PHASE

OVERVIEW

Husab mine - Swakop Uranmium
Swakopmund
Erongo
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ACKNOWLEDGEMENTS

This Best Practice Guide was developed through extensive engagement with government and industry, along with expertise from consultants and specialists who availed their time to make this publication possible. The following organisations contributed substantially to the development of the Best Practice Guide, and without their expertise, this publication would not be possible.

MINISTRY OF MINES AND ENERGY
The Ministry of Mines and Energy provided indispensable input, in terms of government expectations for bi-annual reports, as well as for permit and licence obligations throughout the mining life cycle.

MINISTRY OF ENVIRONMENT AND TOURISM
The Ministry of Environment and tourism provided input about streamlining government expectations for bi-annual reporting with industry standards.

NATIONAL RADIATION PROTECTION AUTHORITY (NRPA)
The National Radiation Protection Authority (NRPA) provided input regarding all matters with the scope of the Atomic Energy and Radiation Protection Act, including the regulation of sources of radiation and radioactive material.

MINISTRY OF AGRICULTURE, WATER AND FORESTRY
The Ministry of Agriculture, Water and Forestry provided input on permit obligations during the mining life cycle phases

NAMIBIAN CHAMBER OF MINES
One of the publication's joint initiative partners and key stakeholders, is the Namibian Chamber of Mines (CoM).

The CoM is an industry body that aims to effectively promote, encourage, protect, foster and contribute to the growth of responsible exploration and mining in Namibia, to the benefit of the country and all stakeholders.

NAMIBIAN CHAMBER OF ENVIRONMENT
Another of the publication's joint initiative partners and key stakeholders, is the Namibian Chamber of Environment (NCE).

One of the core NCE objectives is to promote best environmental practices, including habitat rehabilitation, and to support efforts to prevent and reduce environmental degradation and pollution. This project aligns to several of the NCE core objectives.

OTJIKOTO GOLD MINE
Case studies supplied:
- Corporate social responsibility
- Rehabilitation

DUNDEE PRECIOUS METALS TSUMEB
Case studies supplied:
- Air quality monitoring

TREKKOPJE MINE
Case studies supplied:
- Securing a mine's water supply
- Restoration trials

SKORPION ZINC
Case studies supplied:
- Water management

ACKNOWLEDGEMENTS

DEBMARINE NAMIBIA
Case studies supplied:
- Environmental monitoring

NAMPOWER – NAMIBIA NATURE FOUNDATION STRATEGIC PARTNERSHIP
Case studies supplied:
- Powerline monitoring

NAMIBIAN URANIUM ASSOCIATION
Case studies supplied:
- Namibia's uranium SEA

HUSAB MINE
Case studies supplied:
- Water quality monitoring
- Tailings management

NAMDEB
Case studies supplied:
- Biodiversity monitoring
- Concurrent rehabilitation
- Heritage

RÖSSING URANIUM
Case studies supplied:
- Hazardous Waste Management
- Tailings Management
- Air Quality

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UTOPIA CONSULTING - communications solutions for sustainable business | Dr Paul Godard assigned photographer of the publication

Desalination Plant - Orano
Swakopmund
Erongo
Namibia

FOREWORD

The first two decades of the 21st century have starkly revealed our unprecedented impact on the natural world. The level of impact threatens our very existence. Climate change, biodiversity loss and pollution are at the top of the list. No longer can we do business as usual, with sectors being isolated from one another, and business focusing only on the financial bottom line. We need a new approach that is more holistic, inclusive and responsible. In short, we need a "profit, people and planet" triple bottom line approach whereby companies generate profit for shareholders and national revenue while simultaneously improving people's lives and safeguarding the planet from climate change, biodiversity loss and pollution. This new holistic and responsible approach to business will not necessarily reduce profit but can certainly enhance opportunities, attract discerning investors, increase sector resilience and social acceptance, reduce risk and reputation damage, and leave a nett positive legacy.

This Best Practice Guide applies the new triple bottom line approach to the Namibian mining sector to ensure a lasting legacy for mining companies, the country and her people. From the outset this initiative embraced transparent governance and a collaborative approach which involved the Namibian government – the Ministry of Mines and Energy and the Ministry of Environment and Tourism; the private sector – the Chamber of Mines and its member mining companies; and the environmental civil society sector – represented by the Namibian Chamber of Environment.

Namibia is rich in a variety of mineral deposits such as zinc, gold, uranium and diamonds, some of which are considered world-class. The Namibian Government recognises the importance of prospecting and mining to social and economic development, as expressed in various national development plans. Equally important is Namibia's commitment to ensuring a safe and healthy environment. The Best Practice Guide for mining in Namibia highlights leading practices in social, economic and environmental aspects at all stages of the mining life cycle, namely Exploration, Projects and Construction, Operations, and Mine Closure and Completion. Further, this Best Practice Guide brings together all the regulatory requirements for the mining sector from all government agencies into one reference document, with links to download forms, submit reports, etc. The Guide is available in electronic format, and we would encourage all mining companies to ensure that it is available to their staff, management, boards of directors and investors.

The Namibian mining industry strives to play an active role in sustainable development by implementing world class environmental practices in their operations. Through the implementation of these practices, exploration and mining companies can maintain a good relationship with regulators, lawmakers, investors and the communities in which they operate. This guide is ultimately aimed at assisting the Namibian mining industry to implement their "planet, people and profit" approach as they develop Namibia's mineral resources, by delivering practical mining solutions that are benchmarked against best practices and striving for ever more ambitious legacy impacts.

Finally, the mining sector has taken the lead in Namibia by being the first economic sector to develop such a Best Practice Guide. It is our wish that other sectors follow suit and that, sector by sector, we implement a "planet, people and profit" philosophy and programme of action across Namibia.

Tom Alweendo, MP
Minister of Mines and Energy

MINISTRY OF ENVIRONMENT AND TOURISM
REPUBLIC OF NAMIBIA
2019 11 19
OFFICE OF THE MINISTER
PRIVATE BAG 13346, WINDHOEK

Pohamba Shifeta, MP
Minister of Environment and Tourism

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DEFINITIONS AND ABBREVIATIONS

AMV	African Mining Vision
AU	African Union
CoM	Chamber of Mines
DEA	Directorate of Environmental Affairs
DWAF	Department of Water Affairs and Forestry
EA	Environmental Assessment
ECB	Electricity Control Board
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EPL	Exclusive Prospecting Licence
EQOs	Environmental Quality Objectives
GSN	Geological Survey of Namibia
ICMM	International Council on Mining and Minerals
I&AP	Interested and Affected Parties
MARC	Minerals Ancillary Rights Commission
MAWF	Ministry of Agriculture, Water and Forestry
MDRL	Mineral Deposit Retention Licence
MERAG	Metals Environmental Risk Assessment Guidance
MET	Ministry of Environment and Tourism
MFMR	Ministry of Fisheries and Marine Resources
ML	Mining Licence
MLIREC	Ministry of Labour Industrial Relations and Employment Creation
MME	Ministry of Mines and Energy
MoHSS	Ministry of Health and Social Services
NCE	Namibian Chamber of Environment
NEPL	Non-Exclusive Prospecting Licence
NGOs	Non-Governmental Organisations
NHC	National Heritage Council
NRPA	National Radiation Protection Authority
NUA	Namibian Uranium Association
NUI	Namibian Uranium Institute
RL	Reconnaissance Licence
SEA	Strategic Environmental Assessment
SEMP	Strategic Environmental Management Plan
SME	Small-Medium-sized Enterprise
ALARA	As Low As Reasonably Achievable

Otjikoto mine
B2Gold Namibia
Otavi
Otjozondjupa
Namibia
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PART ONE

ESTABLISHING A BEST PRACTICE GUIDE FOR MINING IN NAMIBIA

This Best Practice Guide was produced in collaboration with key stakeholders, including the Chamber of Mines (CoM), the Namibian Chamber of Environment (NCE), the Namibian Government, and members of the Namibian mining industry.

Given the enormity and complexities of the mining sector, and the importance that the mining sector plays in the Namibian economy, it is vital that key stakeholders work together to ensure that the sector can continue to develop in a sustainable way, in order to secure and protect the future of the sector and ensure long-term success and sustainability in perpetuity.

Engaging with authorities and regulatory bodies was a crucial part of the formulation of the Best Practice Guide. This allowed relevant information to be captured and incorporated into the guide, as well as identifying key issues to be addressed and improved across the mining industry. The Ministry of Mines and Energy (MME) and the Ministry of Environment and Tourism (MET) provided indispensable input in developing this Best Practice Guide.

The NCE and the CoM provided both technical and financial support in developing this guide, which was supported by the chambers' members, whose technical assistance and input provided paramount contributions towards developing this Best Practice Guide.

AUTHORS OF THE PUBLICATION

The author of this publication, Environmental Compliance Consultancy (ECC), provides environmental and social consulting services to the mining sector in Namibia and Southern Africa. ECC's team has a combined 40 years' experience in the mining sector, especially in the policy, environment and social fields. ECC prepared this publication over a two year period through a consultative process, engaging all relevant stakeholders in government, private and environmental NGO sectors. The senior ECC team engaged several local university graduates and practitioners on the project, specifically to mentor young Namibians. The contact details of ECC are provided on the cover of this document.

1.1 WHAT IS BEST PRACTICE?

The term 'best practice' refers to a methodology or practice that, through research and experience, has demonstrated desirable outcomes (Rouse, 2018), and has become a standard way of doing things because it is compliant, ethically correct and generally accepted as better than any proposed alternatives. Put differently, these are leading practices that are based on repeatable procedures, which have proven themselves most effective over time.

1.2 PURPOSE AND SCOPE OF THE BEST PRACTICE GUIDE

The purpose of this document is to serve as a guiding framework during all phases of the mining life cycle in Namibia. By highlighting the best practices that have proven to be effective in the Namibian context, this guide will assist the mining sector in effectively addressing potential challenges, such as environmental and social impacts, and developing joint action engagement that is best suited to specific circumstances. Companies in the mining industry that conform to sustainable environmental and social principles were selected for benchmarking best practices and are highlighted throughout this guide.

This Best Practice Guide highlights leading practices in social, economic and environmental aspects of mining operations in Namibia. Leading practices demonstrated at various mines, as well as international best practices, have been used to develop solutions and to formulate "leading practice standards", which can be applied to all exploration and mining companies in Namibia.

The document provides a clear indication of all regulatory requirements during all phases of the mining life cycle, thereby creating a shared sense of risk, responsibility and benefit to guide operators and shareholders, regulators and authorities, stakeholders and non-governmental organisations (NGOs), and Interested and Affected Parties (I&APs). Although the focal point of this guide is mineral prospecting and mining, many of the principles contained herein can be applied elsewhere, and other sectors may also find the guidelines presented here to be insightful and useful.

This guide has not been developed to capture the regulatory framework for petroleum exploration or operations; these activities are governed specifically by the Namibian Petroleum Act, No.2 of 1991 and licences and are not part of the scope of this guide.

1.3 HOW CASE STUDIES ARE USED

The case studies used in this Best Practice Guide were obtained from various Namibian operations who have demonstrated commendable practices in key areas of environmental, economic and social aspects pertaining to sustainable resource development. The operations were selected based on their key performance areas and are used for benchmarking best practices that can be applied throughout the mining life cycle, from exploration through to mine closure and completion.

1.4 THE BEST PRACTICE GUIDE AND THE MINING LIFE CYCLE

All development projects have a life cycle; a beginning and an end. Mining projects have a life cycle too, and the total lifetime is normally limited to a few decades. During its lifetime, a mine has distinctive phases: exploration (and prospecting), feasibility, planning and design, construction, commissioning, operation, decommissioning, and completion.

For practical purposes, this Best Practice Guide divides the mining life cycle into four prominent phases: Exploration (which includes prospecting); Projects and Construction

INTEGRATED MINE CLOSURE & PROGRESSIVE REHABILITATION

Mine closure Planning and Implementation covers all aspects of the mining life cycle and therfore the principles of progressive rehabilitation have bee incorporated throughout each stage of the mine life cycle within the guide.

Case studies and standards for rehabilitation withing Namibia are set out for each major task or component in the guides, this has been derived from best practice and evidence of success in Namibia.

[FIGURE 1]
Key chapters and sections to guide the reader throughout the guide

(comprising the feasibility, planning and design stages, as well as infrastructure development); Operations (starting with commissioning and continuing with the processing and extraction stages); and Closure and Completion (the phase ending with decommissioning and eventual relinquishment).

This Best Practice Guide has been set out with key chapters and sections, to guide the reader directly to information of importance and relevance, as set out in Figure 1.

1.5 THE BEST PRACTICE GUIDE AND THE RISK MANAGEMENT PROCESS

Mining is inherently risky. All phases of the mining life cycle are infused with a certain level of risk, and how these risks are addressed often determines the success of a project.

Extensive work has been conducted around the globe, in order to understand and assess the risks within the mining sector—most notably the work conducted in the European Union and the International Council on Mining and Minerals (ICMM), in the development of the Metals Environmental Risk Assessment Guidance (MERAG) publication. The MERAG project was initiated in 2004 to consolidate the science of determining and assessing the risks associated with the minerals and metals sector. This is not repeated here, but these documents can be consulted at https://www.icmm.com/merag. Other useful resources can be found on the internet, including a publication on risk management, which is part of the "Leading Practice Sustainable Development Program" series of handbooks of the Australian Government (https://www.industry.gov.au), for the mining industry.
The types of risks can be broadly grouped together, however risk assessments and the management of risks, should be site specific. Even though risk assessments are often similar in nature, a risk assessment might not necessarily be suitable for one site, compared to another. There isn't a one-size-fits-all approach. Extensive work has been conducted and published in terms of providing generic frameworks for the identifying, analysing, evaluating, registering (or listing), managing (or treating), monitoring, reporting, updating, and communicating of risk, (ICMM, ISO 31000:2018, IFC and EU risk management standards, to name a few).

Sound principles of risk management should be a core process throughout all phases of the mining life cycle. This risk management section is applicable to all phases covered within this best practice guide. It is a systematic, holistic process. During the exploration phase, for example, risk may arise from geological, environmental, social and economic aspects. During the operational phase, risk is associated with community, health, safety, environment, compliance and reputation; the closure phase, again, will involve risks related to community, compliance and reputation. The risk groups might be very similar, but the specific nature of the risks vary and require separate analysis and control.

In this document common risks affecting the mining industry are outlined. Risks applicable to each phase of the mining life cycle are set out within the respective chapter, for example, exploration risks are discussed in the exploration chapter. Examples of risk management tools are also provided and may be used to assess and manage risks.

EFFECTIVE RISK MANAGEMENT CAN MINIMISE THE POTENTIAL FOR A PROJECT OR OPERATION TO SUFFER UNPLANNED AND UNWANTED EVENTS AND OUTCOMES. WHEN APPLIED WELL AND TRANSPARENTLY, IT CAN:

- Protect financial performance
- Maintain the health, safety and well-being of employees, communities and the environment
- Build confidence with internal and external stakeholders
- Secure the legal and social licences to operate

1.6 DIFFERENT APPROACHES, ONE UNDERSTANDING

Risk is defined as an uncertain event or condition that, if it occurs, will affect the achievement of one or more objectives. It is measured in terms of the likelihood of an occurrence and its potential consequences and is assigned an overall risk classification accordingly. Likelihood can vary between rare, unlikely, possible, likely, and almost certain. Different consequence types can be applied, for example, financial (capital or operating costs, project schedules, annual production or annual revenue, investments or business value, and resources or future business value), health, safety, on-site and off-site environments, social, cultural / heritage, community, stakeholders, authority, media, corporate knowledge, reputation, security, or compliance, to describe the outcome in terms of insignificant, minor, moderate, major, or catastrophic results.

Distinction can be made between inherent risk (raw risk rating as originally identified before controls have been considered in the assessment) and predicted or residual risk (the risk remaining if proposed controls are implemented). The analysis of risk indicates threats and opportunities and implies specific actions in terms of controls. To reduce negative risk or enhance positive opportunities, a control (any process, policy, device, practice or other measure) is required. The source of potential harm, or a situation with the potential to cause actual or perceived loss or damage to people, the environment, the plant, equipment, customer expectations, or product quality, is called a hazard.

Typical objectives of the risk analysis process are to identify the hazards, potential threats and subsequent risks of a project, to rank and prioritise the risks through an assessment process, and to evaluate the risks for the purpose of determining management and mitigation measures. Typical hazards can include environmental and economic conditions, which are variable and unpredictable; threats to humans and facilities; impacts on the environment, communities or neighbouring land; and threats related to hazardous materials and dangerous goods.

Risk assessment can be done at three levels – firstly to intuitively identify the hazards; secondly to qualitatively describe the risks; and thirdly to deductively quantify the risks. The risk management process is furthermore based on an identification of causes (triggers/indicators), and impacts (results or consequences). Further classification of causes and impacts is possible, for example, between low, moderate, high, or critical, or between severity, duration, spatial scale, probability, and significance. By using these categories, the risk assessment process helps to determine the severity of the risk, to evaluate the effectiveness of control measures, to identify the actions to be taken to control the risk, and to stress the urgency for actions to be completed.

If levels of uncertainty can't be robustly qualified, the Precautionary Principle is adopted. This is done in order to avoid a scenario where a lack of full scientific certainty is used as a reason for postponing the implementation of mitigation and management measures. Another relevant principle is the 'As Low As Reasonably Achievable' (ALARA) concept, which can assist in identifying and ranking potential risks according to the ability of the operation to manage the risk.

Ultimately, risk management aims to significantly reduce the likelihood of risks, to eliminate high and critical risks, and to manage moderate and low risks. Classification of risk is thus directive for the process of managing risks. Low risk, for example, indicates a rating below a threshold, and does not require active intervention; moderate requires active monitoring; high risk exceeds the threshold and requires proactive management; and critical risk implies that the threshold has been significantly exceeded and requires immediate and focused action.
Risk planning can be incorporated into a monitoring program by developing a risk register for each stage of the mining life cycle. This allows for the easier identification of risks and controls at each stage during the mining life cycle, and the risk registers can be updated as the project advances. Reviewing risks is of critical importance, and it is imperative that risk assessments are a continual iterative process, conducted throughout the mining life cycle. AAssignment to risk owners is essential. The risk owner is accountable for the overall management of the hazards in his work area, and all of the contributing risk scenarios associated with it. The risk owner has to ensure that the controls are in place, the risk is communicated, and that any identified treatment/improvement measures are incorporated into the relevant operational plans.

There are various risks associated with the mining life cycle—relevant risks for this guide can broadly be categorised as: Health and Safety Risks, Environmental Risks, Community Risks, Compliance Risks, Production Risks, Reputation Risks, and Closure and Post-closure Risks. Table 1 describes these broad categories of risks.

TABLE 1 | Category of risks

TYPES OF RISK	DESCRIPTION
Workplace Health and Safety Risks	Health and safety risks are often put together, but present different challenges to management. Safety risks are associated with acute consequences, ranging from a minor injury requiring first aid treatment, to a fatality, thus varying from relatively low-consequence events that may occur quite frequently, to rare but potentially catastrophic events that may occur occasionally. Health risks may result from single events, or multiple exposures leading to acute or chronic illness or disability, sometimes only materialising over long time periods, and can easily be overlooked in the urgency to manage more immediate concerns.
Environmental Risks	Mining activities can pose significant impacts to the environment. They may be direct, such as dust and noise generation, water pollution and spills, waste disposal, or infrastructure development. They may also be indirect, such as the use of water, habitat fragmentation, and air pollution. Environmental impacts may vary widely in terms of spatial scale, duration and severity.
Community Risks	Community risks include both direct influences on local populations and neighbours and multiplying effects on society. Direct impacts range from issues such as access to resources, to the potential displacement of people. Impacts are interlinked to health, safety and the environment, and can be immediate or long-term. In-migration of workers is a typical multiplying impact, resulting in health, social, and economic issues in society.
Compliance Risks	Many risks are closely coupled to regulation. Failure to comply with regulatory requirements creates serious consequences, including protracted permitting time frames, prosecution, enforced shutdown, endless disputes, and production and reputation damage. Failure to recognise new and emerging regulatory requirements can limit an operation's agility and ability to adapt to change. Regulation reflects public expectation, which can escalate to local, national, and even international repercussions.
Production Risks	Production risks relate to production volume or product quality and, ultimately, the costs and revenue streams of the business. Although largely economic, these risks can have social and environmental compliance issues too. Similarly, many factors may affect production (for example, weather conditions, workers unrest, and extra taxation, etc.).
Reputation Risks	Reputation risks, in many cases, are knock-on consequences from many other risks. Ineffective risk management may have negative impacts on reputation, even resulting in premature cessation, permanent business damage, lawsuits, or even an inability to maintain the social licence. Effective risk management, on the other hand, is likely to create a positive reputation, access to markets, and new opportunities for growth.
Closure and Post-closure Risks	Closure and post-closure risks entail several economic and non-economic consequences, many of them long-term and multifaceted. Closure is a process that implies long-term planning, and if it is done well, can prevent huge costs, opposition and protracted relinquishment. Ultimately, a closure strategy should aim at leaving positive and enduring legacies, instead of lingering and contentious unfinished business.

PART TWO

SUSTAINABILITY

2.1 SUSTAINABLE DEVELOPMENT IN THE MINING INDUSTRY

Mining has always been a critical sector of the Namibian economy. In earlier years, mining was the single largest component of the Namibian economy, accounting for nearly 40% of the GDP. Although this figure has declined, mining still accounts for about 12% of the GDP, and on average around 50% of exports annually, as well as employing roughly 3% of the formal labour force in Namibia. Mining generates a significant amount of revenue for the country, through a variety of mechanisms, including taxation (corporate, income, VAT), royalties, fees and equities. The more indirect socio-economic impacts of mining in Namibia are multiple and even more impressive, by providing livelihoods to many families and reasoning the existence of several towns (Oranjemund, Rosh Pinah, Uis, Tsumeb, and Arandis). Mines thus have a tremendous socio-economic influence in Namibia. On the other hand, the environmental footprint of individual mines—although concentrated, intense and visually striking—is relatively small in surface cover, compared to other industries.

Continuous exploration for commodities—albeit at varying intensity over the years—and the apparent wealth produced by a number of prominent mines during the last century, fostered the view that Namibia is rich in minerals, and that Namibia's mineral assets form a major source of national wealth. In recognition of the importance of the mining industry towards social and economic development in Namibia, the State strives to establish the country as Africa's most attractive mining environment, through conducive legislation related to land access, tenure and tax. Technical infrastructure is continuously improved, and an excellent range of high-quality geological information is available to exploration companies, including a geological archive that is one of the most extensive in Africa, and incorporates a complete inventory of previous exploration work that stretches back almost a century, with the results from modern surveys.

The principles of sustainable development in the mining sector of Namibia are becoming a prerequisite, as mining companies are placing emphasis on operations that are environmentally sound, socially responsible and technically feasible. The reputation of mining companies as responsible corporate citizens, with a strong sustainable development agenda, has become a prerequisite, to ensure a social licence to operate, to attract and retain employees, and to stimulate prosperous relationships with service providers and customers, authorities, the media, stakeholders, and all affected and interested parties.

One way of achieving sustainable development in the mining industry is offsetting and reinvesting the benefits realised from extracting mineral assets.

Orange River mines - Sedenlingsdrift
Oranjemund
Karas
Namibia
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2.2 NAMIBIAN SUSTAINABLE DEVELOPMENT OFFSETS

Traditionally 'offsets'—specifically biodiversity offsets—are measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse impacts arising from development plans or projects, after appropriate prevention and mitigation measures have been taken. The aim of biodiversity offsets is to achieve no net loss, and preferably a net gain, of biodiversity on the ground, with respect to species composition, habitat structure, ecosystem function, and people's use and cultural values associated with biodiversity.

The Namibian mining sector, in response to a request from the MME, have developed a blueprint for sustainable development offsets, linking offsets to non-mining regions across Namibia. In this context, sustainable development offsets encompass all facets of the environment, including the biophysical, social and economic environments. Sustainable development, as defined by the United Nations, recognises that strong economies depend on equitable societies and a healthy environment. At a minimum, efforts to strengthen the national economy through industries such as mining, should not jeopardise the environment or perpetuate social inequalities. The Namibian Mining sector aims to go further than complying with these minimum requirements, and their vision is to "...be widely respected as a safe, environmentally responsible, globally competitive and meaningful contributor to the long-term prosperity of Namibia."

Offset schemes in other countries focus on biodiversity conservation, mainly by buying and protecting land of high biodiversity value, to make up for land lost to mining. In Namibia, 17% of the land is formally protected by the state, and over 26% is managed through the communal and freehold conservancy system. In contrast, mining operations directly impact <1% of Namibian land. The offset scheme for Namibia is therefore designed to address more pressing socio-economic needs in the country than land acquisition for conservation—namely, sustainable development.

The new Strategy and Action Plan takes the mining sector's contribution further and expands its strategic impact by implementing a national offset scheme, whereby the mining industry can contribute to sustainable development projects throughout Namibia. Aside from mining companies maintaining their local contributions to society and the environment, the mining companies have committed to contributing to a central offsets fund, jointly managed by the CoM and the NCE.

The new offsets scheme will focus on supporting projects in non-mining regions of Namibia, which previously have seen little benefit from the mining industry. In rural areas, the scheme will focus on communal conservancies, as they are integral to the sustainable development plans for Namibia. The committee also recognises the needs of urban areas, which continue to struggle with rapid urbanisation and the resulting social and environmental challenges. The environmental committee reviews all potential projects using a standard list of criteria (see below),and provides recommendations for funds to be disbursed from the offsets account.

In 2018, the first year of the scheme, N$1,360,000 was granted by the mining sector to fund two sustainable development projects. This was seen as a start-up year to test and fine-tune the approach and allow everyone to become comfortable with the process.

SUSTAINABLE DEVELOPMENT PROJECTS APPLYING TO THE OFFSETS SCHEME MUST MEET THESE TWELVE CRITERIA. EVALUATION CHECKLIST CRITERIA:

1. Non-mining area?
2. Promotes sustainable development?
3. Supports national development priorities?
4. Priority for local community?
5. Has support of local, regional and/or national government?
6. Clear benefits to poor?
7. Investment has clearly defined output/product?
8. Initiative has clear and credible budget?
9. Implementation process is clear and credible?
10. Project is potentially catalytic in terms of expansion and co-funding?
11. Project has no perceived environmental, social or economic risks?
12. There is an own contribution?

The sustainable development offset programme is in its early stages of development; it will be refined and continually improved throughout the implementation phase.

2.3 LEGISLATIVE AND REGULATORY FRAMEWORKS

This section aims to highlight the statutory framework applicable to all phases of the mining life cycle. The mining sector in Namibia is principally governed by the Minerals (Mining and Prospecting) Act of 1992, however several other Acts and Policies pertaining to the mining sector are discussed in this section.

The following factors are especially relevant to the context of the Namibian mining industry: existing bodies of legislation acknowledge the importance of the principles of public participation in decision-making that affects the environment; the precautionary principle and the principle of preventative action; the principle of 'the polluter pays'; the constitutional principles that promote sustainable development and forbid the dumping or recycling of foreign nuclear and toxic waste into Namibia; and the protection of the environment for current and future generations – in accordance with Namibia's constitution.

The African Mining Vision (AMV) was adopted in 2009 by the African Union (AU) Heads of State, with the focus of integrating mining into development policies at local, national and regional levels. It is a developmental approach for growth through the building of socio-economic linkages, to the benefit of Africa.

Although no legislative framework is contained in the African Mining Vision, it is based on the rationale that mining can better contribute to local development in Africa by ensuring that workers and communities obtain real benefits from large-scale mining projects, while securing the protection of the environment at the same time. This approach establishes a platform for negotiating contracts with mining multinationals, to generate fair resource rents and stipulate local inputs for operations at a regional level, integrating mining into national industry and trade, as well as sustainable development agendas.

2.4 THE CONSTITUTION OF THE REPUBLIC OF NAMIBIA, 1990 (AMENDED 1998)

Namibia's constitution was adopted in 1990, prior to independence. The constitution contains several articles relevant to the country's natural resources and the mining sector. Article 100 of the Constitution of the Republic of Namibia states that *"all-natural resources below and above the land and in the continental shelf and within the territorial waters shall belong to the state"* unless otherwise lawfully owned. The maintenance and protection of ecosystems, ecological processes, and biodiversity must comply with Section 95(l), which provides for *"the maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis ..."*

In addition, Article 15 prohibits the employment of children under 14 years in a mine and prohibits children under sixteen from doing hazardous economic exploitation work.

2.5 MINERALS (PROSPECTING AND MINING) ACT, NO. 33 OF 1992

The Minerals (Prospecting and Mining) Act, No. 33 of 1992 is the central piece of legislation governing the mining sector in Namibia. Subsequent to the passing of the Act, mining rights are vested in the state and not in the landowners. The rights and obligations of mineral licence holders and the role of the Minerals Ancillary Rights Commission (MARC) are outlined in the Act, along with details of how the sector is to be administered. Included in the Act is information on penalties for non-compliance and also information on royalty rates.

Section 48 of the Act stipulates that an Environmental Management Plan (EMP) is one of the conditions of a Mining Licence (ML) and that a licence holder should apply *"good mining practices"* with respect to environmental protection, natural resource conservation, and the removal of accessory works or other goods that were erected, constructed or brought onto the land for the mining activities (Section 57). The Act does not deal specifically with mine closure in Namibia, although reference is made to mine closure arrangements, such as notices that need to be given to the relevant minister, and that licence holders are obliged to demolish accessory works, remove all debris and other objects brought onto the land, and to take the necessary steps to remediate *"to reasonable satisfaction"*, when mining activities cease (Section 54). Section 130 of the Act states that mining companies have a general duty of environmental care, and are expected to practice continuous rehabilitation at their own cost and to arrange immediate clean-up in cases of spills or other forms of pollution.

2.6 MINERALS POLICY OF NAMIBIA, 2002

The Minerals Policy was adopted in 2002, and sets guiding principles and direction for the development of the Namibian mining sector, while communicating the values of the Namibian people. It sets out to achieve several objectives in line with the sustainable development of Namibia's natural resources. The Policy strives to create an enabling environment for local and foreign investments in the mining sector, and seeks to maximise the benefits for the Namibian people from the mining sector, while encouraging local participation, amongst others. It furthermore stipulates that mine closure should be properly planned and *"form part of an integrated land use strategy involving engagement with communities"*, and encourages the alternative use of land through rehabilitation, as well as the use of remaining infrastructure for on-going economic benefits.

Moreover, the objectives of the Minerals Policy are in line with the objectives of the national development agenda, which includes the reduction of poverty, employment creation and economic empowerment in Namibia.

2.7 ENVIRONMENTAL MANAGEMENT ACT, NO. 7 OF 2007

Namibia's Environmental Management Act, No. 7 of 2007 provides a framework for conducting environmental assessments as well as the implementation of monitoring and auditing measures. Associated Regulations of the Act were promulgated in 2011 only, replacing the Environmental Assessment Policy for Sustainable Development and Environmental Conservation of 1994.

The regulations govern the environmental issues associated with the mining life cycle. This includes exploration, construction, production, closure and completion, as well as post-closure. Regulation 29 (List of Activities that may not be undertaken without an environmental clearance certificate) of the Act outlines a number of listed activities that require an Environmental Clearance Certificate. Outlined in the Act are the steps and conditions that must be met in order to grant an Environmental Clearance Certificate. These steps include preparing an initial Scoping Report and EMP. In the event that significant impacts are expected, an Environmental Impact Assessment (EIA) is also required.

The regulations also provide clear reference regarding the compilation and implementation of rehabilitation and closure plans, and Section 31 of the regulations outlines particularly details about the content of a rehabilitation or closure plan. The Act states that applications for Environmental Clearance Certificates should be accompanied by environmental rehabilitation, restoration, decommissioning and aftercare plans; a financial guarantee to cover the costs that may occur as a result of environmental impacts; as well as a financial guarantee to cover the costs envisaged from decommissioning, rehabilitation, reclamation, restoration, and aftercare, based on an approved work plan that is reviewed annually.

2.8 NAMIBIA'S ENVIRONMENTAL ASSESSMENT POLICY FOR DEVELOPMENT AND ENVIRONMENTAL CONSERVATION, 1994

This Policy provides guidance for the promotion of economic growth and sustainable development, while ensuring environmental protection in the long term.

Section 5 of the Policy states that the proponent is required to enter into a binding agreement (based on the procedures and recommendations contained in the EIA report) to ensure that the mitigation and other measures recommended in the EIA, are accepted by all parties and fulfilled. This agreement should address the construction, operational, and decommissioning phases in the mine closure process, as applicable, as well as its monitoring and auditing.

2.9 WATER RESOURCES MANAGEMENT ACT, NO. 11 OF 2013

Although the Water Resources Management Act, No. 11 of 2013 has been promulgated, regulations in the new Act are absent. By implication, the Water Act, No. 54 of 1956 is still relevant, although conditions are subject to change when the Water Resources Management Act, No. 11 of 2013 is commenced. The latter deals with issues associated with water pollution and abstraction. The same Act requires the fencing of land on which tailings and waste rock are deposited, and that the subsequent use of such land requires the prior approval of the regulatory authority, i.e. the Ministry of Agriculture, Water and Forestry (MAWF). Post-closure water quality management is implied by the same Act, as well as the Water Resources Management Act, No. 11 of 2013. Section 23(2) of the Water Act, No. 54 of 1956 allows the minister to recover costs from a mining company to prevent pollution of water that occurs after mine closure as a result of seepage. In addition, the new Act includes aspects such as the licencing of water use, prevention of water pollution, protection of water resources, efficient use of water, water conservation measures, and the safety of dams.

2.10 ATOMIC ENERGY AND RADIATION PROTECTION ACT, NO. 5 OF 2005

The Atomic Energy and Radiation Protection Act, No. 5 of 2005 deals with regulation of radiation sources and nuclear material, including ore and ore products that are within the regualtion scope of the Act. The Act makes provision for the adequate protection of the environment and people (in current and future generations) against the harmful effects of radiation, by controlling and regulating the production, processing, handling, use, storage, transport, and disposal of radiation sources and radioactive materials, and the controlling and regulating prescribed non-ionising radiation sources. Regulation of radiation exposure falls under the jurisdiction of the National Radiation Protection Authority (NRPA), which was established in 2009. Although the NRPA is an administrative unit of the Ministry of Health and Social Services, it fuctions independently in as far as it corncerns technical functions under the scope of the enabling Act. The *Radiation Protection and Waste Disposal Regulations*, came into operation in January 2012.

The Act requires that the import into, or export from Namibia, or transport, storage, possession or disposal of any radiation source or nuclear material must be either authorised and or licensed after compliance with madatory requirements.

For naturally-occurring uranium and thorium-bearing ores to be regarded as radioactive, and within the scope of the regulations, the activity and activity concerntration should exceed those specified in the schedule *Radiation Protection and Waste Disposal Regulations.*

As part of the regulatory regime every prospective licenses, registrant and person seeking authorisation, must prepare a Radiation Management Plan. The Radiation Management Plan is a document that articulates the licence, registrant or person to be authorised commitment to uphold safety and security in relation to activities involving radiation sources and radioactive material. Therefore the Radiation Management Plan should encompass all the elements have an impact on safety and security, including

Desalination Plant - Okano
Swakopmund
Erongo
Namibia
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2.11 LABOUR ACT, NO. 11 OF 2007

The Labour Act, Act 6 of 1992 came into operation in 1992, and a comprehensive set of legal rules covering the health and safety of employees at work came into operations in 1997. On the 31st of December 2007, the new Labour Act, Act 11 of 2007, was promulgated in Namibia and came into operation on the 1st of November 2008. The regulations of 1997 remain valid. The Labour Act, Act 11 of 2007 deals with the redundancy of human resources and sets out the procedures to be followed in the event of dismissals for operational reasons or retrenchment, as well as requirements for severance payments and other benefits. These aspects apply also in the case of mine closure.

leadership, management, technical capabilities, operational systems. A specific format is prescribed with guidance and available from the NRPA.

A licence holder is restricted by the provisions of the Act and conditions of the licence; must keep records and compile reports related to radiation protection or required safety standards. Impliedly, site-specific procedures and protocols need to be implemented, to minimise the long term risk of exposure, including from tailings and waste, and to ensure long term adherence to public exposure dose limits. Amendments to the safety rules need to be submitted whenever necessary or on request, and records and reports need to be submitted annually. The licence holder must provide all relevant information related to the operation and appoint a radiation safety officer, who is responsible for a radiation protection program and a radiation exposure monitoring program. The Radiation Management Plan is audited annually.

2.12 BIODIVERSITY-RELATED LEGISLATION

Biological diversity (biodiversity in short) is described as the variety of different types of life on Earth, which includes all organisms, species and populations, and describes the genetic variations among these, and their complex assemblages of communities and ecosystems (Benn, 2010). Biodiversity is about the variety of life—variations within species present in different ecosystems, genetic variation, ecosystem variation, and the number of species (species variation). To comprehend biodiversity in totality, one needs to understand the variety of species, the different habitats, the spatial arrangements and patterns that constitute the habitats, and all the factors that affect the species, the habitats and ecological processes as a whole.

The Convention on Biological Diversity aims to pursue the conservation of biological diversity and the sustainable use of its components. Namibia signed the treaty on biological diversity in 1992 and ratified it in 1997. In essence the work done in Namibia since 1992 introduced appropriate procedures for conducting an EIA for projects that are likely to have significant adverse effects on biodiversity, with a view to avoiding or minimising such effects, to provide an opportunity for a more positive

approach in impact assessments, and to identify opportunities for enhancing biodiversity. Some key principles endorsed in Namibia include: the protection of sensitive habitats; the maintenance of species and ecological processes, such as surface hydrology and groundwater movement; the prevention of secondary impacts and unnecessary collateral damage; monitoring; the avoidance of adverse impacts on biodiversity, wherever possible; and rehabilitation where avoidance is not possible. Although the implementation of these principles depended on voluntary commitment by all parties, and as such has relatively little legal standing, by virtue of its topic, it stands central to the identification and assessment of (biodiversity) impacts, and to devising ways to manage these.

Plant species are protected by various mechanisms in Namibia, including the Nature Conservation Ordinance No. 4 of 1975 and the Forest Act, No. 12 of 2001, as amended in 2005. The latter aims to maintain biological diversity and to use forest produce in a way that is compatible with the forest's primary role as the protector and enhancer of the natural environment. The Act also requires the removal of any living tree, bush or shrub growing within 100 meters of a river, stream or watercourse, to be done under the auspices of a permit issued by an appropriate official from the Directorate of Forestry. In August 2015, the regulations of the Act were promulgated. Included in the regulations, is a list of protected plant species for Namibia, which replaces the list of the Forestry Act, No. 72 of 1968.

The Nature Conservation Ordinance No. 4 of 1975, as amended, provides for the declaration of protected areas and for the specific protection of scheduled species where they occur. A permit from the MET is required for the removal or destruction of protected species. Species and numbers/quantities involved need to be specified. The conservation of terrestrial birds and animals in Namibia is governed by this legislation.

All of Namibia's national protected areas were proclaimed under the Ordinance, enacted by the previous South African colonial administration. Although the Ordinance sets a framework for establishing state-protected areas, and for regulating hunting and other wildlife uses, both within and outside conservation areas, it is outdated and suffers from shortcomings such as unclear management objectives and harmonised management objectives with adjacent land units.

A policy for Mining and Prospecting in Protected Areas and National Monuments was drafted in 1999, and has been superseded by the Policy on Exploration and Mining in Protected Areas (2018), which underlines the importance that mining-related activity in protected areas is only initiated when rehabilitation is assured. This Policy identifies critical biodiversity areas and recognises that mining, and the land uses within protected areas, will continue to interact. Although the Policy does not offer strict guidelines for regulators to implement, it recognises the right of the State to issue mining and prospecting licences in protected areas and aims to promote responsible mining in Namibia. Furthermore, the Policy aims to find a sustainable manner for the coexistence of mining and tourism in protected areas, and provides guidelines for exploration and mining companies wishing to operate within a protected area. A need for inter-sectoral cooperation where mining and prospecting is allowed in parks, is emphasized.

2.13 NATIONAL HERITAGE ACT, NO. 27 OF 2004

Heritage could potentially be impacted by various activities during the mining life cycle. Heritage refers to the legacy of intangible attributes as well as physical artefacts of Namibian society inherited from past generations, maintained in the present generation, and preserved for the benefit of future generations (National Heritage Council of Namibia, 2018). "Heritage significance" includes cultural, historical, social, scientific, aesthetic, archaeological, and architectural significance, according to the National Heritage Act, No. 27 of 2004. Heritage includes objects (archaeological artefacts, palaeontological and rare geological specimens, meteorites, and many other objects that hold cultural significance), places (immovable assets or resources such as structures or archaeological and palaeontological sites), tangible (such as recorded historical information) and intangible cultural attributes (such as unrecorded information, songs, music, drama, skills and crafts passed on orally).

Namibia is rich in sites of cultural and natural heritage importance; therefore prior to the commencement of any mining activity, it is crucial to identify heritage resources in and around the project area. Archaeological sites in Namibia are protected under the Act, which makes provision for the archaeological assessment of large projects such as mining. The Act provides for the protection and conservation of places and objectives of significance, as all archaeological and palaeontological objects belong to the state. Section

55 of the Act compels exploration companies to report any archaeological findings to the National Heritage Council, after which a heritage permit needs to be issued, which is required when disturbing any heritage resource. The competent authority is the National Heritage Council. If any archaeological sites will be disturbed and/or destroyed, they will be subject to a routine survey. This information will be used to apply for the necessary permits that are required in terms of the Act.

THE FOLLOWING HERITAGE-RELATED IMPACTS ARE RELEVANT THROUGHOUT THE MINING LIFE CYCLE:

- Disturbance or damage to heritage sites causes a loss of cultural worth or historical and scientific information about the past and potential damage to local and national cultural identity
- Access to currently used heritage sites might be lost or impacted
- Changes to the setting of a heritage site causes potential damage to local and national cultural identity and values
- A loss of cultural knowledge and activities causes the potential loss of cultural identity and cohesion
- Infringement of cultural norms can cause offence to local communities and the possible exacerbation of social impacts, and create unnecessary negative sentiment towards a project

Specialist archaeological assessments were conducted as part of the overall environmental assessments of mining projects since the Act came into use. These assessments were also done as a precautionary principle, in respect of public concern, and to make decisions that considered the interest, needs and values of stakeholders.

PART THREE

REGULATING AUTHORITIES AND SUPPORTING INSTITUTIONS

The Namibian minerals sector is regulated by several governing bodies, each having a distinctive role in the minerals sector, relating to the sustainable development of mineral resources, the protection of the environment, and ensuring compliance to regulatory requirements. In addition, a number of supporting institutions exist, the assistance of which, during the various phases of the mining life cycle, might be vital.

The role of these bodies is discussed in this section and their contact details are contained in Table 2.

Trekkopje mine - Orano
Swakopmund
Erongo
Namibia
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TABLE 2 | Contact details of relevant authorities and supporting institutions

Ministry of Mines and Energy (MME)
Private Bag 13297 Windhoek
+264 (0)61 284 8111
http://www.mme.gov.na

National Heritage Council (NHC)
Private Bag 12043 Ausspannplatz
+264 (0) 61 244 375
www.nhc-nam.org

Ministry of Trade and Industry
Private Bag 13340 Windhoek
+264 (0) 283 7334
www.mti.gov.na

Electricity Control Board (ECB)
ECB House,8 Bismarck Street
Windhoek
+264 (0) 61 374 300
www.ecb.org.na

National Radiation Protection Authority (NRPA)
Private Bag 13198 Windhoek
+264 (0)61 284 8111
www.mhss.gov.na/atomic

NamWater
176 Iscor Street
Northern Industrial Area Windhoek
+264 (0)61 71 0000
www.namwater.com.na

Geoscience Council of Namibia
PO Box 699 Windhoek
+264 (0)61 284 8111
http://www.mme.gov.na

Ministry of Environment and Tourism (MET)
Private Bag 13306 Windhoek
+264 (0)61 284 2111
www.met.gov.na

Ministry of Labour, Industrial Relations and Employment Creation (MLIREC)
Private Bag 199005 Windhoek
+264 (0) 61 210 047
www.mol.gov.na

Namibian Uranium Association (NUA)
PO Box 2747 Swakopmund
+264 (0)64 402393
www.namibianuranium.org

Chamber of Mines of Namibia (CoM)
PO Box 2895 Windhoek
+264 (0)61 284 8111
http://www.mme.gov.na

Namibian Chamber of Environment (NCE)
PO Box 40723 Ausspannplatz Windhoek
+264 (0)61 240 140
www.n-c-e.org

NamPower
PO Box 2864 Windhoek
+264 (0)61 2054111
www.nampower.com.na

3.1 MINISTRY OF MINES AND ENERGY

The Namibian mining sector is governed by the MME. MME regulates the mining industry through the administration of the Minerals (Prospecting and Mining) Act, No. 33 of 1992. The three mining-focused departments are:

- Geological Survey of Namibia (GSN)
- Directorate of Mines
- Directorate of Diamond Affairs

The MME's mandate is to attract private investment in resource exploration and development through the provision of geological, geophysical and geochemical information on minerals and energy resources, as well as through the management of an equitable and secure system of licences for the mining and energy industries. The regulatory role is principally the assessment of applications, the issuing of licences, and the auditing of exploration projects and mines.

3.2 MINISTRY OF ENVIRONMENT AND TOURISM

The MET consists of three departments through which it enforces and develops environmental legislation and policy. These departments are the Department of Environmental Affairs (DEA); the Department of Natural Resources Management; and the Department of Tourism, Planning and Administration. Each department of the MET plays a distinctive role.

The Environmental Commissioner serves as head of the DEA, and the main role of the DEA is to encourage environmental sustainability across the private sector, all other ministries, and non-governmental organisations. The DEA consists of three divisions namely:

- Division of Environmental Assessment, Waste Management and Pollution Control
- Division of Environmental Information and Natural Resource Economics
- Division of Multilateral Environmental Agreements

The DEA is also responsible for administering the EIA process and the granting of Environmental Clearance Certificates. Furthermore, the DEA ensures compliance of mining companies to EIA-related obligations through regular monitoring and inspection, which allow them to maintain their exploration or mining licences.

3.3 MINISTRY OF AGRICULTURE, WATER AND FORESTRY

The MAWF promotes efficient and sustainable socio-economic development for a prosperous Namibia, by ensuring that resources are sustainably and equitably used for improved livelihood, well-being and wealth for all Namibians. This is achieved through the promotion, development, management, and utilisation of Agriculture, Water and Forestry resources.

Otjikoto mine
B2Gold Namibia
Otavi
Otjozondjupa
Namibia
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Relevant to the mining industry is that the abstraction and use of controlled water sources (surface and groundwater), and discharge of wastewater, is administered by the Department of Water Affairs and Forestry (DWAF). The department is mandated to ensure protection and sustainable use of water resources through the provisions of Sections 21, 22 and 110 of the Water Act 54 of 1956 and Parts 11 – 13 of the Water Resources Management Act 11 of 2013. DWAF is responsible for the issuing of such permits, and for conducting inspections of all the development sites that abstract/discharge water for their activities. Furthermore, the removal of any living tree, bush or shrub growing within 100 meters of a river, stream or watercourse, has to be done under to auspices of the Directorate of Forestry, and a permit issued by an appropriate official of the Directorate is required prior to the removal of such plants.

3.4 NATIONAL HERITAGE COUNCIL

The National Heritage Council is an organisation established under the National Heritage Act, No. 27 of 2004, which replaced the National Monuments Council. This body is responsible for safeguarding the nation's natural and cultural heritage through sharing the benefits of Namibia's heritage and growth in the distinct cultural individualities.
All mineral exploration and mining activities to be undertaken must therefore take cognisance of the conditions stated in the Act by conducting a heritage assessment for the purpose of legal compliance and the preservation of heritage artefacts.

3.5 MINISTRY OF LABOUR INDUSTRIAL RELATIONS AND EMPLOYMENT CREATION

The ministry's mandate is to guide labour relations, employment and social protection services in Namibia, as per the Constitution of the Republic of Namibia. Productivity, an effective labour force, the maintenance of harmonious industrial relations, decent working conditions, equality of opportunities, and fairness for all, are some of the priorities for the ministry, which are based on the following directives:

- The Labour Act, 2007 (Act No. 11 of 2007)
- Affirmative Action (Employment), 1998 (Act No. 29 of 1998)
- Social Security Act, 1994 (Act No. 34 of 1994)
-

3.6 LOCAL AND REGIONAL AUTHORITIES

Prospective and mining companies should make it a priority to involve and engage the local authority in the respective town and region in which they operate, with special emphasis on community empowerment, employment, waste management, and heritage and cultural aspects.

Although the Association of Local Authorities in Namibia is an overarching body that represents all local authority members with the aim of advocating, promoting, and assisting socio-economic development and sustainability, it would be advisable to approach the local (and regional) authority directly for collaboration and the building of good relations.

3.7 TRADITIONAL AUTHORITIES

It is the mandate of the Ministry of Regional and Local Government and Housing to spearhead decentralisation in Namibia, and to involve the relevant local and regional population groupings through its Directorate of Regional and Local Government and Traditional Authority Coordination in this regard.

Namibia straddles both traditionality and modernity, attaching great importance to its traditional leaders for development within their respective communities. Thus, the ministry realises the importance of traditional leaders in Namibia, and recognises that the role of these leaders should be increased under the decentralisation approach. Furthermore, it is factual that chiefs/heads play a crucial role as far as the governance of their local communities is concerned, and organisations that blindly undervalue their potential, will reach a dead end. Exploration and mining companies should consult with the local population, through their traditional authority, prior to and during all phases of the mining life cycle, to ensure good collaboration and the building of healthy relations.

It is advisable to be familiar with arrangements of the traditional authority in the area of operation, and to be in close contact with the relevant leadership.

3.8 MINISTRY OF TRADE AND INDUSTRY

Formerly known as the Ministry of Trade and Industry (MTI), the Ministry of Industrialisation, Trade and SME (Small and Medium Enterprise) Development is responsible for developing and managing Namibia's economic regulatory framework, and for promoting economic growth and development through the invention and implementation of suitable policies with the view of attracting investment, increasing trade and development, and expanding the country's industrial base.

3.9 NATIONAL RADIATION PROTECTION AUTHORITY

The Atomic Energy and Radiation Protection Act, No. 5 of 2005 is the enabling legislation for the NRPA. Instruments are implemented by the NRPA, to govern the handling of all sources of radiation and radioactive material in Namibia.
Functions of the NRPA include:

- Controlling the monitoring of occupational radiation exposure of persons and the environmental radiation levels
- Inspection at intervals, as may be necessary, of any radiation source or nuclear material, in order to assess radiation safety conditions and other requirements imposed by or under the Act
- Launching, implementing and maintaining a register of radioactive materials and sources imported into, or produced in Namibia, and of premises licenced to install, store and use radiation sources or dispose of radioactive waste
- Developing and implementing policies, strategies and regulatory standards
- Facilitating compliance with the obligations of Namibia under international agreements relating to nuclear energy and protection against the harmful effects of radiation
- Providing secretariat support to the Atomic Energy Board

3.10 ELECTRICITY CONTROL BOARD

The Board aims to exercise control over, oversee, and regulate the Namibian energy industry in a sustainable manner, for the interest of all stakeholders with regards to the pricing, quality, reliability, and safety of electricity. Its main functions include the managing of licences and the provision of expert advice on electricity production and supply. In addition, the department of regulatory support services ensures that regulated aspects within the electricity industry are operating in accordance with the set objectives and performance frameworks. Monitoring of these areas ensures growth and financial health, as stipulated by the Board, and as guided by the Electricity Act of 2007. As part of its directive, the Board is responsible for making recommendations to the MME with regard to the issuing, transferring, amendments, renewal, and cancellation of licences.

3.11 CHAMBER OF MINES

The CoM was formed in 1969 with the sole mandate to promote the sustainable growth of exploration and mining, in order to maximise economic gain while protecting the interests of its members. The CoM is a non-profit organisation, which acts as an advocacy body and serves as a voice for the mining industry to authorities. The CoM is governed by a prudent Code of Conduct and Ethics, which authorises the organisation to expel non-compliant members.

The mission of the CoM is to "promote, encourage, protect, foster and contribute to the growth of responsible exploration and mining in Namibia, to the benefit of the country and all stakeholders".

NB! No person should carry on or generate, transmit, distribute, supply or import electricity unless you have a licence.

APPLY FOR A LICENCE TODAY WITH THE ELECTRICITY CONTROL BOARD!

3.12 NAMIBIAN CHAMBER OF ENVIRONMENT

The NCE is a non-governmental membership-based organisation, established as a voluntary association and body corporate, separate from its members under Namibian Common Law. Its members constitute the "Council"—the highest decision-making organ of the NCE. The NCE's objectives are to conserve the natural environment, and to protect, promote and support efforts to reduce environmental degradation and pollution. Operationally, the NCE sets out to represent its member's interests, to consult and engage on policy and law, to build skills, and facilitate improved environmental practices across Namibia.

The core values of the NCE are based on upholding principles for sustainable use, the protection of biodiversity, compliance, and developing best environmental practices to protect the environment in all its forms, including the physical, social and economic environments.

A unique partnership between the mining and environmental sectors was initiated in June 2017, when the CoM and the NCE co-organised and facilitated the first ever workshop for those working in the environmental departments of mining and exploration companies in Namibia. The CoM Environmental Committee was established in 2017, as a result of this workshop.

The CoM Environmental Committee developed the National Environmental Strategy and Action Plan, which was unanimously adopted by the Council of the CoM in September 2017. This strategy provides clear guidance for actions to be taken for the period 2017-2020, falling under eight focal areas identified by the workshop participants.
To drive these actions, the CoM established a sub-committee dedicated specifically to environmental issues, which includes the director of NCE, a representative of the MET, and a representative of the MME.

Husab mine - Swakop Uranium
Swakopmund
Erongo
Namibia
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3.13 NAMIBIAN URANIUM ASSOCIATION

The Namibian Uranium Association (NUA) is the advocacy body that represents the Namibian uranium industry exclusively. Members of NUA include all Namibian uranium mining operations, most of Namibia's leading uranium exploration companies, and associated contractors. The NUA promotes the industry's adherence to strong sustainable development performance, product stewardship, and compliance with the Namibian legislative framework, and seeks to balance environmental protection values with exploration for and mining of uranium.

3.14 NAMWATER

NamWater is a commercialized water entity with the state as the sole shareholder. Registered as a company since 1997, NamWater supplies water in bulk to industries, to institutions of the state (e.g. schools, hospitals, etc.), local authorities, commercial entities such as mines and to the Directorate of Water Supply and Sanitation in the MAWF, who supplies water to rural communities. NamWater is committed to utilize the scarce water resources of Namibia in the best interest of the people, and to provide customers with a reliable resource of quality water at affordable rates.

3.15 NAMPOWER

NamPower is the national power utility company of Namibia, founded in 1964. NamPower's core business is the generation, transmission and energy trading within the southern African power pool. In Namibia NamPower supplies bulk electricity to regional electricity distributors, mines, farms and local authorities. As a state-owned enterprise, NamPower reports to the MME and is regulated by the ECB.

3.16 GEOSCIENCE COUNCIL OF NAMIBIA

The Geoscience Council of Namibia regulates the registration of geoscientists active in exploration and mining, in accordance with the Geoscience Professions Act, No. 3 of 2012. The Act provides for the establishment, constitution, powers and functions of the Geoscience Council of Namibia, the registration of geoscientists in Namibia and specifies the education, training and qualifications of persons practicing the geoscience professions.

PART FOUR

NAVIGATING APPROVALS

The process of obtaining approvals for mineral licence applications can be very tedious if the correct documents are not supplied along with the application submission. This section discusses the various approvals, licences, permits and authorisations required, in order to conduct mining and exploration activities in Namibia, along with the relevant Ministries to be consulted, to obtain these approvals.

4.1 PERMITS FOR THE MINING LIFE CYCLE

This section sets out the permits required during the various stages of the mining life cycle. Although the particular legal and regulatory requirements with regard to the quarrying and mining of sand, aggregate and gravel is slightly different, many of the permit requirements are similar[2]. The relevant permits must be obtained prior to commencing with activities. The permits are activity specific and details on the permit application process and relevant ministries are outlined in this section. Implied permits are shown in Table 3.

4.2 SAND, AGGREGATE AND GRAVEL QUARRYING AND MINING

Aggregate refers to naturally occurring material, which may include sand, gravel and crushed stone used for the construction industry. It is a significant contributor to the construction of roads, railways, and buildings, and it is also extensively used in the mining sector at times.

Namibian legislative and regulatory frameworks, which govern the regulation of quarrying/mining of sand, aggregate and gravel, have several weaknesses; the main reason being that aggregate is not listed as a commodity in the Minerals (Mining and Prospecting) Act, No. 33 of 1992, despite the fact that the Act gives provision to the Minister to determine that sand, aggregate and gravel quarrying and mining are subject to mining licences and mining claims.

The Environmental Management Act, No. 7 of 2007 captures quarrying as a listed activity, which requires an EIA and subsequently an Environmental Clearance Certificate. Unfortunately, there is no specific licencing procedure in place for the quarrying/mining of sand, aggregate and gravel in Namibia, although several permits are implied before a proponent can start with sand, aggregate and gravel quarrying and mining. This includes permission from the land owner (local authority, private owner or Land Board/Traditional Authority in the case of communal land), and approvals from various authorities, such

[2] The legislative and regulatory frameworks relevant to sand, aggregate and gravel quarrying and mining are discussed in Section 5.2

Scorpion Zinc Mine
Rosh Pinah
Karas
Namibia
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as the MET (Environmental Clearance Certificate), MME (ML) and MAWF (Approval to mine sand, rocks or gravel from a watercourse).

For example, in Windhoek, aggregate quarrying within the municipal boundaries is regulated through a provisional policy dated June 2017, titled "City of Windhoek's Policy Towards Sustainable Sand Mining". This policy provides guidelines for operators when applying for permits for quarrying aggregate in the area under the auspices of the City of Windhoek.

Moreover, it means that the quarrying/mining of sand, aggregate and gravel is not exempted from legal and regulatory requirements. The most significant requirement hereof, is an EIA and subsequently an Environmental Clearance Certificate, as the quarrying/mining of sand, aggregate and gravel in Namibia is a listed activity that requires such an assessment and certificate, according to the Regulations of the Environmental Management Act, No. 7 of 2007.

4.3 PENALTIES FOR NON-COMPLIANCE

To carry out exploration or mining in Namibia, strict compliance to regulatory requirements is required from all mining and exploration companies. To ensure adherence, the government maintains a database displaying all records of companies operating in the country - if issues of non-compliance are recorded, companies do not only tarnish their corporate image, they face the risk of having their licences revoked or their licence renewals declined. All companies are therefore urged to ensure the necessary permits and licence requirements are met, as discussed below, to avoid non-compliance.

4.4 CORRUPTION AND BRIBERY

In the event that any persons are suspected of being guilty of corruption, involving but not limited to the bribery of government officials, such persons shall be investigated by the Anti-Corruption Committee (ACC) and may face heavy penalties or fines and imprisonment.

4.5 HOW TO AVOID DELAYS

The application for mineral licences can be a rather lengthy process; the estimated time periods for obtaining feedback, are shown in Table 4.

TABLE 3 | Relevant permits for the mining life cycle

PERMITS	ACT	RELATED ACTIVITIES REQUIRING PERMITS	RELEVANT MINISTRY	LINK
Environmental Clearance Certificate (renewal every 3 years)	Environmental Management Act, No. 7 of 2007	Required for all operations and processing activities	MET	Form 1
Application for permission to remove controlled minerals or the sale or disposal of any minerals; required in terms of Section 16(4), 31(4)(b), 67(4) or 90(3) of the Minerals (Prospecting and Mining) Act, No. 33 of 1992 • A high-value mineral permit • Export permit • Transportation Permit	The Minerals (Prospecting and Mining), Act No. 33 of 1992	• Processing of high-value minerals • Transportation and export of minerals mined for further processing	MME	
Application for permission to export minerals, required in terms of Section 127 of the Minerals (Prospecting and Mining) Act, No. 33 of 1992	The Minerals (Prospecting and Mining), Act No. 33 of 1992	Required during operations and processing activities	MME	
Permit for borehole	Permit is issued under the Water Act No. 54 of 1956 (enforced) and the Water Resources Management Act, No. 11 of 2013	Required before the drilling of boreholes for abstraction of water	MAWF	Form WA-001
Permit / licence to utilise a controlled water resource		For water abstraction for operations and processing of mineral ore	MAWF	WA-002
Tailings waste disposal permit		Required for disposal of tailings effluent / waste water	MAWF	
Waste water discharge licence issued in terms of the Water Act of 1956	Permit is issued under the Water Act No. 54 of 1956 (enforced) but the form of the Water Act No. 24 of 2004 is used	Required for treatment and discharge of waste water for the duration of mine life cycle	MAWF	DWA_EFFPER
Domestic and industrial waste water and effluent disposal exemption permit	Permit is issued under the Water Act No. 54 of 1956 (enforced)	Required for disposal of mine domestic and industrial effluent	MAWF	
Mine de-watering				

TABLE 3 | Relevant permits for the mining life cycle

PERMITS	ACT	RELATED ACTIVITIES REQUIRING PERMITS	RELEVANT MINISTRY	LINK
Forestry licence for harvesting, issued under (section 22, 23, 24, 27 and 33/ regulation 8 and 12)	• The Forest Act No. 12 of 2001. • Policy on Exploration and Mining in Protected Areas (2018).	Required for clearing of vegetation before earthworks in preparation of infrastructure	MET	
Permit for destruction of heritage objects and artefacts	The Heritage Act No. 27 of 2004	Destruction of heritage artefacts during site layout or operational phase of a mine	NHC	
Registration, authorization and licencing of any radiation source or nuclear material	• Atomic Energy Radiation Protection Act No. 5 of 2005 • Radiation Protection and Waste Disposal regulations (No.221 of 2011)	Import into, or export from Namibia, or transport, storage, possession or disposal of any radiation source or nuclear material need to be registered, authorized, and subsequent licenced by the NRPA	MoHSS: (NRPA)	Form NRPA_AG
Operation licence		Operation licence required for a business with radiation source or radioactive material with threshold above the limits specified in schedule 2 of the Radiation Protection and Waste Disposal		
Waste disposal		Any generator of radioactive waste needs to be licensed, and radioactive waste needs to be managed in consultation with the NRPA and in accordance with Regulation 58 – 74		
Continuous operations permit	Labour Act No. 11 of 2007	For continuous operations and permit for working in continuous shifts	MLIREC	

TABLE 4 | Approximate time it takes to get feedback on licence applications

WHEN APPLYING FOR MINERAL LICENCES, A SMOOTHER PROCESS CAN BE EXPECTED WHEN THE FOLLOWING IS ENSURED:

- The required documents and paperwork for the requested licence are in order, as per the Minerals Act of 1992, and submitted with the application
- Most recent contact details are provided
- Timely responses are provided (If additional information is requested from the MME or MET)

4.6 APPLICATION FORMS AND WEB LINKS

To apply for an exploration or ML, the application forms can be found on the MME's website. Table 5 provides the links for downloading the application forms.

LICENCE TYPE	
NEPL EPL RL MDRL ML	http://www.mme.gov.na/forms

TABLE 5 | Application forms and web links for mineral licences

4.7 MINERAL LICENCE PENALTIES

The requirements for mineral licence holders with regards to compliance are outlined in the Minerals (Prospecting and Mining) Act, No. 33 of 1992 and are dependent on the type of licence. Throughout the guide, fines and penalties relating to the discussed subject matter are outlined.

4.8 ENVIRONMENTAL APPROVALS

Obtaining an Environmental Clearance Certificate

Prior to the commencement of an exploration and mining project, there are certain environmental requirements that the exploration/mining companies need to comply with.

Environmental requirements

The Environmental Management Act, No. 7 of 2007 stipulates that an Environmental Clearance Certificate is required to undertake listed activities under the Act and associated regulations. Listed activities typically triggered by exploration and mining activities, in accordance with the Act and supporting regulations, are as follows:

Mining and quarrying activities

(3.1) The construction of facilities for any processes or activities that require a licence, right, or other form of authorisation, and the renewal of a licence, right, or other form of authorisation, in terms of the Minerals (Prospecting and Mining) Act, No. 33 of 1992.
(3.2) Other forms of mining or extraction of any natural resources, whether regulated by law or not.
(3.3) Resource extraction, manipulation, conservation and related activities.
Several listed activities are triggered when developing a mineral project, therefore the list above is not exhaustive.
In accordance with the Environmental Management Act, No. 7 of 2007, an EIA of a proposed project is required, and a subsequent report needs to be submitted as part of the application for Environmental Clearance.

A requirement under section 31 of the Act and Regulation 8(1)(a) is the completion of Form 1 as shown in Appendix A. In the event that the anticipated impacts are not severe, a scoping report and an EMP has to be submitted to the competent authority, along with Form 1. For high-impact exploration and mining projects, a scoping report, full EIA, and Form 1 are likely to be required to be submitted to the competent authority during the application for an Environmental Clearance Certificate.

An Environmental Clearance Certificate is valid for a period of 3 years, after which a renewal is required. Form 2 should be submitted to government upon request for renewal; Form 2 is shown in Appendix B.

The Environmental Management Act, No. 7 of 2007 (enforced) has undergone extensive review and stakeholder revision during the course of 2018. There are proposed changes to the Act, the EIA Regulations (No. 30 of 2011) and the proposed Strategic Environmental Assessment (SEA) Regulations. The proposed changes include provisions for the use of SEAs, which could be considered at a sector level or region level, to avoid the piecemeal approach to EIAs for mineral licences.

Changes to the environmental clearance certificate process and listed activities are the most significant changes as set out below. Furthermore, the changes propose that all clearance certificates will now include a detailed set of licence/permit conditions that must be complied with.

Furthermore, slight changes have been made to the format of the application for an Environmental Clearance Certificate, making it more efficient to use (Appendix C). Similarly, there has been an introduction of an application for the amendment of the renewal of an Environmental Clearance certificate (Appendix C). This helps the Environmental Commissioner in determining whether Environmental Clearance can be renewed without any further information or not, and will be included in form 2 of the Act.

Amendment to the EIA regulations have included provisions for categorising Listed Activities. At the time of writing this best practice guide, the proposed changes separate listed activities into two schedules:

- **Schedule A** - Listed Activities: A significant impact is likely, due to the nature of the listed activity, and an EIA is required in every case.
- **Schedule B** – Listed Activities: If a project meets the thresholds and is likely to result in a significant impact, an EIA is required. If a project meets the thresholds, but does not result in likely significant impacts, the project could be screened out, with an appropriate screening letter to the MET. Projects listed in Schedule B, which are located in, or partly in, a sensitive area, also need to be screened, even if they are below the thresholds or do not meet the criteria.

In addition to the proposed changes, several amended forms are proposed, and these additional forms are attached in Appendix C as follows:

Form 3: For amendments to conditions of the Environmental Clearance Certificate
Form 4: To be completed for the transfer of an Environmental Clearance Certificate
Form 5: An issue and response template
From 6: Form to be completed when the Environmental Commissioner forwards an application for environmental clearance to a competent authority and for response by the competent authority

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Environmental impact assessment process

The first stages of the EIA process are to register the project with the competent authorities and to undertake a screening exercise. The screening exercise determines whether the proposed project is considered as a Listed Activity in terms of the Environmental Management Act, No. 7 of 2007 and associated regulations, and if significant impacts may arise. During this process, the location, scale and duration of project activities are considered against the environment, to determine the approach to the EIA.

The proponent should be acquainted with the regulatory arrangements in terms of the supply of bulk services such as water and electricity, as well as the implied application processes (see also Table 3). The EIA process in Namibia is shown in Figure 2.

The relevant authorities involved during the approval stage for exploration and mining are outlined in Table 6, along with the minimum conditions that need to be met. Additional conditions are outlined in the Minerals (Prospecting and Mining) Act, No. 33 of 1992.

NB! BEFORE YOU START WITH EXPLORATION / MINING ACTIVITIES:

Make sure that you have conducted an EIA process and that you have an Environmental Clearance Certificate issued by the MET.

[FIGURE 2] EIA process in Namibia

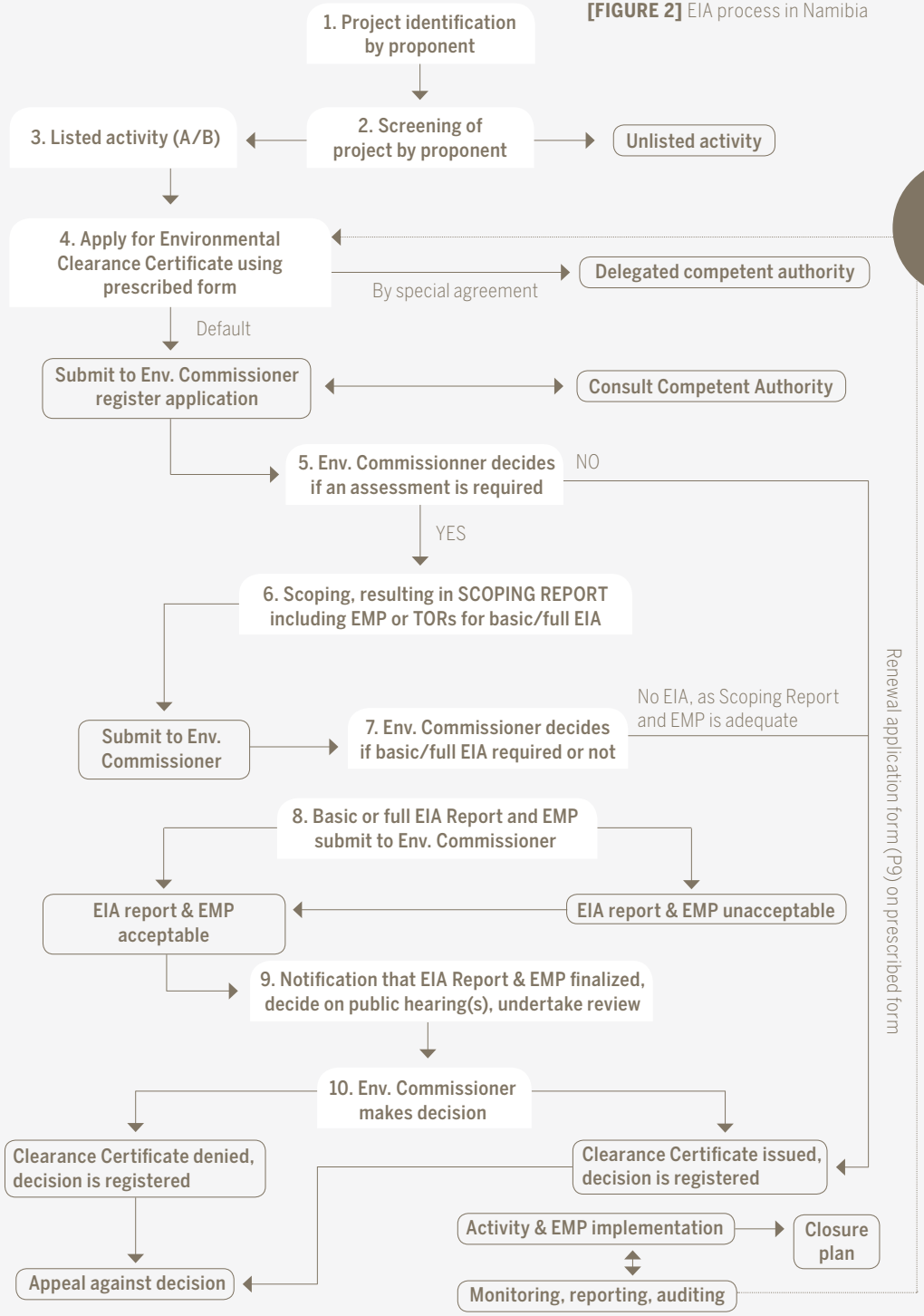

TABLE 6 | Navigating approvals during the mining life cycle

PHASES OF THE MINING CYCLE	RELEVANT MINISTRY	LICENCES	DURATION	CONDITION
Mineral Exploration	• MME • MET • MAWF	• NEPL • EPL • RL • MDRL • Waste Water Exemption Permit	• NEPL is valid for 6 months and is non-renewable • EPL is valid for a period of three years with the possibility of extension twice for two-year periods if evident progress can be shown • To discharge domestic waste water as long as people are staying on site	EPL and NEPL: • Applicant should be at least 18 years old
Projects and Construction	• MET • MAWF • MME	ML	• ML gives the holder an exclusive mining right in the licence area for a period of 25 years (or Life of Mine, if shorter) with renewals valid for 15 years. The holder should be able to demonstrate the technical and financial ability to operate a mine	As above, plus: • Environmental Clearance Certificate • Approved EMP • ML Refer to Table 3 for additional activity specific permits required.
Mining and Processing	• MME • MET • MAWF • MoHSS (NRPA)I	• ML • Permit to transport radioactive materials (e.g. ore samples and waste). • Licence to generate (and manage) radioactive waste • Sealed radioactive sources need to be registered and licensed with the NRPA • Mines with uranium-bearing ore exceeding a grade of 80 ppm requires a Radiation Management Plan and a site operation licence.	• ML gives the holder an exclusive mining right in the licence area for a period of 25 years (or Life of Mine, if shorter) with renewals valid for 15 years. The holder should be able to demonstrate the technical and financial ability to operate a mine • All permits are valid for one year, except import export permits which are valid for three months only	As above, plus: • Environmental Clearance Certificate • Approved EMP • ML Refer to Table 3, for additional activity specific permits potentially required. Licenced mines have to ensure long term adherence to public exposure dose limit

PART FIVE

REPORTING

Namibian reporting requirements for exploration and mining companies are outlined in the Minerals (Prospecting and Mining) Act, No. 33 of 1992. Reports submitted to the authorities allow for the transparency of an operation, and enable the State to monitor several aspects of the operation, including environmental damage, exploration activities, rehabilitation, and the status of compliance of exploration and mining companies. Any specific reporting requirements for proponents are stated within each guide. During the projects and development or operational phase of a mine, the proponent is the holder of a ML, and as such, the reporting requirements for an ML are applicable. Reports are to be submitted to the Mining Commissioner during the periods shown in Table 7.

TABLE 7 | Reporting period dependent on mineral licence type

NEPL	EPL	ML
Upon request from Commissioner	Quaterly Annually	Quarterly Annually

RL	MDRL
Annually	Annually

All operations need to report annually on their water management to the DWAF as part of their Wastewater Exemption Permit conditions.

All uranium mines have to report the extent of radiation exposure annually to the NRPA in February. Any other licence holder has to report annually 90 days prior to the expiry date of the licence.

5.1 REPORTING AND AUDITING REQUIREMENTS IN PROTECTED AREAS

The following requirements apply when carrying out prospecting and mining operations in a protected area in Namibia, in accordance with the Minerals Policy of Namibia of 2000 and the Policy on Exploration and Mining in Protected Areas (2018):

- The Directorate of Mining (the Mining Commissioner) and the Directorate of Environmental Affairs (the Environmental Commissioner) shall be provided with a report every 6 months. Both directorates are at liberty to conduct inspections at any time, to monitor the compliance of mining companies with conditions set out in the EIA, EMP and Environmental Clearance Certificate, along with any other stipulated conditions
- In addition to inspections conducted by the authorities, a technical committee will be established, to conduct inspections on mines situated in protected areas. The committee will include officials from the MET, MME and Ministry of Fisheries and Marine Resources
- The Directorate of Mining and the Directorate of Environmental Affairs shall conduct an annual audit on MLs/EPLs in protected areas. An independent expert may also be commissioned to conduct the audit at the licensee's cost.

5.2 PENALTIES FOR NON-COMPLIANCE DURING REPORTING

The consequences for non-compliance to the reporting requirements are listed in the Minerals (Prospecting and Mining) Act, No. 33 of 1992. These consequences are dependent on the licence type.

NB! Carrying out exploration and mining activities without a licence(s) is an offence, and you may be subject to a fine of **N$ 100,000** or imprisonment of up to 5 years, or both.

A COMMODITY-BASED EXAMPLE OF BEST PRACTICE

The NUA has developed a strategic approach on environmental assessment and management. The NUA is the advocacy body that represents the Namibian uranium industry exclusively. Members of NUA include all Namibian uranium mining operations, most of Namibia's leading uranium exploration companies, and associated contractors. The NUA promotes the industry's adherence to strong, sustainable development performance, product stewardship, and compliance with the Namibian legislative framework, and seeks to balance environmental protection values with exploration for, and mining of, uranium.

Product stewardship is a pillar that supports the overarching concept of Sustainable Development. Product stewardship ensures that business management focuses simultaneously on economic development, environmental impact management and social responsibilities. NUA members accept the responsibilities of uranium stewardship through building partnerships throughout the life cycle of the product, to ensure that production, use, and disposal are consistent with global sustainable development goals.

As part of its stewardship mission, the NUA has established the Namibian Uranium Institute (NUI). The mission of the NUI is to support the Namibian uranium exploration, mining and export industry through continuous development of health, environmental, and radiation safety best practices, accessible research, training, and social responsibility. The NUI also acts as a communication hub for the Namibian uranium industry. The NUI ensures adherence to strong, sustainable development performance through compliance, and indeed, active participation in the SEA of the Namibian Uranium Province conducted in 2009/10 and the subsequent Strategic Environmental Management Plan (SEMP) implemented by the MME.

Namibia's Erongo Region is characterised by its aridity, vast desert landscapes, scenic beauty, ecological sensitivity, high biodiversity and endemism, and heritage resources. Large parts of the region are under active conservation in the form of national parks, and it is here, where most of the Namibian uranium exploration and mining activities occur, clustered in one area—the Central Namib. Clustering leads to cumulative impacts, and

THIS SEA/SEMP PROCESS IS CHARACTERISED BY THE FOLLOWING KEY ISSUES:

- The Uranium SEA was the first study of its kind in the world
- It was proposed by the industry, but conducted by the government, to ensure credibility
- It was an entirely voluntary exercise, as no legislation was in place at the time
- It addressed the cumulative impacts of all the uranium activities in a holistic way
- It identified issues that would not have been detected by individual project EIAs
- It allowed for proper planning informed by the SEA, identification of synergies amongst companies, and avoidance of opportunity costs
- It allowed for joint minimisation of negative impacts identified, which in turn greatly assist in the implementation of international best practices
- It is recognised worldwide and is a major tool for promoting the Namibian Uranium Brand
- It is a major planning tool for the government in the delicate balancing of development of mineral resources with environmental protection

an integrated approach is therefore required, so that the development of one resource will not jeopardise the potential of another, and the country can reconcile development objectives in mineral exploitation with environmental protection, for long-term socio-economic growth.

The need for proper environmental planning in the framework of a comprehensive environmental assessment was therefore realised by the uranium industry at an early stage, when the high uranium prices of the mid-2000s caused a uranium exploration rush. Industry therefore formed a uranium stewardship committee, and made a proposal for an SEA, which was subsequently carried out by Geological Survey of Namibia (GSN), the MME, and the Southern African Institute for Environmental Assessment. The Uranium-SEA, as it has become known, dealt with a variety of aspects, such as water, air quality, energy, radiation, health, transport, tourism, biodiversity, heritage, economics, education, and governance. It was independently assessed by the renowned International Institute for Environment and Development. As a result of the SEA, the SEMP was drawn up and was implemented by the MME. The Namibian uranium industry has at all times supported the SEA process and is an active partner of the government in implementing the SEMP.

Benefits of the SEA/SEMP for industry can, for example, be illustrated by the issues of groundwater and air quality. The SEA established a groundwater model for the Khan and Swakop Rivers, from where water is abstracted by the mines. Monitoring boreholes have been drilled by both the government and mining operations. On the basis of data from

these boreholes, industry has jointly updated the groundwater model, and it is a useful tool for future abstraction planning, as well as stakeholder engagement. It also provides for the monitoring of water quality, to ensure that the water is not contaminated, as it is used for irrigation projects downstream of the mines. Likewise, air quality monitoring stations have been put in place during the SEA process and are maintained under the SEMP. Dust and real-time radon monitoring are taking place, and together with the data generated by the mines, ensures that the air quality is at acceptable standards and better for all members of the public, as well as mining and exploration staff. The Water and Air Quality Working Group of the NUI includes all operating companies, it monitors the data on a regular basis, and stands ready to initiate action should it be required.

The SEA/SEMP has been implemented under the guidance of a comprehensive Steering Committee, chaired by the MME, and includes applicable government ministries, regional and local government, utilities, and relevant NGOs. The Environmental Quality Objectives (EQOs) formulated in the SEA and used in the SEMP are linked to desired outcomes, targets and indicators that aim at ensuring the quality that will be met in a particular environment. Implicit within all EQOs, is a minimum management objective that states that any change to the environment must be within acceptable limits, and that pro-active intervention will be triggered by the responsible party to avoid unwanted changes that breach a specific threshold. Achieving the desired outcomes specified in the indicators requires investments and actions by a range of stakeholders, in order to properly manage the activities in the uranium province. Annual SEMP reports are therefore compiled and put in the public domain.

Irrespective of the commodity, wherever multiple mining and exploration activities occur in one area, cumulative impacts can be much larger than the impacts of an individual project, and therefore need to be assessed. With the promulgation of Namibia's excellent Environmental Management Act, No. 7 of 2007, it has become the duty of every player to avoid, minimise and mitigate negative environmental impacts. Today, international best practice is expected of exploration and mining companies wanting to stay in business, and therefore is part and parcel of the management of the corporate profile. Mineral SEAs are therefore not merely a consequence of the EMA and its regulations, but rather a standard that ensures that Namibia's high environmental profile is upheld, and businesses can strive without the negative consequences of poor environmental management.

The Uranium-SEA/SEMP is a huge success, and has received the highest recommendations internationally. It has identified issues that would have otherwise only become apparent at a later stage, and thus caused costs for remedial action. It is an excellent example of industry-government cooperation. However, the promotion of the SEMP and its relevance to decision-makers remains a challenge.

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ISBN: 978-99916-967-5-1

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A joint publication proudly produced by the Chamber of Mines (CoM), Namibian Chamber of Environment (NCE) , the Namibian Government and members of the Namibian mining industry.

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