



Evaluation of nuclear legislation

The issue of rehabilitation of uranium mine sites in Namibia

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This publication was developed as a part of the project Environmental Justice Organisations, Liabilities and Trade (EJOLT) (FP7-Science in Society-2010-1).

The EJOLT project (2011-15) has received funding from the European Union's 7th Framework Programme for research, technological development and demonstration under grant agreement no 266642. The views and opinions expressed in this report are the authors' view and the European Union is not liable for any use that may be made of the information contained therein.

This document should be cited as:

Natalie A. Renkhoff. 2015. Evaluation of Nuclear Legislation: The issue of rehabilitation of uranium mine sites in Namibia. EJOLT report 22, 50 p.

Abstract

This document deals with the still unsolved issue of proper rehabilitation of uranium mine sites after closing down operations. Namibia has large uranium deposits, many of them located in national parks of the Namib desert. It is therefore the Namibian challenge to find solutions in terms of how nature conservation and future and present mining and exploration can coexist while meeting the requirements of sustainable development.

It is against this backdrop that the Namibian government earmarked the issue of rehabilitation as one of the most pressing and is currently in the process of updating the relevant legislation in order to establish adequate laws and regulations that are applicable to mine closure. This report aims to contribute to the ongoing discourse among political decision makers, scientists and in public, analyzing the current status and providing recommendations tailored to the Namibian situation.

This evaluation is prepared in the framework of the EJOLT project. It familiarizes the reader in chapter one and two with the issue of uranium mining in Namibia and the importance and difficulties of rehabilitation after closing down operations. **Chapter 3** introduces the rudimentary legal framework and **Chapter 4** describes the currently used tools of self-regulation of the mining industry, which are meant to substitute the legal framework in the meantime. **Chapter 5** describes the actions already undertaken by the Namibian regulator to overcome the situation of self regulation of the mining industry, while **Chapter 6** focuses on one of the obstacles to this task – the different perceptions about rehabilitation among stakeholders. **Chapter 7** provides a detailed analysis of the constraints in successful rehabilitation. **Chapter 8** concludes with some practical suggestions and recommendations, based on comparative observations and experiences made in other jurisdictions.

Keywords

uranium mining

Namibia

environmental impact

rehabilitation

restoration

mine closure

self regulation

corporate social responsibility

best practice

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Foreword

“When I returned to Namibia after spending many years in exile, I was shocked and sad to see the extent of environmental damage in the country. [...] Having grown up in rural Namibia, I was instilled from a young age with a love for nature, and the changes around us prompted me and my government to place environmental protection high on our priority list for action. [...] We cannot afford to choose easy options for short-term gain if this will reduce future options in the long-term.”

Founding father and first President of Namibia Dr. Sam Nujoma

Namibia is often complimented on its modern constitution, due in part to the fact that the protection of the environment has become a constitutional issue after independence. In October 2014, for instance, Namibia came in second in the annual Lonely Planet Travel Competition as best tourist destination for 2015. With its decision, the jury explained that Namibia is one of the few countries to mention the protection of the environment in its constitution. Nonetheless, the environmental issue has been placed in the chapter of principles of state policy, and as a mere principle it is not enforceable.

Namibia is also rich in natural resources, especially uranium. Like every other country in the world, Namibia has to face the challenge of balancing economic progress and poverty reduction through the exploitation of its natural resources against the protection of the environment. This conflict became particularly evident in the years of the so-called Namibian ‘uranium rush’ that was to some extent brought to a stop, at least for now, by the Fukushima accident.

In the past the outcome of this balancing process between the exploitation of natural resources and the protection of the environment could be illustrated by the statement of the former permanent secretary of the Ministry of Trade and Industry who said: *“In cases of conflict between the environment and mining development it is the environment which will have to be sacrificed”* (Fig, 2010: 22). Today the Namibian government has risen to the challenge of working on a comprehensive legal framework instead of generally giving mining preference over the environment.

Nevertheless, the legal framework is not yet completed, and what is true for most developing countries is also a fact for Namibia. Such an incomplete legal framework, along with the widespread poverty among the country’s population and low environmental standards, made African countries especially attractive to international mining companies. The chief marketing officer of the China-African Development Fund raved about Namibia: *“It’s easier to get approvals in African countries. There are no big headaches like with Canada and Australia”* (The Namibian, 26 March 2012).

Although Namibia’s entire environmental legal framework is currently undergoing a comprehensive revision and further development, the issue of rehabilitation of uranium mine sites is of particular interest in the Namibian context (**Box 1**).

Box 1 Why the issue of rehabilitation?

If there is one unsolved issue concerning mining projects that came to the center of public interest in the recent past, it is that of proper rehabilitation of mine sites after closing down operations.

Not only is Namibia covered with almost 250 abandoned and as yet not rehabilitated mine sites¹ for which no one wants to take on the financial burden of recovering, but also none of the currently operating mines has a proper rehabilitation plan in place. This was the outcome of a study undertaken by Namibia's only desert research institute. Although some laws in force mention the issue of rehabilitation, none of them provides useful guidance.

The government earmarked the rehabilitation issue as one of the most pressing and is currently in the process of updating the relevant legislation in order to establish adequate laws and regulations that are applicable to mine closure. The mining industry needs "closure regulation that are adequate to govern review and approval of mine closure plans, financial guarantees and sureties, implementation review, as well as relinquishment and transfer of liabilities to the subsequent owner" (SEMP, 2011: 85, 85).

As until now no sufficient legal basis has been established to deal with the issue of rehabilitation, this report is meant to provide the interested reader with valuable input on rehabilitation issues as this topic is currently high on the agenda. On November 18th 2013, the establishment of the new Namibian Uranium Association was announced. Several expert committees are supposed to work on different issues related to good mining practices, among them the issue of rehabilitation.

¹ This is the official number published by the government. Independent researchers estimate over 400 abandoned mines all over Namibia.

1

Geography of uranium mining in Namibia

Namibian protected areas host some of the world's most significant uranium deposits, with exploration licences issued even for the Namib Sand Sea – an area that was only recently declared to be a UNESCO World Heritage Site

For most visitors to the country as well as Namibians themselves, the central Namib is the symbol of Namibia: open, arid landscapes and dunes, mountains and plains, populated by organisms that often occur nowhere else on earth (Namibian Uranium Institute: Quick Facts - Environment). Most of the uranium mines in Namibia are located in the Erongo region, especially in the national parks of the Namib Desert. The Namib Desert is the world's oldest desert. Most of the 80,900 km² of the Namib is hyper-arid, characterised by low humidity and high evaporation rates, high temperature, low rainfall (15-100mm pa) and strong winds (Wassenaar et al., 2013: 126).

The Namib is rich in endemic biodiversity, including the famous *Welwitschia mirabilis*², and scenic landscapes. Major parts of the Namib form national parks, namely the Namib Naukluft Park and the adjacent Dorob National Park, together among the most famous tourist attractions in Namibia.

These protected areas (see **Fig. 1**) also host some of the world's most significant uranium deposits, with exploration licences issued even for the Namib Sand Sea – an area that was only recently declared a UNESCO World Heritage Site. Other uranium mines like Areva Trekkopje and Marenica are located on communal land. In this case, the rights and habits of traditional as well as indigenous communities are affected by the mining operations. The challenge here is to find solutions in terms of how these two aspects –nature conservation and the protection of the biodiversity as well as mining and exploration– can coexist while meeting the requirements of sustainable development.

² Recent research studies argue that it has been a popular fallacy to consider the *Welwitschia* as being endemic to the Namib. However, no other plant or animal represents the unique biodiversity of the Namib desert more than the *Welwitschia mirabilis*.

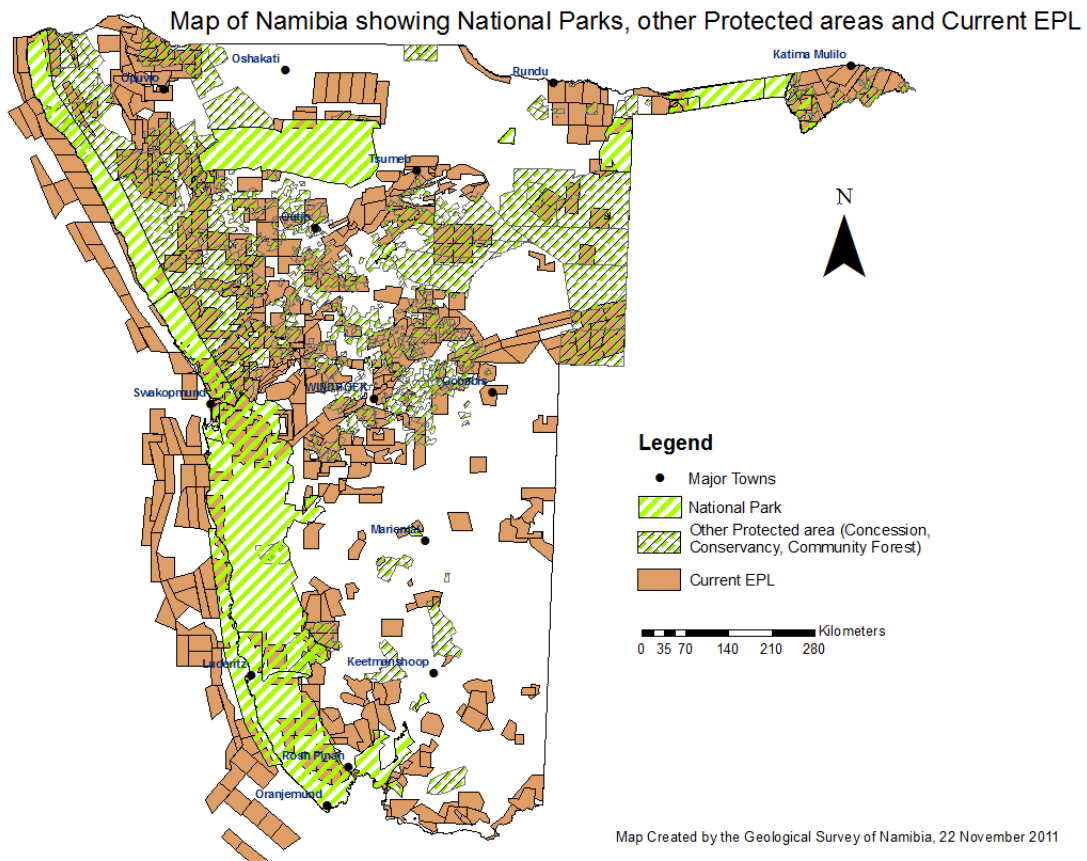


Fig.1
Map of Namibia showing National Parks, other Protected areas and Current Exclusive Prospective License

Source: Geographical Survey of Namibia

2

The importance of rehabilitation of uranium mine sites

Sustainable mining is intrinsically impossible if proper rehabilitation after the operational phase is not a prerequisite to even beginning with exploration

In order to find the best compromise and define how nature conservation and mining can coexist in one of the world’s most pristine areas, the aspect of rehabilitation of uranium mine sites after decommissioning is crucial. Sustainable mining is intrinsically impossible if proper rehabilitation after the operational phase is not a prerequisite to even beginning with exploration. If not, any long-term environmental goals are hindered from the very start, and all future generations are more than likely deprived of the chance to fulfil their needs. This contradicts the principle of sustainable development.

2.1 Definition of rehabilitation

Since independence, the country’s lack of a definition of rehabilitation under Namibian law has been an obstacle to proper rehabilitation. Not even the Minerals Act, which is supposed to comprehensively regulate mining in Namibia, provided such a definition. A suggestion for a definition was only given in the non-binding Namibian Mine Closure Framework, which was criticised by some scientists, as it did not provide a practical foundation because it did not distinguish between rehabilitation and restoration – in practice, the difference is great.³

This has changed to some extent in 2014 with the introduction of the so-called Minimum Standards: Management and Rehabilitation of Exploration Sites.

³ Rehabilitation was defined as the practice of setting a disturbed ecosystem on a trajectory back to recovery (in other words, to being restored); this implies that the ecosystem has not yet fully recovered its structure and function, but is moving in that direction (NMCF, 2010: par 8).

Although the Minimum Standards are not legally binding, they are at least a guiding principle comparable to definitions found in policies.

Rehabilitation is defined in the Minimum Standards of the Namibian Uranium Association, as a general term referring to all measures taken to repair damaged environments including the removal of infrastructure, cleaning up pollution and re-vegetating.

The term rehabilitation is usually distinguished from the term restoration. According to the Minimum Standards restoration means “the assisted recovery of an ecosystem disturbed by human activities; this includes the process of reinstating a habitat’s ecological characteristics as well as the plants and animals that could normally be expected to occur in that specific habitat type” (Minimum Standards, 2014: par 4.1).

From this it follows that rehabilitation is a goal that is easier to reach as it does not require achieving pre-mining status; the area does not need to be in the same condition that it was in before mining operations started. It is sufficient when the area can be used for any purposes. It is not required that the old ecosystem is restored again and the area serves the same purposes as before.

Restoration is typically used for describing the most restrictive type of rehabilitation, where the area needs to be returned to a condition as good as before. Restoration includes the recovery of the ecosystem structure and function.

This difference is of particular importance where sensitive and vulnerable landscapes are affected, namely those in national parks. The Namib desert is not used for any special purpose except to serve as an attractive tourist destination - it is the second largest tourism attraction in Namibia after the Etosha National Park (Wassenar et al., 2013: 127) and four out of the ten places in Namibia most visited by tourists are located in this area. The value of a national park is its unique biodiversity and heritage for human kind. This thus also means that mere rehabilitation cannot be the aim in a national park. The more valuable the affected area is, the closer rehabilitation needs to come to restoration. Therefore, the Minimum Standards for rehabilitation of exploration sites make clear that restoration is the overall goal of all reclamation work. Although the term rehabilitation is used, it is explained that the Minimum Standards “*imply that the ecological characteristics of a site should also recover, especially in a protected area, where the protection of biological diversity is the main land use*” (Minimum Standards, 2014: par 4.1).

It is worth mentioning that the Minimum Standards are only applicable to exploration sites. Prospecting is limited to intentionally searching for minerals with an aim to evaluate deposits or concentrations of minerals, but does not include the establishment of a uranium mine or mining operations. In comparison to a uranium mine in operation, exploratory works affect the environment only marginally. Nevertheless, the Minimum Standards for rehabilitation of exploration sites address only exploration works, while a comparable guide for mining is not yet in

The value of a national park is its unique biodiversity and heritage for human kind. This thus also means that mere rehabilitation cannot be the aim in a national park. The more valuable the affected area is, the closer rehabilitation needs to come to restoration

place. However as the aim of restoration is already very hard to achieve only after exploration works, the term rehabilitation is preferred in the Minimum Standards.

Some scientists doubt that the aim of full restoration after a normal mining period of twenty years can be achieved in a national park. This is also the reason why they argue that mining in a national park will never be in line with the concept of sustainable development. They argue that certain areas of the planet should therefore be beyond reach for mining because they contain irreplaceable important natural or human capital. While Namibian legislation allows mining in national parks and the Namibian government has issued mineral licences for uranium in the Namib Naukluft and Dorob National Park, some other countries prohibit mining in such areas (Renkhoff, 2014a: 144).

2.2 Reasons for rehabilitation

Rehabilitation as well as restoration are carried out for many reasons (**Box 2**), ranging from a technocratic need to satisfy institutional mandates to an idealistic expression of concern for human-caused environmental degradation (Wassenaar et al., 2013: 130). There is also a much more practical rationale: much of the value of biodiversity to humanity lies in its ability to supply ecosystem goods and services such as clean air, water and stable productive soil (Diaz et al., 2005).

Box 2 The Minimum Standards for the rehabilitation of exploration sites lists the following concrete reasons as most important for rehabilitation after exploration
Source: Minimum Standards, 2014: par 2

- Minimise the visual impact
- Prevent pollution
- Assist disturbed areas in becoming integrated functioning ecosystems

3

Rehabilitation in the current legal framework

Although the Namibian government has recognised that the issue of rehabilitation is most important and earmarked it for regulation in the near future, there is still no sound legal framework in place to regulate rehabilitation. Against the backdrop of several operating uranium mines in national parks and protected areas, and considering that exploration licences have been issued for almost the whole Erongo region, the establishment of laws and regulations becomes a pressing issue for today, especially in light of Namibia’s commitment to sustainable development.

Even the Namibian Mine Closure Framework itself concludes that “*under the current legislation, it is relatively easy to satisfy closure obligations because performance criteria have not been regulated*” (NMCF, 2010: par 7.1). Corresponding with this judgement, the mining industry, when being asked for the greatest challenges with regard to the task of rehabilitation, answered that it is not the fulfilment of legal requirements as they can be accomplished without significant effort.

However, some acts and policies at least mention the issue of rehabilitation. They might serve in the future as a starting point for the preparation of a comprehensive legal framework. The Minerals Act, the basic act for regulating and managing the whole mining sector, mentions the need for rehabilitation, a fact on which all future legislation can be based.

The Namibian acts, regulations and policies concerning rehabilitation are mentioned in **Box 3**. One must keep in mind that acts and regulations are binding while policies are not.

Although the Namibian government has recognised that the issue of rehabilitation is most important and earmarked it for regulation in the near future, there is still no sound legal framework in place to regulate rehabilitation

Box 3 Namibian acts, regulations and policies concerning rehabilitation

| Acts | Regulations and policies |
|--|--|
| Minerals Act | Minerals Policy of Namibia |
| Environmental Management Act | Namibian Mine Closure Framework |
| Atmospheric Pollution Prevention Ordinance | Draft Nuclear Fuel Cycle Policy |
| Regulations for Strategic Assessment and Environmental Impact Assessment | Namibia's Environmental Assessment Policy for Sustainable Development and Environmental Conservation |
| | Minimum Standards: Management and Rehabilitation of Exploration Sites |

Although it is clear that some kind of rehabilitation needs to be carried out, with the exception of the Minimum Standards for rehabilitation of exploration sites, it is as yet undefined what rehabilitation means in the Namibian context and what exactly is required. If the definition in the Minimum Standards will only be applicable after exploration or also after mining cannot be said at the moment. To strive towards the goal of restoration and not only rehabilitation with regard to uranium mine sites seems to be a very ambitious aim, especially against the backdrop that some uranium mines intend to simply leave their open pits and only plan to manage the safety of their tailing dams.

While the general duty to rehabilitate the area is laid out in all these acts and policies, some guidance concerning what is expected can be found in sec. 57(1)(b)(c) of the Minerals Act where good mining practices are defined as “any practices which are generally accepted by persons involved in mining operations, prospecting operations or reconnaissance operations in other countries of the world as good, safe and necessary in carrying out any such operations in relation to any mineral or group of minerals”. The act also requires that the holder of a mineral licence reports any incidence in which anything is spilled into the sea or on land, if the land becomes polluted or if any damage is caused to any plant or animal to the Minister of Environment. The licence holder is to take whatever steps are considered necessary in terms of good practices to remedy the situation.

Nonetheless, even the Ministry of Environment and Tourism complained that the standard described is not precise enough to protect the environment sufficiently when it notes that “*this definition comprises the only statutory environmental control which is imposed on licence holders. The standard is too widely framed to impose sufficiently stringent constraints to ensure that environmental protection is a priority for mineral licence holders*” (NACOMA, 2007: 59).

Although many uranium mines are located in national parks and protected areas, until today there is no official and binding environmental legislation enacted to specifically address mining - and rehabilitation as the other side of the coin - in protected areas. However, in the absence of any laws, the (non-binding) Policy for Prospecting and Mining in Protected Areas and National Monuments (1999) was established. Though the government has not adopted the policy yet, there is an informal agreement among ministries to reference the document when deciding on

Policy for Prospecting and Mining in Protected Areas and National Monuments from 1999 does not prohibit mining in protected areas including national parks, but calls for ministries to only grant a licence if the project is in the national interest of Namibia. This means hardly any improvement in environmental protection since it is assumed that exploiting national resources is always for the benefit of the nation and thus is in the national interest

the granting of mineral licences. The policy does not prohibit mining in protected areas including national parks, but calls for ministries to only grant a licence if the project is in the national interest of Namibia. Surely, this means hardly any improvement in environmental protection since it is assumed that exploiting national resources is always for the benefit of the nation and thus is in the national interest. The Parks and Wildlife Management Bill of 2008 was supposed to close this gap and regulate mining in national parks, nature reserves and protected areas, but alas it is still work in progress. The Parks Bill will propose legal criteria to identify an area and declare it as protected. Although mining in national parks will not be generally prohibited, the Ministry of Environment and Tourism, in collaboration with the Ministry of Mines and Energy, will be authorised to nominate areas where mining will not be allowed. Such areas that are now on protected land will include ecologically sensitive areas, areas with unique or high biodiversity, animal breeding grounds, and areas with other existing or potential economic value. The famous moon-landscape near Swakopmund – of which parts are currently rerouted due to exploration works for uranium – might have the potential to become such an area where mining is prohibited (Renkhoff, 2014b: 156).

The Namibian government has rightly recognised the urgent need to prioritise the establishment of a national legal framework concerning rehabilitation. As this is by no means an easy task, progress is slow going.

4

The status quo in Namibia

The mining industry regulates itself

For the time being, Namibia relies on the self regulation of the mining industry. The Namibian government counts on the sense of responsibility and knowledge as to how to manage rehabilitation best of the mining sector

In the absence of a comprehensive legal framework regulating the issue of rehabilitation, Namibia relies for the time being on the self regulation of the mining industry (**Box 4**). The Namibian government counts on the sense of responsibility and knowledge as to how to manage rehabilitation best of the mining sector. This is certainly meant to be a temporary state of affairs until Namibia is able to come up with proper legislation.

Box 4 National legislation is currently substituted for by the following

- Voluntary adherence to international best practice standards
 - WNA Policy Document of the World Nuclear Association
 - Equator Principles
 - ISO Standards of the International Organization for Standardization
- Corporate Social Responsibility (CSR)
- Indirect monitoring through international market forces.

4.1 Tools for self regulation

Indeed, there are several tools for self regulation governed by international standards and usually established by globally operating institutions and organisations that are supposed to guide developing countries in their process of enacting appropriate legislation.

It has been noted that “*under the current legislation, it is relatively easy to satisfy closure obligations because performance criteria have not been regulated, [...] the*

Namibian Minerals Policy calls for broader responsibility on the part of the licence holder, namely in addressing social responsibility, in compliance with national policies and best practice, and in providing mechanisms to rehabilitate closed mines for the purpose of sustained land or coastal use” (NMCF, 2010: par 7.1).

The Namibian regulator has recognised that, in theory closure is the converse of commissioning, requiring similar skill levels, operational experience, motivation and commitment as does the establishment of a mine (NMCF, 2010: par 6.1). As foreign states, international industry and environmental organisations along with mining companies have developed legislation, standards, guidelines and toolkits for the planning and implementation of mine closure, any mine manager in Namibia faced with the task of effectively planning for closure is invited to familiarise himself with this overwhelming amount of freely available information (NMCF, 2010: par 1.1). This is at least what Namibian guidelines expect mining companies to do in order to ensure a high level of performance.

4.1.1 WNA Policy Document of the World Nuclear Association

The World Nuclear Association (WNA), which is the worldwide community of professionals engaged in uranium mining and processing, developed a policy document titled: Sustaining Global Best Practices in Uranium Mining and Processing: Principles for Managing Radiation, Health and Safety, Waste and the Environment. The Namibian Uranium Stewardship Committee adopted this best practices working paper, based on the principle of stewardship, in other words: individual or corporate responsibility. It should be understood to be an environmental code of practice, currently forming the most important document in Namibia aimed at striving for sustainable development in the mining sector.

It is the function of the World Nuclear Association to support the global nuclear energy industry and to offer a platform for close cooperation among operators, contractors, regulators and the whole nuclear sector. In order to maintain a good relationship between the World Nuclear Association and Namibia, the Namibian government established the Atomic Energy Board. Uranium Stewardship is a WNA programme. The key mission of the Uranium Stewardship programme is “to earn public trust for the global nuclear fuel cycle through the continued replacement of standard practice with best practice” (WNA, Annex 2: 11).

Some, but not all companies operating uranium mines in Namibia are members of the World Nuclear Association and therefore bound to the principles laid down in the WNA Policy Document. These are Areva, which is operating the currently mothballed Trekkopje mine, Paladin Resources of the Langer Heinrich uranium mine, and Rio Tinto of the Rössing uranium mine. Since the Chamber of Mines of Namibia is also a member of the World Nuclear Association, all members of the Chamber of Mines are bound to the document through its membership.

The WNA principles take it for granted that uranium mining can provide socially beneficial results. They are supposed to be of special relevance for emerging uranium producing countries that do not yet have fully developed regulations for

The World Nuclear Association Principles for Managing Radiation, Health and Safety, Waste and the Environment take it for granted that uranium mining can provide socially beneficial results

The Equator Principles are too generic and broad, leaving too much room for interpretation by the industry; indeed, they can only guarantee a minimum standard

the control of radiation, health and safety, the environment, and waste associated with uranium mining. It is conceded in the policy document that the principles affirmed in it will not apply to the same extent for each party. Ultimately, the precise allocation of responsibilities must be set at the national and local levels.

Once national regulations are fully developed, they can be expected to embody the principles enunciated in the WNA document. These principles should be applied only during any transition period during which regulatory rules and regimes are not yet fully formed (WNA: 2).

The eleventh principle generally requires early planning for closure and rehabilitation. Some kind of monitoring is not stipulated as the policy document is based on the principle of voluntary self regulation.

4.1.2 Equator Principles

The Equator Principles are guidelines adopted by financial institutions, for determining, assessing and managing environmental and social risks in projects (see <http://www.equator-principles.com/index.php/about-ep>). Financial institutions commit themselves to financing only such mining projects whose mine operators voluntarily adhere to the guidelines. The Equator Principles are primarily intended to provide a minimum standard in the industry. The environmental standards are based on those of the World Bank. While in the beginning, only ten financial institutions adhered to the guidelines when deciding on project financing, currently 80 financial institutions in 34 countries have officially adopted the Equator Principles, amounting to over 70% of international project finance debt in emerging markets. The Equator Principles were supposed to increase the attention to social standards and responsibility towards indigenous and traditional communities and to improve public participation processes with locally affected communities. With regard to the environmental pillar of the sustainable development concept, they have also promoted adherence to environmental standards.

In Namibia, the Equator Principles played a significant role in the compilation of the environmental impact assessment of Areva's Trekkopje mine (Hoadley/Limpitlaw, 2008b: 845). For instance, Areva was required to set aside some money for decommissioning and needed to contract insurance in case Areva had to close down its mine earlier due to financial complications (Turgis Mining Consultants - EIA report: 998).

According to principle 5, the project developers were also required to consult with affected communities. Although Areva consulted with the affected Damara community in line with the Equator Principles and the mining licence was issued, Areva's public participation process did not comply with the requirements of Namibian national legislation. As evidenced by the environmental impact assessment and the respective minutes of all meetings, neither Areva nor Namibian government institutions were aware of the fact that national legislation governing the consultation process with traditional communities and their

respective traditional leaders exists under Namibian law, and that these regulations were infringed upon (for a case study, see Renkhoff, 2011: 355).

As it is shown by means of this example, the Equator Principles are too generic and broad, leaving too much room for interpretation by the industry; indeed, they can only guarantee a minimum standard. International principles primarily adopted to be used in developing countries also carry the inherent danger that international companies adhere to them and do not familiarise themselves with the national law of the respective country in which the standards might be already higher.

4.1.3 ISO Standards

Most uranium mines operating in Namibia are working towards ISO 14001 certification, whereby Rio Tinto's Rössing uranium mine has already met the standard. ISO 14001 is a management system framework to demonstrate sound environmental management.

The ISO standards were developed by the International Organisation for Standardisation (ISO), based in Geneva. They developed a number of world standards including the 14000 series for environmental management. This series relates to minimising harmful effects and achieving continual improvement through a formal environmental management system that is subject to external audit.

There is no doubt that it will be difficult for most companies operating in Namibia to implement ISO standards and to achieve ISO certification, although many of them are working towards this. The Chamber of Mines of Namibia therefore suggested the slow introduction of these standards opting for a gradual step by step implementation so as to not overburden mining companies.

4.1.4 Corporate Social Responsibility

Relying on the corporate social responsibility of mining companies in order to fulfil environmental and social standards has a long tradition in Namibia. Rössing already referred to its corporate social responsibility when it started mining operations in the 1970s in the absence of any environmental legal framework. One of its key instruments was the Rössing Foundation, established to provide financial support to NGOs and community-based projects throughout the country (Fig, 2010: 12). As the NGO sector became increasingly dependent on the foundation's philanthropy, much of the public criticism of the company's poor health and environmental practices and the unregulated illegal trade in uranium abated (Fig, 2010: 12).⁴

Today, almost all mining companies in Namibia do have corporate social responsibility programmes to support projects in marginalised communities. Many of them also invest in education such as study abroad for young Namibians to give them the opportunity to earn a relevant university degree for future employment in

⁴ Nowadays there are rumours that Rössing plans to close down the Rössing Foundation due to financial constraints.

the mining sector, thereby combating the challenge that Namibia does not have enough qualified academics to fill positions at the mines with Namibian citizens.

It is a very common practice for governments in developing countries to rely on the mining industry's commitment as part of their corporate social responsibility. Usually, the lower the legal standard a country has, the more important programmes based on CSR are; benefiting from such programmes is often the only assistance and compensation communities can expect for their loss. This puts communities in a very uneasy position since they do not have any rights to claim compensation for their losses; rather they need to wait until mining companies want to contribute to social support for the community. Communities often do not even have a right to say what is most needed in their communities and what kind of programmes they would prefer.

It nonetheless has to be kept in mind that there is no universal definition for CSR. It is an undisputed fact that CRS has a different meaning in an industrialised country and in a developing country. In the context of a developing country, it basically means that a mining company is striving for more than was already required under national legislation (Klopper/du Plessis, 2008: 94). This can differ significantly from country to country and company to company. Marenica Minerals for example, a smaller mining company doing exploration work on the same communal land as Areva, admitted that their CSR programme will certainly not be so generous as that of Areva.

The main disadvantage with regard to CSR is that it cannot and should not substitute for proper legislation, as this means that the government is privatising its responsibilities by imposing governmental duties on the industry using the vehicle of CSR (Klopper/du Plessis, 2008: 96).

4.1.5 Challenges

Well-known international mining companies that trade their product on the international market need to finance their projects with the help of international financing institutions, and must be concerned about their standing in a globalised world in which they are doing business. It can be concluded then that – at least as far these companies are involved – an implicit commitment to using all the technology and knowledge at one's disposal along with some level of monitoring is ensured. For such companies, the system of substituting national laws with self regulation might work to a certain extent during a transition period.

This situation is especially unfavourable in light of a serious flaw contained in the Minerals Act. The Minerals Act currently only requires information on the previous convictions of individuals applying for some types of licences; corporations are exempted from any background check. In a globalised economy, this gaping hole creates an incentive for companies with histories of poor environmental performance to seek licences in Namibia where their records will not be subject to public scrutiny in any way. In this way, the Minerals Act seems to create a perverse incentive for the country – it attracts precisely the type of unscrupulous

There is no institution assigned to monitoring, control and punishment of companies breaching their voluntary commitment to self regulation. The responsible institution for the proper organisation of self regulation is the Chamber of Mines Uranium Institute, which is financially supported by the mining industry

companies that the country should be avoiding due to the unnecessary risks to the environment, wildlife and eco-tourism that such companies might present (LAC, 2009: 10).

Regardless whether well-known companies are acting on the international market, or companies with poor social and environmental records that are mining the Namibian uranium only for their domestic markets, the system of self regulation invites the industry and their lobby organisations to substitute a legal framework with their own rules and recommendations. As they need to operate profitably, it can hardly be expected that they will impose obligations on themselves that may deprive them from the advantages for which they have come to Africa. Otherwise, they could have continued mining exclusively in countries like Australia and Canada; countries about which the Managing Director of Paladin Energy that operates the Langer Heinrich uranium mine said: *“The Canadians and Australians have become oversophisticated in their environmental and social concerns over uranium mining. The future of uranium is in Africa”* (Kohrs, 2014: 2).

4.2 Monitoring institution

Corresponding with the principle of self regulation, there is no institution assigned to monitoring, control and, where appropriate, punishment of companies breaching their voluntary commitment to self regulation. The responsible institution for the proper organisation of self regulation is the Chamber of Mines Uranium Institute. Its mission is *“to address these issues [that nuclear energy is surrounded by questions (...) of environmental safety] and to introduce best standards for the uranium industry in Namibia”*.

The Uranium Institute (UI) was established in 2010. The UI is financially supported by the mining industry, namely those companies that are either already operating uranium mines in Namibia or that are still in the stage of exploration (NUI, 2011: 13). Through the UI, the uranium mining and exploration fraternity is working closely with government and state agencies, advocating the industry’s views to government and the community. It is playing a leading role in implementing best practice standards to protect and promote the Namibian ‘uranium brand’ and coordinates occupational health, radiological safety and environmental management issues (NUI, 2011: 13). Currently, best practice standards recommended in Namibia are those standards to which Rio Tinto and Areva adhere at their Rössing and Trekkopje mines.

While it is not part of the Uranium Institute’s mission to monitor and assess the performance of mining companies, as government institutions do not have enough qualified personnel for this task, basically there is no institution assigned to ensuring compliance, although the Uranium Institute often refers to NERMU as the national monitoring organisation. NERMU stands for Namib Ecological Restoration and Monitoring Unit, an entity that is affiliated to the Gobabeb Desert Training and Research Foundation. NERMU is academically independent, has a strong

scientific foundation and actively develops links with universities and other research institutions. Thus, scientists working for NERMU do have the necessary expert knowledge to fulfil this task, however NERMU is more an advisory body, sharing its information with government institutions and the industry, rather than a monitoring agency. Apart from that, in the future its core funding may be obtained, at least partly, from the mining industry itself as a component of their corporate responsibility (Wassenaar et al., 2013: 133).

5 Actions of the Namibian regulator

Being aware of the unsatisfying current state of affairs, the Namibian government already recognised the need for urgent action a couple of years ago. Since then the question as to how self regulation can be successfully overcome is high on the agenda. A number of different programmes and initiatives have been enacted since then.⁵

5.1 Rehabilitation as compulsory part of any EIA

The searching for and extraction of natural resources inevitably has an impact on the environment. Therefore, for all these projects an environmental impact assessment is necessary to determine the expected pollution, land degradation and impacts on the affected communities. Mine closure and rehabilitation are compulsory parts of every EIA. Back in 2009, the then Minister of Environment spoke hopefully about Namibia's future: *"It is not a joke when we say we need to have environment(al) impact assessments along with closure plans. It is not going to be business as usual"* (Nghimtina: 2009, 12).

Several laws provide lists of activities that require EIAs; mining is listed in the Environmental Management Act, the Minerals Act, the Regulations for SEA and EIA and Appendix B of the Environmental Management Policy.

Prior to independence, it would have been unusual to prepare an EIA before developing a mine, though EIAs had already been known about, and ten EIAs had

EIAs were considered to be obstacles to industrialisation and economic progress. Only when the concept of sustainable development became more important throughout the world the preparation of EIAs became standard. However, they still vary greatly in terms of quality

⁵ The chapters on EIA and SEA (6.1 and 6.2) are partly based on the author's article: Renkhoff, N. 2014. Environmental Impact Assessments in the permitting process to obtain a mineral licence. In Renkhoff (ed.). Powering Namibia into the future – towards sustainable energy production. Friedrich Ebert Stiftung. Windhoek. I thank the Friedrich Ebert Stiftung, namely its resident representative Heiner Naumann, for permission to reproduce parts in this paper.

Though the necessity of compiling EIAs is doubtlessly an achievement for strengthening the rule of law in Namibia, there are still many flaws and weaknesses in the EIA process.

even been initiated. Admittedly, most were prepared after the mine came into existence.

Generally, an EIA is considered to be an obstacle to industrialisation and economic progress. Only when the concept of sustainable development became more important throughout the world the preparation of EIAs became standard. However, they still vary greatly in terms of quality. Even though there has not been a legal basis in Namibian law for a long time, for many international mining companies the submission of an EIA has been part of their corporate standards. Today, for many banks around the world an EIA is a prerequisite for financing the project.

It is often lamented that there is still no uniform procedure for compiling EIAs. The preparation nonetheless does follow a specific procedure that is applied all over the world.

The first step is to enlist an independent consultant, or more often a team of consultants. This is done by the mining company who also pays for the work the consultants do on their behalf. One has to take into account that the consultant is appointed because the mining company wants to develop the desired uranium mine, while on the other hand, the professional integrity and independence of the environmental consultant requires unbiased investigations. Big projects like uranium mines require a pre-feasibility study followed by a scoping report. The next step is the investigation. Here the project is compared to its alternatives, often including a no-go option. This is done for all possible impacts separately, namely radiation, noise, socio-economic aspects, flora and fauna, etc. The criteria are listed and assessed as to whether the impacts will most likely be high, medium or low. This procedure obviously involves forecasting the future to a certain degree. How much these predictions are based on scientific research often depends on how much a mining company is willing to spend on an EIA. At this stage the public participation process also takes place. The investigation leads to a draft EIA report which is the centrepiece of every EIA. Affected parties and the general public have an opportunity to comment on the draft EIA report. After the EIA has been conducted, an Environmental Management Plan (EMP) must be designed and implemented. The EMP also deals with mine closure and rehabilitation. The final report, plus the remaining public concerns, are submitted to the government. If the government approves the EIA, it will issue an Environmental Clearance Certificate to the applicant; this is a necessary prerequisite to obtain a mineral licence.

Though the necessity of compiling EIAs is doubtlessly an achievement for strengthening the rule of law in Namibia, there are still many flaws and weaknesses in the EIA process. This was also the outcome of a workshop organised by the Ministry of Environment and Tourism to assess the success of the implementation of the Environmental Management Act. The invited consultants and lawyers indeed complained that there are many uncertainties with regard to the procedure for compiling EIAs.

First, this happens because the laws are not clear on that point – for example, it is not even clearly stated which projects actually require a full EIA – but it is also a fact that there are still no uniform standards among environmental consultants for compiling EIAs. So far, there is only very little competition among environmental consultants which is a situation not conducive to raising the standard. This is enhanced by the fact that in Namibia, unlike in many other countries, EIAs are not evaluated by independent organisations but only by the ministry with its very limited number of skilled personnel. The EIA, together with the supporting documents, often consists of more than a thousand pages.

The amount of work involved in EIAs is also the reason why Namibian environmental consultants still do not have the capacity to undertake EIAs for huge mining projects, hence foreign consultancies are chosen by the mines. They often rely more on desk studies rather than field research. The South African consultants who undertook the EIA for the Trekkopje Uranium mine, for example, planned to consult with all communities living on the affected communal land. However, they could not locate all of them during their short field trip. For over a year they could not even figure out who was the traditional authority in charge.

Some of these flaws can be explained by the fact that the standards set by Namibian legislation are not high enough. Even worse, until 2012 the Ministry of Environment could not even fulfil its legal duties as the Environmental Management Act⁶ was not in force and thus, an Environmental Commissioner was not yet appointed. Also, the laws do not make provisions for the consultation of all affected traditional communities when mining is taking place on communal land. For this reason Trekkopje adhered to Namibian law when they did not consult, for whatever reason, with all communities. Furthermore, another criticism is that the public review process takes only three weeks. It is impossible to verify or falsify the results of an EIA on which scientists often worked for years in only three weeks.

Especially with regard to mine closure, it has to be mentioned that closure planning is not at the fore of initial mine planning and thus EIAs are not the best tool for ensuring proper rehabilitation. Environmental and social assessments tend to focus on the impacts arising from the construction and operational phases of the mine rather than those prevalent after closure. Mitigation plans are frequently framed in terms of the operating impacts of the mine (Hoadley/Limpitlaw, 2008a: 29).

In summary, the overall quality of EIAs and performance of government institutions has improved over the last decade. In 2012, shortly after the appointment of an Environmental Commissioner, the first EIA was rejected on the

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⁶ The Environmental Management Act is the most important act with regard to environmental law in Namibia. Although the act dates back to 2007, it only came into force in 2012. The EMA establishes the legal basis for all other environmental legislation as well as the cooperation between the Ministry of Environment and other ministries, namely the Ministry of Mines and Energy in case of mining. The act provides for a Mining Commissioner, who was appointed in the meantime, and on whom the act confers strong decision making powers.

In 2009, the SEA for the central Namib Uranium Rush was undertaken. It is claimed by Namibian authorities to be the worldwide first SEA for a mining area, in this case uranium mining and exploration in west-central Namibia.

grounds of an insufficient public participation process and a lack of data collecting. Namibia Marine Phosphate could not proceed with its project to mine phosphate offshore. However, this positive trend was somehow undermined when in 2013 the Chinese uranium mine Zhonghe obtained a mineral licence without submitting an EIA for this type of licence and later in 2014 the Omitomire copper mine received a mining licence without having first obtained an environmental clearance certificate.

5.2. Decision support tools

To address the various challenges of mining in sensitive areas and to gain more scientific knowledge about them, the Namibian regulator came up with several comprehensive studies for different regions, investigating the impacts of mining on the biodiversity of a certain area.

Box 5 Decision support tools were supposed to provide some in depth analysis

- SEA for the coastal areas
- SEA and SEMP (Strategic Environmental Assessment and Strategic Environmental Management Plan for the central Namib Uranium Rush)
- LLA (Landscape Level Assessment of key biodiversity vulnerability and land use within the uranium province in the central Namib)

In comparison to the environmental impact assessment (EIA) which evaluates an individual project and investigates all positive and negative impacts of this particular project, a strategic environmental assessment (SEA) addresses all projects in one region and investigates the cumulative impacts of all projects in this region.

In 2009, the SEA for the central Namib Uranium Rush was undertaken, which is the most important one of the three mentioned decision support tools. According to Namibian authorities, that is the worldwide first SEA for a mining area, in this case uranium mining and exploration in west-central Namibia.

Rising uranium prices had triggered renewed interest in uranium exploration; a scramble for prospecting rights in the central Namib resulted in the Ministry of Mines placing a moratorium on issuing further exclusive prospecting licences in 2007. The moratorium was to ensure that the authorities and other stakeholders could consider how best to manage the 'uranium rush'. As the moratorium did not prevent the ministry from upgrading existing prospecting licences to mining licences, it was however not likely to significantly slow down the rush to develop new mines (SEMP, 2012: 8).

This SEA was meant to ensure proper investigation of the cumulative, synergetic and antagonistic environmental, economic and social aspects of all mines in the Erongo region. In practice, this means for instance that while an EIA for an

individual mine investigates the impacts of the infrastructure of its own development consisting of roads, pipelines for water and power lines, the SEA focuses on the electricity demand of all uranium mines in the Erongo region and the impacts of meeting the demand of them all. Therefore, the SEA is an assessment of positive and negative impacts according to 38 criteria for 57 activities with regard to prospecting, construction, mining, planned closure and unscheduled abandonment, hence the whole life circle of a uranium mine (**Box 6**).

| Box 6 Categories used for the assessment | |
|--|--|
| Human and socio-economic health | access to schools, hospitals, electricity, water; affordable housing in town; access to underground water for farms; incidence of crime; road safety; air quality (radiation); health, training and skills; local, regional and national economy |
| Infrastructure | capacity of landfills; capacity to dispose of radioactive waste; supply and distribution of industrial and potable water; supply and distribution of electricity; transport and infrastructure (road, rail, port) |
| Aesthetics and sense of place | noise; beauty of the desert; heritage resources; quality of life in nearby settlements |
| Biophysical environment | flora; fauna; hydrology |
| Institution Aspects | national, regional and local governance; Namibia's international image |

As it is unknown how the future is likely to turn out, the SEA considers four scenarios for the global uranium market. This approach proved to be correct as the SEA dates from before the Fukushima event wherein the market conditions have unexpectedly and dramatically changed since then. Each of the four scenarios rates the economic, environmental and social impacts:

1st scenario: 'Below-Expectations'-scenario

Only those mines that are currently in production and that already received a mining licence will be operating in the coming decade (Rössing, Langer Heinrich, Trekkopje, and Valencia).

Moderate impact on Erongo region: moderate infrastructure refurbishment; no other desalination plant necessary; minor industrial development in the coastal area; only the power supply is still a concern, as 200 MW in access of current supply is needed.

Long-term employment expectation: 3,500

2nd scenario: 'In-line-with-Expectations'-scenario

Four mines mentioned in the first scenario plus one to three of the current prospected mines will be in operation; hence there will be five to seven mines in total.

The SEA has drawn up some conclusions to prevent the Namibian 'rush' from turning into a uranium 'crush' that could lead to serious social, economic and environmental implications. The most striking recommendation is specifying certain so-called red-flag areas where mining is completely prohibited. Admittedly, the government is not in favour of this idea

Serious impact on Erongo region: an additional desalination plant is necessary; chemical and mining support facilities in Swakopmund/Walvis Bay will become economically viable (Gecko); new 400 MW power station is needed; roads, housing, health, educational and other civil services in coastal towns need to be provided; influx of up to 50,000 people expected.

Long-term employment expectation: 6,100

3rd scenario: 'Above-Expectations'-scenario

Five to seven mines mentioned in the second scenario plus up to twelve mines will be in operation before 2020. Very serious impact on Erongo region, though it would only have been feasible if uranium prices had further increased and this did not happen after the Fukushima accident: an additional desalination plant is necessary; chemical and mining support facilities in Swakopmund/Walvis Bay will become economically viable (Gecko); new 800 MW power station is needed; roads, housing, health, educational and other civil services in coastal towns need to be provided.

Long-term employment expectation: > 10,000

4th scenario: 'Collapse'-scenario

It describes a collapsing uranium market due to a significant drop in uranium prices when all new developments come to a sudden end.

The SEA has drawn up some conclusions to prevent the Namibian 'rush' from turning into a uranium 'crush' that could lead to serious social, economic and environmental implications.

The most striking recommendation is specifying certain so-called red-flag areas where mining is completely prohibited. Admittedly, the government is not in favour of this idea. Among these proposed red-flag areas are the moon-landscape, the Spitzkoppe and the Brandberg mountains, some areas that are covered with sand dunes and the rivers Khan, Kuiseb and Swakop. For some of these areas, prospecting licences have already been issued.

The Strategic Environmental Management Plan (SEMP) is supposed to give guidance on how the above mentioned principles can be mainstreamed throughout the life-cycle of mining activities and thus be met successfully. The first SEMP report was only released in March of 2013, though the SEA had been already undertaken in 2009. The SEMP team consisted of delegates from various ministries, NamWater, NamPower, the Chamber of Mines, mining and exploration companies, municipalities, the Gobabeb Research and Training Centre, political decision makers, local experts, non-governmental organisations and regional and urban land use planners; there was thus diversity in terms of having experts from different disciplines.

It states that at the time of completion of the report in 2013, the uranium mining sector most closely resembles scenario 1, i.e. the below-expectations-scenario.

Rio Tinto Rössing and Langer Heinrich are the only two uranium mines in operation. Construction of Swakop Uranium's Husab mine is ongoing, while Areva's Trekkopje mine was mothballed in June 2013 due to the low price of uranium. The Bannerman, Marenica, Reptile and Valencia uranium projects have been postponed for the same reason (SEMP, 2012: 4), although especially Bannerman and Valencia have again intensified their commitments in the recent past as they are expecting rising uranium prices soon.

The focus of the first annual report is on the assessment of compliance with 38 desired outcomes, 46 targets and 125 indicators for various environmental quality objectives. The twelve environmental quality objectives are a collective proxy for measuring the extent to which the uranium rush is moving the Erongo region towards or away from a desired future status. The environmental quality objectives each articulate a specific goal, provide a context, set standards and elaborate on a number of key indicators that need to be monitored. These collectively make up the SEMF which is the framework within which a number of institutions have to undertake certain actions (SEMP, 2012: 4).

The results are classified into four categories, whereas of the indicators, 14 are not met (11%), 41 of the indicators are in progress (33%), 64 indicators are met (51%) and one indicator is even being exceeded.

At first glance this result sounds encouraging, but even the SEMF office acknowledged that they had to face a lack of data and submission was often not in a standard form. For some of the indicators, e.g. air quality and radiation monitoring, government has only limited skilled staff to fulfil such tasks since these are highly specialised fields. Nevertheless, with regard to these indicators, the SEMF report came to the conclusion that they are 60% met. Why an indicator is met with a percentage of 60% and instead not in progress is however, from a layman's perspective, not self-explanatory. The SEMF also contains an environmental quality objective called mine closure and future land use, the aim of which is to maximise the sustainable contribution mines can make to society and the region after closure, and to minimise the social, economic and biophysical impacts of mine closure. Alarming, according to the SEMF this objective is indicated as being 'met'. Furthermore, the SEMF office admits that monitoring programmes have not been fully implemented, though results seem so precisely recorded that it appears as though they are being thoroughly monitored and assessed.

The Strategic Environmental Management Plan (SEMP) office acknowledged that they had to face a lack of data and submission was often not in a standard form. For some of the indicators, e.g. air quality and radiation monitoring, government has only limited skilled staff to fulfil such tasks since these are highly specialised fields

5.3 Mining Environmental Liability Remediation Framework

The Mining Environmental Liability Remediation Framework project falls under the Chile-Germany Cooperation Agreement and was developed to assist Namibia with prioritising old mine sites in terms of the risks that they pose to the health and

Abandoned mines are a serious problem in Namibia: the estimates of abandoned mines all over the country range from 240 to over 400

safety of people along with the biophysical environment. The manual seeks to create a technical framework to address the impacts caused by abandoned mines.

Though the manual was completed in 2010, the government did not start any action to implement the findings of the manual.

Abandoned mines are indeed a serious problem in Namibia. Namibia is covered with a huge number of abandoned mines all over the country; estimates range from 240 to over 400. As the responsibility for rehabilitation of these mines lies with the Namibian government, solutions have to be found soon.⁷

5.4 Namibian Mine Closure Framework

The Namibian Mine Closure Framework was finalised in 2010. The purpose of the Namibian Mine Closure Framework is to provide guidelines for the Namibian mining industry on how to develop relevant, practical and cost effective closure plans and to lay down minimum requirements for all members of the Chamber of Mines of Namibia which are bound by the chamber's Code of Conduct of Ethics. No research was undertaken to develop the Namibian Mine Closure Framework; the Australian Mine Closure Regulation was simply copied. The framework has never become binding law or has been applied in practice. Surprisingly, SEMP concluded that the contents of mine closure plans of Namibian uranium mines are consistent with Namibian regulations and the Namibian Mine Closure Framework. While regulations do not exist, not even uranium mines in Namibia have ever claimed that their closure plans - insofar as they at least rudimentarily exist - are in compliance with the Namibian Mine Closure Framework.

One of the driving forces for coming up with the Mine Closure Framework was to ensure that the past legacy of abrupt mine closures does not repeat itself. Nonetheless, the framework does not provide guidance for the rehabilitation of existing abandoned mines.

The Mine Closure Framework is primarily intended to provide minimum standards for companies developing or operating medium and large scale mines in Namibia, but excludes guidance for the closure of prospecting and exploration activities. The framework also provides suggestions to the call by the Minister of Mines and Energy in 2007 for the mining industry to establish a social fund to alleviate the social impacts in mining towns and communities once mining comes to an end.

Due to the fact that fulfilling the requirements set in the Namibian Mine Closure Framework will be cost intensive and a demanding challenge to any uranium mine, in practice non-binding guidance was ineffective so far. This example also shows that it is not a solution to a Namibian problem to simply copy foreign legislation that is not accepted by companies operating in Namibia and is not tailored to the Namibian situation.

⁷ More about the problem of abandoned mines and illegal mine sites can be found under 8.6.

5.5 Minimum Standards: Management and rehabilitation of exploration sites

The Minimum Standards are the latest initiative of the Namibian regulator. It needs to be emphasised that the Minimum Standards are a significant step towards a more fruitful cooperation between government agencies and environmental scientists. The lack of cooperation was often lamented especially by Namibian environmental scientists.

The set of guidelines, prepared by the Namibian Uranium Institute (NUI) and approved by the Namibian Uranium Association and NERMU, builds on previous initiatives combined with the experience of practitioners and scientists. It does not copy foreign legislation or adopts standards recommended by the global uranium industry: Instead, it represents the most practical interpretation of current knowledge in a specifically Namibian context (Minimum Standards, 2014: par 2).

This is a first step towards in-depth scientific research on rehabilitation issues in the Namibian setting, as thus far it only addresses activities associated with uranium exploration, namely the creation of vehicle tracks, non-intrusive activities such as field mapping and geographical surveying, intrusive activities such as reverse circulation drilling, diamond drilling, air core drilling and trenching and the establishment of field camps (Minimum Standards, 2014: par 3). Rehabilitation after the lifetime of the uranium mine is explicitly excluded, which means that the Minimum Standards are only applicable for that stage of mining which causes relatively low disturbance to the desert ecosystem.

Interestingly, according to the Minimum Standards, the standards to which rehabilitation will be conducted can range from full restoration of ecosystem structure and function to only visual appearance (Minimum Standards, 2014: par 7.2), which means a minimal standard of rehabilitation. As pointed out in 3.1, full restoration in a complex ecosystem is almost impossible to achieve, and therefore the reason why some countries entirely prohibit mining activities in especially vulnerable areas. While the Namibian Mine Closure Framework sets unrealistically high standards when working towards restoration and not only rehabilitation, the Minimum Standards work towards feasibility. Even in this very first phase of mining – the exploration phase – it already cannot be taken for granted that the desert can be restored again and look as it did previously. As some scientists have pointed out, even test drilling in vulnerable ecosystems has the potential to contaminate groundwater chemically or radioactively, and water holes might run dry as examples in Tanzania and Malawi have shown (Wippel, 2014: 21).

Although the Minimum Standards are not binding, they have - other than the Namibian Mine Closure Framework - a good chance of playing a significant role in practice. They are based on the requirement that all exclusive prospecting licences (EPLs) that are granted in Namibia require an environmental impact assessment (EIA) and environmental management plan (EMP). The

The Minimum Standards should be a first step towards in-depth scientific research on rehabilitation issues in the Namibian setting as thus far it only addresses activities associated with uranium exploration. Rehabilitation after the lifetime of the uranium mine is explicitly excluded, which means that the Minimum Standards are only applicable for that stage of mining which causes relatively low disturbance to the desert ecosystem

environmental management plan is a condition of the exclusive prospecting licence and as such the commitments made in the environmental management plan become legally binding. The Minimum Standards provide guidance on how to achieve this commitment (Minimum Standards, 2014: par 2). However, it is also true that most environmental impact assessments that are compiled for the application of an exploration licence are not done thoroughly. The public participation process usually begins when the EIA for the mining licence is prepared and this is also the stage when mining companies are willing to invest huge amounts of money in research studies undertaken by environmental consultants. EIA's made public for comments are also those that accompany the application for a mining licence, and not only an exploration licence. This is quite understandable from a practical point of view since it is very difficult to predict what kind of exploration works will be undertaken before a mining company has even started with its investigations. If there are promising resources present, will typically only be a result of work in progress.

5.6 Institution capacity: the new Sustainable Development Committee

Being aware of the fact that urgent action is needed while at the same time government agencies are lacking in human resources, the Sustainable Development Committee was founded. Established by the Namibian Uranium Association, this standing committee is tasked to *“lead the development of the industry’s positions on key issues affecting the expansion of uranium exploration, mining and exports. The aim is to ensure that the uranium supplied as fuel for the nuclear fuel cycle is produced, transported, stored, managed and used in a socially, economically and environmentally responsible manner”* (NUI: SD Committee).

The Sustainable Development Committee is chaired by a representative of Bannerman Resources, a company whose uranium project is also located in a national park. The SD Committee appoints working groups to address common issues and is supposed to strive to set best practice standards for all aspects of the Namibian uranium industry. Currently, three working groups are already active, namely the water quality working group, the Swakopmund river farmers working group, and the radiation safety working group.

The legal working group had to be disbanded again due to the resignation of Areva’s and Swakop Uranium’s legal advisors. It was therefore decided to outsource the legal reviews.

Even though it is worth noting that Namibian institutions decided to work towards capacity building and bring together experts in their respective fields, unfortunately the chance was missed to establish a pluralistic advisory body representing the full range of scientific knowledge and opinions. Instead, the committee is made up only of representatives of the industry. The chairperson of the committee is from

A chance was missed to establish a pluralistic advisory body representing the full range of scientific knowledge and opinions. Instead, the Sustainable Development Committee is made up only of representatives of the industry

the most controversial uranium mine in Namibia, as no mine is considered to be located in such a sensitive area as Bannerman's Etango project, and the former legal advisors were corporate lawyers working for uranium companies rather than lawyers with additional qualifications in the field of environmental law. This choice of experts would hardly be regarded as a confidence-building measure in terms of public opinion where unbiased information on the nuclear fuel cycle is desired.

5.7 Recommendations

Although the recent activities undertaken are appreciated by many organisations and individuals in Namibia, the following recommendations might lead to some improvement in the efforts of the decision making authorities:

- Too many mineral licences are still issued after a process of compiling environmental impacts assessments and applications not according to Namibian law (with the latest example of Omitiomire which received a mining licence without being in possession of an environmental clearance certificate yet). Even if the Namibian legislation still leaves room for improvement, a lot will be already achieved if the existing laws are applied more accurately.
- Research on the Namibian environment should be further developed, and the results should be implemented more quickly.
- The collaboration between government and environmental scientists as started with the establishment of the Minimum Standards needs to be intensified and taken further.
- Copying foreign legislation and hoping the industry will comply with it voluntarily might not be successful, as some companies strive to operate in Africa because of low environmental standards. Additionally, foreign legislation is mostly not tailored to Namibian problems.
- Expert committees should not only be filled with representatives of the mining industry, instead a more pluralistic body representing different points of view should be sought. Committee recommendations will be thus more trusted by the general public.

6

Perceptions about rehabilitation in Namibia

While most mining companies now agree to rehabilitation, many are still unaware of the basic ecological concepts involved in rehabilitation and are therefore unable to develop proper rehabilitation plans

Nowadays the importance of sound biodiversity management and the necessity to rehabilitate affected areas after mine closures are generally accepted among industry players. Yet the question remains as to how well the mining industry understands and manages these issues.

While most mining companies now agree to rehabilitation, many are still unaware of the basic ecological concepts involved in rehabilitation and are therefore unable to develop proper rehabilitation plans (Wassenaar/Yates: 1) - this is at least the outcome of a survey undertaken by Namibian scientists a couple of years ago. Namibian environmentalists from the only Namibian research institute that deals with ecological restoration undertook a survey among the ten large scale operational mines with regard to their mine closure and rehabilitation efforts (Wassenaar/Yates: 1ff).

The outcome was sobering. None of the mines had formally articulated rehabilitation targets (today 20% of the mines have done so), and only two indicated having rehabilitation plans in place at all. With one exception, respondents had very little idea how much rehabilitation was likely to cost. Most companies were willing to establish a rehabilitation fund as a result of their corporate standards, as there are so far no legal requirements to do so. Not all companies were aware of industry rehabilitation best practice norms and standards, and thus the approaches to plan for rehabilitation varied greatly. Only one mine had a person or team especially dedicated to rehabilitation. All others had outsourced or plan to outsource these tasks to consultants. Not surprisingly, no mine felt that legal compliance is a big issue. Other than the SEMP conclusion, the independent group of scientists came to the conclusion that current rehabilitation plans remain primarily conceptual and lack the kind of detail that is essential for effective implementation (Wassenaar/Yates: 5-8).

Currently, there might be some misperceptions about the challenges Namibia has to face when dealing with the development of a legal framework for rehabilitation. While scientists do not tire of pointing out how difficult restoration of desert areas might be, and how much scientific knowledge needs to be gained to undertake this task successfully, the Namibian Uranium Institute tries to convey another impression in their public relations activities: *“Rehabilitation of in situ leach (ISL) mines is very straightforward, making this a technique with remarkably low environmental impact”* (Namibian Uranium Institute: Quick Facts – Environment). Even according to the Minimum Standards, it is already difficult to restore only the surface. *“It rarely makes sense to obtain topsoil from elsewhere to cover disturbed areas. Topsoil needs to be harvested from areas that are planned to be disturbed stored in heaps not exceeding two metres height and preferable used before two years”* (Minimum Standards, 2014: par 8.8.4) which is impossible given a mine life-span of at least twenty years.

The Namibian Uranium Institute further informs the public that *“the land can readily be returned to its previous uses”* (Namibian Uranium Institute: Quick Facts – Environment). This is in contradiction to the view of the consultants who compiled the EIA for the Areva Trekkopje mine, who expressed their opinions in a scientific paper. It is remarkable that this opinion is not repeated in the official EIA, which the same consultants delivered to Areva: *“The Trekkopje Uranium Project will deprive community members of seasonal grazing rights on the mine footprint area, access rights and future use of this land for agricultural purposes. In addition, the potential for the use of mined land for future eco-tourism, and thus for the generation of livelihoods, will be limited”* (Hoadley/Limpitlaw, 2008b: 850). Strikingly, while the Uranium Institute is referring to all uranium mines, of which most are located in national parks, the consultants only refer to communal land outside a national park. Here, not even all uranium mines plan to refill their open pits. While Areva plans at this stage to do so, some others including Rössing do not.

Institutions and individuals dealing with uranium mining do not speak with one voice in Namibia. The fact that scientific and government institutions are financed by the mining industry – which is also responsible for the practiced self regulation in the absence of a sound legal framework – makes it difficult for ordinary people in Namibia to form their opinions free of bias.

Institutions and individuals dealing with uranium mining do not speak with one voice in Namibia, and the fact that scientific as well as government institutions are financed by the mining industry which is also responsible for the practiced self regulation in the absence of a sound legal framework makes it difficult for ordinary people in Namibia to form their opinions free of bias

Fig.2:
Sign for rehabilitation experiment

Source: Nathalie A. Renkhoff



7

Constraints to successful rehabilitation in Namibia

The existing lack of scientific knowledge - and scientists - must be taken into account when rehabilitation is regulated by law. This marks a serious challenge to lawmakers

There are some major constraints to successfully planning and implementing rehabilitation in Namibia (**Box 7**).

| Box 7 Mainly major constraints |
|--|
| <ul style="list-style-type: none"> • Insufficient scientific knowledge on land degradation • Lack of cooperation between decision makers and scientists • Legal shortcomings • Lack of human capacity • Lack of transparency • No solution for abandoned mines and illegal mine sites • No solution for the financing of rehabilitation |

7.1 Insufficient scientific knowledge on land degradation

There is still limited knowledge about the responses of arid ecosystems likewise disturbances through mining and the best management techniques to recover their integrity, and little scientific research has been done on this topic. This is what scientists in Namibia frequently express discontent about, demanding that more research needs to be done soon.

The existing lack of scientific knowledge – and scientists – must be taken into account when rehabilitation is regulated by law. This marks a serious challenge to lawmakers.

First, in Namibia there is only one research institution engaged in the field of rehabilitation of (semi)arid areas, although this area is rich in minerals and uranium mines are operating on such terrain. This is the Gobabeb Training and Research Centre (Wassenaar et al., 2013: 131). Fortunately, the interest of young Namibians in enrolling in environmental degrees at Namibian tertiary education institutions is growing, and such studies are offered in the country so that this constraint might be less serious in the future. Scientists of Gobabeb have also called attention to the fact that until now there has been only very little research work done on this topic, with the most important being that of Burke about rehabilitation in the succulent Karoo and Namib desert (Wassenaar et al., 2013: 131).

Although the Namib desert is considered to be one of the African deserts that has been reasonably well researched, there is still a gap in knowledge with regard to the challenges of rehabilitation once this ecosystem has been disturbed (Seely/Pallett, 2008: 3). However, before solutions can be found for the rehabilitation of a disturbed ecosystem, it is necessary to know how this particular ecosystem works when undisturbed.

It has taken a long time in Namibia to increase awareness and similarly to acknowledge the value of the Namib's biodiversity and to understand the importance of research in undisturbed areas in order to understand the complexity of the ecosystem before it is altered by mining operations. Back in 2009, Nghimtina still said with regard to rehabilitation that exploration works are precisely the way to learn more about the Namib's biodiversity. He considered exploration works to be an ecological advantage as they are an encouraging factor in doing research into the flora and fauna of the Namib, which would not been done without mining (Nghimtina, 2009: 13). Moreover even the environmental impact assessment of the Husab mine still shows a lack of understanding of the necessity to think of research into undisturbed and disturbed ecosystems as two sides of one coin. The Husab sand lizard, an endemic species that is thought to have a world range of less than 5,000 km², specifically in the area surrounding the Husab Mountain, was initially studied in more detail after Swakop Uranium's environmental impact assessment flagged it as being potentially at risk of decimation because of mining operations (Swakop Vission, 2011: 7). After public complaints, Husab made assurances that it will protect the animal and discover how severe the impact the mine might have will be, describing this solution as "a true win-win situation for the Namib" (Swakop Vission, 2011: 7). At this stage, the mining licence was already granted, and if research in an undisturbed ecosystem is a prerequisite for successful protection of a disturbed area, the success in the efforts to protect the Husab sand lizard might be at risk.

As it is pointed out in the Minimum Standards, restoration and rehabilitation is not a fixed science. The most suitable approach will not only vary from one landscape or habitat to the next, but will also be affected by the severity of the impact (Minimum Standards, 2014: par 8.6). Rehabilitation is a complex task. For a long

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time it was the common view that rehabilitation does not mean much more than the re-cultivation of tailing dams (Wassenaar et al., 2013: 131). For example, today we know that it might be relatively easy to rake tracks until the footprints have disappeared and it looks neat. However, this does not mean that the area has been restored, i.e. that over time it will not be damaged by water or wind or that plants will grow in the rehabilitated area.

To try and ensure that habitats are restored, one needs to do the following:

- Understand the environment in which one is working (e.g. gravel plains or drainage areas)
- Understand the nature of the damage that has been done
- Choose the appropriate rehabilitation methods for that specific site
- Start rehabilitation during the exploration phase (Minimum Standards, 2014: par 8.6).

As very little rehabilitation has been done in the central Namib so far, it is essential that in the first instance research into the functional roles of species in undisturbed ecosystems is undertaken (Wassenaar et al., 2013: 131). Later, all activities in disturbed areas need to be viewed as an experiment, and rehabilitation methodologies need to be reviewed and modified frequently based on the outcomes of trials. This also means that one of the most important steps in the process is to set clear, measurable goals for the rehabilitation project as that is the only way in which the experiment's outcome can be evaluated. Such a framework – goal setting, application, review and adaptation – is known as the adaptive management approach (Minimum Standards, 2014: par 8.6). This research approach was already suggested by scientists years ago, however, it is very cost-intensive and thus the law makers probably will have to introduce legal incentives to encourage mining companies to opt for the adaptive management approach. This is noteworthy, as far as rehabilitation only after exploration is concerned, in 2014 the government opted for implementing the adaptive management approach in its Minimum Standards.

7.2 Lack of cooperation between decision makers and scientists

Scientists in Namibia have often regretted the poor cooperation between government agencies as well as other decision makers and environmental scientists. Comparing the Namibian Mine Closure Framework with published articles of Namibian environmentalists as an example, both parties came up with a definition for rehabilitation but did not agree upon a common one. Positively, this lack of cooperation seems to be fading after the promising collaboration, which led to adopting the Minimum Standards for exploration in 2014. The government and the group of environmentalists not only agreed upon a definition for rehabilitation,

but also decided in favour of the applicability of the adaptive management approach for rehabilitation after exploration as demanded by scientists.

7.3 Legal shortcomings

As was pointed out in **chapter 3**, there are so far only limited legal requirements with regard to rehabilitation with which the industry is able to effortlessly comply. Instead, government still pins its hopes on the self regulation of the industry and voluntary adherence to best practices. The main disadvantage of the best practice approach is that compliance cannot be enforced by legal action because in order to be legally binding, best practice must be clearly defined in terms of their content.

However, some measures that can be realised easily and quickly might bring about rapid improvement. Relatively swift progress can be achieved if the Namibian regulator caught up with the task of setting limits for certain operating methods. Until today, for instance, there are no existing mandatory emission limit values. Mining companies argue they are willing to modernise their equipment, and this would be technical feasible, but as they are not forced to do so they refrain from investing in the latest technology. Best practice does not necessarily mean using the latest and most modern technology, especially not in Africa in the absence of the legal requirements to do so.

It is also a well known problem in Namibia that sometimes it takes a very long time until new legislation is enacted. The Environmental Management Act of 2007 for example only came into force in 2012 while the Water Resources Management Act of 2004 was only enacted in December 2013. Besides that, the already mentioned Parks and Wildlife Bill, which will provide special legal guidance for mining in protected areas, and some other laws dating from a decade ago, are also not yet in force. Among these laws that are still in preparation is the Pollution Control and Waste Management Act which is of relevance in the mining sector (Renkhoff, 2014b: 156). As all these acts have already been in the pipeline for a long time, they only need to be enacted.

7.4. Lack of human capacity

Capacity to implement effective rehabilitation programmes is lacking in three basic departments: within the mining industry itself, in government and in science, both theoretical and applied (MME, 2010; Wassenaar et al., 2013: 131).

Successful rehabilitation requires appropriate people to be appointed at the mine in positions where rehabilitation plans are developed and implemented (Wassenaar et al., 2013: 131). An existing obstacle to the development of feasible plans is that the industry has not yet agreed on what qualifications are necessary to become a rehabilitation manager. According to the above-mentioned survey among the biggest mines in Namibia, some of the current rehabilitation managers

Capacity to implement effective rehabilitation programmes is lacking in three basic departments: within the mining industry itself, in government and in science, both theoretical and applied

have a geological background, some a biological background, and others have engineering, agricultural or environmental science backgrounds. The survey team critically concluded that “*the industry has not yet completely decided whether rehabilitation should be in the realm of the mineral or the vegetable*” (Wassenaar/Yates: 9). It can thus be assumed that the skills for effective ecological restoration are apparently still missing in the mining industry in Namibia. This was confirmed by the answers given to a standard question with regard to ecology that was asked in that survey to test existing knowledge – only one respondent could answer it correctly.

Being aware of the lack of qualified people within the Namibian mining industry, companies try to partially fill this gap through outsourcing. Independent environmental consultants are often tasked to develop rehabilitation plans. As rehabilitation plans are a complex endeavour, Namibian environmental consultants often still do not have the capacity for developing rehabilitation plans for huge mining projects, hence foreign environmental consultancies are chosen by the mine. The time they are part of the project team is often not long enough to really understand the Namibian context in which rehabilitation has to take place.

Government institutions tasked with supervision of environmental assessment procedures that include rehabilitation plans also tend to be uninformed about details regarding ecology, and they seldom make environmental management plans available for review by specialists. They also do not have the human capacity and expertise to monitor rehabilitation programmes or to assist with the setting of rehabilitation objectives (Wassenaar et al., 2013: 131). The often strikingly short period of time the ministries need to approve environmental assessments and issue an environmental clearance certificate leads to the assumption that ministries also tend to rely on the expert knowledge of the foreign consultants who compiled the management plans. For the Areva Trekkopje mine, for instance, the approval of the environmental impact assessment consisting of well over 1,000 pages did not even take a month.

Finally, as pointed out in **Section 5.2**, very few scientists in Namibia are doing research into restoration of arid systems, with only one scientific institution specifically dedicated to this task, i.e. the Namib Ecological Restoration and Monitoring Unit (NERMU) at the Gobabeb Desert Training and Research Foundation. Although the scientists at NERMU do have comprehensive expert knowledge, NERMU has a mere advisory function.

A culture of information sharing is not yet established in Namibia. In particular, the mining industry is very reluctant when it comes to information sharing

7.5 Lack of transparency

Rapid progress in science will rely on good cooperation and the willingness to share information within the sector. Some years ago, a group of scientists already concluded that a key part of the solution lies in the creation of a mechanism or programme that can champion restoration as an important management tool and as a theme for education and training. To this end, they suggested developing an

information platform about best practices in restoration, and actively facilitating access to this information on a broad front (Wassenaar et al., 2013: 133). If the adaptive management approach is followed seriously in Namibia, information sharing in the industry will be indispensable. To investigate what best practice means specifically in a Namibian context, mining companies have to disclose their methods and techniques, evaluate and compare their individual success and improve their own strategies until the industry has mutually found the best solution to a particular problem. Unfortunately, a culture of information sharing is not yet established in Namibia. In particular, the mining industry is very reluctant when it comes to information sharing. This was already the finding of a comprehensive study on transparency in the mining industry, undertaken by the well-known Institute of Public Policy Research (IPPR) (Hopwood, 2013). The Minerals Act is also not conducive to supporting transparency in the industry. Section 6 provides for far reaching rights with regard to non-disclosure of documents.

Mines in Namibia were historically the realm of entrepreneurial frontiersmen who often worked the mines in conditions of great hardship and abandoned them in bankruptcy. The responsibility for rehabilitation of these abandoned mine sites has shifted to the Namibian government

7.6 No solution for abandoned mines and illegal mine sites

Historical links between mining and abuse of the environment are clear. Namibia is littered with the rusting remains of abandoned and un-rehabilitated mine sites. Mines in Namibia were historically the realm of entrepreneurial frontiersmen who often worked the mines in conditions of great hardship and abandoned them in bankruptcy (Barnard, 1998: 37). The government estimates the number of abandoned mine sites at 240, while Earthlife Namibia believes there are more than 400. Most of the former mining companies no longer exist, and today's licence holders are not responsible for rehabilitating the area (World Bank, 2009: 18). The responsibility for rehabilitation of these abandoned mine sites has shifted to the Namibian government. Although the government has taken over this responsibility, so far there has only been little effort undertaken to start rehabilitation.

A similar problem is that of rehabilitation of illegal mine sites, since there is also no one responsible for rehabilitation under the current Namibian law. It is a shortcoming of the Minerals Act that its powers are restricted to mineral licence holders only. This leaves no space to cope with the problem of illegal mining. Though illegal mining is not primarily a problem when it comes to uranium mining, the rehabilitation of illegal mine sites is a huge issue, especially in the small scale mining sector in Namibia. If an illegal operator is carrying out activities, the minister may not issue the same directives, nor may he or she recover the costs of remediation, except perhaps under common law (NACOMA, 2007: 60). While the Minerals Act criminalises prospecting activities in the absence of a licence and provides for a fine for such activities, the restriction of ministerial powers to force the illegal miner to rehabilitate the area needs to be removed by way of amending section 57 of the Minerals Act.

If there is one issue earmarked for urgent solution that the Namibian government faces today with regard to rehabilitation, it is that of financing. It is not legal compliance with Namibian legislation that forces companies to invest in rehabilitation; all that are part of international corporations undertake rehabilitation in order to comply with shareholder, financial and corporate expectations

7.7 No solution for financing of rehabilitation

If there is one issue earmarked for urgent solution that the Namibian government faces today with regard to rehabilitation, it is that of financing. The challenge is already beginning wherein an estimate is needed concerning how much rehabilitation of a desert area after uranium mining is likely to cost. The study mentioned earlier revealed that with one exception, respondents from the industry had very little idea how much rehabilitation is likely to cost (Wassenaar/Yates: 6).

Strikingly, most companies indicated they are expecting to establish a rehabilitation fund as a result of corporate standards they are adhering to. It is not legal compliance with Namibian legislation what makes companies to invest in rehabilitation. All that are part of international corporations undertake rehabilitation in order to comply with shareholder, financial and corporate expectations (Wassenaar/Yates: 8). However, this does not necessarily mean that the amount of money and the permanent availability of funds is guaranteed during mining operations as it is in developed countries with strict legislation. Rössing for example had set aside an amount of money for the purpose of rehabilitation in the past and decided to use it during times of financial hardship.

In fact, it is highly debated how such a fund for rehabilitation purposes should look in Namibia. While the Minimum Standards for exploration only state that “*sufficient funds should be allocated for rehabilitation*” after exploration (Minimum Standards, 2014: par 7.1), it is left open as to how this allocation could work best. The Namibian Mine Closure Framework is more precise on this point, suggesting that there should be ‘real money in the bank’, and not just a balance sheet showing a provision (NMCF, 2010: par 5.5). While it is suggested that for progressive environmental rehabilitation, mining companies can adopt their own optimum methods of funding during operations, for final closure companies in conjunction with the government need to establish an independent fund (NMCF, 2010: par 5.5). In case of a deficit of funds during rehabilitation, mining companies should be liable for topping up the balance as the liabilities lie with the licence holder (NMCF, 2010: par 5.5).

The Mine Closure Framework offers the view that the trust fund is currently the preferred instrument in Namibia. In fact, dissenting opinions are prevalent among the mining industry and decision makers in government. While the government is in favour of a legal construction of the fund where the government is in charge, the industry prefers a fund without government involvement.

When the legal working group of the Sustainable Development Committee was established, one of its main tasks was meant to be working on feasible solutions concerning how to best organise such a fund for rehabilitation. A comprehensive comparative study was planned in order to learn from other jurisdictions. However, with the dissolution of the legal working group there are thus far no concrete results on the table.

8

The way forward

How a successful legal framework with regard to rehabilitation should look (as soon as possible) in order to overcome the currently practiced self regulation of the industry is still an open debate. Some positive progress has already been made. First and foremost, there is joint work of the Namibian government and environmental scientists on the Minimum Standards for exploration and the decision in favour of using the adaptive management approach in the future – at least as far as rehabilitation after exploration is concerned.

It can also be concluded that experience has shown that simply copying foreign legislation and hoping the industry will comply voluntarily turned out to be naïve. None of the operating uranium companies has taken the strict Namibian Mine Closure Framework, which is based on Australian regulations, as the example for its own rehabilitation plans in the course of its self regulation.

Experience has shown that simply copying foreign legislation and hoping the industry will comply voluntarily turned out to be naïve

8.1 Some practical suggestions

Below are some practical suggestions that are mainly based on comparative research observations with other countries.

8.1.1 The interim solution

While there is a necessity to rely upon self regulation and corporate social responsibility instead of a sound legal framework, this does not mean that the government does not have any obligations to make sure the mining industry aims at doing its best. Hamann summarised the government’s obligations using the following keywords: mandating, facilitating, partnering, and endorsing (Hamann, 2004: 284).

‘Mandating’ means to come up with a legal framework as soon as possible, while ‘facilitating’ describes the accompanying policy framework on which the laws and regulations are later based. ‘Partnering’ addresses the relationship between government and the private sector which needs to be improved continuously and ‘endorsing’ means the establishment of a system of incentives to motivate the industry aiming at best practice as hard as possible.

In the Namibian mining industry no uranium mine has a completed mine closure and rehabilitation plan in place yet.

An example of ‘endorsing’ is the Johannesburg Stock Exchange Socially Responsible Investment Index. It informs potential investors on how sustainable practices of mining companies in developing countries are. This index (JSE SRI), introduced in South Africa in 2004, is supposed to enable investors to compare companies in different categories with regard to sustainable practices to order to guide their investment decisions.

The SRI index certainly also has its flaws. Mining companies are encouraged to take part, but participation is not compulsory. In fact, not only in Namibia but also in South Africa the willingness to disclose environmental and social practices has decreased over the last ten years, despite the existence of the SRI index (Klopper/du Plessis, 2008: 110, 111).

8.1.2 The right time for a rehabilitation concept

According to the above mentioned survey, in the Namibian mining industry no uranium mine has a completed mine closure and rehabilitation plan in place yet.

Nonetheless, the point in time in which such a plan needs to be in place is a very discussed issue in Namibia. The Namibian Mine Closure Framework suggests the earliest point in time in the uranium mine’s lifespan. *“The strategy and plan should be developed during the feasibility stage. The plan should be continuously updated and made more detailed as time passes”* (NMCF, 2010: par 4).

Accuracy at the earliest possible stage also applies to cost estimates. *“A cost estimate for closure should be developed from the closure strategy and plan. Closure plans provide cost estimates for final rehabilitation, severance payments, social closure, project management and final closure activities, as well as for environmental monitoring and long-term site management”* (NMCF, 2010: par 5.1). *“The level of accuracy of the cost estimation should reach at least plus/minus 30% accuracy half way through its ‘life of mine’ plan”* (NMCF, 2010: par 5.2).

The justification for this requirement can also be found in the Mine Closure Framework: *“Currently many mines submit conceptual plans and commit to developing more detailed ones during the life of the mine. Lessons have shown that this approach often does not work – mines have a tendency to postpone detailed mine closure planning to the following year; thus many years into operation, they are still unsure what their closure implications will be. Mines should therefore develop detailed closure plans at the feasibility phase of an operation, based on a thoroughly developed closure strategy which should be reviewed and improved throughout the life cycle of the mine”* (NMCF, 2010: par 4.3).

Despite these arguments, other countries opted for a strategy to only develop a framework during the operational stage, leaving accurate planning to the latest possible point in time. This may happen in order to be able to react flexibly to technical and scientific progress and to consult with affected parties at the end of the mine’s lifespan in order to accommodate their post closure visions into their rehabilitation plans.

So far, no mining company is measuring its rehabilitation efforts against the admittedly very high standards of the Mine Closure Framework. Relying on self regulation instead of monitoring will hardly lead to the adoption of utopian standards, which in all honesty, at least at this stage, are impossible to realise.

Being on the way to adopting the adaptive management approach, mining companies are simply not yet able to estimate the costs of closure in twenty years time or more. Such a demand does not accommodate for technical and scientific progress which will surely be made over the next two decades. However, once there is a substantive amount of money spent on closure plans and mining companies are bound to the estimates of costs for this task for the rest of the mine's life-span, they will be reluctant to adapt their plans in response to scientific and technical progress. As experience has shown, uranium mines tend to adjust their mining projects over time – e.g. they enlarge operations, change the method of extraction, etc.

There is however one important exception from this suggestion in the Namibian context. When addressing the social pillar of the sustainable development concept, planning for closure needs to start at the earliest possible point in time. Employment of members of affected communities must already include training for post-closure livelihood activities outside the mining sector. Infrastructure development needs to be supported by the skills to maintain the infrastructure. Economic development must focus on diversification of local economies where, in towns such as Arandis and Usakos, the risk of dependency on mining incomes is high (Hoadley/Limpitlaw, 2008a: 28).

8.1.3. Inception of duty to rehabilitate

Under the Namibian Minerals Act, a mining company cannot be forced to present a rehabilitation concept and begin to rehabilitate the area even if it is evident that mining operations ceased and the actual situation calls for immediate rehabilitation. It is rather the case that it is not the point in time in which mining operations have come to an end when rehabilitation has to start, but only in the event that a mineral licence has been cancelled or expired, or the holder of the licence abandons a licence area. Only then are licence holders required to take all necessary steps to remedy, to the satisfaction of the minister, any damage caused to the environment by their activities. This is a loophole for postponement of rehabilitation as it is possible to just renew the mineral licence. Besides the fact that the minister can order the licence holder to take action only after the mineral licence lapsed, even then he can order only certain precise measures and not a comprehensive rehabilitation concept.

Apart from that, the Minerals Act does not provide for a duty to successively rehabilitate the mining area, something that is very common in open pit mining all over the world; uranium mining in Namibia is solely open pit mining. Successive rehabilitation means that those areas that are not mined any more are already rehabilitated while mining operations still continue in another licence area. In

Under the Namibian Minerals Act, a mining company cannot be forced to present a rehabilitation concept and begin to rehabilitate the area even if it is evident that mining operations ceased and the actual situation calls for immediate rehabilitation. The Minerals Act could be amended with only a little effort to provide solutions for these challenges.

The question as to how long post-rehabilitation support should last and the time at which a mining company is no longer liable for long-term damages is a point of discussion in many jurisdictions.

Namibia, the licence holder can wait until mining operations are ceased, which is usually after a time period of more than two decades. The Minerals Act could be amended with only a little effort to provide solutions for these challenges.

8.1.4 Transfer of accountability for long-term damages

The underlying problem is that even many years after mine closure and rehabilitation, long-term damages to the environment still might occur. This is especially the case when mining takes place in a not yet well-known biodiversity. The question as to how long post-rehabilitation support should last and the time at which a mining company is no longer liable for long-term damages is a point of discussion in many jurisdictions.

There are so far no concrete suggestions made in Namibia. On the contrary, the Namibian Mine Closure Framework explicitly states that currently there is no legislation that provides for relinquishment and transfer of accountability from the licence holder back to the state, once agreed upon mine closure objectives have been realised and accepted (NMCF, 2010: par 2.3). The Mine Closure Framework calls upon decision makers to establish a mechanism for relinquishment.

Surveys in the Namibian mining industry concluded that mining companies mostly consider a specific number of years as appropriate, ranging from zero to fifty years, while the majority opted for ten years before all liability for long-term damages is transferred to the state.

Some countries, in contrast, have chosen to differentiate between risk spheres. As there are dangers beyond the risk sphere of the mining company, the mining company is not liable for any damages arising out of these risks. The number of years passed since the mine closed down does not play a role.

In the Namibian context, differing from that of developed countries, two kinds of risks are most likely. The first can be attributed to the lack of scientific knowledge regarding disturbed arid areas. The importance of proper after-care, even after all the rehabilitation tasks have been performed, has been pointed out by Burke. These after-care requirements usually relate to the identified environmental risks and biodiversity measures such as monitoring of tailing dams and rehabilitation trials. Both require longer-term observation to establish whether the mitigation measures or rehabilitation methods employed have been successful (Burke, 2007: 16). A time-span of ten years might not be appropriate ensure successful after-care.

The second kind of risk especially affects traditional communities living in the mining area. When risks such as radioactivity or contamination of groundwater become manifest only after many years, traditional communities will not be able to respond to these dangers regardless how long mining activities already date back. As in this case it will be the traditional community itself and not the state being in charge of remediation measures, it is reasonable not to discharge the mining company from liability even after more than ten years.

9

Conclusions

Although Namibia’s entire environmental legal framework is currently undergoing a comprehensive revision and further development, the issue of rehabilitation of uranium mine sites is still an unsolved. The challenge here is to find solutions in terms of how nature conservation and the protection of the biodiversity as well as mining and exploration can coexist. The Namibian government has recognized that the issue of rehabilitation is most important and earmarked it for regulation in the near future. So far only a general duty to rehabilitate the area is laid out in the current legal framework, while it is not regulated what exactly this means.

In the absence of a comprehensive legal framework regulating the issue of rehabilitation, Namibia relies for the time being on the self regulation of the mining industry. The Namibian government counts on the sense of responsibility and knowledge of the mining industry as to how to manage rehabilitation best. This is certainly meant to be a temporary state of affairs until Namibia is able to come up with proper legislation.

At least as far as well-known international mining companies are involved that trade their product on the international market and must be concerned about their standing in a globalized world in which they are doing business, an implicit commitment to using all technology and knowledge at one’s disposal along with some monitoring is ensured. For such companies, the system of substituting national laws with self regulation might work to a certain extent during a transition period. Nonetheless, it is a fact that the system of self regulation invites the industry and their lobby organisations to substitute a legal framework with their own rules and recommendations. As they need to operate profitably, it can hardly be expected that they will impose obligations on themselves which will deprive them of the advantages for which they have come to Africa. It cannot be denied that some companies strive to operate in Africa because of low environmental standards.

Being aware of the unsatisfying current state of self regulation, a number of different programmes and initiatives have been enacted. An additional expert committee was founded only recently. Despite the progress made, the following improvements should be considered:

The Namibian government has recognized that the issue of rehabilitation is most important and earmarked it for regulation in the near future. So far only a general duty to rehabilitate the area is laid out in the current legal framework, while it is not regulated what exactly this means.

- Existing laws need to be applied more accurately. Too many mineral licences are still issued after a process of compiling environmental impact assessments and applications not according to Namibian law.
- Experience has shown that copying foreign legislation and hoping the industry will comply with it voluntarily was not successful as it cannot be denied that some companies strive to operate in Africa because of low environmental standards and foreign legislation is mostly not tailored to Namibian problems. Instead, the collaboration between government and environmental scientists as started with the establishment of the Minimum Standards needs to be intensified and taken further to find Namibian solutions to Namibian problems.
- The newly established expert committees are only filled with representatives of the mining industry. A more pluralistic body representing different points of view should be sought. Committee recommendations will be thus more trusted by the general public.

There are still some major constraints to successfully planning and implementing rehabilitation in Namibia. These are mainly the following; insufficient scientific knowledge on land degradation, lack of cooperation between decision makers and scientists, legal shortcomings, lack of human capacity, lack of transparency, no solution for abandoned mines and illegal mine sites and no solution for the financing of rehabilitation. For some of them, the Namibian government is in the process of developing solutions.

It can be concluded that it is still an open debate as to how a successful legal framework with regard to rehabilitation should look in order to overcome the currently practiced self regulation of the industry. The recommendations made in this report will hopefully enrich the discussion.



Acknowledgments

This work was possible thanks to the dynamics and resources of the EJOLT Project. I wish to thank the members of the EJOLT WP 3 team, namely Marta Conde, Lidija Zivcic, Lucie Greyl, and Matilde Cristofoli.

My special gratitude goes to Ms. Bertchen Kohrs, the Director of Earthlife Namibia. Without her this report would not have been possible. It was on her initiative that I became part of the EJOLT project team. Her continuous support during the compilation of this study is highly appreciated.

A special word of thanks is also due to Dr. Wotan Swiegers, the Director of the Uranium Institute, who provided me with valuable information on new developments on the Namibian mining sector, as well as Dr. Theo Wassenaar, the Research Theme Coordinator at Gobabeb Research and Training Centre, for sharing his information on restoration issues and especially the adaptive management approach.

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