



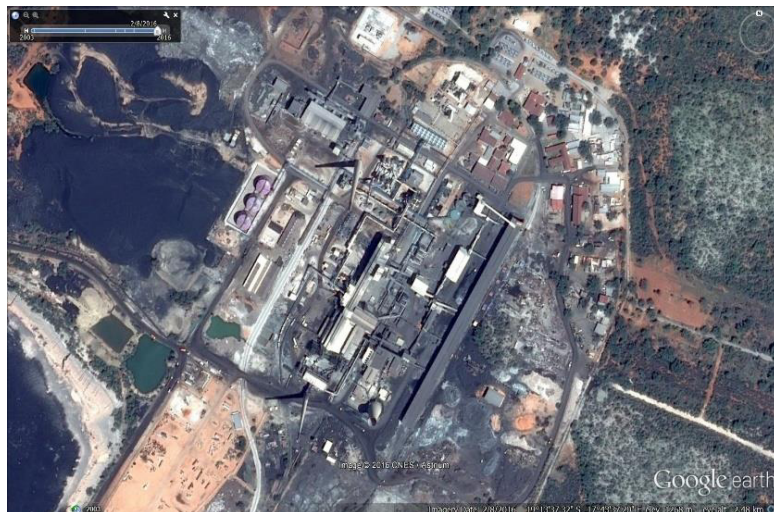
LEGAL ASSISTANCE CENTRE

fighting for human rights in Namibia since 1988



The Extractive Industry and displacement of communities

- THE TSUMEB EXPERIENCE -



MINING IN NAMIBIA – AN INTRODUCTION

Mining remains a primary support for the economy in terms of income generation, employment creation, contribution to government revenue and source of foreign direct investments for many developing economies including in the SADC region. According to Walser (2000), mining plays a vital role in the economic development of many countries; it has both social and economic benefits to the communities. Its impact is measured through employment opportunities created and income generation which are necessary conditions for the achievement of socio-economic development¹.

Mining operations have from its initiation process, adverse environmental impacts. Large pieces of land may be cleared, which often mean very old and valuable trees, shrubs, soil and stone – it could also mean displacing communities that live on these lands and survive off its natural resources. As operations continue, the area being explored is faced with possible water contamination, exposure to toxic materials, loss of biodiversity which include the habitats of plants and animals, air- and sound pollution. Over time, if not environmentally conscious, the mining operations deplete water resources and also degrade any eco-tourism attractions.

Despite these challenges and the world outcry to reduce the need for non-renewable natural resources, the mining sector continues to attract foreign investment. In most instances it is the foreign mining companies that own the resources and the mining operations. In Namibia, the state owns a meagre 10% of the profits. In 2017, Namibia was raised to the 6th from 9th position it occupied in 2016, out of 15 African countries as the most attractive investment destination in Africa alongside South Africa which took 4th position (Fraser Institute, 2017). This does not necessarily mean that the economic growth and development of the country resembles the same achievement. In fact, just

¹ Office of the President, National Planning Commission, (2021) “The Impact of Mining Sector to the Namibia economy: Assessing socio-economic and environmental effects” p4

like the extreme ratio between the poor and the rich in Namibia, is the value of mining activities to the economic growth of Namibia – both are extremely disproportionate. It is a fact that the communities directly affected by the mining operations are not the primary beneficiaries of any benefits that come from such operations. It is also a fact that if Namibia continues its mining activities without proper measures to ensure protection of the environment, and the well-being of its people, then both will be adversely affected. It will be too late to act responsibly.



<http://skattegemynuitgodsewoordintsumeb.blogspot.com/p/tsumeb-se-storie.html>

PRIMARY LEGISLATIVE AND REGULATORY FRAMEWORK AFTER INDEPENDENCE:

PROTECTION OF THE ENVIRONMENT

Article 100 of the Namibian Constitution states that all natural resources above and below the surface of the land are vested in the state unless otherwise legally owned. The people, through a democratic process, elect who should manage the affairs of the country. This makes the people the state and the government the manager of the state's affairs. Government has a duty to manage responsibly the natural resources so it benefits the Namibian people.

Among the enacted legislation to govern the mining sector in Namibia are:

The Minerals (Prospecting and Mining) Act, 1992 (Act no. 33 of 1992).

This Act was amended in 2008 to make provision for the introduction of royalties of up to 5% of gross sales. The Act stipulates that no persons shall carry any reconnaissance, prospecting or mining operations in Namibia except in accordance with licences granted. The Minerals (Prospecting and Mining) Act also provides the licensing procedures, the rights of holders, the administration and the ownership of minerals. In addition, the Act requires mining companies to provide detailed studies on the potential impact of the operations to the surrounding environment, how to mitigate them and rehabilitation plans after the closure of the mine.

In support of the protecting potential harm to the environment, Government enacted the **Environmental Management Act, 2007 (Act no. 7 of 2007)** (the “EMA”) so established to protect the welfare of the people by adopting policies aimed at the maintenance of ecosystems, ecological processes, utilization of living natural resources as well as provide measures against dumping or recycling of foreign nuclear and toxic wastes on Namibian territory.

Government passes laws that offer protection of the environment as it understands and recognizes its importance to ensure that the environment and its natural resources are not misused but rather are preserved for Namibia’s future generation to enjoy its benefits as well.

Damage to the environment must be prevented by controlling the activities that lead to such damage. If natural resources are over utilized or misused there will be no investment taking place in Namibia therefore government will not benefit in terms of revenue generation.

In order to control these activities, the Act requires certain assessments (monitoring and evaluation) of the environment to be undertaken before issuing of licences, during operations and after the activities to ensure the harm done to the environment is limited².

*These assessments ought to be done by impartial experts without any conflict of interest – in most instances, environmental assessments are done and paid for by the company owning the mining rights – this makes the task to assess the impact of mining activities on the environment and the people tainted with self-interest. This often outweighs the desire to protect the environment and the assessments can be flawed. **Currently no law regulates the code of conduct for environmental assessors.***

The EMA also provides for various stages of public participation of communities directly affected by the activities undertaken by the mining operations. These public participations are often limited to Traditional Authorities who seldom engage with the members of a particular community for input. The United Nations Declaration on the Rights of Indigenous Peoples (“UNDRIP”) states that communities should be given an opportunity to engage in these consultations freely, before the activities take place and that they should be consulted without any force or undue coercion. Public consultation includes all members of the public especially directly affected community members.

The Environmental Management Act is administered by the Ministry of Environment and Tourism (MET) but in most instances it is the mining companies that are required to (under their social responsibility policies) put in place mechanisms to preserve, monitor and evaluate and rehabilitate the environment. This is in accordance with the Environmental Assessment Policy which is designed to promote sustainable development and economic

² Environmental Management Act, 7 of 2007 Parts VIII and IX

growth while protecting the environment. This paper will deal with social responsibility below. Needless to say, a policy is a mere guideline and not binding on the government.

A few general shortcomings of the law currently in place:

The Mineral (Prospecting and Mining) Act is outdated and mining closure is largely absent, including financial assurances for closure. In the absence of mining closure regulations, the Namibian Chamber of Mines produced a framework for mine closure which was endorsed by its members, but implementation is not legally mandated. There is reluctance to rehabilitate abandoned mines (IGF, 2018).

The Pollution Control and Waste Management Bill: Since the Namibian Constitution does not provide for an environmental clause directly relevant to pollution, the legal framework dealing with pollution and waste management is fragmented, partially outdated, incomplete and sectoral rather than integrated (Ruppel & Ruppel-Schlichting, 2016). The Pollution Control and Waste Management Bill remains in draft form and should be finalized by parliament to become an act (IGF 2018).

Despite the health and safety risks coupled with all mining activities there are **no health and safety regulations** in place to regulate the mining industry. Although members of the Safety Committee³ have been involved in drafting the new Mine Health and Safety Regulations to replace the outdated Minerals Regulation of 1968, the drafting of the new regulations has been under multiple review which started in 2002 and is not yet finalised. It is in its 10th revision and still no results (IGF, 2018). Similarly, the Nuclear Fuel Cycle Policy (2011) also aims to ensure safety of Namibians and the environment in all operations related to nuclear fuel. This policy was cognisant of the fact that mining industries had effects on the environment including contamination of soil and underground water resources which affects the surrounding population's health.

³ Under the Ministry of Mines and Energy, Regulations made under Section 138A of the Minerals (Prospecting and Mining) Act, 33 of 1992 as amended: Health and Safety of persons employed or otherwise present in or at mines

Although the EMA addresses to some extent issues of water contamination, there is no legislation specifically relating to the protection of underground water.

The environmental and health impacts of mining on surrounding communities have thus been a major concern. Over the years, there has been significant social and environmental impact due to unplanned mine closures in Namibia (Namibia Chamber of Mines, 2010). The Minerals Development Fund of Namibia Act, 1996 (Act no. 19 of 1996) which establishes the Minerals Development Fund is another legislation that governs mining activities in Namibia. The main purpose of the fund is to safeguard the production and earning power of the mining sector through diversification, supporting the sector through improving national geological and mineral data in addition to expanding training facilities and programs. It is not designed to restore areas poorly managed or damaged by mining activities.

The Minerals Development Fund offers financial support to small scale miners.

The Diamond Act, 1999 (Act no. 13 of 1999) came into effect in April 2000 to provide control measures in respect of possession, the purchase and sale, processing and the import and export of rough diamonds in Namibia. The Diamond Act makes provision for the establishment of the Diamond Board which is tasked to deliver specialized advisory services to the Minister of Mines and Energy, efficiently promote Namibian diamonds both locally and globally as well as facilitate the protection and control of diamond resources since they are non-renewable.

The lack of proper implementation of the legal framework could possibly be a contributing factor to why foreign investment is so attractive – it simply means that with little or no enforceable legal responsibilities, these investors are not bound to protect the environment or the people's welfare – there are no consequences where the environment has not been rehabilitated and the community's livelihood has not been restored. The result for the people is that these harmful effects of mining activities are only experienced after investors have removed themselves from the sites and cannot be held accountable.

The Foreign Investment Act, 1990 (Act no. 27 of 1990) of Namibia accounts for the operations of businesses and mining companies in Namibia. It provides investors with guarantees in respect of investment security, repatriation of capital, access to foreign currency and international arbitration in case of disputes. The Act was amended 3 years after Namibia's independence and gave birth to the Namibia Investment Centre within the Ministry of Industrialization and Trade to facilitate the promotion and administration of foreign investments in Namibia. The Investment Centre under this Act had, as its core mandate, to ensure that Namibia is marketed as an investment hub in the region in order to attract foreign direct investment as well as local investment. The Foreign Investment Act of 1990 was amended and enacted in 2016 as the Namibia Investment Promotion Act (NIPA) (Act No.9 of 2016). NIPA was meant to provide for reservation of certain economic sectors and business activities to certain categories of investors. Due to several legal drafting issues NIPA is being revised.



Although Government has committed to protecting the environment and welfare of its **people as well as the maintenance of the ecosystem through its legislative and regulatory** frameworks – these frameworks, some dated back to pre-independence and drafted by people with no understanding of the dry/semi-arid environment of the Southern African part of Africa, are not effectively implemented. Additionally, there seems to be very little political will to act beyond the scope of these laws to protect the environment and the people, animals and fauna directly dependent on it

HISTORY OF TSUMEB



Tsumeb is notable for the huge mineralized pipe that led to its foundation. The origin of the pipe has been hotly debated. **The pipe penetrates more or less vertically through the Precambrian Otavi dolomite** for at least 1300 m. One possibility is that the pipe was actually **a gigantic ancient cave system** and that the rock filling it is sand that seeped in from above. If the pipe is volcanic, as some have suggested, then the rock filling it (the "pseudo-aplite") is peculiar in the extreme. **The pipe was mined in prehistoric times** but those ancient San and Damara people **barely scratched the surface**. Most of the ore was removed in the 20th century by cut-and-fill methods. The ore was polymetallic and from it copper, lead, silver, gold, arsenic and germanium were won. There was also a fair amount of zinc present but the recovery of this metal was always difficult for technical reasons. Many millions of tonnes of ore of spectacular grade were removed. A good percentage of the ore (called "direct smelting ore") was so rich that it was sent straight to the smelter situated near the town without first having to be processed through the mineral enrichment plant. ⁴

When Tsumeb was founded by the Germans, there were already San and Damara inhabitants using the land and its natural resources for their livelihood and cultural activities. When the exploration activities commenced, these communities were displaced. Instead of using these people to work in the mine, workers from the Northern parts of Namibia were contracted by the company. The mining company developed (and still develops) the Town,⁵ however no mention is ever made of the displaced communities:

⁴ [Tsumeb | Namibia | Britannica](#)

⁵ [History of Namibia - Wikipedia](#)

how they were supported or how they benefitted from the mining operations that took away their living conditions and left them without land. Instead the benefits accrued to that of the contract workers. In fact, many of the San people are still without land and scattered across Namibia looking for a place to call home.⁶

Tsumeb Smelter / Tschudi Mine / Dundee Precious Metals

The Tsumeb smelter which is now owned by Dundee precious metals is situated 15km from the town of Tsumeb and dates back to 1904.

Dundee Precious Metals is involved in the processing of copper concentrates⁷ into copper blisters whereby most of the concentrates are sourced from Bulgaria, South America and small miners around the Opuwo area. **It is the biggest employer in Oshikoto region**, employing about 800 permanent employees of which 99% are Namibians. It drives the economic development in Tsumeb. When Dundee was temporarily closed in 1998 most businesses ended up closing too. This illustrates how important the mining company is in Tsumeb and therefore in Namibia.



[Dundee Precious Metals successfully restarts Tsumeb smelter \(miningreview.com\)](https://miningreview.com/dundee-precious-metals-successfully-restarts-tsumeb-smelter/)

Environmental damages due to smelter

⁶ <https://www.info-namibia.com/activities-and-places-of-interest/otavi/tsumeb>

⁷ Copper ore is extracted from the earth, then converted into copper concentrate, which is then roasted, smelted and converted into refined copper.

Approximately seven years ago, a Bankwatch report⁸ exposed how highly toxic substances were being kept in unsafe conditions at the Tsumeb smelter for months. Initially denying access to environmental information, the smelter's operator, Canadian mining company Dundee Precious Metals, disclosed some of the information during a public consultation process required for its application to expand its production.

The information tells us that the increase in the production capacity will have additional costs for the environment and the health of the Namibian people. According to the Environmental Impact Assessment for the production increase, **it will boost SO₂ emissions by 53%. PM 10 emissions are expected to increase by 19%, arsenic emissions by 54% and H₂SO₄ emissions by 42%.** As a result, the air pollution will inevitably soar contrary to Namibia's undertaking to reduce carbon emissions to halt climate change.

The production expansion also increases the risks associated with placing the highly carcinogenic arsenic trioxide, a by-product from the smelting process, in a dump site nearby. The site is located in one of the most geo-morphologically complex parts of Namibia with underground cave systems that stretch hundreds of kilometers. The result is that the toxicity will not remain in one place but will travel as far as the underground system will allow and can have negative effects on the whole ecosystem.

Another process called slow cooling slag, where the hot slag is thrown in the yard of the smelter and the workers wait until it cools down, also release toxic fumes of the highly carcinogenic arsenic trioxide which affects the workers in very high concentration before spreading further to the town of Tsumeb and the surrounding villages. By failing to consider the environmental and social impacts of the entire chain of production Bankwatch suggests that the European Bank for Reconstruction and Development (EBRD) provides an incentive to export the most polluting parts of their business to places

⁸ [Bankwatch report](#)

with less public scrutiny. With poor implementation of our laws, Namibia looks very attractive for this kind of practice. **Out of sight, out of mind.**

Following Bankwatch's revelations about Tsumeb, Dundee announced that they will close the arsenic plant, a facility used to purify the arsenic trioxide, by removing all other substance. The nearly pure arsenic trioxide was shipped to South Africa and Malaysia to be used for pesticides and wood-treatment.

However, the closure of the facility, will not solve the problems already faced by the toxic waste dumps in Tsumeb, for which a long-term solution still needs to be developed for both the environment and possible health consequences for communities in and around the area.

Tsumeb is the closest town to the Etosha National Park, home to much of Namibia's abundant wild life and a number of tourist attractions. Any environmental impact, will by implication have an effect on its neighbouring environment and therefore on the resultant communities and tourism activities around it. There are no legal consequences should Dundee fail to come up with any solutions.

Displacement of communities

The Report (the impact of Mining sector to the Namibian economy: 2021⁹) deals with the impact of mining activities that relate to people that have been in the Tsumeb area for 5 years and less. It does not, however, look at the period from when the mine was actually started, who was impacted then and what possible environmental issues could have occurred since then. In fact, the report remains silent on these concerns despite the clear history of the town.

⁹ The impact of Mining sector to the Namibian economy p. 35

In pre- independence the Germans took advantage of the rights of the inhabitants of the land without public consultation and without justly compensating and or placing them in a similar position. Instead, they encouraged migration by offering employment opportunities to migrants from the Northern parts of the country. These migrant workers have since remained in the area and have been the beneficiaries of the operations. No responsibility has been taken to address the socio-economic needs of the San and Damara who were originally displaced and who have since not been justly compensated.

Despite this obvious oversight, it is also historically known that the San have much knowledge of the environment and sustainable use of natural resources. This knowledge could very well be of great assistance in the decision-making when it relates to the use of natural resources sustainably in our country.

All community members depended largely on the natural resources such as forest for grazing livestock, land for farming as well as firewood and access to water for their livelihood. Depleting these resources therefore has a negative effect on the livelihood of the previously displaced San and Damara communities – who are with no formal skills nor income and now live off grants from government and drought relief to survive because their land is being extracted.

This begs the question: is it a fact that mining brings economic growth and development to Namibia when its own people are placed in the position of beggars?

MINING CORPORATE SOCIAL RESPONSIBILITIES (CSR)

Social responsibility (often understood as social corporate responsibility) is **an ethical obligation** on a company to make decisions or actions that favours and values society. This ethical recognition indicates that the company acknowledges and appreciates the goals of the society and therefore supports these goals. The word “society” is often used

widely to include the whole of society. There is a need to apply the word more restrictively to mean the society immediately affected by the mining activities.

Although this obligation is not legally binding Professor Donna J Wood from the University of Pittsburgh (1991) offered a framework to evaluate the results and effects of socially responsible initiatives. Accordingly, there are four types of responsibilities: an environmental -, economic -, ethical - and philanthropic responsibility.

Environmental responsibility refers to a companies' duty to operate environmentally friendly, which means it has a duty not to pollute and/or to reduce pollution, reduce the reliance on nonrenewable resources and reduce the offsetting of any negative impacts on the environment. In addition, it also means rehabilitating the environment where pollution (including air and water) and other harmful practices took place due to mining activities of such company.

Economic responsibility ties together all the social responsibilities by backing its plans through financial investments of programs, donations and product research which includes spending on:

- Research and development¹⁰ for new products that encourage sustainability.
- Recruiting different types of talent to ensure a diverse workforce.
- Initiatives that train employees on DEI¹¹, social awareness, or environmental concerns.
- Processes that might be more expensive but yield greater CSR results.
- Ensuring transparent and timely financial reporting including external audits.

Ethical responsibility is when the company acts in a reasonable, fair and just manner. While Companies often set their own standards, without the consideration of what the community considers "ethical", external forces or demands may shape certain ethical goals. Instances of ethical responsibility include:

¹⁰ [Research and Development \(R&D\) Definition, Types, and Importance \(investopedia.com\)](https://www.investopedia.com/terms/r/research-and-development-definition.asp)

¹¹ Dignity, equity and inclusion which is required to achieve sustainable development and organizational wholeness.

- Fair treatment across all types of customers regardless of age, race, culture, or sexual orientation;
- Positive treatment of all employees including favorable pay and benefits in excess of mandated minimums. This includes fair employment consideration for all individuals regardless of personal differences.
- Expansion of vendor use to utilize different suppliers of different races, genders, veteran or economic status.
- Honest disclosure of operating concerns to investors in a timely and respectful manner. Though not always mandated, a company may choose to manage its relationship with external stakeholders beyond what is legally required.

Philanthropic responsibility is how a company acts and how it contributes to society. In its simplest form, philanthropic responsibility refers to how a company spends its resources to make the world a better place. It is our view that the community where the mining takes place should be the first priority to benefit. This responsibility includes:

- donations of profit to charities or causes the community believes in;
- entering only into transactions with suppliers or vendors that align with the company's philanthropic ethos;
- supporting employee philanthropic endeavors through time off or matching contributions;
- sponsoring fundraising events, school events or having a presence in the community for related events.

This kind of responsibility should not be seen as a “silent bribe” to convince the community of the company's goodwill.

Unlike South Africa, CSR is not regulated and it is not mandatory. In other words, the company has no legal obligation to respect, commit or even see through any ethical undertaking in terms of any social responsibility. Once they have permits to carry on mining activities and no effective evaluation and monitoring is observed in addition to

taking relevant action to protect the environment and the community, the company bears no burden other than its reputation.

The positive effects of CSR can bring about social and economic change in areas where government cannot reach if mining companies invest directly in areas where their mining activities take place. In Namibia, compliance with CSRs is not imposed by legislation as a condition of obtaining a mining license thus, it is up to the mining companies to take the initiative to improve the living condition of local communities in which they operate. Expenditure on CSR initiatives to the community has varied over the years. Mining companies' have invested a total of N\$ 537.9 billion between 2013 and 2018. Figure 9: Investment on Corporate Social Responsibility.

Dundee precious metals is **90% owned by Weatherly** and the remaining 10% is owned by Ongopolo Mining and Processing Limited ("OMPL") and the employee share trust. The company has a community trust towards its *social corporate responsibilities* to invest in various projects such as **infrastructure, education and building schools and houses for employees**. The community trust has a dedicated budget every year from which over N\$60 million has been spent on the community including a donation of N\$1 million towards the drought relief.¹²

It is not clear who these community members are and whether they have been given an opportunity to participate in any public consultations as required by the EMA prior to any authorization to mine.

Although the mining company seemingly does exponential community upliftment by its economic support, these opportunities, such as employment, health care and education, often only apply to the employees of that company (an estimate of approximately 800 permanent employees) while the population in the Tsumeb Constituency is estimated at 44 113¹³ people. At the very least the health of all occupants in Tsumeb will be affected

¹² comments to the EIA report; [Namibian smelter expansion risks deepening environmental and health problems - Bankwatch](#)

¹³ electoral constituency^[6]

by the mining operations at one point or the other but not all will have access to proper health care facilities.



It appears from the article in the Villager Newspaper that Dundee have negotiated some salary increments for its employees – this can hardly be considered a social responsibility but rather a legal duty to ensure the labourers are safe and compensated for the risky work they conduct. 11 July 2013

[The Villager Newspaper Namibia](#)

Despite the legal obligation to provide an environmental impact assessment and for regular evaluation and monitoring of the environment during mining projects, there is no easily accessible public information available that could possibly explain in economic terms, the degree of the damages already suffered (environmentally and within the community) due to the mining activities. There is also no estimation of what will be suffered in the future considering the degradation of the environment complimented by the rapid climate change, without which no true reflection can be done between the economic value of the current operations and the permanent and long-term harm caused by it. ¹⁴

Responsibility lost in the production chain

Dundee has equally broken the chain of responsibility in all the stages of production and Government has failed to monitor, evaluate and take the necessary measures to limit the damages already occurred. The company produces concentrate in Bulgaria but they avoid responsibility for what happens to it afterwards. Louis Dreyfus Commodities (a

¹⁴ See, Tony Barbour (2017) "Social Impact Assessment for Dundee Precious Metals Tsumeb Smelter Expansion Project Oshikoto Region Namibia" prepared for SLR Environmental Consulting (Namibia)(Pty) Ltd.

commodity trader based in Switzerland) buys the concentrate under an exclusive rights contract and brings it to Dundee in Namibia to process it while maintaining its ownership of all the final valuable resources.

Dundee in Namibia plays the role of a contractor who is specialised in the processing of dirty ore. The product coming out of the smelter in Namibia is black copper – almost pure copper from which all toxic waste has been removed and which can be processed further anywhere in the world. No one will ever ask about the pollution that was left behind in Namibia.

What can be learnt from the Tsumeb Smelter experience - that mining companies have the duty to:

1. Engage the immediate communities that are going to be affected by any mining operations – they should know about the benefits and the risks of the operations;
2. Ensure that these communities provide prior informed consent before the companies apply for permission from ministerial institutions;
3. Address the issue of displacement of the communities (not just its employees) and to place them in a position where they can continue living off the natural resources as they did;
4. Refrain from polluting the environment which is still being used by that community;
5. In the case of minor pollution to put in place measures to clean up the pollution before it affects the health of the animals, plants and people;
6. Ensure that the social infrastructure does not only assist those employed by the company but also that schools, hospitals, clinics and other public services such as police and municipal officers, employ the communities directly affected and not skilled workers from elsewhere. If no skilled workers exist, then provide them an opportunity to develop such skills and ensure that such teachers at schools are able to teach in the vernaculars of the community residing in the area. Further, the mining company should ensure that police officers are members from that community and that public offices are filled with community members – this would

ensure that the town develop for its people and that they first benefit from the natural resources in that area;

7. Close off the areas used for mining after it becomes dormant by filling the holes, cleaning any waste substances and rehabilitating the area so it becomes suitable for a healthy ecosystem;
8. Recognize cultural heritage sites and educate the community affiliated thereto on how to preserve and maintain it for their benefit and also for the economic benefit of the country;
9. Implement laws that regulate the ethical conduct of environment assessors; social responsibility as well as implement the necessary standards and procedures for assessments to monitor and evaluate properly the environmental impacts caused by mining activities and to pass and implement laws that regulate the use of underground water.

Arsenic Contamination Through Food Chain

- Arsenic in irrigation water poses a potential threat to soils and crops, the food chain generally, and consequently to human health
- Arsenic ingestion in human body besides drinking water is through food chain
- Arsenic transfer through aquatic food chains is the primary cause of observed impacts of arsenic on the higher trophic levels of aquatic systems.
- Crops receiving arsenic contaminated irrigation water take up this toxic element and accumulate it in different degrees depending on the species and variety

Health Effects Associated with Arsenic Exposure

- Cancer: skin, lung, bladder, liver, kidney
- Cardiovascular disease
- Peripheral vascular disease
- Developmental effects
- Neurologic & neurobehavioral effects
- Diabetes Mellitus
- Hearing loss
- Portal fibrosis of the liver
- Lung fibrosis
- Hematological effects (e.g., anemia)



Tchounwou PB, Patilola AK, Centeno JA.
Toxicologic Pathology 31:575-588 (2003).

We urge Government to refrain from issuing further mining licenses under the EMA until all laws are in effect and working and that the communities displaced / possibly being displaced are prioritized in benefit sharing.

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For more information on what we do please visit: www.lac.org.na or at No. 4 Marien Ngouabi Street, Windhoek

Or contact us at: info@lac.org.na

Or on 061 223356

Or send us an SMS at: 081

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FOR ALL**