

# How do we ensure more sustainable closure of mines? Experiences from mine closure frameworks, committees and capacity building in Namibia

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## Abstract

*Governance of the mining sector by regional, national and local authorities is challenging. Authorities are often limited in respect of specialists, time and funding. At the same time, knowledge and expectations regarding mine closure and post-mining transition have increased a lot in recent years. This coincides with larger and more detailed environmental and social impact assessments presented by companies, which can be difficult for authorities to assess. There is a need to build stronger capacity for authorities to face the array of challenges presented by mine closure.*

*Namibia is endowed with minerals and has a large mining sector, exporting uranium and base metals among other resources. The Ministry of Industries, Mines and Energy (MIME) in collaboration with the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF) conducted a Mining Policy Framework Assessment (MPF Assessment). The MPF Assessment found that post-mining transition is a key gap in the legislation in Namibia. Though the Minerals (Prospecting and Mining) Act, No. 33 of 1992 (Republic of Namibia 1992), the Environmental Management Act, No. 7 of 2007 (Republic of Namibia 2007) and the Minerals Policy of Namibia (2003) (Republic of Namibia 2003) all make references to mine rehabilitation and closure, focusing on the “polluter pays” principle, the current Acts do not provide details for progressive rehabilitation, mine closure planning, site relinquishment and associated transfer of residual environmental and financial liabilities from the licence holder to the state. The MIME in collaboration with the IGF hence developed a mine closure framework (MCF) from the regulator’s point of view, specifically to underpin the appropriate enactment of mine closure provisions in the amended Namibian legislation. The Minerals (Prospecting and Mining) Act, No. 33 of 1992 (Republic of Namibia 1992) is currently under review, and development of closure plans with financial assurance will be made a condition in the licencing process. The MIME went further to establish a multidisciplinary mine closure evaluation committee with officials from the Ministries of: Industries, Mines and Energy; Finance; Health and Social Services; Agriculture, Fisheries, Water and Land Reform; and Environment, Forestry and Tourism; along with the Office of the Attorney General, Office of the Auditor General and the Bank of Namibia. The development of the MCF and establishment of the mine closure evaluation committee have been accompanied by several capacity-building events in collaboration with the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF), United Nations Development Programme (UNDP) and Swedish Environmental Protection Agency (SwEPA). The work represents a considerable improvement in the ability to govern the sector, and several experiences have been recorded that could benefit other countries.*

**Keywords:** closure of mines, mine closure framework, mine closure committee, capacity building

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# 1 Introduction

Closing mines sustainably, ensuring safety of the environment for current and future generations, is one of the challenges within the mining industry. Site knowledge in the form of a clear post-mining land use goal, informative specialist studies and trend analysis from monitoring of key indicators can greatly reduce rehabilitation and closure planning uncertainties for mining companies. Companies often rely on specialists to develop their mine closure plans. For governments to assess these closure plans, a multidisciplinary team is required which has a wide range of knowledge on subjects including, but not limited to, human rights, legal frameworks, environmental sustainability, certifications, standards and best practice, economical sustainability and financial securities, social sustainability, stakeholder consultation, conflict prevention, communication and dialogue, geochemistry, waste management, hydrology and hydrogeology, ecology and ecotoxicology, biodiversity, habitats and species protection, geology, physical geography and geomorphology, geotechnical engineering, and risk assessment, safety and health. Building capacity within mandated agencies and ministries working with mine closure and environmental and social impact assessments is key to safeguard natural environments and local communities. This paper follows such a case study in Namibia.

Namibia is one of the few countries that incorporated environmental sustainability in her Constitution (Republic of Namibia 1990). Article 95 emphasises the importance of environmental protection by stating that Namibia shall actively promote and maintain the welfare of her people by adopting policies aimed at the maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and the utilisation of living natural resources on a sustainable basis for the benefit of all Namibians. Based on the Constitution, the government has developed several policies and legislation to ensure the protection of the environment for current and future generations. The Minerals (Prospecting and Mining) Act, No. 33 of 1992 (Republic of Namibia 1992), Environmental Management Act No. 7 of 2007 (Republic of Namibia 2007) and the Minerals Policy of Namibia (2003) (Republic of Namibia 2003) make references to mine closure and rehabilitation, including the provision of a “polluter pays” principle. A mine closure framework (MCF) was developed, with a component of financial assurance, to protect the government from having to assume responsibility for the rehabilitation of mining sites after mine closure (Ministry of Industries, Mines and Energy 2022).

Mine closure is one of the gaps identified in the Mining Policy Framework (MPF) assessment conducted in 2018 by the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF) and the then Ministry of Mines and Energy which has now been reorganised as the Ministry of Industries, Mines and Energy. This assessment found that post-mining transition is lacking in the current Act, and there are no details on progressive rehabilitation, mine closure planning, site relinquishment and financial liabilities (Ministry of Industries, Mines and Energy 2022). To date Namibia has over 200 abandoned mines posing a threat to the environment. Historically the government inherited environmental liability left behind by mining companies upon mine closure, a situation that should be guarded against. Having recognised these gaps and their inherent risk, the Ministry embarked on the development of an MCF to guide the closure process. The process of getting to this point provided several experiences that could benefit other countries. This paper succinctly shares the salient points of that experience.

## 1.1 Mine closure and post-mining transition alignment with the law

The Minerals (Prospecting and Mining) Act, No. 33 of 1992 (Republic of Namibia 1992) is the core legislation governing Namibia’s mining sector. The Act outlines the mineral rights in the country, describes how the sector is to be administered, and lays out the processes, procedures, rights and obligations relating to the various mineral licences and mining claims available in Namibia. It also includes information on royalty rates and penalties for any infractions and establishes a Minerals Ancillary Rights Commission to help licence holders who are prevented from exercising their rights by private landowners (Intergovernmental Forum of Mining, Minerals, Metals and Sustainable Development [IGF] 2018).

The Minerals Act includes some reference to rehabilitation and closure but mainly alludes to the globally accepted polluter pays principle which stipulates that “those who produce pollution should bear the cost of

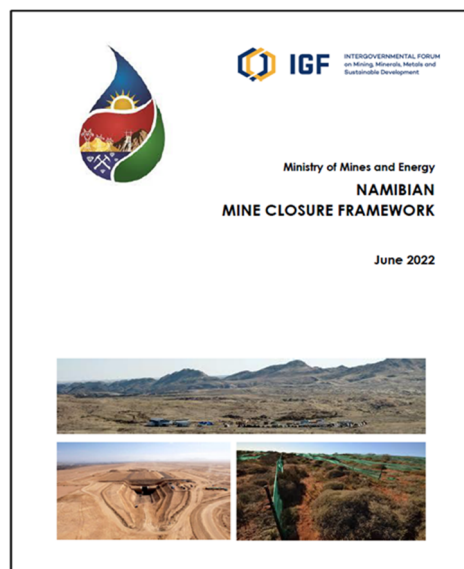
managing it to prevent damage to human health or the environment” (London School of Economic and Political Science 2020). The Minerals Act is currently under review and implementation of the MCF will be provided for in the reviewed Minerals Act. Furthermore, development of closure plans with financial assurance will be made a condition in the licencing process. This will ensure that no licences are granted without meeting the requirements of the law and that the government is protected from inheriting liabilities upon mine closure.

The Environmental Management Act, No. 7 of 2007 (Republic of Namibia 2007) and the Environmental Impact Assessment Regulations govern the environmental aspects of the mining lifecycle, including exploration, construction, production, closure and post-closure. In accordance with the Environmental Management Act and its regulations, listed activities relevant to exploration, mining and quarrying cannot be undertaken without an environmental clearance certificate (ECC). A valid ECC is required for the application of various mineral rights and their renewals (IGF 2018).

## 2 The Namibian mine closure framework

The Namibia MCF was developed with Namibia and the IGF to fill the gaps identified in the IGF’s Namibia MPF assessment.

Before the development of the Namibian MCF in 2022 (Figure 1), the government had no legal framework for mine closure or relinquishment. Considering this, the government of Namibia has set the development of the MCF as one of its top priorities. The MCF provides guidance and instruction to companies applying for and operating under mining licences issued under the existing and proposed mineral law. The purpose and objectives of the MCF are to ensure that Namibians are exposed to minimal closure risk while also benefitting from maximising the opportunities that might come from good post-mining land use planning. The framework is focused on legal structures, mine lifecycle approach, stakeholder engagement, mine closure planning and rehabilitation preparations, financial assurance, implementing mine closure and MCF administration. Implementation of the MCF will be provided for in the reviewed Minerals Act.



**Figure 1 The Namibian Mine Closure Framework developed in June 2022 in collaboration with the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development**

### 2.1 The mine closure evaluation committee

A multidisciplinary closure evaluation committee was established in 2024, comprising the following key disciplines: environmental; social; water; financial; metallurgical and tailings; mine planning; other relevant engineering disciplines; community relations; and legal. The closure committee is represented by officials from different government institutions and ministries, namely the Ministry of Industries, Mines and Energy,

Ministry of Finance, Ministry of Health and Social Services, Ministry of Agriculture, Fisheries, Water and Land Reform, Ministry of Environment, Forestry and Tourism, Office of the Attorney General, Office of the Auditor General and Bank of Namibia.

The closure evaluation committee is administered under the Ministry of Industries, Mines and Energy, and is responsible for reviewing rehabilitation and closure plans and making recommendations to the Minister of Industries, Mines and Energy on the application of mineral rights and permits. The mandates of the institutions and ministries represented in the closure committee are indicated in Table 1 below. The involvement of key stakeholders in the nascent stages of the process is crucial to their understanding, acceptance and willingness to support and participate in the work of the committee. The mining industry was engaged from the development of the MCF and is in support of the government’s initiative to strengthen governance of the mine closure and post-mining transition.

**Table 1 Mandates of the institutions represented in the mine closure evaluation committee**

<b>Government institution/ministry</b>	<b>Mandate</b>
Ministry of Industries, Mines and Energy	Constitutionally established to take custody of the diverse geological, mineral and energy resources, and to ensure their contribution to the country’s socio-economic development
Ministry of Finance	Responsible for central government finances, including coordination of the national budget, financial markets, consumer legislation and the tax policy
Ministry of Health and Social Services	To oversee, provide and regulate public, private and non-governmental sectors in delivering quality accessible, affordable and sustainable health and social services, ensuring equity and meeting the needs of the Namibian population
Ministry of Agriculture, Fisheries, Water and Land Reform	To promote, develop, manage and utilise agricultural, fisheries, water and land resources sustainably, aiming for food security, equitable access and improved livelihoods
Ministry of Environment, Forestry and Tourism	Maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future. In particular, the government shall provide measures against the dumping or recycling of foreign nuclear and toxic waste on Namibian territory
Office of the Attorney General	Serves as the chief legal advisor to the president and government. Responsible for upholding the Namibian Constitution and providing legal advice to government ministries and departments, among other functions
Office of the Auditor General	To audit and report on the accounts of all government entities, ensuring the efficient, effective and economic use of public funds, and to report annually to the National Assembly
Bank of Namibia	To serve as the state’s principal instrument to control money supply, currency and financial institutions while also issuing banknotes and coins, managing foreign exchange reserves and promoting financial stability

## 2.2 Capacity building

The development of the MCF and establishment of the mine closure evaluation committee have been accompanied by two capacity-building events in collaboration with the Intergovernmental Forum of Mining, Minerals, Metals and Sustainable Development (IGF), United Nations Development Programme (UNDP) and Swedish Environmental Protection Agency (SwEPA). The first event (Figure 2a) occurred during one week in September 2024, with experts from SwEPA working with mine closure in Sweden. The aim of the capacity-building event was to share experiences from both Sweden and Namibia, as well as giving the members of the mine closure evaluation committee a common knowledge base to rely on. As the committee members range from geologists to economists, it was identified early that they all needed some relevant knowledge on the mine cycle, mine closure methods, geochemical processes, prevention and mitigation of environmental impacts, social impacts, geochemical and geotechnical stability, and financial securities and costs of closure operations. The team also visited one of the mines in Namibia to look at real examples and apply the knowledge and experiences shared. The work represents a considerable improvement in the ability to govern the sector.

The second capacity-building event (Figure 2b) was also a week-long training program, including a one-day mine closure and abandoned mines field trip offered by the IGF. The aim of the training program was to build capacity and knowledge with the management and assessment of mine closure plans and abandoned mines within the government of Namibia. This training was for staff involved with mine closure or abandoned mines, and those with the responsibility for environmental assessment, mine permitting, mine operations and policy development, as well as members of the mine closure evaluation committee. The training also involved other participants who are not members of the mine closure evaluation committee, from Ministries such as the Ministry of Environment, Forestry and Tourism, Ministry of Industries, Mines and Energy and representatives from local universities, namely the University of Namibia and the Namibian University of Science and Technology. The topics of discussion during the training included leading global principles of mine closure, mine closure plans, technical aspects of mine closure and rehabilitation (physical and chemical stability), social and community aspects of mine closure, mine closure cost estimating and financial assurance closure cost estimating checklists for governments, challenges and opportunities with abandoned mines, an IGF abandoned mines inventory and risk assessment tool, international and Namibian case studies, and a field site visit to operating and abandoned mines to assess closure and rehabilitation.

The mine closure evaluation committee is planning three more capacity-building programs, in-depth training on closure cost estimates, refinement of the evaluation toolkit, and concluding fair and stable investment contracts.



**Figure 2 Mine closure capacity-building events. (a) Members of the Namibian mine closure evaluation committee in Swakopmund at an event offered by the United Nations Development Programme and the Swedish Environmental Protection Agency; (b) Members of the Namibian mine closure evaluation committee and officials from different institutions at an event in Swakopmund offered by the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development**

### 3 Conclusion

Mine closure planning can have positive benefits. Therefore, the remaining post-mining stakeholders should provide the principal rationale for implementing well thought through, upfront and reiterative closure planning. This should be undertaken within the context of evolving frameworks of legislation and good practice policies that require companies to take responsibility for cleaning up their environmental impacts and managing socio-economic challenges, from the feasibility phase through operations to the post-closure landscape.

Mine closure committees and the MCF shown in the Namibian example can provide valuable lessons for other governments to incorporate in their governance systems for mine closure. They illustrate a complex and wide array of institutions, agencies and ministries that together are able to safeguard future generations from the impacts of closed mines.

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