
- Strive for a high degree of public participation and involvement all interested and affected parties must be promoted and decisions must take into account the interest, needs and values of interested and affected parties in the EA process;
- Take into account the environmental costs and benefits of proposed policies, programmes and projects;

- Incorporate internationally accepted norms and standards where appropriate to Namibia;
- Take into account the secondary and cumulative environmental impacts of policies, programmes and projects;
- Ensure that the EA procedure is paid for by the proponent. In certain cases, such as programmes initiated by the State, it is recognised that the Government is the proponent and will meet the costs of an independent EA;
- Promote sustainable development in Namibia, and especially ensure that a reasonable attempt is made to minimise anticipated negative impacts and maximise the benefits of all developments;
- Be flexible and dynamic, thereby adapting as new issues, information and techniques become available.
- Ensuring that the findings of an assessment are taken into account before any decision is made in respect of activities.

2. PROJECT BACKGROUND

General Overview

The HAMBELELA KASHINASHA ANYOLO holds mineral rights under the Exclusive Prospecting Licence (EPL) No. 9845. The EPL is located in the Khomas / Hardap Regions, central Namibia. The mineral commodities that are targeted in the area are base and rare metal, precious metals, non nuclear , precious stones, Nuclear Fuels, dimension stones as well as industrial minerals. The company intends to implement an exploration programme and possible test mining of the potential economic mineral commodities that may be identified. The intended exploration programme will cover scoping, pre-feasibility and feasibility studies. The activities to be undertaken will include geological mapping, drilling, sampling as well as possible development of test mining infrastructure.

HAMBELELA KASHINASHA ANYOLO is required to undertake an Environmental Impact Assessment (EIA) for the proposed exploration and possible test mining activities within the framework of the existing environmental assessment process as described in the Environmental Assessment Policy for Sustainable Development and Environmental Conservation of 1995, published by the Ministry of Environment and Tourism (MET).

As part of the fulfilment of the requirements, HAMBELELA KASHINASHA ANYOLO has requested CEGEOR cc as the Environmental Consultants to undertake the EIA with respect to the proposed exploration and possible test mining activities under the EPL 9845.

The main objective of the EIA is to investigate and assess the likely short and long – term positive and negative environmental impacts of the proposed exploration and possible test mining activities with respect to the EPL No. 9845. The main objectives of the EIA are summarised as follows:

- To prepare this scooping environmental report including details of the proposed exploration and possible test mining activities with respect to the EPL No. 9845. Communicate the report to all interested and affected parties and their views and comments to form part of the ToR for the full EIA study to be implemented in form of specialised studies;
- Implement the full EIA and undertake specialised studies, followed by the evaluation of the likely positive and negative impacts associated with the proposed project activities on the environment. The results of the assessment to be presented in a Draft EIA report including an EMP;

- Present the EIA Report including an Environmental Management Plan (EMP) to the client (HAMBELELA KASHINASHA ANYOLO), key interested stakeholders and the authorities for further comments and;
- To incorporate all comments received in the final EIA and EMP reports for the proposed exploration and possible test mining activities with respect to the EPL No. 9845 for submission to the client (HAMBELELA KASHINASHA ANYOLO) and to the Directorate of Environmental Affairs (DEA) in the Ministry of Environment and Tourism for consideration.

2.1 Approach

As determined by the terms of reference, this study has adopted a ‘desktop’ approach. Numerous recent studies on Namibia’s central environment have been conducted by a range of specialists. Consequently, the description of the natural and human baseline environment in the study area is based on a review and collation of existing information and data from the scientific literature., internal reports compiled for oil and gas exploration within proximity of the study area. The information on the potential impacts that the much sort after geophysical (magnetic surveying) for exploration has on the environment was drawn from various specialist studies undertaken within the immediate proximity of the licence areas; other EIAs and EMPs in the study area; scientific publications on mineral exploration surveying in similar environments and its impacts undertaken around Namibia; as well as the authors experience. All the various sources were analysed and their relevancy to the proposed project assessed to inform the bulk of this Environmental Scoping report that was submitted.

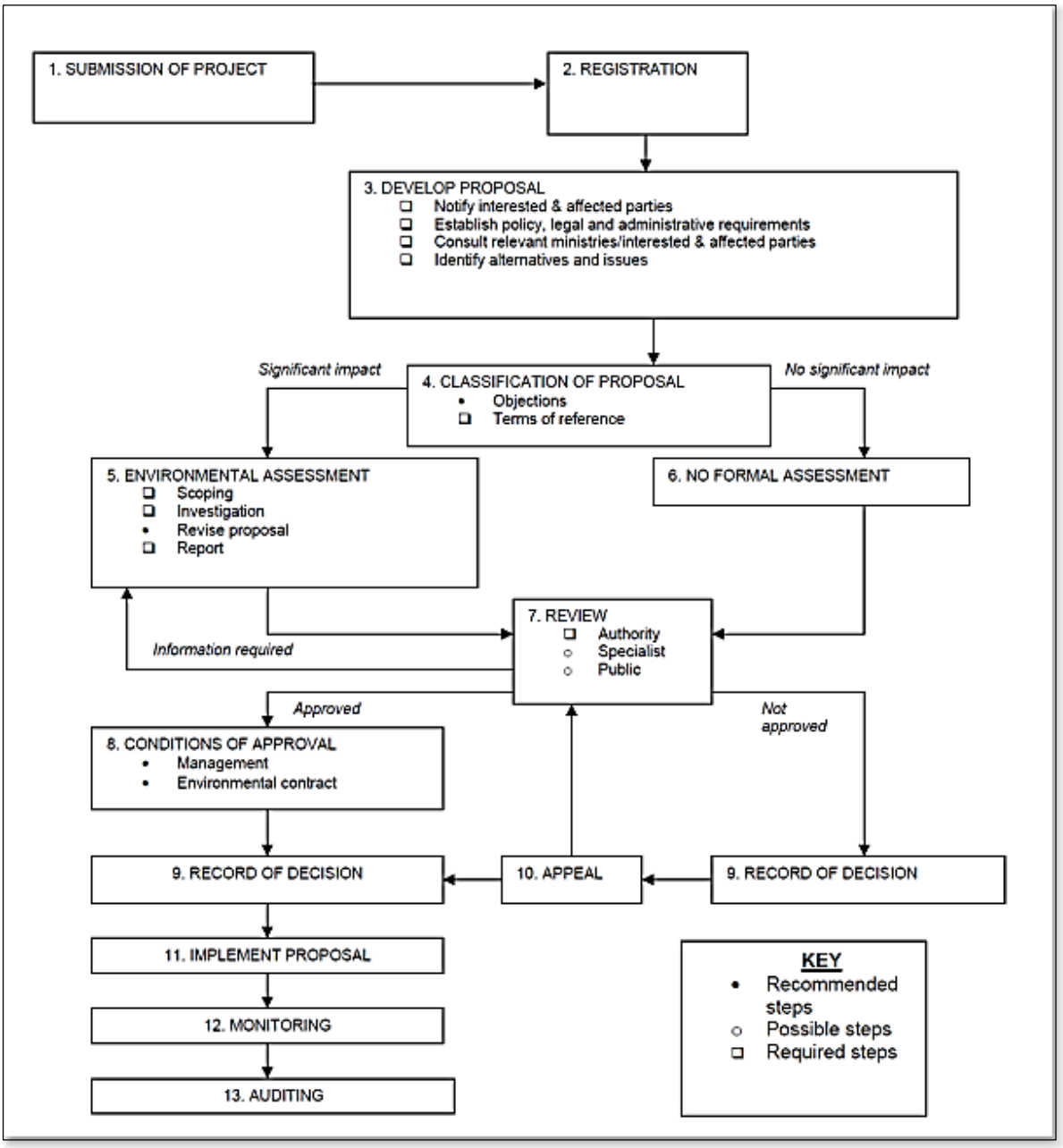

Figure 1. Environmental Assessment process in Namibia (Directorate of Environmental Affairs (DEA, 1995).

3. 0 DESCRIPTION OF THE PROPOSED PROJECT

General Overview

ANYOLO proposes to undertake a mineral exploration survey in EPL area situated in Windhoek / Rehoboth districts in central Namibia. There is a need to acquire high-resolution closely spaced gravity data which provide a more detailed cross-section along the targeted area, supported by drilling thus obtain a better picture of the geological formations underlying the prospective targeted minerals.

The proposed project targets most mineral commodities that are of various mineral group. The aim of the exploration and drilling prospecting survey project is to acquire subterranean geological data to permit adequate delineation of the lithological sequences or depositional system underlying the mineral prospective that has been mapped out by means of surface geological chipping by Namibia Geological Survey.

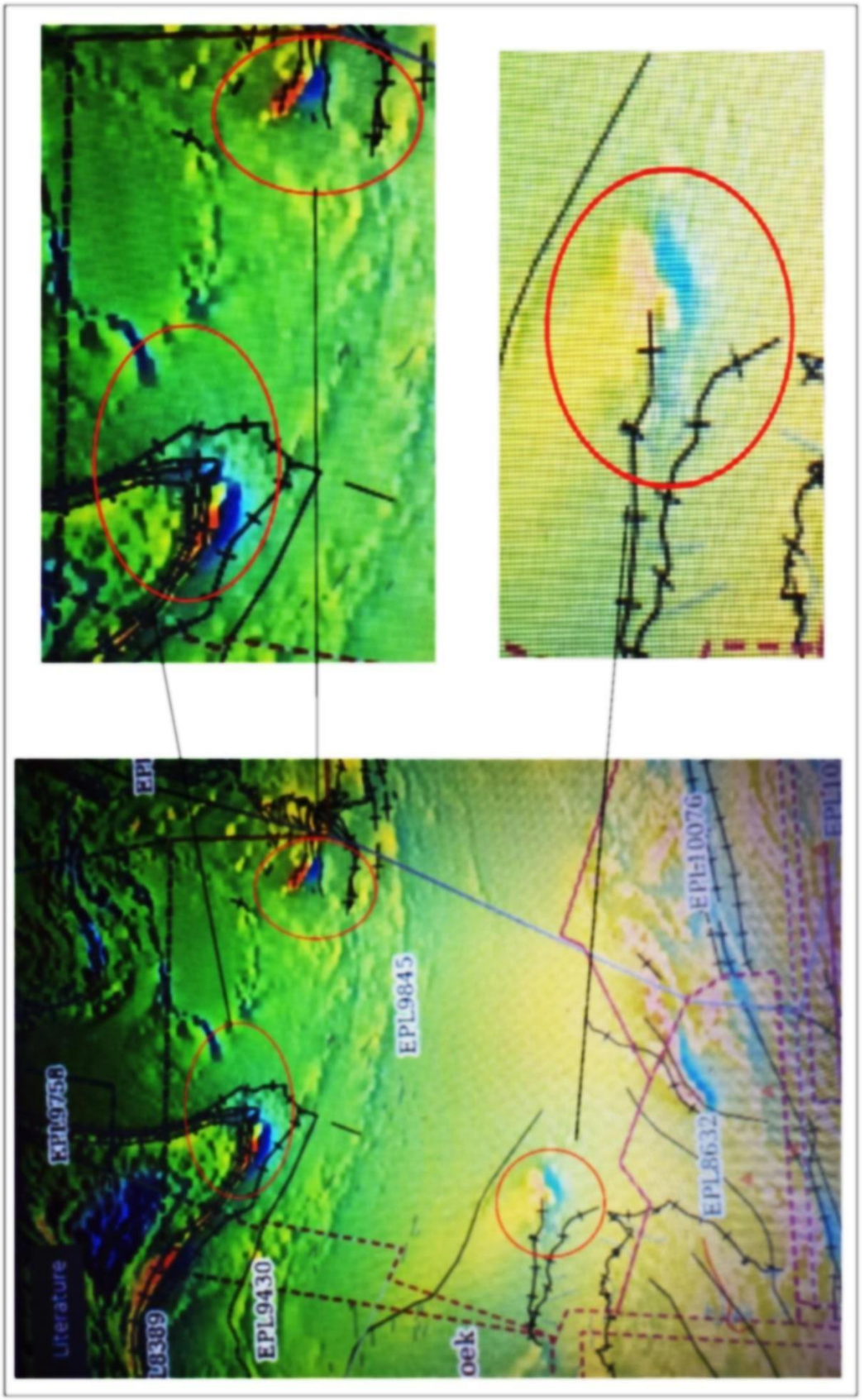

Figure 2. Areas circled in red that will be prospected and targeted mineral commodities.

4.0 Description of the Exploration to be undertaken

The overall exploration programme for the EPL 9845 could be divided into three phase and these are:

Scoping – initial phase;

Pre-feasibility- next phase;

Feasibility – To be implemented based on the positive result of (ii)..

During the scoping phase mineral commodities identified as potential deposit are to be identified. The assessment will follow as below:

- High resolution geophysical data (aerial magnetics) acquisition and interpretation;
- Field geological mapping;
- Drilling;
- Bulk sampling;
- Laboratory assessment for minerals; and
- Assessment of the geological resources and ultimate initial ore reserve for possible test mining to be undertaken as part of the bankable feasibility.

4.1 PROSPECTING PROGRAMME

Table 1: Geologic data compilation and database management.

Exploration Activity	**Duration**
Undertake ground geophysical (choice techniques will depend on the target as well as the results of the local geological mapping) where applicable starting with interpretation of existing aerial data sets in order to understand the subsurface geology before expensive drilling programme. Prepare technical reports and maps.	2 months
Implement a detailed drilling, sampling and laboratory programme	2 months
Implement other technical and specialised studies for possible test mining and mining (Geotechnical Engineering;)	2 months

Table 2, Planning Coordinates for drilling the boreholes locations.

UTM (m)			Schwazerk (hddd.ddddd)	
HOLE	**X**	**Y**	**LAT**	**LONG**
01				
02				
03				
04				
05				
06				

Stakeholder classification strategy.

STAKEHOLDER	FOR OR AGAINST	INFLUENCE ON OR INFUENCED BY
Governmental Institutions		
Ministry of Mines and Energy		
Ministry of Environment and tourism		
Ministry of Lands		
National Heritage Council		
Environmental and Conservation companies		

4.2 Impact Register

An impact register of all the potential positive and negative impacts associated with the proposed seismic surveying exploration are developed. The register comprise of impacts collated from specialist studies undertaken in the area, as well as those identified initial surveys. The register shall indicates the description of the impact, the environment affected and who raised the impact. **Table 3** shows an example of the impact register to be used for to register all the potential negative and positive impacts in the various environmental components. The impacts are based on professional judgement, various specialist studies undertaken within the area and scientific studies on the impacts of seismic surveying undertaken elsewhere in the world.

4.3 Geophysical Survey

In order to assess the subsurface structures of the EPL area as well as explore for possible mineral deposits that may be associated with the sediments, interpretation of the high resolution aeromagnetic data to be used as part of the mapping tool. The regional initial data can be bought from Geological Survey of Namibia, Ministry of Mines and Energy and has been interpreted and processed by Geointrepid Namibia. Aeromagnetic is a common type of geophysical survey carried out using a magnetometer aboard or towed behind an aircraft. The principle is similar to a magnetic survey carried out with a hand-held magnetometer, but allows much larger areas of target to be covered quickly for regional reconnaissance. The aircraft typically flies in a grid like pattern with height and line spacing determining the resolution of the data (and cost of the survey per unit area). The flight-line spacing of the magnetic survey covering the EPL 9845 will be 1 - 4 km. As the aircraft flies, the magnetometer records tiny variations in the intensity of the ambient magnetic field due to the temporal effects of the constantly varying solar wind and spatial variations in the Earth's magnetic field, the latter being due both to the regional magnetic field, and the local effect of magnetic minerals in the Earth's crust. By subtracting the solar and regional effects, the resulting aeromagnetic map shows the spatial distribution and relative abundance of magnetic minerals most commonly for EPL 9845 being iron which is known to be associated with the some of the intrusions and some sediment in the area. Because different rock types differ in their content of magnetic

minerals, the magnetic map allows a visualization of the geological structure of the EPL 9845 in the subsurface, particularly the spatial geometry of bodies of rock and the presence of faults and folds

4.4 Drilling Programme

Drilling

A drilling will be by Reverse Circulation (RC) implementation for the EPL 9845 be used. Initially a total of 10 vertical holes 30 meters deep are expected to be drilled and a total of 100 samples to be collected during the drilling programme.

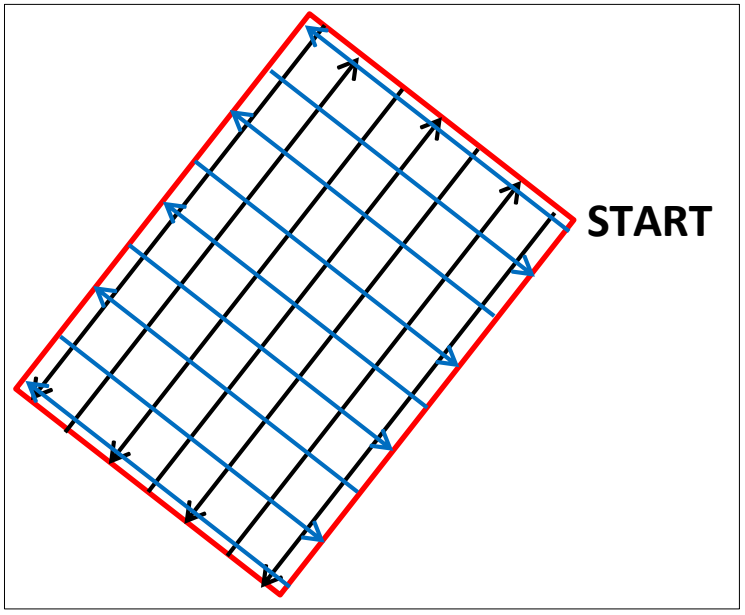

Figure 3. Schematic representation of the surveying grid across the target area.

The borehole sites are to be selected based on the geological assessment of focusing the study on result of surficial geology outcrops. The planning on borehole site selection will be supported by the satellite imagery and geological maps. Thereafter a site visit will be undertaken to determine the accessibility to the selected drill sites. Due to the nature of the targeted unit to be drilled; the drill holes are to be moved to areas that could be accessed by the drill rig but, maintaining the original sampling borehole spacing. Boreholes are to be set up by placing a mark on the target position and placing the drill bit in the chosen position, the truck will then be levelled using the hydraulic jacks on the track. A compass is to be used to confirm that the drill rig is level and at a 90^0 angle.

4.5 Sampling

During the drilling process, composites samples are to be collected at every 3 m to test the chemistry and continuity of the targeted lithological horizon. The sample will be emptied into the two way rifle splitter and collected in the receiving bins. Half of it will be placed back into the 50 kg bags and the other half will be further split to obtain 25% of the meter. Sampling of material will be done for every meter and three meters and then added together in one bag, a sample sticker with number will be placed inside each sample bag and recorded on the sample sheet. Rock chips will also be collected in a sieve and then washed in a basin of water to remove the powdery product and the chips and put into chip trays. The chip trays are to be labelled accordingly, there by displaying the drill hole number and the meter (depth) collected.

Example of an impact register

Table 3 shows an example of the impact register

ENVIRONMENT AFFECTED	DESCRIPTION OF IMPACT	RAISED BY
Wild Life	Impacts of noise and movement restriction to wild life	Specialists
Human	Impacts of noise and movement restriction to Humans	Specialists
Vegetation	Impacts of exploration to vegetation due to accessing of exploration sites by vehicles.	Specialists

Impact Assessment Criteria

The evaluation of the likely positive and negative impacts associated with the proposed project activities on the environment in terms of local, regional and national importance will be undertaken as per industry standard. The systematic assessment adopted considers the environmental and social setting, regulations, and the outcome of consultation with affected and interested parties. The assessment allows for planning on how to reduce any impacts to an acceptable level and optimise the delivery of benefits. All identified impacts will be summarised, categorised and ranked in appropriate impact assessment tables, to be incorporated in the overall Environmental Monitoring Report.

4.6 Environmental Impact Risk Rating

An assessment of all the risks associated with each impact will be undertaken in order to identify the highly risky impacts associated with the proposed seismic surveying

project that should be carefully monitored and managed. This criteria defines the risk associated with an impact as governed by the probability of the impact occurring, and the magnitude of the consequences of the impact on the environment should the impact occur. The risk matrix used in the assessment is shownbelow. The equivalent value of each risk is calculated as a product of the probability and the magnitude. A product of the two variables will be calculated and used for rating the risks associated with various impacts. Each risk will be ranked on the basis of the equivalent value. Equivalent value thresholds have been devised to aid in characterisation of the different risks associated with the identified impacts **(Table 4)**.

Equivalent value thresholds for environmental risk assessment.

THRESHOLD	RISK	ACTIONS
0 – 20	Low Risk	Record and quantify
21 – 40	Medium Risk	Refer to risk authority
41 – 70	High Risk	Refer to top management
>70	Extremely High or Unacceptable Risk	Take immediate steps to avoid

Impact Risk rating criteria

				PROBABILITY LIKELIHOOD				
				Rare	Unlikely	Probable	Likely	Almost Certain
				1	2	3	4	5
				There is a very low probability that the impact will occur during the course of mineral surveying. (0% - 20%)	There is a low possibility that impact will occur during the course of mineral surveying. (21% - 40%)	There is a possibility that impact will occur during the course of mineral surveying. (41% - 60%)	There is a high possibility that impact will occur during the course of mineral surveying. (61% -80%)	The impact is almost certain to happen during the course of mineral surveying. (81% - 100%)
CONSEQUENCE	Catastrophic	5	Extreme environmental harm with a permanent impact; an event associated with wide spread ecological or social impact and high risk of legal liability.					
	Major	4	Significant environmental harm with the impact lasting years; an event associated with wide spread ecological or social impact and					

			moderate risk of legal liability.					
	Moderate	3	Moderate environmental harm with the impact lasting months; an event associated with wide spread ecological or social impact and low risk of legal liability.					
	Minor	2	Minor environmental harm with the impact lasting weeks; an event limited to the immediate area of occurrence and can be remedied in the short term.					
	Insignificant	1	Minor environmental harm with the impact lasting weeks; an event limited to the immediate area of occurrence and can be remedied in the short term.					

*Environment can be physical, biological or social

Environmental Impact Significance Rating

In order to evaluate the potential impacts associated with the proposed seismic surveying and drilling project thus allow for planning on how to reduce any impacts to an acceptable level and still optimise the delivery of benefits of seismic surveying, the conventional method of environmental impact assessment will also be adopted. To obtain a significance rating, the method utilizes various impact variables such as; extent, duration, intensity, probability and confidence. Instead of simply rating the risk associated with each impact, with this method the impacts are rated depending on their significance. The method that will be used to determine the significance of each impact for rating is shown in the Table below . The various variables used in significance rating are defined as follows:

- **Extent -** The spatial area which will be affected.
- **Duration** - The timeframe of the impact.
- **Intensity** - The magnitude of the impact when it occurs.
- **Probability** - The likelihood of the impact occurring.
- **Status of the impact** - The standing of the impact when it occurs whether the impact will be positive, negative or neutral.
- **Degree of confidence in predictions -** Is based on the availability of specialist knowledge and other information.
- **Significance** - The relevance of the impact.

Table Standard significance rating criteria

VARIABLE	RATING	DEFINITION
Extent	Site -specific	Limited to targeted surveying area within the licence block
	Local	Limited to the entire licence block
	Regional	Limited to south western coastline of Namibia
	National	Limited to entire coastline of Namibia
	International	Extending beyond the borders of Namibia
Duration	Short-term	< 1 months
	Medium-term	1 month to 12 months
	Long-term	1 year to 10 years
	Permanent	> 10years
Intensity	Insignificant	Natural functions and processes are negligibly altered
	Minor	Minor environmental harm; Natural functions and processes are slightly altered
	Moderate	Moderate environmental harm; Natural functions and processes continue albeit in a modified way that does not appear to have a significant disruptive effect (*i.e.* changes are temporary)
	Major	Significant environmental harm; Natural functions and processes continue albeit in a modified way that does appear to have a noticeable disruptive effect (*i.e.* changes are long-term or permanent)

	Catastrophic	Extreme environmental harm with a permanent impact; Biological and physical and social processes or functions temporarily or permanently stop resulting in severe deterioration
	Rare	There is a very low (0% to 20%) probability that the impact will occur during the course of seismic surveying.
	Unlikely	There is a low (21% to 40%) possibility that impact will occur during the course of seismic surveying.
Probability	Probable	There is a possibility (41% to 60%) that impact will occur during the course of seismic surveying.
	Likely	There is a high possibility (61% to 80%) that impact will occur during the course of seismic surveying.
	Almost Certain	The impact is almost certain (81% to 100%) to happen during the course of seismic surveying.
Status of Impact	Positive	The impact benefits the environment
	Neutral	The impact results in a cost to the environment
	Negative	The impact has no effect
Confidence	Low	Assessment based on extrapolated data
	Medium	Information base available but incomplete
	High	Information base comparatively reliable

During assessment, scores will be allocated to each impact on the basis of the 7 variables listed above. A final score will be calculated and used for the significance rating. Of great importance are significant impacts also classified as highly to extremely high risk impacts during impact risk assessment. The significance rating criteria for negative and positive impacts is shown table respectively.

Standard significance rating criteria for negative impacts.

VARIABLE	RATING	DEFINITION
Significance	Low	The impact will have a negligible negative influence on the environment and no modifications or mitigations are necessary. Impact could be of low intensity at a local or regional level, enduring in the short or medium term; OR of mild intensity at a national level in the short term; OR of severe intensity at a local level and endure in the short term; OR of moderate intensity at a regional level in the short term; OR of mild intensity at a local level in the long term; OR of moderate intensity at a local level, enduring in the medium term; OR of mild to moderate intensity at a local level, enduring in the short term.
	Medium	The impact could have a negative influence on the environment, which requires modification of the project design and/or alternative mitigation. Impacts could be of severe intensity at a local level and endure in the medium term; OR of moderate intensity at a regional level in the medium term; OR of severe intensity at a regional level in the short term; OR of moderate intensity at a national level in the short term; OR of moderate intensity at a local level in the long term; OR of mild intensity at a national level in the medium term; OR of mild intensity at a regional level in the long term.
	High	The impact could have a significant negative influence on the environment and, in the event of a negative impact, the

		activity(ies) causing it should not be permitted without substantial mitigation and management, and pro-active rehabilitation commitments (i.e. there could be a 'no-go' implication for the project). Impacts could be of severe intensity at a regional level enduring in the medium to long term; OR of severe intensity at a national level in the short or medium term; OR of moderate intensity at a national level in the medium-to long-term; OR of mild intensity at a national level in the long term; OR of severe intensity at a local level in the long term; OR of moderate intensity at a regional level in the long term.

Standard significance rating criteria for positive impacts.

VARIABLE	RATING	DEFINITION
Significance	Low	The impact will have a negligible positive influence on the environment. Impacts could be of of low intensity at a local or regional level, enduring in the short or medium term; OR of mild intensity at a national level in the short term; OR of severe intensity at a local level and endure in the short term; OR of moderate intensity at a regional level in the short term; OR of mild intensity at a local level in the long term; OR of moderate intensity at a local level, enduring in the medium term; OR of mild to moderate intensity at a local level, enduring in the short term.
	Medium	The impact could have a positive influence on the environment. Impacts could be of severe intensity at a local level and endure in the medium term; OR of moderate intensity at a regional level in the medium term; OR of severe intensity at a regional level in the short term; OR of moderate intensity at a national level in the short term; OR of moderate intensity at a local level in the long term; OR of mild intensity at a national level in the medium term; OR of mild intensity at a regional level in the long term.
	High	The impact could have a significant positive influence on the environment. Impacts could be of

		of severe intensity at a regional level enduring in the medium to long term; OR of severe intensity at a national level in the short or medium term; OR of moderate intensity at a national level in the medium- to long-term; OR of mild intensity at a national level in the long term; OR of severe intensity at a local level in the long term; OR of moderate intensity at a regional level in the long term.

5.0 Surveying Contractor and Requirements

ANYOLO still has to seek a well experienced contractor who shall be able to carryout

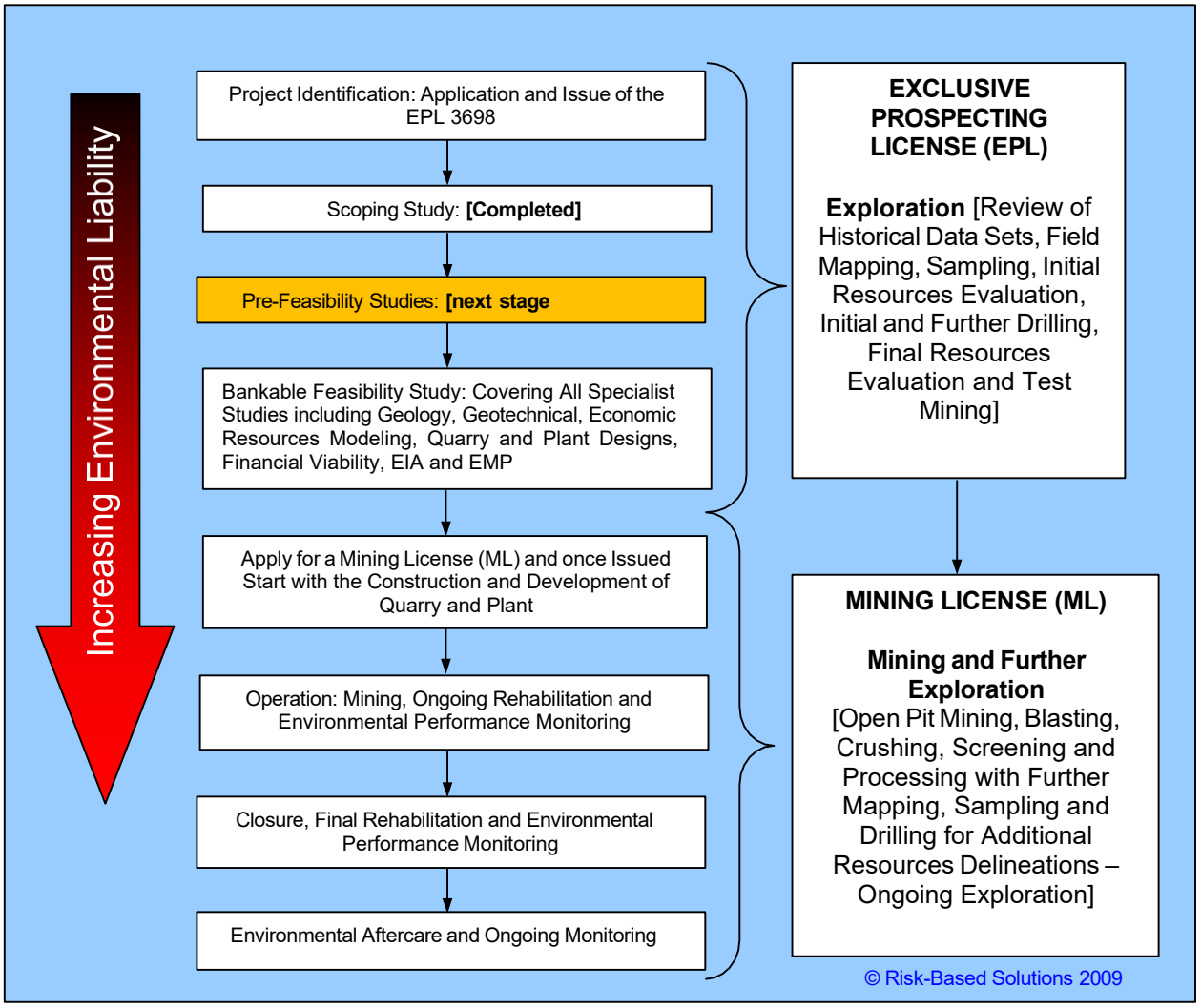

Fig 5, Schematic requirement for compliance to apply for Mining Licence.

the operation as well as reduced risks on people, assets and environment by proactively promoting Health, Safety, Security, Environment and Quality (HSSEQ) compliance. Strategically the company should integrate professional expertise with the latest acquisition technologies to optimise effective solutions for terrestrial data acquisition and exploration support services. Hence such an operator all his

equipment's should be HSSEQ Management Quality Assurance System whose principle and structure focuses on the continuous improvement cycle. The Management system should be fully integrated with its and be been audited against and accredited ISO certification.

5.1 Water

Bulk water supply in Namibia is provided by the Namibia Water Corporation, NamWater, and a fully government-owned commercial company. Government through the Ministry of Agriculture, Water and Forestry is the sole shareholder of the Corporation. NamWater supplies water in bulk to industry, municipalities and the Directorate of Rural Water Supply in the Ministry of Agriculture, Water and Forestry. The Directorate, in turn, supplies water to rural communities. Although limited to the increasing developmental project, groundwater resources are available for new projects in the area. The EPL Area in particular, is located within the terrain with good groundwater potential.

In accordance with the Water Resources Management Act, 2004, (Act No. 24 of 2004) and in view of the arid nature of the Namibian environment, the disposal of wastewater as well as all other type of waste is strictly controlled. In most cases and in particular wastewater is disposed off in evaporation ponds because no effluent may be discharged into the ephemeral, dry river beds in the interior of Namibia. The reclamation, re-use and recycling of waste is encouraged whenever an industry applies for a waste water disposal permit.

EPL 9845 Exploration Programme

Exploration and Mining Regulatory Framework

The Minerals (Prospecting and Mining) Act (No 33 of 1992) is the most important legal instrument governing the mining industry in Namibia. However, a new bill, to replace the Minerals (Prospecting and Mining) Act (No 33 of 1992) is being prepared and puts more emphasis to good environmental management practices and promotes value addition as indicated in the Minerals Policy of 2003. The Minerals (Prospecting and Mining) Act (No 33 of 1992) regulates reconnaissance, prospecting and mining of minerals. Various licence types, and their implications, are stipulated. The Mining Commissioner, appointed by the Minister, is responsible for implementing these regulations. Several explicit references to the environment and its protection are contained in the act, which provides for environmental impact assessments, rehabilitation of prospecting and mining areas and minimising or preventing pollution. The duration an EPL such as the EPL No. 9845 is governed by the provisions of the Subsection 71-Duration of exclusive prospecting licences of the Minerals (Prospecting and Mining) Act (No 33 of 1992). Such provisions are as follows:

(1) Subject to the provisions of the Act, an exclusive prospecting licence shall be valid –

(a) for such period, not exceeding three years, as may be determined by the Minister at the time of the granting of such licence; and

(b) for such further periods, not exceeding two years at a time, as may be determined by the Minister at the time of the renewal of such licence as from the date on which such licence would have expired if an application for its renewal had not been made.

(2) An exclusive prospecting licence shall not be renewed on more than two occasions, unless the Minister deems it desirable in the interests of the development of the mineral resources of Namibia that an exclusive prospecting licence be renewed in any particular case on a third or subsequent occasion.

(3) Notwithstanding the provisions of subsection (1), but subject to the other provisions of this Act -

(a) an exclusive prospecting licence shall not expire during a period during which an application for the renewal of such licence is being considered, until such application is refused or the application is withdrawn or has lapsed, whichever occurs first or, if such application is granted, until such time as the exclusive prospecting licence is renewed in consequence of such application; or

(b) where an application is made by the holder of an exclusive prospecting licence for a mineral deposit retention licence

or a mining licence in relation to an area of land which forms part of the prospecting area and in respect of any mineral or group of minerals to which such exclusive prospecting licence relates, such exclusive prospecting licence shall not expire in relation to such area of land and such mineral or group of minerals, until such application is refused or the application is withdrawn or has lapsed, whichever occurs first or, if such application is granted, until such time as the mineral deposit retention licence is issued in consequence of such application.

Following the completion of the exploration programme, a feasibility report will then be prepared together with all the other support reports and documents for the application of a Mining License (ML) in accordance with the provisions of the Minerals (Prospecting and Mining) Act (No 33 of 1992). A summary of the requirements for application for a Mining License is shown in Table 5.

Table 5. Outline of the Mining License requirements (Extract from Ministry of Mines and Energy Official Application Form).

Requirements for Application for Mining License (ML) from Ministry of Mines and Energy	
No	**Description**
1	Copy of identification document/passport or company registration certificate
2	Accredited agent letter of appointment
3	Detailed locality map
4	Geological report, including all exploration data generated
5	Ore reserve calculations
6	Geotechnical report, in duplicate, as required by Sections 45(1)(f)(i), 76(1)(e)(i) or 89(1)(d)(i).

7	Environmental Impact Assessment Report
8	Environmental Management Plan
9	CV's of geotechnical staff
10	Consultants letters of consent and CV's
11	Proof of financial resources
12	Documents detailing technical viability, mine planning, and forecasts of estimated expenditure and financial feasibility studies, with applicable plans.
13	Letter of consent from other existing license holders
14	Any other supporting document

Logistical Support

Operational Base

The operational base is expected to be located within the Farms to be used as the operational base to facilitate the temporally accommodation of personnel for the duration of the project. All the farms are accessible using gravel roads and foot paths. Supplies such as food, water, fuel and lubricants would probably be sources at during the exploration.

Fuel Supply

Due to long distance from service station, fuel will be stored in drums on site, the drums will be restricted to 200L capacity. Standard operating procedures for refuelling will be adhered to at all times.

Water Supply

Fresh water shall be sourced from the local boreholes that are present on the farm.

LEGAL AND REGULATORY FRAMEWORK

It is the responsibility of the proponent in this case HAMBELELA KASHINASHA ANYOLO to have a comprehensive inventory and understanding of all relevant legislations and determine the relevance of these legislations to the proposed project. The interpreted understanding of the legislation provides the background for management and mitigation of all environmental impacts. The Environmental Management Act 7 of 2007 and amendments op 2012 requires due process to be followed, essentially that all project related regulatory requirements are identified, mitigated and conformed with. The project legal requirements are evaluated in terms of National and International legislation, guidelines and policies.

Namibian Legislation, Guidelines and Policies

The Namibian Constitution

The statutory governing environmental regulatory framework in Namibia is based on Article 95 of the Constitution of the Republic of Namibia (1990), which states that; "*the*

State shall actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of natural resources on a sustainable basis for the benefit of all Namibians both present and future" Article 101 further states that; "*the principles embodied within the constitution shall not of and by themselves be legally enforceable by any court, but shall nevertheless guide the Government in making and applying laws*."

Mineral Resource Legislations

Vision 2030 and the Third National Development Plan

Namibia's Vision 2030 and the third National Development Plan (NDP3) with which the proposed seismic surveying project in the two blocks must aligned itself to, was launched in June 2004. The vision's rationale is to provide long-term policy scenarios on the future course of development in the country at different points in time up until the target year of 2030. Vision 2030 regards the sequential five-year National Development Plans (NDPs) as the main vehicles for achieving its long-term objectives. Chapter 5 of Vision 2030 states the following: The integrity of vital ecological processes, natural habitats and wild species throughout Namibia is maintained whilst significantly supporting national socio-economic development through sustainable low-impact, consumptive and non-consumptive uses, as well as providing diversity for rural and urban livelihoods. Thus, one of the long-term aims of Vision 2030 is the

availability of clean water, and productive and healthy natural wetlands with rich biodiversity.

Natural Environment

Environmental Regulations

Any development project initiated by the government or private sector is subject to an Environmental Assessment procedure as required and recognized by the Environmental Assessment Policy for Sustainable Development and Environmental Conservation of 1995 and the Environmental Management Act, (Act No. 7 of 2007). The policy and Act both promotes sustainable development and economic growth while safeguarding the environment in the long run. The government recognizes that environmental assessments are key tools to further the implementation of a sound environmental policy, which strives to achieve Integrated Environmental Management.

The purpose of the Environmental Management Act, (Act No. 7 of 2007) is *to give effect to Article 95(l) and 91(c) of the Namibian Constitution by establishing general principles for the management of the environment and natural resources; to promote the coordinated and integrated management of the environment; to give statutory effect to Namibia's Environmental Assessment Policy; to enable the Minister of Environment and Tourism to give effect to Namibia's obligations under international*

conventions. In terms of the legislation it will be possible to exercise control over certain listed development activities and activities within defined sensitive areas. The listed activities in sensitive areas require an Environmental Assessment to be completed before a decision to permit development can be taken. The legislation describes the circumstances requiring Environmental Assessments. Activities listed as per the provisions of the Act will require Environmental Assessment unless the Ministry of Environment and Tourism, in consultation with the relevant Competent Authority, determines otherwise and approves the exception.

The main purpose of the policy takes lead as an informing decision makers and promoting accountability, ensuring that alternatives and environmental costs and benefits are considered, promoting the user (polluter) pays principle, and promoting sustainable development.

The principles set out to;

- Better inform decision-makers;
- Consider a broad range of options and alternatives when addressing specific projects;
- Strive for a high degree of public participation and involvement;
- Take into account the environmental costs and benefits;

- Incorporate internationally accepted norms and standards where appropriate;
- Take into account secondary and cumulative environmental impacts; and
- Promote sustainable development and, especially to ensure that a reasonable attempt is made to minimise possible negative impacts and maximise benefits.

Table 6 summarises the different legislations relevant to the implementation of the proposed exploration project in the EPL 9845.

Table 6: Environment regulations.

LAW	DESCRIPTION
Constitution of the Republic of Namibia, 1990	The Constitution is the supreme law in Namibia, providing for the establishment of the main organs of state (the Executive, the Legislature and the Judiciary) as well as guaranteeing various fundamental rights and freedoms. Provisions relating to the environment are contained in Chapter 11, article 95, which is entitled "promotion of the Welfare of the People". This article states that the Republic of Namibia shall – "actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at … maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation

	of living natural resources on a sustainable basis for all Namibians, both present and future; in particular, the Government shall provide measures against the dumping or recycling of foreign nuclear waste on Namibian territory."
Minerals (Prospecting and Mining) Act, 1992	The Minerals Act governs minerals prospecting and mining. The Act *provides for the reconnaissance, prospecting and mining for, and disposal of, and the exercise of control over minerals in Namibia; and to provide for matters incidental thereto. A new Minerals Bills is currently under preparation.*
Minerals Policy 2004	The Minerals Policy is developed to ensure long-term sustainable growth in the mining sector of Namibia. One of the objectives of the Policy, relevant to EIAs is to *ensure compliance with national environmental policy and other relevant policies to develop a sustainable mining industry.*
Environmental Management Act (2007)	The purpose of the Act is *to give effect to Article 95(l) and 91(c) of the Namibian Constitution by establishing general principles for the management of the environment and natural resources; to promote the co-ordinated and integrated management of the environment; to give statutory effect to Namibia's Environmental Assessment Policy; to enable the Minister of Environment and Tourism to give effect to Namibia's obligations under international conventions*. In terms of the legislation it will be possible to exercise control over certain listed

	development activities and activities within defined sensitive areas. The listed activities in sensitive areas require an Environmental Assessment to be completed before a decision to permit development can be taken. The legislation describes the circumstances requiring Environmental Assessments. Activities listed as per the provisions of the Act will require Environmental Assessment unless the Ministry of Environment and Tourism, in consultation with the relevant Competent Authority, determines otherwise and approves the exception.
Water Resources Management Act, 2004	This is the principal law dealing with water pollution in Namibia. A key objective of the Act is *to provide for the management, development, protection, conservation, and use of water resources*. Part I of the Act deals with Preliminary Provisions and under section 3 addresses fundamental principles. Relevant principles include; - harmonisation of human needs with environmental ecosystems and the species that depend upon them, while recognising that those ecosystems must be protected to the maximum extent; management of water resources so as to promote sustainable development; prevention of water pollution, and the polluter's duty of care and liability to make good; and meeting Namibia's international obligations (e.g. Ramsar and CBD) and promoting respect for Namibia's rights with regard to internationally shared water resources and, in particular, to the

	abstraction of water for beneficial use and the discharge of polluting effluents.
Hazardous Substance Ordinance 14 of 1974	Provisions for hazardous waste are amended in this act as it provides "*for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances; to provide for the prohibition and control of the importation, sale, use, operation, application, modification, disposal or dumping of such substance; and to provide for matters connected therewith"*

Atmospheric Pollution Prevention Ordinance 11 of 1976;	This regulation sets out principles for *the prevention of the pollution of the atmosphere and for matters incidental thereto.* Part III of the Act sets out regulations pertaining to atmospheric pollution by smoke. While preventative measures for dust atmospheric pollution are outlined in Part IV and Part V outlines provisions for Atmospheric pollution by gases emitted by vehicles.
The Nature Conservation	This Ordinance covers *game parks and nature reserves, the hunting and protection of wild animals (including game birds), problem animals, fish and the protection of indigenous plants.*

Ordinance, Ordinance 4 of 1975,	
Parks and Wildlife Management Bill of 2006;	The act enacts the legal framework, to provide for and promote the maintenance of ecosystems, essential ecological processes and the biological diversity of Namibia, and the utilisation of living natural resources on a sustainable basis for the benefit of Namibians, both present and future, and to promote harmonious and mutually beneficial co-existence of humans with wildlife, to give effect to Namibian's obligations under relevant international legal instruments including the Convention of Biological Diversity. Provisions with regard to declaration of protected areas, entry into and residence are made in chapter V. Regulations on the protection of species of wildlife and plants are provided in Chapter VII of the Act.
The Labour Act, 2007 (Act No. 11 of 2007)	The labour Act gives effect to the constitutional commitment of Article 95 (11), to promote and maintain the welfare of the people. This Act is aimed at establishing *a comprehensive labour law for all employees; to entrench fundamental labour rights and protections; to regulate basic terms and conditions of employment; to ensure the health, safety and welfare of employees* under which provisions are made in chapter 4.

	Chapter 5 of the act improvises on the *protection of employees from unfair labour practice.*
Petroleum (Exploration and Production) Act 1991 (Act 2 of 1991)	This Act provides provisions for possible petroleum exploration as *to provide for the reconnaissance, exploration, production and disposal of, and the exercise of control over storage of refined petroleum products; and to provide for matters incidental thereto.* Provisions relating to discoveries of petroleum are made in Part VII of the Act.
Pollution Control and Waste Management Bill	The purpose of this Bill is to regulate and prevent discharge of pollutants to the air, water and land in Namibia, and to enable the country to fulfil its international obligations in the regard. The draft Bill forbids any person from discharging or disposing of pollutants into any water or water course without a water pollution licence (aside from the discharge of domestic waste from a private dwelling or the discharge of pollutants or waste to a sewer or sewage treatment works).

Water Resource Management and Regulations

Article 100 of the constitution of Namibia, takes sovereign ownership of natural resources, land, water and natural resources below and above the surface of the land and in the continental shelf and within the territorial waters and the exclusive economic zone of Namibia, unless lawfully owned. The state, acting through the government takes ownership in regulating all uses of water. All rights to access and use water are derived from the promulgated regulation, the Water Resource Management Act 2004.

The Water Resource Management Act 2004 *provides for the management, development, protection, conservation and use of water resources.* Part VII of the act sets provisions for water supply, abstraction and use. Abstraction of water for domestic and discharge of effluents is subject to a licence with respect to;

- The protection of the environment and water resource from which abstraction will be made, the stream flow regime and other existing potential use of the water resource;

- The proper water management;

The proper discharge or disposal of any return flow or effluent, provisions of water pollution control are made in Part XI of the act, in which discharge of effluent or discharge from sewer both requires a permit.

Part X of the Act sets certain provisions on an internationally shared water resource as the Namibian sovereign *exercises its rights, and observes and complies with all its duties as conferred and imposed upon it by any international treaty, convention or agreement to which it is a signatory*.

Health and Safety Regulations

The Labour Act, 2007 (Act No. 11 of 2007) Chapter 4, makes certain provisions to health, safety and welfare of employees. The Mine Health and Safety Regulation, 10th Draft is the regulating legislation to the health and safety of persons employed or present in or at mines. This regulation forms as an amendment in the Minerals (Prospecting and Mining) Act 33 of 1992 under which the mining claimer is required to take all reasonable steps necessary to secure, in accordance with any applicable Law, the safety, welfare and health of persons employed in such claim area, and to prevent or minimize any pollution of the environment.

Other Important Policies and Legislation

(a) Legislations;

- Prospecting and Mining Act, 1992, (Act No 33 of 1992);
- Environmental Management Act, 2007, (Act No. 7 of 2007);
- Water Resources Management Act, 2004, (Act No. 24 of 2004);
- Hazardous Substances Ordinance 14 of 1974;
- Atmospheric Pollution Prevention Ordinance 11 of 1976;
- The Nature Conservation Ordinance, Ordinance 4 of 1975, Amendment Act, Act 5 of 1996
- Parks and Wildlife Management Bill of 2006;
- The Regional Councils Act, 1992, (Act 22 of 1992);
- The Local Authorities Act, 1992, (Act 23 of 1992);

- The Labour Act, 2007 (Act No. 11 of 2007)
- Petroleum (Exploration and Production) Act 1991 (Act 2 of 1991);

(a) Policies

- General;
  - Namibia's Green Plan;
  - Vision 2030;
  - Regional Development Strategy;
- Environmental Management;
  - Namibia's 12 Point Plan for Integrated and Sustainable;
  - Environmental Management;

- Water;
  - National Water Policy White Paper 2000;
  - Water and Sanitation Policy;
  - Integrated Water Resource Management and Water Demand Management Policy;

- Tourism
  - White Paper on Tourism Policy;
  - Policy on Wildlife Management, Utilisation and Tourism in Communal Areas;
  - Policy on Community-Based Tourism Development;

- Energy;
  - White Paper on Energy Policy;

- Land;
  - National Land Policy;
  - National Resettlement Policy;
  - Land Use Planning Policy;

- Agriculture;
    - National Agriculture Policy;

- Biodiversity and Forestry;
    - Development Forestry Policy for Namibia;
    - Conservation and Biotic Diversity and Habitat Protection Policy;
    - Policy Framework for Wildlife and Utilisation Production in;
    - Support of Biodiversity Conservation and Economic Development;
    - National Policy on the Safe Use of Biotechnology;
    - Community Based Natural Resource Management (CBNRM) Policy.

Regulatory Agencies

The environmental regulatory authorities responsible for environmental protection and management in relation to the proposed exploration and possible exploration / mining project in the EPL 9845 including their role in regulating environmental protection are listed in Table 7 shows an extracts from the legal instruments of the regulating authorities with respect to the relevant permits / licenses required for the proposed exploration in EPL 9845.

Table 7 : Government agencies regulating environmental protection in Namibia.

AGENCY	ROLE IN REGULATING ENVIRONMENTAL PROTECTION
Ministry of Environment and Tourism	MET is the lead government agency charged with Environmental Monitoring, Assessment and Management. The MET's principle role in natural resource/ water-based industries is the approval of Environmental Impact Assessments (EIAs) which are prepared under Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1995). Provisions in other line ministries' legislation (*e.g. Aquaculture Act, 2002*) strengthens MET's position.
Ministry of Mines and Energy	The MME issues prospecting and mining licenses as well as exploration/ prospecting and production licenses for diamonds, petroleum and gas, and is responsible for ensuring that mining activities in Namibia are environmentally sustainable.
Ministry of Agriculture, Water and Forestry	The Directorate of Resource Management within the Department of Water Affairs (DWA) at the MAWF is currently the lead agency responsible for management of surface and groundwater utilisation through the issuing of abstraction permits and waste water disposal permits. DWA is also the government agency responsible for water quality monitoring and reporting.

Table 8: Permit requirements.

Activity	Applicable Legislation	Permitting Authority	Current Status
1. Scoping	Minerals (Prospecting and Mining) Act, 1992	Ministry of Mines and Energy (MME	To be Implemented
2. Pre-feasibility			To be Implemented
3. Bankable Feasibility			
4. Mining Licence	Minerals (Prospecting and Mining) Act, 1992	Ministry of Mines and Energy (MME)	To apply after the feasibility Study
5. EIA Clearance	Environmental Policy and Environmental Management Act, (Act No. 7 of 2007)	Ministry of Environment and Tourism (MET)	Current
6. Construction, alteration of waterworks with capacity to hold in excess of 20,000L.	Water Resources Management Act, 2004 (No. 284 of 2004).	Ministry of Agriculture, Water and Forestry	To be applied during feasibility
7. Abstraction of water other than that provided by Nam Water.			
8. Discharge of effluents or construction of effluent facility or disposal site.			
9. Removal, disturbances or destruction of bird eggs.	Nature Conservation Ordinance 4, 1975.	Ministry of Environment and Tourism (MET)	No removals anticipated
10. Removal, disturbance of protected plants.			
11. Removal, destruction of indigenous trees, bushes or plants within 100 yards of stream or watercourse.	Forestry Act, 12 of 2001.	Ministry of Water Affairs and Forestry (MWAF)	

12. Scheduled processes in controlled area.	Atmospheric Pollution Prevention Ordinance 11 of 1976	Ministry of Health and Social Services.	No Permits Require but to meet Provisions
13. Discarding or disposing of used oil.	Petroleum (Exploration and Production) Act 1991 (Act 2 of 1991)	Ministry of Mines and Energy (MME).	To Apply when Required
14. Operating a petroleum consumer installation.	Regulation 16 (2001) Petroleum Regulations.		

The Diamond Act 13 of 1991

Under section 52 of the Diamonds Act of 1991, entry to restricted areas is prohibited without possession of a Restricted Area Permit issued by the Ministry of Mines and Energy. Consequently, only approved persons in possession of the Restricted Area Permit might potentially be allowed to enter the licence blocks. Restricted Areas are declared as such by the Minister in the Government Gazette, and include areas where on - or offshore mining or related activities take place. The two petroleum licences are situated within the renowned diamond rich west coast restricted area. Though the commodities being prospect for is different, the mineralisation target locations of petroleum and diamonds is the same in the area. The Diamond Act is therefore potentially still applicable, due to the fact the two licences are situated within an area classified as restricted according to this Act. The provisions of this Act should clearly

understand and its relevancy to the proposed seismic surveying project assessed with care to ensure compliance.

Minerals (Prospecting and Mining) Act 33 of 1992

This Act enables the Ministry of Mines and Energy to control the reconnaissance, prospecting and mining of all categories of minerals in Namibia. This is done through a Minerals Board, established in terms of the Act, responsible for maintaining policy in terms of which the provisions of the Act are to be implemented. Applications for prospecting, reconnaissance and mining work is made to the Ministry in terms of this Act. This Act explicitly refers to the environment and its protection. It provides for environmental impact assessments, for rehabilitation of prospecting and mining areas and for minimising or preventing pollution. In addition, there is an emphasis throughout the Act, as in the provisions for registering a mining claim, "that such a person intends to carry on mining operations in good faith and has the technical and financial resources to do so." This is based on the principle that sufficient funds must be available for environmental recovery from the negative impacts of mining.

Environmental Legislation

Environmental Management Act No. 7 of 2007

The Environmental Management Act No. 7 of 2007 is an important tool in terms of environmental protection. The Act requires adherence to the principle of optimal sustainable yield in the exploitation of all natural resources. The Act gives effect to

Article 95 (l) of the Namibian Constitution by establishing general principles for the management of the environment and natural resources. It promotes the coordinated and integrated management of the environment The Act promotes inter-generational equity in the utilisation of all natural resources. Environmental impact assessments and consultations with communities and relevant regional and local authorities are provided for, to monitor the development of projects that potentially have an impact on the environment. According to the Act, Namibia's cultural and natural heritage is required to be protected and respected for the benefit of present and future generations. In order to promote the sustainable management of the environment and the use of natural resources, the Act has established a bundle of principles for decision-making on matters affecting the environment. The objective of the Act is laid down in its Section 2, which is to prevent and mitigate, on the basis of the principles set out in section 3, the significant effects of activities on the environment.

Environmental Impact Assessment Regulations No. 30 of 2012 of the Environmental Management of 2007

Environmental Impact Assessment Regulations No. 30 of 2012 of the Environmental Management Act No. 7 of 2007 lists activities which may not be undertaken without environmental clearance certificate and hence are subject to an environmental assessment process. It is for these reasons that an environmental assessment should be undertaken to identify the fatal flaws associated with the various activities to be undertaken.

Environmental Management Bill of (2004)

The draft Environmental Management Bill of (2004), administered by the Directorate of Environmental Affairs, Ministry of Environment and Tourism is aimed at giving statutory effect to the Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1995). The purpose of this bill is to give effect to Articles 95(c) and 95(1) of the Namibian Constitution by establishing general principles for the management of the environment and natural resources. It further promotes the coordination and integrated management of the environment. Schedule 1 of the bill lists activities that require a full environmental assessment to be conducted and include exploration and mining related.

Environmental Assessment Policy for Sustainable Development and Environmental Conservation of 1995

Currently, the Environmental Assessment process in Namibia is governed by the cabinet approved Environmental Assessment Policy published by the Ministry of Environment and Tourism in 1995. **Figure 2** shows all the relevant stages that are required in an environmental assessment process. The Environmental Assessment policy for Sustainable Development and Environmental Conservation (1995) provides that all policies, projects and programmes should be subjected to an Environmental Assessment, regardless of where these originate. The assessment must aim for a high degree of public participation, and consider the environmental costs and benefits of projects proposed. In order to allow for identification and avoidance of adverse impacts in line with best practice, Environmental Assessments should be conducted at an early

phase of project development. The Directorate of Environmental Affairs (DEA) provides guidelines for environmental assessments for all mining related projects. The guidelines address obvious environmental aspects such as pollution and waste management as well as operational procedures and rehabilitation measures.

The National Environmental Health Policy

The seismic survey programme must be guided by the aim of this Policy, which includes the following:

- Facilitate the improvement of the living and working environments of all Namibians, through pro-active preventative means, health education and promotion and control of environmental health standards and risks that could result in ill-health; and
- Ensure provision of a pro-active and accessible integrated and co-ordinated environmental health services at national, regional, district and local levels.

Nature Conservation Ordinance 4 of 1975 (as amended 1996)

The Nature Conservation Ordinance deals with conservation by providing for the declaration of protected habitats as national parks and reserves, and for the protection of scheduled species wherever they occur. Chapter 5 and 6 of the ordinance is relevant to the proposed project in that the chapters deal with protection of fish and flora in inland waters. Inland waters are defined as all waters which do not permanently or at any time during the year form part of the sea. Section 48 of Chapter 5 stipulates

that no pollution of inland waters either by depositing or causing or allowing to be deposited pollutants in any inland waters or in any place from where it is likely to percolate into or in any other manner enter any inland waters. The pollutants can be anything, whether solid, liquid or gaseous, which is or is likely to be harmful to any fish or fish food or which, if was deposited in large quantities would be harmful. Killing, injuring and wilfully disturbance or destroying the spawn of any fish in the inland waters is also prohibited. Chapter 6 of the ordinance deals with the protection of flora by prohibiting unpermitted possession of endangered flora species and picking or sale of protected flora species.

Namibia's Green Plan

Namibia's Green Plan aims at securing - for present and future generations - a safe and healthy environment and a prosperous economy. The Green Plan recognises that "the health of individuals, society and the economy are inextricably linked to the health of the environment. Accordingly, the objective is to manage its natural resources for present use without jeopardising the future accessibility of these resources. Namibia's Green Plan cautions that environmental policies must be based on the precautionary principle and that all major construction projects, especially in the water sector, should always be preceded by an Environmental Impact Assessment (EIA) in order to prevent or minimise the potential negative effects on the environment. Further to this, the plan makes provision for the protection of the country's genetic resources; also its rich biodiversity must be maintained.

National Monuments Act 28 of 1969.

The National Monuments Act 28 of 1969 provides for the preservation of certain immovable or movable property as national monuments. Section 10A stipulate that the National Monument council may in respect of any wreck in the Republic of Namibia, including the sea, which is fifty years old or older or which the council upon reasonable grounds believes to be fifty years old or older declared to be a monument.

No person shall destroy damage, excavate, alter, remove from its original site or export from the Republic of Namibia any monument except under the authority of and in accordance with a permit issued under this section.

Water Resource Legislation

Water Resources Management Act, (No. 24 of 2004)

The Water Resources Management Act, (No. 24 of 2004) came into operation on 8 December 2004, makes provision for a number of functions pertaining to the management, control and use of water resources, water supply and protection of water resources. This Act repeals the Water Act No. 54 of 1956 referred to as the old Act. The Department of Water Affairs and Forestry (DWAF) in the Ministry of Agriculture, Water and Forestry (MAWF) has the mandate over the conservation and utilisation of the water resources in Namibia. A distinction is made between private and public water in terms of ownership, control and use. In accordance with the Water Resources Management Act, 2004, (Act No. 24 of 2004) and in view of the arid nature of the Namibian environment, the disposal of waste-water as well as all other type of waste

is strictly controlled. In most cases and in particular wastewater is disposed off in evaporation ponds because no effluent may be discharged into the ephemeral, dry riverbeds in the interior of Namibia. The reclamation, re-use and recycling of waste is encouraged whenever an industry applies for a waste water disposal permit. The objective of the Act is to ensure that Namibia's water resources are managed, developed, protected, conserved and used in ways which are consistent with or conducive to fundamental principles set out in section 3 of the Act.

Other sections of the Act relevant to operations in Atlantic 1 deal with the following:

- No discharge of effluent without permit; and
- Standards of effluent quality.

Pollution, Health and Safety Legislation

A number of regulations have been gazetted since 1992, dealing with various aspects related to employer and employees rights, including the regulations relating to the health and safety of employees at work, promulgated in terms of the Labour Act (Government Gazette 1617 of 1 August 1997) and the amendments of 2004.

Draft Pollution Control and Waste Management Bill of 1999

A draft version of the Pollution Control and Waste Management Bill of 1999 has amalgamated a variety of Acts and Ordinances that provide protection for particular species, resources or components of the environment. These include, but are not limited to, the Nature Conservation Ordinance 4 of 1975, the Sea Fisheries Act 29 of 1992, the Sea Birds and Seals Protection Act 46 of 1973, Seashore Ordinance 37 of

1958, Hazardous Substances Ordinance 14 of 1974 and amendments, and the Atmospheric Pollution Prevention Ordinance 11 of 1976. All disturbance, effluent and pollution resulting from seismic survey operations in the licence block will be required to be in strict accordance with the regulations outlined in the Pollution Control and Waste Management Bill. This Bill deals mainly with the protection of particular species, resources of components of the environment. Various sections, of relevance for the proposed seismic surveying project, are described below.

- *Water Pollution*
    - Water quality monitoring will be co-ordinated by an Agency, in terms of water quality objectives and activities liable to cause water pollution.
    - Regulations under this pending law will include limits for discharges of pollutants to water and land from fixed and mobile sources, water quality objectives, standards for the pre-treatment or purification of pollutants,

      and procedures required for compliance with any standards. It will also prescribe offences and water quality action areas and the restriction of polluting activities in these areas, as well as require application for water pollution licences to be accompanied by an environmental assessment report, and offences.

- *Air Pollution*
    - Co-ordination and monitoring of Namibia's air quality, through reference to air quality objectives that will be drawn up once the Bill is promulgated.

- An air pollution licence will be required for the discharge of pollutants to the air, subject to air pollution objectives that are set, standards, treatment processes, the contents of an environmental assessment, and an air pollution action plan that stipulates the best possible means for reducing and preventing the discharge of pollutants to the air.

- *Integrated Pollution Control*
  - Processes creating a risk of pollution to more than one environmental medium, e.g. Air and water, may be subject to specific regulations that adopt an integrated approach to pollution and licencing. These prescribed processes shall be subject to an Integrated Pollution Control Licence.

- *Noise, Dust and Odour Pollution*
  - Local authorities or a separate agency created to deal with dust, noise and odour will have the power to issue an abatement notice for activities causing a nuisance. The activity may be stopped, or conditions determined for mitigatory or other measures to reduce the nuisance to acceptable levels.
  - Regulations may come into force under this Act that set standards for noise, dust and odour emissions, and product or process standards that have a bearing on noise, dust and odour pollution.

- *Waste Management*
    - The production, collection, sorting, recovering, treatment, storage, disposal and general management of waste shall be covered under this Act.
- *Hazardous substances*
    - The Bill further makes provision for regulations that establish standards and other requirements in relation to hazardous substances.
- *Accident Prevention Policies*
    - The Bill makes provision for the enforcement of regulations that require a person in possession of specified hazardous substances or products containing hazardous substances or any person carrying on an activity involving significant risk of harm to human health or the environment, to take measures to limit the risk of accidents occurring as a result of those substances or activities.

This Act repeals the entire Atmospheric Pollution Prevention Ordinance 11 of 1976, the entire Hazardous Substances Ordinance 14 of 1974; and Section 21 of the Water Act of 1956.

Atmospheric Pollution Prevention Act (No. 45 of 1965)

In addition, the Atmospheric Pollution Prevention Act (No. 45 of 1965) has parts that are relevant to the health and safety associated with the proposed project. The

following parts of the Act, and its related regulations, are relevant to the proposed project and all associated activities:

- Part II - Control of noxious or offensive gases;
- Part III - Atmospheric pollution by smoke;

Regulations for the Health and Safety of Employees at Work of the Labour Act of 2007 (amended 2011)

The Regulations relating to Health and Safety at the Workplace in terms of the Labour Act No. 11 of 2007 came into force on 31 July 1997. These regulations prescribe conditions at the workplace, and *inter alia* deal with the following:

- Welfare and facilities at work-places, including lighting, floor space, ventilation, sanitary and washing facilities, usage and storage of volatile flammable substances, fire precautions, etc.
- Safety of machinery.
- Hazardous Substances including precautionary measures related to their transport, labelling, storage, and handling. Exposure limits, monitoring requirements, and record keeping are also covered.
- Physical hazards including noise, vibration, ionising radiation, non-ionizing radiation, thermal requirements, illumination, windows and ventilation.
- Requirements for protective equipment.
- Emergency arrangements.
- Electrical safety.

International Legislation, Policy and Guidelines

Environmental Legislation

The Stockholm Declaration on the Human Environment, Stockholm 1972

The United Nations Conference on the Human Environment, which led to the Stockholm Declaration on 16 June 1972, was aimed at providing “a common outlook and common principles to inspire and guide the peoples of the world in the preservation and enhancement of the human environment” (UNEP, 1972). Namibia adopted the Stockholm Declaration on the Human Environment on 28 August 1996. The following principles therefore are relevant for proposed seismic survey project:

- Principle 21: States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.
- Principle 22: States shall cooperate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such states to areas beyond their jurisdiction.

Convention on Biological Diversity, Rio de Janeiro, 1992

Namibia signed the Convention on Biological Diversity on 12 June 1992 in Rio de Janeiro, at the United Nations Conference on Environment and Development, and ratified it on 18 March 1997. Namibia is accordingly now obliged under international law to ensure that its domestic legislation conforms to the convention's objectives and obligations. Namibia's constitution explicitly refers to biodiversity, providing that in the interests of the welfare of the people, the State shall adopt policies aimed at maintaining ecosystems, ecological processes and biodiversity for the benefit of present and future generations (Article 95(l)). Of relevance for the proposed seismic survey project activities, are the following Articles:

- *Article 8: In-situ Conservation*

Each Contracting Party shall, as far as possible and as appropriate:

- Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity.
- Develop, where necessary, guidelines for the selection, establishment and management of protected areas or areas where special measures need to be taken to conserve biological diversity.
- Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use.

- Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings.
- Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas.
- Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, inter alia, through the development and implementation of plans or other management strategies.
- Establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental impacts that could affect the conservation and sustainable use of biological diversity, taking also into account the risks to human health.
- Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species.
- Endeavour to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and the sustainable use of its components.
- Develop or maintain necessary legislation and/or other regulatory provisions for the protection of threatened species and populations.

- *Article 14: Impact Assessment and Minimizing Adverse Impacts*

Each Contracting Party, as far as possible and as appropriate, shall:

- Introduce appropriate procedures requiring environmental impact assessment of its proposed projects that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimizing such effects and, where appropriate allow for public participation in such procedures.
- Introduce appropriate arrangements to ensure that the environmental consequences of its programmes and policies that are likely to have significant adverse impacts on biological diversity are duly taken into account.
- In the case of imminent or grave danger or damage, originating under its jurisdiction or control, to biological diversity within the area under jurisdiction of other States or in areas beyond the limits of national jurisdiction, notify immediately the potentially affected States of such danger or damage, as well as initiate action to prevent or minimize such danger or damage.

United Nations Framework Convention on Climate Change, Rio de Janeiro, 1992

The United Nations Framework Convention on Climate Change was concluded in Rio de Janeiro in June 1992. The objective of the Convention and subsequent related legal instruments (such as the Kyoto Protocol) is “the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development

to proceed in a sustainable manner" (Johnson 1993). Namibia signed the Convention on 12 June 1992, ratified it on 16 May 1995 and it entered into force in Namibia on 14 August 1995.

1972 Stockholm Declaration on Human Rights

Principle 22 of the 1972 Stockholm Declaration on Human Rights provides that States shall cooperate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such states to areas beyond their jurisdiction. A principle of international environmental customary law was expressed in 1941, the Trail Smelter Arbitration US v Canada (1938 and 1941), where it was ruled that *'...under the principles of international law, as well as of the law of the United States, no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence'.*

In terms of international customary law, Namibia has an obligation to ensure that the seismic survey operations in the licence blocks under question do not result in injury to persons or property across the border and it could be liable if this does occur.

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