

MINING AND ENVIRONMENTAL MANAGEMENT IN ZAMBIA

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ABSTRACT

The mining and mineral industry as sources of primary export income plays an important role in the economic and socio-political development of many developing countries, as these countries largely depend on the mining for their economic development. An example of which is Zambia. Mining of the mineral is generally considered to be an environmentally unfriendly activity as all the component of environment are affected by various operations in mining and associate activities. At the same time mining of the minerals is essential for the development of the society and hence the nations as the basic raw materials for almost all the industrial activities. The mining sector continues to be a primary source of earnings to Government of Zambia, which acknowledges that apart from generating employment and tax revenues, the sector generates approximately 75% of Zambia's export earnings. There are many direct or indirect impact of mining. Direct impact includes air, water, land pollution, population increase, deforestation etc and one of the major indirect impacts of mining in Zambia has been urbanisation of the population, with the country being the second most urbanised in sub-Saharan Africa. A year ago following successful transition to power, the new Government announced that it "would make Zambia a better place for all". But it is not possible without a clean and sustainable environment. So, there is need for the policy and legal frameworks as well as economic diversification in sectors such as agriculture, manufacturing and tourism in an attempt to reduce the dependence on mining activity.

Keywords: *Mining, Environmental Challenges, Policy, Management etc.*

I. INTRODUCTION

The mining and mineral industry as sources of primary export income plays an important role in the economic and socio-political development of Zambia. Mining of the mineral is generally considered to be an environmentally unfriendly activity as all the component of environment are affected by various operations in mining and associate activities. At the same time mining of the minerals is essential for the development of the society and hence the nations as the basic raw materials for almost all the industrial activities. So, there is need for the policy and legal frameworks pertaining to mining to be overhauled in order to impress upon the mining companies stringent environmental and social accountability and liability.

II. MINING AND ENVIRONMENTAL CHALLENGES IN ZAMBIA

The mining sector is a crucial part of the Zambian economy, with the direct contribution to GDP being approximately 11% and the indirect possible even up to 50%. This is forecasted to grow from US\$590m (2010) to US\$1.35bn (2015). In 2010, the mining and quarrying sector accounted for 9.9% of Zambia's real gross domestic product (GDP) (at constant 1994 prices) compared with a revised 9.3% in 2009. The country's real GDP increased by 7.6% in 2010; mining and quarrying accounted for 18% of the increase (Bank of Zambia, 2011, p. 32–33, 35). Copper exports accounted for 78% of Zambia's merchandise exports in 2010. The value of exported copper was estimated to be about \$5.8 billion. The value of exports of cobalt was estimated to be \$304 million, which accounted for 4% of Zambia's exports (Bank of Zambia, 2011, p. 23). The value of imports of oil was estimated to be about \$618 million in 2010; Oil accounted for 13% of Zambia's imports (International Monetary Fund, 2011, p. 20).

During the past seventy years, the environment of the Zambia was affected to various degrees by mining and processing of copper, cobalt, iron ores etc. Compared with copper and cobalt mining, the impact of other mining activities, i.e., excavation of crushed stone and gravel, on the environment is negligible. As in other large ore districts, relatively small attention was paid to the impact of mining on the environment in the past. Environmental agenda did not form a part of the integrated plans of mining and ore processing, reclamation of spoil banks and tailing impoundments was not carried out, chemistry of industrial waters was monitored only haphazardly, and environmental data were scattered throughout a wide range of mine owners.

Thus mines and mining activity inherently disturb the environment, because they involve the excavation and processing of rock and soil. This is the trade of that many people accept to obtain the iron, coal, copper, gold and other metals and minerals that maintain and improve our standard of living. Operations, whether smaller or large-scale, are inherently disruptive to the environment, producing enormous quantities of waste that can have deleterious impacts for decades. The environmental deterioration caused by mining occurs mainly as a result of inappropriate and wasteful working practices and rehabilitation measures. Mining has a number of common stages or activities, each of which has potentially-adverse impacts on the natural environment, society and cultural heritage, the health and safety of mine workers, and communities based in close proximity to operations.

III MINING POLICY OF ZAMBIA

The Government has adopted a pragmatic mineral policy which is designed to enhance investment in the mining industry and to ensure the development of a self-sustaining minerals-based industry. The privatization of many state-owned companies and especially the copper mining industry, form ally managed under the parastatal umbrella of Zambia consolidated Copper Mines Ltd (ZCCM), is a clear demonstration of this intent. Enactment of this policy is being promoted by the Ministry of Mines and Minerals Development through the technical support available from its three constituent departments – Geological Survey, Mines Development and Mines Safety.

3.1 Key Objectives of the Government's Mining Policy

To make the private sector the principle producer and exporter of mineral products through putting in place a private sector initiative in the development of new mines in order to increase and diversify mineral and mineral based products and exports. This will maximize long term economic benefits to the country.

- To promote the development of the small scale mining industry; this has the potential to significantly contribute to the economy.
- To promote the development of gem stone mining and facilitate liberalized marketing arrangements in order to realize the industry's potential to contribute to the development of the economy.
- To promote the exploration and exploitation of industrial minerals and to encourage the establishment of a ferrous industry.
- To reduce the danger of ecological damage arising from mining operations as well as damage to the health of workers and inhabitants of the neighborhood through water, air and land.
- To promote the local processing of mineral raw materials into finished products for added value.
- To promote private participation the Government of Zambia has developed a new mining policy which brought in a Mines and Minerals Act in 1995. The new policy aims to encourage foreign investment in exploration and new large-scale developments, and to encourage private investment in medium and small-scale mining.

3.2 Mining Legislation

The Mine and Mineral Act (1995) - which greatly simplified licensing procedures, places minimum reasonable constraints on prospecting and mining activities, and creates a very favourable investment environment, whilst allowing for International arbitration to be written into development agreements, should this be deemed necessary. A framework for responsible development has also been created through publication of the Environmental Protection and Pollution Control Regulations.

3.3 Sixth National Development Plan (2011-2015)

3.3.1 Vision

“Well organized private sector led mineral resource exploration and exploitation that contributes to sustainable social economic development by 2030”

3.3.2 Goal

The Goal is to raise the sector's contribution to GDP to at least 20 % by end-2015.

3.3.3 Strategic Focus

The mining sector will focus on increasing exploration projects, sustainable production and management of mineral resources and increase productivity so as to maximize economic benefits from the sector. Furthermore, the sector will focus on increasing value addition, expanding formal employment levels and its overall contribution to GDP. In addition the sector will focus on human development to increase efficiency and safety of mining operations.

3.3.4 Policy and Key Reform

In order to maximize the socio-economic benefits of the mining sector, the focus of the SNDP will be to enhance value addition, safety, health and safe-guard the environment through the review of the Mines and Minerals Resources Development Policy.

Climate change is a serious consideration in the mining sector because its impact could lead to increased costs. The sector is heavily water dependant so increased water scarcity presents a significant challenge especially in processing operations. Extreme precipitation and flooding, on the other hand, may expose sink holes, induce and exacerbate acid rock drainage, saturation of tailing impoundments, overtopping and erosion, with potential negative impacts on water resources. Therefore, during the SNDP period the sector will promote climate resilience and mitigation initiatives.

Sixth National Development Plan (SNDP) 2011–2015 which is the successor to the Fifth National Development Plan (FNDP), aimed at actualising the aspirations of the Vision 2030 of becoming “a prosperous middle-income nation by 2030”. While the FNDP set the pace for improving economic infrastructure and investing in human development, the SNDP aims to build on the gains of the FNDP in the process of attaining the Vision 2030. The theme of the SNDP is “*Sustained economic growth and poverty reduction*”.

IV. REGULATORY FRAMEWORK FOR ENVIRONMENTAL MANAGEMENT

The Zambian Constitution (as amended by Act Number 18 of 1996), does not specifically state that citizens have the right to a clean and healthy environment. However, it pledges: “... to ourselves that we shall ensure that the State shall respect the rights and dignity of the human family, uphold the laws of the State and conduct the affairs of the State in such a manner as to preserve, develop, and utilise its resources for this and future generations.”

The government of Zambia’s Environment Framework Key steps in establishing a project as lay down by the regulations:

- Preparation of a project brief to the Director of Mines Safety describing the site, proposed activities and all aspect of potential environmental impact.
- The Director may request more information or can forward the brief to the Environmental Council of Zambia recommending one of: rejection; acceptance after.
- Submission of a full Environmental Impact Statement; the project be accepted and be allowed to proceed immediately.
- Preparation of an Environmental Impact Statement and submission to the Director of Mines Safety.
- The Director of mines Safety submits his recommendations to the environmental Council which makes the final decision.
- Environmental Impact Statements, if called for, to be updated annually or within fifteen months of the first statement.
- Environmental audits of project to be completed annually.
- If a developer finds the provisions of any regulation unduly onerous, he may apply to the Minister or Director of Mines Safety for an exemption from that regulation. The exemption may be granted under prescribed conditions.
- Developers of large scale mining projects to contribute to the environmental Management Fund for rehabilitation purposes.

4.1 The Environmental Council of Zambia

The Environmental Council of Zambia (ECZ) is a statutory body created under an Act of Parliament, the Environmental Protection and Pollution Control Act of 1990, Cap 204 of the Laws of Zambia. The Council, established in 1992, is mandated to protect the environment and control pollution so as to provide for the health and welfare of persons, and the environment.

The vision of the ECZ is to attain a rich and pollution-free environment in Zambia. Its mission is: *“to regulate and coordinate environmental management, promote awareness, and ensure environmental protection through the enforcement of regulations, and the prevention and control of pollution in support of sustainable development, so as to provide for the health and welfare of persons, animals, plants and the Environment of Zambia.”*

The extent of the environmental liabilities and obligations incumbent on investors and ZCCM-IH/GRZ is determined by the Environmental Protection and Pollution Control Act (EPPCA) of 1990 and Environmental Impact Assessment Regulations(EIAR) of 1997, the Mines and Minerals Act of 1955 and the Mines and Minerals Environmental Regulations of 1997.

The EPPCA establishes the Environmental Council of Zambia (ECZ) as the national body responsible for enforcing environmental regulations and coordinating sectoral government agencies involved in environmental management in their sectors. These responsibilities are managed by ECZ’s Technical Secretariat, which effectively constitutes Zambia’s Environmental Protection Agency (EPA). Thus under the EPPCA, all effluents and emissions from mining operations are regulated through a system of permits, licenses and fines. Dumps, including overburden dumps and tailings dams, are similarly regulated. The Environmental Impact Assessment regulations require that an Environmental Impact Assessment (EIA) be prepared for all investments that have a major impact on the environment. The Mines and Minerals Act and the Mines and Minerals Environmental Regulations 1997 addresses the environmental, health and safety aspects of the mining licences delivered by the Mines and Minerals Development Department. Following table shows the regulatory framework related to environmental law and policies:

Table: Regulatory Framework

Regulation, Act, law	Permit or licence	Requirements	Implementing Authority
The Air Pollution Control (Licensing and Emission Standards)Regulations, 1996	Air pollution monitoring permits	Submission of quarterlyreports to the Environmental Council of Zambia (ECZ)	Air and Noise Pollution Directorate, ECZ
The Water Pollution Control (Effluent and Waste Water) Regulations, 1993	Water effluent discharge licences	Submission of half-yearlyreports that detail thequantity and quality ofeffluent discharged	Water(Effluent Discharge) PollutionDirectorate, ECZ
Water Supply and Sanitation Act, No 28 of 1997	Water abstraction licences	Annual licence renewal	Water right Investigators from theWater Board, Ministryof Energy and WaterDevelopment;

			therequirement for licences is provided for in the Water Act,Chapter 312, 1949.
The Pesticides and Toxic Substances Regulations, 1994	Pesticides and toxic substances licences	An application for a licenceneeds to be submitted prior to importing any pesticide ortoxic substance listed in thePesticides and ToxicSubstances Regulations	Pesticides and Toxic Substances Directorate, ECZ
The Waste Management (Transporters of Waste/Operation of waste Disposal Sites) Regulations, 1993 The Hazardous Waste Management Regulations, 2001	Waste management	An application for a licenceneeds to be submitted prior to the transport of wastes oroperation of a wastedisposal plant and for the generation and storage of Hazardous waste.	ECZ
Local Authority byelaws	Building permits	Currently, the ECZ has no Authority in urban areas.Thus, although EIAs should precede any suchauthorisations, building Permits are being issuedWithout referring Developments to the ECZ.	Ministry of Local Government and Housing

V. PUBLIC PARTICIPATION FOR ENVIRONMENTAL MANAGEMENT

Given the socio-economic implications of most investment projects, it has become established practice to involve potentially affected people during the implementation of the environmental assessment process. Public participation in project formulation and implementation is also a legislative requirement under the Environmental Protection and Pollution Control Act (1990) in Zambia. Participation of the public is important to ensure that projects are not only economically viable and environmentally sustainable but also that they are socially acceptable. The public brings local knowledge relevant to the project and can assist in designing mitigation measures that prevent social disruption and maximize human welfare.

Public environmental awareness and participation in the regulatory enforcement mechanism is key to its' successful application and enforcement. Society has the power to compel industry or the mines consider environmental protection in their operations. Unlike citizens in the developed world, their counterparts in

the developing world such as Zambia are not as environmentally conscious, to the extent of influencing enforcement of environmental legislation.

In Zambia major impediments to public participation in environmental legislation enforcement include low levels of awareness, low literacy levels, as well as high poverty levels. Under this sub component, civil society, which includes NGOs, CBOs, and communities, will be supported through capacity building activities to enable them participate in enforcement through more pro-active strategies in addition to the convention methods provided for in the laws such as radio and newspapers. The strategy will aim to empower local communities through training, attachments, provision of resources and tools. In addition, information relating to hazards and risks arising directly or indirectly from environmental degradation will be provided to the communities. Such information will include effects of air pollution, water pollution, and exposure to heavy metals such as lead poisoning etc and how communities can participate in remediation measures. A network of educators and communicators will also be supported to promote a wider dissemination of information throughout the country.

VI. INTERNATIONAL ORGANIZATION FOR ENVIRONMENTAL MANAGEMENT

Zambia is a member of different international organizations. There are many programmes sponsored by international organizations running in the country. Zambia's Copperbelt Province was once the copper belt that girded the fortunes of this southern African nation's prosperity. But over-dependence on this raw material has turned those fortunes into economic and environmental hardship.

The national report of Zambia was prepared on the basis of the guidance note on supporting national preparations for the United Nations Conference for Sustainable Development (UNCSD), issued by the United Nations Department of Economic and Social Affairs (UN DESA) and United Nations Development Programme (UNDP). The preparation of the Rio+20 National Report involved two major processes: (i) undertaking of a stocktaking exercise which included literature review and stakeholder consultations in four provinces, namely Lusaka, Southern, Copperbelt and Eastern resulting in a Stocktaking Report. (ii) Convening of a multi-stakeholder consultation meeting to address the objectives and themes of UNCSD informed by the stocktaking report.

In Kitwe UNDP, UN-HABITAT completed a programme. The programme was implemented in two phases. Phase I was the start-up phase of about 18 months to prepare a city environmental profile, sensitize stakeholders to the approach of the programme and obtain their commitment to support the implementation, and to develop strategies for realizing the consolidation. Phase II that included finalization of the action plans, mobilization of resources and mainstreaming of the process in the city management system.

In Zambia; WWF is working with the government to promote appropriate land-use planning and setting up forest management schemes with communities living adjacent to protected forests so as to prevent further opening up of protected forests for cultivation. At the same time, WWF is partnering with the French agriculture research agency, CIRAD, to promote conservation agriculture methods among local farmers in the copper belt, with a view to increasing their yields while conserving the environment. According to WWF, promoting conservation farming will not only improve farm productivity, but will contribute to the reduction of habitat loss. The permanent soil covers will also reduce erosion and protect the Kafue River from silting. World health

organization (WHO) and International Labour organization (ILO) are also involved in Zambia in the field of health, sanitation and labour abuse in mining sector.

VII. CONCLUSION

Suffice to say that despite the identified economic benefits of income and employment mining activities offer in Zambia, it has impacted negatively on the environment and the people. There is a necessity to put in place policies, legal and regulatory frameworks that will make possible equitable participation by the mining companies, communities and other stakeholders in the mining sector, as well as tools to improve revenue distribution at local level. In addition, there is need to promote equity and fair allotment of the benefits from copper mining, through enhancing transparency, accountability and monitoring in the management of revenue flows. It is also imperative for the country to come up with policies that are aimed at economic diversification in sectors such as agriculture, manufacturing and tourism in an attempt to reduce the dependence on mining.

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