

A Critical Look at the Legal Framework Governing Mining Activities and Environmental Protection in Cameroon: What Prospects for Effective Implementation?

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Abstract

In Cameroon in particular and the world at large, the exploration, exploitation and the processing of mineral resources by both private individuals and multinational companies has brought about severe and adverse impacts on the environment and the local population within and around the mining areas. This adverse impact ranges from environment degradation, pollution, diseases with dreadful consequence on livelihood and environmental sustainability. To prevent this deplorable situation, a plethora of International and Regional Conventions has been ratified by Cameroon and national legislations has been enacted with well established institutions aimed at regulating the mining activities thereby, protecting the environment and the local communities. Despite the existence of these laws, the rate of environmental degradation and untold sufferings amongst the local population as a result of mineral resources extraction is overwhelming. This state of affair continues to place doubts on the effectiveness of these legal instruments, meant to be the solution. This article therefore, seeks to examine the effectiveness of the existing legal instruments in regulating mining activities. The article also highlighted the impacts of mining activities on the environment and the hurdles in the implementation of mining regulations in protecting the environment and local population in Cameroon. In order to attain our objective, doctrinal methodology has been adopted. The conclusion of this article sums up the discussion with a note on the potential future trajectory in filling the identified lacunae of the laws in regulating mining activities and environmental protection in Cameroon.

Keywords: Mining-Environment- Protection-Legal Framework-Implementation-Cameroon

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INTRODUCTION

Generally, the economy of Cameroon is characterized with strong geological potentials for a number of mineral resources that, if well managed, could support economic growth. That is, the country contains potentially large deposits of iron ore, gold, bauxite, diamond, limestone, nickel, and gemstones, and indices of other numerous minerals and precious metals. [1] Despite its geological wealth, it is of interest to note that mining has never played a major role in Cameroon's economic development. A study on a critical look at the legal framework governing mining activities and environmental protection in Cameroon: What Prospects for Effective Implementation

will permits the recognition of key points for development in order to position the country towards achieving a sustainable environment during mineral exploration, exploitation and production process by mining companies in the future

However, in Cameroon nowadays and elsewhere in the world, the exploration, exploitation and processing of any of the above mineral resources can lead to a threat to both human and environmental security because of various risks that can be encountered. To this effect, this article enumerates and examines the effectiveness of laws and regulations governing mining

activities and environmental protection in Cameroon. The article highlights the impacts of mining activities on the environment and the hurdles in the implementation of mining regulations in protecting the environment and local population in Cameroon. But it first of all discuss about the meaning of mining activities, environmental protection and mining laws and regulations.

The government of Cameroon since independence had been susceptible to the need to protect man and his environment against the unpleasant consequences of mineral exploration, exploitation and production processes, (that is, from start to finitum) even before the birth of mining legislations and environmental protection awareness became fashionable on the international scenes [2]. This is evident in the promulgation and enactment of appropriate laws and regulations to pillow the unsympathetic impacts of mineral resource exploration, exploitation and to ensure that the benefit accruing to man and modern technological society from mineral resource exploration and exploitation are not wiped out by its negative impacts [3]. However, despite the existence of both legal and institutional framework governing mining activities and environmental protection, it is observed that environmental damage caused as a result of mineral exploration and exploitation still continue to prevail. It is of interest to note that it is due to the negative impacts of these projects on local communities and the environment that the Cameroonian Government provides a royalty at the local level in some economic sectors, notably mining and forestry [4].

The Nature of the Environment

It must be said at the beginning that it is not our intention to be incarcerated by any definition, for the simple reason that the concept of environment, mining laws, and mining activities is a matter of lineage in Cameroon and should necessarily be looked in consonance with the socio-economic and political realities of the society [5]. The definition of the above terms will therefore be examined from the legal point of view below.

The Meaning of the Term Environment

Generally, the environment means where we live and develop. This includes the air, the land, the vegetation and the water surrounding human beings. The term “Environment” has been defined in various ways: The Oxford Advanced Learner English Dictionary defines Environment as the condition and circumstances affecting people’s lives [6]. Environment has also been defined as the sum total of all conditions that surrounds man at any point in time on the earth surface. Also, in accordance with section 37 of the National Environmental Standard and Regulation Enforcement Agency (Establishment) Act 2007 in Nigeria, the term environment include water, air, land, all plants and human beings or animals living therein and the inter relationship which exists among these or any of them [7].

Equally, the word Environment has been ascribed a broad but rather reasonable meaning under the Cameroonian Environmental Code [8]. It defines the environment as “All the natural or artificial elements and biogeochemical balances they participate in as well as the economic, social and cultural factors which are conducive to the existence, transformation and development of the environment, living organisms and human activities”. We will therefore adopt this exhaustive definition by the Cameroonian environmental code, which ostensibly recognizes the symbiotic relationship between man and the environment and the interactions between the living and non-living matrixes.

Mining Laws and Regulations

Mining laws and regulations are concerned with those areas of law, national, regional or international which aim at regulating the exploration and exploitation of minerals resources or mineral extraction thereby protecting either the environment, indigenous inhabitant and mineworkers working in the mines. Also, Mining laws and regulations comprises the set of laws, conventions and legislations which are made for regulating the exploration and exploitation of mineral resources and protecting the environment as well [9]. However, it is as a result of the need

to combat various aforementioned problems generated as a result of mineral exploration and exploitation of natural resources within and around project areas that members state of the international community have come up with conventions and organized conferences on how to control environmental degradation and other related social impacts within and around the project area as a result of mining activities.

Worthy of note is the UN conference on the human environment held in Stockholm in 1972, the UN conference on the environment and development held in Rio de Janeiro in 1992, and the world summit on sustainable development that took place in Johannesburg in 2002 set the stage by laying down a solid foundation reiterating her commitment at the highest level in order to integrate the environmental and developmental issues aimed at achieving sustainable development goals. The concept of sustainable development is now a widely used term in many areas of activities related to the human life. [10] Apart from the various commitments made at the international scene, further efforts were also made by government at national level, to evolve legislations and laws (legal regime) for protection of environment, mineworkers and indigenous inhabitant around the mine sites as it is the case in Cameroon.

The Meaning of Mining Activities

The definition of mining activities will therefore be examined from the legal perspectives. By mining activities, we mean exploration and exploitation of mineral resources found on a particular portion of the earth surface, usually on the space above or below the surface of the earth. Black's Law dictionary [11] defines mining activities as "the process of extracting ore or minerals from the ground: the working of mine. The term mining also encompasses "oil and gas drilling." When you create a mine, [12] there are two things you cannot avoid: a hole in the ground and a dump of waste rock. Mining is aimed at the extraction of mineral deposits. Mining means a preparatory works, extraction, transportation, treatment and analysis on a given deposit to obtain marketable or useful

products. The necessary processes degrade the natural environment. Major methods constituting types of mining are used in the process of mineral extraction; especially underground mining and surface mining.

Within the context of this article, mining means the extraction of solid, liquid and gaseous mineral substances, irrespective of the process or the method involved, from the soil or surface of the soil, with a view of removing therein, useful substances. That is, Mining simply means the extraction of minerals and other geological materials of economic value from deposits on the Earth. Mining comprises all operations directly or indirectly relating thereto [13]. Equally, the term mining activities means reconnaissance, exploration, development, mining, processing, enrichment, transportation, storage, loading, marketing and mining site restoration and closure [14].

Legal Framework for Mining Activities and Environmental Protection in Cameroon

The basis of mining activities and environmental protection in Cameroon is contained in the 1996 constitution of the Republic of Cameroon in its preamble. [15] That is, the Preamble affirms the commitment of the state to harness its rich natural resources to achieve development, protect and improve the environment and ensure the well-being of every citizen. The express recognition of the need to protect and improve the environment presupposes the need to balance the exploration and exploitation of natural resources with both human and environmental considerations. This view is further supported by the express constitutional guarantee of every person to a healthy environment. That is the protection of the environment shall be the duty of every citizen. Equally, the state shall ensure the protection of the environment [16]. The Constitution incorporates the notion of shared responsibility in Environmental protection by making it the duty of the state and 'every citizen' to protect the environment. This implies that the right to a healthy environment can be applied both against natural persons, corporate bodies, legal persons and state authorities. Apart from the above, all other enactments made by the

government of Cameroon to check some form of environmental damage caused by mineral extraction companies in Cameroon even before the emergence of Environmental framework protection law and laws regulating mining activities and institution shall be discussed as follows:

Laws Governing Mining Activities and Environmental Protection in Cameroon

In Cameroon, a natural resource guideline is as old as the country itself and their leaders. Before the arrival of the first colonial administrators in 1900, natural resources were managed according to the people's law (that is, family law); the village chiefs were the main administrators of resource management. After the arrival of the first colonial administrators, natural resources that belonged to the people became the property of the first administration, and a formal administrative structure evolved. From 1960 (when Cameroon became politically independent) to the present, natural resources have been under the responsibility of numerous ministries. [17] It is of interest to note that in Cameroon, all mineral resources today now belongs to the Government and regulated by the laws of the country therein. That is, prospecting, exploration, and development activities for any mineral deposit are regulated by law and require a license or permit even though illegal mining still exist in some part of the country. As a matter of fact, for a very long time, artisanal gold mining remained a quasi-illegal activity with the product sold quite through the informal circuit since the miners regarded themselves as outlaws. [18] The Laws governing mining activities and environmental protection in Cameroon include the following:

Law N° 2016/017 of 14 December 2016 to Instituting the Mining Code

The early 2001 witness many changes in the legal and regulatory arsenal governing mining activities and environmental protection in Cameroon (regulations 2001 and 2002, 2010, 2014, and recently in 2016 then institutional CAPAM). This was the result of the adjustments made by the international financial institutions, but also of the initiatives taken by nationals to oppose or accompany the

trend. At least, these laws have rejuvenated the mining sector as observed through the dynamics of license granting. Almost all artisanal mining sites in Cameroon are covered by industrial mining research permits. In 2003, there were only two such permits but today there are over 167 exploration permits.

The Mining Code of 2016 adopted and promulgates Law No. 017 of 14 December 2017, which repeals all previous repugnant hereto, in particular law No. 001 of 16 April 2001 to establish the mining code of 2001 and amended by law No. 2010/11 of 29 July 2010 thereto regulates the mining sector in Cameroon. [19] This new mining code was deliberated by the parliament and adopted by the president of Republic under Law No. 017 of 14 December 2016 (Republic of Cameroon, 2016) signed by the President of the Republic PAUL BIYA.

This new law revoked any other existing law that regulated the mining sector before then, notably Law No. 001 of 16 April 2001 which came and repeal law No.64/ LF/3 of April 1964 governing mineral substances, decree No 96/33/PM of 30 May 1996 regulating the exploitation of minerals resources in Cameroon and Law No. 78/24 of December 1978 fixing the fiscal regime for collecting mining revenue. The new law is more detailed than its predecessor (s). Made up of 242 articles, we noted considerable development in several domains such as protection of the environment, recognition of the status of artisanal miners, and encouragement of foreign investment [20].

The purpose of this Law and the implementation instruments thereof is to govern mining activities and promote investments in the mining sector in the Republic of Cameroon. It aims at furthering and encouraging the exploration and exploitation of minerals resources necessary for economic and social development as well as poverty alleviation [21]. Equally, this law shall apply throughout the territory of the republic of Cameroon in territorial water, the exclusive economic area and continental shelf [22]. It is interesting to note that the mining

code equally makes provisions for environmental protection. This law requires that any mining operation undertaking must comply with the laws and regulations relating to environmental protection and management. It further state that adapted techniques and method must be used to protect the environment, ensure the safety of workers and the local population [23]. From the provision of section 135 (1) and (2) of this Law, it is not an over statement to say that the condition of EIA is required to all those interested in carrying out mining activities in Cameroon.

The bill initiated by the government on instructions of the President of the Republic seeking to strengthen and improve the legal framework of mining activities in the country. This new legal framework is the result of the in-depth review of the existing mining legislation. Indeed, expected for some years now, the new Cameroonian mining code finally came out of the government's drawers. As mentioned earlier, developed in 2001, then revised in 2010, the Cameroonian mining code certainly boosted the interest of some investors in the local subsoil resources but has not really enabled the country to benefit from the potential in its mining sector, which still represents barely 1% of the country's GDP [24].

Furthermore, these past years, the Cameroonian mining sector has been characterized by disorganization in the mining industry, the absence of industrial mining, scavenging of natural resources, and the inefficient monitoring of mining activities by the competent authorities. In addition to fine-tuning transparency in the mining sector in the country, the new Mining Code includes, among other things, the introduction of better governance, through the rationalization of the allocation of permits and sites, the customs facilities during the research phase, the institutionalization of the principles governing Extractive Industries Transparency Initiative (EITI), and the Kimberley Process Certification Scheme (KPCS) as well as improving the linkage between the mining law and state, land, and forestry legislation [25].

The new Mining Code also prescribes the institutionalization of semi-mechanized artisanal mining, the creation of public-interest careers dedicated to the realization of public works, the maximization of state revenue from mining, and the creation of a sequestration account domiciled at the Central Bank to guarantee the development and strengthening of the mining sector. In short, the new Mining Code is more attractive and more competitive for potential investors. The tax code is the responsibility of the Ministry of Finance (MINFI). This ministry collects government revenue (customs and taxes) from different activities in the country under different directorates [26].

However, the condition of EIA is more express in the implementation decree of the old 2001 mining code. For instance, according to the provisions of decree N^o 2002/648/PM of 26th March 2002 to lay down the conditions for the implementation of Law N^o 2001/1 of 16th April 2001 to establish the former "old" mining Code, Mining activities and quarry works must comply with the legislations in force on the protection and management of the environment [27]. Holders of mining titles, authorizations and permits to work quarries shall be bound to take the necessary measures to protect the environment using the best known techniques and methods [28]. An impact study and an environmental protection and management plan conducted in accordance with the provision of this decree is required amongst the documents deposited to obtain an authorization or a permit to carry out quarry works [29].

Pursuant to the above provision of the decree, any person applying for the authorisation or permit to mine or work a quarry shall submit an environmental impact study along with an environment management plan [30]. It is, however, very clear by the provisions of this decree that for investments in the domain of mining and quarry works, the promoters are recommended to carry out an environmental impact study. Anyone applying for an authorisation to carry out mining activities or work a quarry shall be bound to submit an environmental impact study as stipulated by

the law and articles 65 and 91 of this decree. Such study shall be conducted in compliance with law N^o 96/12 of 5th August 1996 on environmental management and its implementing instruments as well as any other mutually accepted standard [31]. According to the 1996 framework law in Cameroon, article 16(1) states that an artisanal mining permit can be withdrawn if the owner does not carry out an EIA study. Making EIA a condition for investment, provisions of this law goes further to lay emphasis on all that should be included in the EIS [32].

For instance, in the case of corporation, GR Extracao de Areia and Transportes Rodoviaros Ltda, an appealed was made by a public action stated by the Ministerio publico, against the GR Extracao for environmental damage. Paving the way for the remedies imposed. The court held the corporation liable for the damage requiring it to reforest the damaged area, and to present an Environmental Impact Assessment. The court concluded by affirming that mining activities require such assessment to be undertaken in advance, followed by compliance with any required measures [33].

However, the new Mining Code is more detailed as it highlights new articles to include industrialized mining, environmental protection, and royalty to the local population but failed to include sustainable development but not in a broader view. For instance, in order to ensure the rational use of mineral and quarry resources in line with environmental protection, holders of mining and quarry titles shall be responsible for preventing geo-hazards and geo-disasters; preventing or minimizing the discharge of waste in the open; protecting fauna and flora; promoting or maintaining the general health of the population; reducing waste; disposing of non-recycled waste in such manner as to ensure safety of the environment, after informing and receiving the approval of the authorities in charge of mining and the environment and managing waste in accordance with the laws and regulations in force [34].

Equally during the period of operation, the environment plan shall describe the management of impacts caused by the soil and geo-technical aspects, the hydrology and surface waters, air quality and meteorological impacts, land use and infrastructure, socio-economic effects, community health ecology, cultural heritage and landscape. Similarly the plan shall also describe the programme for the gradual rehabilitation of the site during the operation. Notwithstanding the operator shall towards the end of the quarry works draw up a closure plan to be forwarded to the minister in charge of mine [35]. In order to ensure the rehabilitation and the closure of the site, each casual or fulltime operator shall be bound to make deposits into accounts opened in a local bank in its name. The conditions for running this account shall be defined in the specifications [36].

More so, non industrial mining operations must comply with the provisions of article 119 above and not with the prescriptions of chapter 2, 3 and 4 of this part. However specifications defining preventive measures to be undertaken in order to ensure environmental protection should be implemented in each area covered by one or more non industrial mining authorizations. The joint specifications shall be jointly drafted by the services in charge of mines and environment. As a matter of fact, anyone applying for an authorization to carry out mining activities or work a quarry shall be bound to submit an environmental impact study as stipulated by articles 65 and 91 of the decree. Such a study must be conducted in compliance with law no 96/12 of 5 August 1996; framework law on environmental mismanagement and its implanting instruments as well as any other mutually accepted standard. The form and content of such study shall be jointly defined by the ministry in charge of the environment. With regards to health and safety in mining, law No. 2016/017 of 14th December 2016 instituting the mining code provides a framework in to relation to health, safety and hygiene. That is, according to this law, any natural or legal person carrying out exploration and mining works shall be bound to do so according to standard practice and regulation in force, in

such manner as to works of the mine and property [37].

Law n° 2016/007 of 12 July 2016, Relating to the New Penal Code of 2016

This is one of the earliest and recent laws [38] criminalizing environmentally wrongful activities in Cameroon. It punishes air and water pollution. That is, whoever by his operations pollutes any drinking water likely to be used by another or so pollutes the atmosphere as to render it harmful to human health shall be punished with imprisonment as from five days to six months or with fine of from five thousand to one million francs or with both such imprisonment and fine. [39] It equally provides that whoever either adulterates any foodstuff, whether for human or animal consumption, or beverage or medical substance intended to be sold, or keeps any substance designated or fit only for the purpose of effective such adulterates shall be punished with imprisonment for from 3 months to 3 years and with fine of from 5000 francs CFA to 500,000 francs CFA [40], whoever in manner liable to disturb the public peace enters upon land quietly enjoyed by another to whomsoever belonging, shall be punished with imprisonment for from 15 (fifteen) days to 1 (one) year [41], whoever causes needless suffering to any animal, whether domestic, termed or kept in captivity shall be punished with imprisonment for from 15 (fifteen) days to 3 (three) months, or with fine of from 5000 francs CFA to 20,000 or with both fine and imprisonment [42], whoever set fire, directly or indirectly and notwithstanding that he may be the owner to any place used for another's dwelling or to any land, sea or air vehicle in which are one or more persons or to any working mine or its appurtenance shall be punished with imprisonment for from 3 to 10 years and with fine from 5000 francs CFA to 1000,000 francs CFA. Destruction of such property shall be punished in like manner as arson [43]. It however punishes dangerous activities [44], explosive substances, [45] toxic waste, and public highway [46].

Decree No. 2013/0171/PM of February 2013 on Environmental and Social Impact Assessment

In order to prevent activities that cause harm to the environment, the prime minister in 2013 had to sign two important decrees on environmental protection. The first is Decree No. 2013/0171/PM of 14 February 2013, on the realization of environmental and social impact assessment [47]. The second is Decree No. 2013/0172/PM of 14 February 2013 on the realization of environmental and social audits [48]. The ESIA Decree defines an ESIA as a systematic study which seeks to determine the positive and negative effects that could be caused on the environment by a project. It is a study that makes it possible to attenuate, avoid, eliminate or compensate for harmful effects on the environment [49]. An ESIA can either be summary or detailed and it applies to the whole project. However, where a project is realized in different phases, each phase can be the subject of an ESIA. The study is carried out only once in the lifespan of an establishment. Nevertheless, in case of an expansion or renovation of the establishment, another ESIA would be required. [50] The ESIA is carried out under the supervision of the minister in charge of the environment. Where the minister approves of the ESIA, he delivers a certificate of environmental conformity [51]. Notwithstanding, ESIA decree defines an ESA as a systematic documented and objective study of the activities of an entity, a structure and installations of an establishment, their functioning and their environmental management system, with a view to ensure the protection of the environment. It is a study that allows a periodic appreciation of the impact that an enterprise could have on the environment. [52] The ESA is carried out under the supervision of the minister in charge of the environment. Where the minister approves of the ESA, he delivers a certificate of environmental and social audit [53].

Decree n° 2013/0065/PM of 13 January 2013 setting ESIA Preparation and Processing Modalities

According to the above Decree n°2013/0065/PM, «EIA is a systematic

analysis aiming at the determination of whether or not a project has a harmful effect on the environment». EIA should include:

- the description and analysis of the initial state of the site and its physical, biological, socio-economic, and human environment,
- the description and analysis of all the elements and natural/socio-cultural resources potentially affected by the project as well as the site selection rationale,
- project description and rationale for its selection among competing activities,
- identification and assessment of potential project implementation effects on the natural and human environment,
- indication on the measures proposed to avoid, minimize or eliminate the potential environmental damages, a program for awareness building and public information along with proceedings of the meetings held with populations, NGOs, trade unions, opinion leaders, and other organized groups as relevant to the project,
- the environmental management plan (EMP), including monitoring mechanisms and, as relevant, the compensation plan,
- the terms of reference of the study as well as the bibliography, and
- a summary in a simple language of the key specific information [54]

Law n° 2012/006 of 19 April 2012 to institute the gas code

The objective of this law is to regulate the downstream gas sector comprising notably the transportation, distribution, processing, storage, importation, exportation and marketing of natural gas and its by-products within the national territory [55]. More so, this law seeks to promote the development of the downstream gas sector in Cameroon for instance, creating and enabling legal framework for promoting the development of gas resources; setting up an attractive gas sector environment for private, national and foreign investors; creating an enabling environment for the use of local human, material and industrial resources in every gas resource enhancement project; promoting

environmental protection [56]. It goes further thus, to define gas as gaseous hydrocarbons found in their natural state. Otherwise referred to as related products and substances extracted wherefrom, the exhaustive list of which shall be fixed by regulation [57].

Furthermore, the right to carry out within the national territory any activity in the downstream gas sector in accordance with the law and regulations in force, is given to any natural person of Cameroonian or foreign nationality resident in the republic of Cameroon or any legal person governed by Cameroonian private or public law [58]. This law proceeds to set out conditions for operating in the downstream gas sector and it is in this light that the condition for EIA is evidently implied. According to this law, operators shall be bound to comply with the environmental protection and safety laws and regulations in force, as well as, with internationally accepted environmental protection and safety standards [59]. In addition, section 69(1) makes a prescription of what shall constitute an offence. Inclusive, the exercise of activities in the downstream gas sector in violation of the rules laid down in this laws and its implementing instruments, particularly as concern local content, the environment, hygiene, safety, technical standards and classified sites shall constitute an offence and as such section 71, 72 and 73 relates to possible penalties for violators of this law and its regulating instruments. Aside the existence of the above cited legislations in, the Cameroonian legislator's has also put institutional framework to ensure effective implementation and compliance of the various laws governing the activities of the mining companies and better environmental sustainability as seen below.

Law N° 2019/008 of 25th April 2019 to Institute the Petroleum Code

This legal instrument is meant to promote petroleum operations throughout the national territory and equally determine the right and obligations relating to petroleum operations [60]. According to this law, all deposits or natural accumulation of hydrocarbons located within the soil or sub-soil of the territory of

Cameroon, whether or not discovered, are and shall remain the exclusive property of the state and for purposes of petroleum operations, the state exercises sovereign rights over the entire territory of Cameroon [61]. Petroleum contracts as such will involve a petroleum company and the state which could be represented by the government or other competent bodies that make up a state. The holder of a petroleum contract shall carry out the petroleum operations in such a manner so as to ensure under all circumstances, the conservation of natural resources in particular hydrocarbons deposits, and due protection of essential features of the environment. For this purpose, the holder shall take all necessary measures to preserve the safety of persons and property and to protect the environment, the natural surroundings and ecosystems [62]. This legal text proceeds to make EIA a condition for investment with the duty it gives to the petroleum operators. When petroleum operations are likely, by reason of their size, nature of impact on the natural surroundings, to interfere with the environment, the holder shall carry out at his/her own expense an environmental impact assessment. Such assessment shall allow the evaluation of direct and indirect effects of the petroleum operations on the ecological equilibrium of the contract and neighbouring areas, and on the style, quality of life of the populations and the effects on the environment in general [63].

Furthermore, the impact assessment is an integral part of the documentation submitted to the public inquiry where such a procedure is required [64]. The decree of application of this code shall set forth the terms and conditions for implementing the provisions of this section particularly the list of petroleum operations the performance of which is subject to an impact assessment, the contents of said assessment, as well as the conditions under which it shall be made public [65]. However, as the implementation instrument, decree n° 2000/465 of 30 June 2002 sets out the conditions and procedures of application of Law N° 99/013 of 22 December 1999 establishing the petroleum code. This decree of implementation presents environmental

protection in its part ten and chapter three makes provision for EIA describing its content [66], and how it should be carried out [67]. Obliging petroleum operators to carry out an EIA at their own expenses, operators shall include the impact assessment document in the file submitted to obtain operation permit by the operator from the competent authority. Any work undertaken in a manner duly recognised as a breach of the provision of part v of this code and its texts of application likely to cause a prejudice of the interest of the state, shall be discontinued by the Minister in charge of hydrocarbons. The work shall resume as soon as the causes for its suspension cease to exist [68].

With respect to environmental issues, the code obliges the holder of a petroleum contract in all circumstances to conduct its activities in such a way as to conserve natural resources and the essential characteristics of the environment and the ecosystems [69]. Petroleum contract holders shall, at their own expense, carry out an environmental and social impact assessment in accordance with the environmental protection laws and regulation in force. Such assessment shall help to evaluate the direct or indirect impacts of petroleum operations on the ecological balance of the contract and surrounding areas, the people's living environment and quality of life and the environment in general. The impact assessment shall be one of the documents submitted for public inquiry, where such a procedure is required, the terms and conditions for implementing the provisions of this Section, in particular the list of petroleum operations. The performance of which are subject to an impact assessment the contents of the said assessment, as well as the conditions under which it shall be made public, shall be laid down by regulation. [70]. This assessment permits the oil company to evaluate the direct and indirect consequences of the petroleum activities on the ecological equilibrium and on the social life of local inhabitants. Companies definitely go beyond the legal obligation so as to reassure the local communities that oil exploitation will benefit them. The effects of the above law is that it aim at preventing pollution of environment and making that oil

operations less hazardous to the community are not much felt, considering the rate of gas flaring and environmental pollution in Cameroon today.

Law N° 94/01 of 20th January 1994, to lay down Forestry, Wildlife and Fisheries Regulations

It is necessary first and foremost to understand these concepts. Under this law, forest means any land covered by vegetation with a predominance of trees, shrubs and other species capable of providing products other than agricultural produce [71]. Wildlife, within the context of this law, means all species belonging to any natural ecosystem as well as all animal species captured from their natural habitat for domestication purposes [72]. Equally, fishery or fishing within the context of the law means the act of capturing or harvesting any fishery resources or any activity that may lead to the harvesting or capturing of fishery resources, including the proper management and use of the aquatic environment with a view to protecting the animal species therein by the total or partial control of their life cycle.

These fishery resources shall include fish, seafood, molluscs and algae from the marine estuarine and fresh water environments, including sedentary animals in such environments [73]. This law goes ahead to oblige the state to ensure the protection of the forestry, wildlife and fishery heritage. EIA is made a condition for investment under this provision of the law which states that the initiation of any development project that is likely to perturb a forest or aquatic environment, shall be subject to a prior study of the environmental hazard [74]. Forest exploitation rights may be granted only to natural person's resident in Cameroon, or to companies whose registered offices are in Cameroon, whose shareholders are known to the forest services. Moreover, the exploitation of any forest shall require that a prior survey be conducted on such a forest in accordance with the norms laid down by the ministers in charge of forests and wildlife [75].

Decree No. 95/531/PM of 23 August 1995 to Determine the Conditions of Implementing Forestry Regulations

This decree defines the terms and conditions for the implementation of forestry, wildlife and fisheries regulations in Cameroon. It governs the exploitation of forest products in the country. It consists of 151 articles dealing with topics like the protection of biodiversity, forest management, the processing and marketing of forest products. The Decree prohibits bush fires which are subject to authorization by local administrative authorities. The decree stipulates that any individual or corporate body wishing to exploit forest resources for commercial purposes must obtain a license. However, the implementation of any project in the forest is subject to an environmental impact assessment, especially projects that are likely to destroy the natural habitat. According to the provision of the above decree, three ministers the Ministers of the Environment and Forestry; the Economy and Finance and the Industrial and Commercial Development are responsible for the implementation of this decree [76].

Law N° 98/015 of 14 July 1998 Relating to Establishments Classified as Dangerous, Unhealthy or Obnoxious

This law governs, with the framework principles of environmental management and protection of public health, establishments classified as dangerous, unhealthy or obnoxious. It stipulates that the manager of a class I establishment conducts studies on dangers in accordance with conditions laid down by regulations [77]. Concerning the protection of the interests refer to in this law, the minister in charge of classified shall, under conditions laid down, demarcate a security zone around class I establishment within which building of homes and the carrying out of any other activity incompatible with the functioning of set establishment shall be forbidden. [78] According to this law, classified establishment which pollute the environment shall be liable to an annual pollution tax and those that import equipment use in eliminating green house gases, carbon dioxide and chlorofluro-carbon form their production processes or product, or to reduce

any form of pollution shall be granted a reduce custom tariffs on such equipment in the proportions, for period determine as and when necessary by the finance law [79].

Furthermore, this law of 14 July 1998 on company considered dangerous, unhealthy or inconvenient») makes it a condition sine qua non for the preparation of a risk assessment by any of such company before the opening of the unit in order to prevent and control potential accidents at the project area. [80] Article 56 prescribes to all owners of any first or second-class plant, as defined in the «établissements classés» (gazetted units) the preparation of an emergency plan involving the call for alert among the competent authorities and riparian populations in case of potential or actual industrial accident, staff evacuation, and ways and means to control the root causes of the accident. Although the primary objective of above law was to make provision for the control of the use of explosive for the purpose securing and maintaining public- safety, the statute has positive implication for protection of the air in Cameroon. It also curbs indiscriminate importation and use of explosives in the country.

Law N° 98/005 of 14 April 1998 to Lay Down Regulations Governing Water Resources

This law defines the procedures pertaining to water and general principles for environmental management and protection of public health. It prohibits acts that could impair the quality of surface, ground or sea water, or jeopardize public health as well as marine fauna and flora, which is prejudicial to economic development and tourist activities [81]. This law equally states that, any natural person or owner of installations likely to pollute water must take all the necessary measures to limit or remove this effect. It also stipulates that any person who produces or stores waste must eliminate or recycle it in approved installations. Furthermore, he must inform the public on the effects of waste production, storage or recycling on water, the environment or public health, as well as on the preventive measures or compensation [82]. Equally, there decree No. 2001/165/PM of 8 May 2001,

which lay down conditions for the protection of surface and ground water resources against pollution.

Law No. 96/12 of 05 August 1996 Relating to the Legal Framework on Environmental Management

This framework law outlines the general legal framework for environmental management in Cameroon. This law is grounded on the principles of precaution, prevention and corrective action, pollute and pay responsibility, participation, principle of liability and the principle of substitution [83]. This framework law define EIA as a systematic examination, with a view to determining if a project is environmental harmful or not [84]. As the basis for the requirement for carrying out EIA in Cameroon, the promoter or owner of any development, labour, equipment or project which may endanger the environment owing to its dimension, nature or the impact of its activities on the natural environment, shall carryout an impact assessment pursuant to the prescription of the specifications. This assessment shall determine the direct or indirect incident of the said project on the ecological balance of the zone where the plant is located or any other region, the physical environment and quality of life of the populations and the impact on the environment in general [85].

However, where the said project is undertaken on behalf of the national defence services, the Minister in charge of defence shall disseminate the impact assessment under the conditions compatible with national defence secrets. This framework law makes it clear that to obtain a development permit from the competent authority, for projects likely to endanger the environment; an impact assessment should be included in the file submitted for public investigation [86]. The impact assessment shall be carried out at the expense of the promoter [87]. It is equally stated in this law that, the terms and conditions for applying the provisions of this article shall be laid down by an enabling decree of this law [88]. Moreover, this law states that any impact assessment that does not comply with the

prescriptions of the specifications shall be null and void [89]. Analysing this law, it is clear to conclude that impact assessment is obligatory on all development projects likely to disrupt or degrade the environment of Cameroon. Thus, where the impact is not known or the impact assessment procedure is totally or partially disrespected, the competent administration, or if need be, the administration in charge of the environment, shall demand the implementation of appropriate emergency measures to suspend the work envisaged or already initiated. These emergency procedures shall be without prejudice to the sanctions provided for by this law [90].

The environmental impact assessment is subject to approval by an inter-ministerial committee comprising twenty experts. Ample time is needed by the committee to perform its duties. According to regulations, the minimum time frame for carrying and approving an environmental impact assessment is four to five months. According to Section 20 of Law No. 96/12 of 5 August 1996 relating to environmental management, where there is no environmental impact assessment or the procedure has not been complied with, the Administration in charge may take appropriate action, without formalities, to suspend any ongoing work. The suspension may involve a fine of between two and five million CFAF and perhaps imprisonment. The legislation concerning the treatment of effluent and greenhouse gas emissions is of particular interest with reference to the construction of a palm oil mill as well as the management of large quantities of solid waste ensuing from the processing of palm nuts to extract palm oil.

Law N° 2013/004 of 18 April 2013 to Lay Down Private Investment Incentives in the Republic of Cameroon

This Law lays down private investment incentives in the Republic of Cameroon, applicable to Cameroonian or foreign natural or legal persons, whether or not established in Cameroon, conducting business therein or holding shares in Cameroonian companies, with a view to encouraging private investment and boosting national production. It equally seeks to facilitate, promote and attract

productive investment in order to develop activities geared towards strong, sustainable and shared economic growth as well as job creation [91].

It describes how the investment climate should be like in Cameroon. In its determination to build a competitive and prosperous economy by boosting investment and savings, and attain its economic and social objectives, the Republic of Cameroon has opted for, as a guiding principle to safeguard the ecological environment and the rational exploitation of natural resources of the soil and sub-soil, for sound and sustainable development [92]. This law shall apply to investments relating to the commencement, extension, renewal, re-adjustment and/or change of activity [93]. This law does not really dwell on environmental protection; rather the law can be describes as having an economic nature. Every investment must be carryout in the environment. As an instrument of universal application in Cameroon, and for the reason that the environment is expose to risk if economic activities are not adequately regulated, we recommend that the government should try to balance economic interest with environmental protection by modify this existing law. Making additional provisions on environmental protection will make this charter more attractive.

Law N° 2003/006 of 21 April 2003, Laying Down Safety Regulations Governing Modern Biotechnology in Cameroon

This recent law [94] was enacted to give effect to the Cartagena protocol on Bio safety [95]. It has created many offences related to bio safety with penalties ranging up to 7 years imprisonment or 100 million francs CFA. It has equally provided procedure for investigating those offences and possible amicable settlement. It empowers the staff of the services in charge of biotechnology to identify, investigate and prosecute bio safety offences [96]. The 2003 Bio safety Law covers the following areas: the safety, development, use including contained use, manipulation and cross border movement, including the transit of genetically modified organisms that may negatively affect human and animal health,

biodiversity and the environment. With regards to environmental protection during mining activities, this law is to the effect that prior to the initial use of any premises for genetic modification activities, general safety measures such as best laboratory, industrial and production practices must be rigorously respected by the user. Measures must also be taken to ensure large-scale sensitization of the local populations on the hazards related to the use, handling or movement of genetically modified organisms, as well as on the measures to prevent or reduce such risks. Safety measures shall be set up from levels 1 to 4, as recommended internationally for micro-organisms and in genetic engineering and in conformity with the laws in force, provided that the organisms whose hazard levels have been determined shall be freely handled after notification of the competent authority. Health and phytosanitary safety measures defined by international institutions must be applied by professionals working on genetically modified organisms, especially those regarding food safety. That is this law governs the safeguarding of products thereof that may negatively affect human and animal health, biodiversity and the environment. This, notwithstanding, the Biosafety Law does not apply to organisms whose genetic material has been modified using traditional reproduction and coupling methods to develop and nurture plants and animals in natural conditions.

Institutional framework Supervising the Obligations of mining Companies Relating to Environmental Protection in Cameroon

In Cameroon, the Supervision of the various obligations of mining companies relating to environmental protection is done by so many institutions, groups of actors and non-governmental organizations. For better understanding, the primary ministries and institutions involved in the regulation of the laws governing mining activities the environment, the social and archaeological aspects are as follows

The Ministry of Industry, Mines and Technological Development (MINIMIDT)

This ministry which is directly concerned with environmental impact study is responsible,

inter alia for the promotion of ecologically sustainable industrial development in conjunction with the administrations concerned; ensuring the monitoring and technical control of hazardous, harmful or inconvenient establishments regarding safety, hygiene and health together with the administrations concerned and the development and implementation of quality control programmes. [97] The Ministry of Mines, Industry, and Technological Development works with other administrations such as the Regional and Divisional offices of ministry in the monitoring of local content requirements. IRGM (Institut de Recherches Géologique et Minières) are charged with establishing mineral resource maps of Cameroon.

The Ministry of Environment and Nature Protection (MINEP)

The Ministry of Environment and Protection of Nature set up by Decree No. 2004/320 of 8 December 2004 is responsible for the development, coordination and implementation of the national environmental policy. It coordinates and monitors regional or international co-operation regarding the environment; defines measures for the rational management of natural resources in conjunction with the ministries and specialized corporations concerned; disseminates information to stimulate participation in the management and preservation of the environment; develops sector-based master plans for the protection of the environment in collaboration with the interested ministries; negotiates agreements and international conventions relating to the protection of the environment and their implementation [98].

This ministry approves environmental impact studies. Decree No. 2004/320 of 8 December 2004 to reorganize the Government created within MINEP, the Sub-department of Environmental Assessment (SDEE), including the Environment Impact Studies Service (SEIE), Environmental Audit Service (SAE) and Environmental Management Plan Monitoring Service (SSPGE). In order to assist MINEP in its development, coordination, execution, environment control, and

sustainable development missions, other ministries intervene at various levels in their areas of competence within the Inter-ministerial Environmental Committee (CIE) set up by the Framework Law whose organization and functioning is governed by Decree No. 2001/718/PM of 3 September 2001. CIE also issues an opinion on environmental impact assessments before the decision of MINEP. MINEP has formulated Guidelines on Environmental Measures which define major principles to be followed and considered during the implementing of forestry projects [199].

International Conventions Ratified by Cameroon Relating to the Regulation of Mining Activities and Environmental Protection

Cameroon is a signatory to a number of international conventions regulating human activities in order to ensure environmental sustainability within and out of the any project area. The most important ones are listed below.

Convention on International Trade in Endangered Species of Wild Fauna and Flora, also known as the Washington Convention (CITES)

It is an international agreement between governments drafted as a result of a resolution adopted in 1963 at a meeting of members of the International Union for Conservation of Nature (IUCN). The text of the convention was agreed upon in 1973, and CITES entered into force on 1 July 1975. Its aim is to ensure that international trade in species of wild animals and plants does not threaten their survival. It accords varying degrees of protection to more than 33 000 plant and animal species. Cameroon: Accession date 5 June 1981 and date of entry into force 3 September 1981.

Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region

This Convention covers the marine environment, coastal zones and related inland waters that fall within the jurisdiction of West

and Central African States, including Mauritania and Namibia, which have become Contracting Parties to this Convention. Resolution adopted on 23 March 1981 in Abidjan. This resolution came into force in Cameroon on 5 August 1984.

Convention on the Conservation of Nature and Natural Resources (Alger, 1968)

The objectives of this Convention are to enhance environmental protection; to foster the conservation and sustainable use of natural resources; and to harmonize and coordinate policies in these fields with a view to achieving ecologically rational, economically sound and socially acceptable development policies and programs.

Convention on Biological Diversity (CBD)

The Convention on Biological Diversity (CBD), also known informally as the Biodiversity Convention, is an international legally binding treaty adopted in Rio de Janeiro in June 1992. The Convention has three main goals are conservation of biological diversity (or biodiversity); sustainable use of its components; and fair and equitable sharing of benefits arising from genetic resources. In other words, its objective is to develop national strategies for the conservation and sustainable use of biological diversity. It is often considered as the key document regarding sustainable development. The Convention was opened for signature at the Earth Summit in Rio de Janeiro on 5 June 1992 and entered into force on 29 December 1993. This convention came into force in Cameroon on 17 January 1995. Law No. 94/1 and its implementing instruments reflect its application at the national level.

United Nations Framework Convention on Climate Change – UNFCCC

The United Nations Framework Convention on Climate Change (UNFCCC or FCCC) is an international environmental treaty drafted at the United Nations Conference on Environment and Development (UNCED), otherwise known as the Earth Summit, held in Rio de Janeiro from 3 to 14 June 1992. The objective of the treaty is to stabilize greenhouse gas concentrations in the

atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The UNFCCC was opened for signature on 9 May 1992, after an Intergovernmental Negotiating Committee produced the text of the Framework Convention as a report following its meeting in New York from 30 April to 9 May 1992. It came into force on 21 March 1994. As of December 2009, UNFCCC had 192 parties. Cameroon ratified the UNFCCC on 19 October 1994.

The Ministry of Forestry and Wildlife (MINFOF)

The Minister of Forestry and Wildlife is in charge of the development, implementation and evaluation of Government's policy on forestry and wildlife. For this reason, it is responsible for the management and protection of forests of the national domain the development and control of the execution of regeneration, afforestation, and forest establishment and inventory programmes; the control of compliance with regulations in the area of forest development by various stakeholders; the application of the administrative sanctions when it is necessary; relations with professional organizations of the forestry sector; the setting up and management of botanical gardens; the application of international conventions ratified by Cameroon. It is responsible for the supervision of the National Forestry Development Agency, the of National Forestry Commission, the National Wildlife School as well as relations with the United Nations Food and Agriculture Organization regarding the forest.

The 1987 World Commission on Environment and Development (WCED)

This report or document or Brundtland report of 1987 has it that in order to ensure the further existence of life on Earth and the possibility of meeting the basic needs of its entire people, and those of future generations, it is essential to have a sustainable development for all the areas of life and human activity. In doing so, this report provided the oft-cited definition of sustainable development as "development that meets the needs of the present time without

compromising the ability of the future generations to meet their own needs". [100] Although vague, this concept of sustainable development aims at maintaining economic advancement and progress, while protecting the long-term value of the environment; it provides a framework for the integration of environmental policies and development strategies (UN general assembly, 1987). It contains two key concepts: the concept of needs, in particular, the essential needs of the world's poor, to which over-riding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the ability of the environment to meet these present and future needs [101].

The Impacts of Mining Activities in Cameroon

Generally, the exploration, exploitation and processing of mineral resources has both a negative and positive impact within and around the project area on the economy of Cameroon even though the negative impact of mining activities overshadow that of the positive impact as seen below.

The Positive Impact of Mining Activities to the Economy of Cameroon

Although, the level of mining in Cameroon cannot be compared to that of other African countries such as Ghana and South Africa, the mining sector in Cameroon has nevertheless made an important impact on the economic development of the country in the following ways as seen below.

Firstly, the need to processed minerals has greatly assisted the industrialization process in Cameroon. For instance, the drilling of petroleum and extraction of limestone has led to the development of factories for the processing of these minerals at Limbe and Figuil respectively. Equally, the presence of large bauxite deposits at Ngaoundal and Minim Martap is partly responsible for the establishment of the ALLUMINIUM Company industrialization but these have not been fully exploited in Cameroon. This is the case with the oil refinery whose many by-products are yet to be produced. [102] Secondly, the exploration and exploitation of

mineral resources has also encouraged the development and improvement of the country's transport infrastructure. For example the need to support petroleum products from the SONARA refinery to the depot in Douala led to the construction of the Idenau-Limbe highway and the rehabilitation of the Limbe Douala [103].

Thirdly, the mining sector in Cameroon is also an important source of fuel, coming mainly from petroleum. That is, exploration, exploitation and processing of crude oil has made the country almost self sufficient in petroleum products. The sector has helped to reduce unemployment and to increase the standard of living of some Cameroonians. The various activities of the mining sector have opened up avenues for the employment of young Cameroonian especially those indigenous inhabitants within and around the villages where the mining activity is taking place. The artisanal exploiters of gold, diamond enjoy a gainful self employment even though painful and low remuneration. For instance, C & K Mining Inc. is committed to contributing to the establishment, enhancement or enhancement of medical and educational infrastructure for the benefit of its staff at a reasonable distance from the field that meets the normal needs of workers and their families as well as a training center for ore mining and processing techniques. C & K Mining Inc. is also committed to implementing and funding an integrated community development program as envisioned in the Environmental and Social Management Plan to improve local socio- economic conditions. This program will be discussed and executed by a structure that will serve as an interface between C & K Mining Inc. and the affected populations [104].

Fourthly, mining sector in Cameroon acts as a source of government revenue through the imposition of direct taxes on mining companies by the government. That is, the exploitation of natural resources in Cameroon generates significant revenue for the state budget, allowing the government to perform its sovereign task of investing in the country's development and the well-being of its people.

[105] However, the exploitation of natural resources often has negative consequences on the local communities who live in project areas. [106] Local communities are often frustrated when they see "their" resources disappear, their lives destroyed, and no concrete improvements in their standard of living.

The Negative Impact of Mining Activities in Cameroon

The negative impact of mining activities in Cameroon can be environmental, economic and social impact as seen below.

Environmental Impact of Mining Activities within and out of the Project Area

Mining operation around the world whether coined as artisanal, small or large-scale, are inherently disruptive to the environment, [107] producing enormous quantities of waste that can have deleterious impacts for decades. [108] 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, health and safety of mine workers, and communities in close proximity to mining operations. [109] As indicated in [110], the social and environmental impacts are more pervasive in regions where operations are newly-established or are closing down.

In Cameroon, the major environmental problems in mining sector are land degradation, water and air pollution, vegetation clearance (deforestation), ecological disturbance, degradation of natural landscape, geological hazards, and destruction of wildlife habitats.[111] That is, Mining adversely affects the environment by inducing loss of biodiversity, soil erosion, and contamination of surface water, groundwater, and soil. Mining can also trigger the formation of sinkholes. The leakage of chemicals from mining sites can also have detrimental effects on the health of the population living at or around the mining site. Under Cameroonian mining law, mining companies are expected to

hang on to rehabilitation and environmental codes to ensure that the area mined is eventually transformed back into its original state. However, violations of such rules are quite common. These diminish freshwater availability and agricultural productivity, thereby increasing the rate of food insecurity, famine, and health diseases. These problems bring negative points to the sustainable development of the mining sector in Cameroon. As mentioned previously, mining activities can harm the environment in several ways. These are as follows:

Air Pollution

Air quality is adversely affected by mining operations. Unrefined materials are released when mineral deposits are exposed on the surface through mining. Wind erosion and nearby vehicular traffic cause such materials to become airborne. Lead, arsenic, cadmium, and other toxic elements are often present in such particles. These pollutants can damage the health of people within and around the mining site. Diseases of the respiratory system and allergies can be triggered by the inhalation of such airborne particles [112].

Water Pollution

Mining also causes water pollution which includes metal contamination, increased sediment levels in streams, and acid mine drainage. Pollutants released from processing plants, tailing ponds, underground mines, waste-disposal areas, active or abandoned surface or haulage roads, etc., act as the top sources of water pollution. Sediments released through soil erosion cause siltation or the smothering of stream beds. It adversely impacts irrigation, swimming, fishing, domestic water supply, and other activities dependent on such water bodies. High concentrations of toxic chemicals in water bodies pose a survival threat to aquatic flora and fauna and terrestrial species dependent on them for food.

The acidic water released from metal mines or coal mines also drains into surface water or seeps below ground to acidify groundwater. The loss of normal pH of water can have disastrous effects on life. Water resources are

affected as well, especially because this activity takes place in alluvial placers which cannot strictly follow the former or current course of streams in the region. Companies, by deflecting or blocking river courses, disturb the water system and cause siltation which is detrimental to fish population and household use of the same water resources. [113] Furthermore, muddy water is emptied directly into river courses that become yellow downstream along many kilometers from the mining site, causing waterborne diseases and threats to fish breeding grounds and other ecosystem services [114]. In the same vein, water bodies are part of the space torn from the customary use of these populations by various forms of pollution. [115]

Land degradation

The creation of landscape blots like open pits and piles of waste rocks due to mining operations can lead to the physical destruction of the land at the mining site. Such disruptions can contribute to the deterioration of the area's flora and fauna. There is also a huge possibility that many of the surface features that were present before mining activities cannot be replaced after the process has ended. The removal of soil layers and deep underground digging can destabilize the ground which threatens the future of roads and buildings in the area. For example, lead ore mining in Galena, Kansas between 1980 and 1985 triggered about 500 subsidence collapse features that led to the abandonment of the mines in the area. The entire mining site was later restored between 1994 and 1995 [116].

Loss of Biodiversity

One of the negative impact of mining activities is evidenced on the biophysical environment of the region include challenges imposed on the vegetation, natural habitat, wildlife and biodiversity by these extractive processes which exposed the soil to erosive agents. Mining can contaminate soils over a large area. Agricultural activities near a mining project may be particularly affected. According to a study commissioned by the European Union: "Mining operations routinely modify the surrounding landscape by exposing previously undisturbed earthen materials.

Erosion of exposed soils, extracted mineral ores, tailings, and fine material in waste rock piles can result in substantial sediment loading to surface waters and drainage ways. In addition, spills and leaks of hazardous materials and the deposition of contaminated windblown dust can lead to soil contamination. [117] Gold mining brings about accumulation of waste rock piles beside the open pits, as well as other liquid waste. The landscapes of these affected areas are unsightly, while traditional agricultural uses have become more difficult [118].

Often, the worst effects of mining activities are observed after the mining process has ceased. The destruction or drastic modification of the pre-mined landscape can have a catastrophic impact on the biodiversity of that area. Mining leads to a massive habitat loss for a diversity of flora and fauna ranging from soil microorganisms to large mammals. Endemic species are most severely affected since even the slightest disruptions in their habitat can result in extinction or put them at high risk of being wiped out. Toxins released through mining can wipe out entire populations of sensitive species. The disruptions of biodiversity recorded include among others, fleeing of animals, scarcity of local natural resources into “natural” habitats, seriously affecting the livelihood of local communities (non-timber forest product, agriculture, hunting, fishing, etc.) which are inextricably dependent on their environment. Soils have been left bare and exposed to erosion and areas devoted to Artisanal Small Scale Mining are usually perforated with holes and cuttings which remain unsuitable for agriculture, requiring a long recovery period before any kind of vegetation can be able to grow again. Few cases of geomorphic depressions associated with haphazard excavation can be found in Colomine, Mali, Nakoyo, Lom, Sarambi, Monbal, and Bangbel. Similarly, the landscape of the mining locality is frequently disrupted by piles of gold mine tailings.

Underground Instability and Long-term Hazards of Mining

A landscape affected by mining can take a long time to heal. Sometimes it never recovers.

Remediation efforts do not always ensure that the biodiversity of the area is restored. Species might be lost permanently. Another long term effects of mining activities, especially on human being include respiratory problems such as pneumoconiosis, asbestosis, and silicosis.

Environmental Impact of Mining Activities Due to Abandon Open Pits

Generally, open pits acts as animal traps and health hazards (including acting as mosquito breeding grounds due to stagnant water collection after being abandoned by the miners). [119] Worse of all there are no mining projects refilling past and recent gold mining pits whilst regulation stipulates that each company must close holes after completing mining on a given site. Several abandoned open holes scattered almost everywhere in the Artisanal small scale mining areas serve as traps to humans, wild and domestic animals and affecting landscape by unveiling some degradation points.

Social Impacts of Mining Activities

The negative social impacts of mining activities has made most people around the area where mining companies are situated to be now walking for 10 or 15km to reach their farm of which that was not the case before the arrival of mining companies. They usually walk only for 1km, 2km to reach their farm. The destruction of most of their farm land around the village as a result of mining exploration, exploitation and processing phase has left them with no choice to go do farming elsewhere which is very far. This has made access to food very difficult for them. As a result of that food crops like plantations, Cassava, corn do not have their place anywhere around such mining area simply because holes dug up are not refilled. As a matter of fact, the local populations around does not have good drinking water instead they have but some wells drilled nearby from which they fetched water which is not that drinkable [120].

All of their water sources have been destroyed by mining companies. Even the water that all the villagers do fetch water from there is very

dirty and most often generate malaria and perhaps cholera as well. For example if a cholera outbreak were to occur in the district of Betare-Oya, the first village to be affected would be this village, because there is no good drinking water. In most of this area, pupils drop out of school in order to be mining holes. That is, mining has emptied all schools, thereby leading to intellectual deficit and loss of most of their youths in the village [121].

Another social impact of mining activities is that it can lead to Human displacement and resettlement. For instance, according to the International Institute for Environment and Development:

The displacement of settled communities is a significant cause of resentment and conflict associated with large-scale mineral development. Entire communities may be uprooted and forced to shift elsewhere, often into purpose-built settlements not necessarily of their own choosing. Besides losing their homes, communities may also lose their land, and thus their livelihoods. Community institutions and power relations may also be disrupted. Displaced communities are often settled in areas without adequate resources or are left near the mine, where they may bear the brunt of pollution and contamination. Forced resettlement can be particularly disastrous for indigenous communities who have strong cultural and spiritual ties to the lands of their ancestors and who may find it difficult to survive when these are broken [122].

The Hurdles in the Implementation of Mining Regulations in Protecting the Environment and Local Population in Cameroon

In spite of the above extraordinary progress recorded in the enactment of both legal and institutional framework, relating to the protection of the environment, local inhabitant and mine workers within and out the project area during mineral exploration, exploitation and production phase in Cameroon, the effective implementation of the various laws has not been pleasing because of some impediments as seen below.

Lengthy Bureaucracy and Corruption

Generally, a system of government that is usually characterized by a clear demarcation of work with boundaries of responsibilities is very imperative for effective implementation of laws governing mining activities and environmental protection in Cameroon. That is, a good number of African countries with disorganized institutions are setbacks to good governance and effective management. The institutional legacy of African countries that was inherited from the colonial masters, still present a lot of loopholes to effective administration [123].

In Cameroon, sustainable environmental management is subdued by lengthy, unclear, inexplicit working procedures. Similarly, the reluctance of most civil servants in exercising their duty further complicates and equally slows down the process of adequate and prompt avenues for the compensation and restitution of victims of environmental injury to their original state of life before becoming victims of environmental harm cause by the mining companies [124]. The resultant impact has been rampant corrupt practices as the population tries to circumvent lengthy administrative modalities. These therefore post a big obstacle in the effective implementation of the various laws governing mining activities and environmental protection in Cameroon since most bureaucrats tally on their personal gains rather than that of the entire nation [125].

Corruption too has been a major obstacle to the effective implementation of norms governing mining activities and environmental protection in Cameroon. For instance, common knowledge has it that over the years, the customs department, the taxation departments and the judiciary have been indexed as the most corrupt departments. [126] Within the mining sector, administrative authorities have always been pointed as corrupt. The corruption is manifested during impromptu visit to the mine site by administrative authorities. Most at time the non respect of laws governing mining activities and environmental protection in Cameroon go unpunished simply because bribe collected by some money

minded administrative authorities during investigation [127].

Institutional Imperfection

This has always been an impediment to the effective enforcement of all legal texts in general and particularly norms governing mining activities and the protection of the environment in Cameroon. Almost all ministries are involved in the enforcement of the various laws governing mining activities and environmental protection in Cameroon. A glaring example of one ministry is the Ministry of Industry, Mines and Technological Development (MINIMIDT). [128] This ministry is directly concerned with environmental impact study. MINIMIDT is responsible inter alia for the promotion of ecologically sustainable industrial development in conjunction with the administrations concerned; ensuring the monitoring and technical control of hazardous, harmful or inconvenient establishments regarding safety, hygiene and health together with the administrations concerned; the development and implementation of quality control programmes. Equally, some actors too in the public sector through the Ministry of Mines, Industry, and Technological Development (MINMIDT) are involved in the control of mining projects. The ministry of Mines, Industry, and Technological Development works with other administrations such as the Regional and Divisional offices of ministry in the monitoring of local content requirements. IRGM (Institut de Recherches Géologique et Minières) are charged with establishing mineral resource maps of Cameroon. [129] Many national and international NGO operate in Cameroon. The Centre for Environment and Development founded in 1994 is an NGO specialized to the fight of local communities' rights against extractives industries. The association «Forêts et Développement Rural» (FODER) created in December 2002 also fights for transparency in the extractive industry [130].

The Chamber of Mines of Cameroon (The Chamber) is a private sector voluntary organization established in 1939 through an Act (5/1939) of Parliament, (Chapter 21:02),

for the purpose of promoting, encouraging, protecting and fostering the mining industry, and doing everything necessary and advisable for those objects. The activities of 'the Chamber' are concentrated in the fields of mining and economic policy advocacy, investment promotion, labour and industrial relations management, research on legal matters related to mining and promoting health and safety, environmental protection, and the support to mining associations activities. Other organizations are involved in monitoring the social obligations of mining companies. This is particularly true for national and international civil society organizations. The example of GIZ Office in Cameroon could be cited. All these institutions as far as the various laws governing mining activities and environmental protection in Cameroon is concern it has however not completed its course in relation to effective implementation of those laws. That is, all the different Ministries is still lacking in the domain of effective follow up of laid down environmental rule of law.

In an attempt to address this problem, there is a need to intensify the rule of actors in the various ministries regarding investigation and proper follow up of laws regulating mining activities and environmental protection in Cameroon. Equally, a specialized independent agency should be created in villages where mining activities are taking place that will ensure the effective compliance of laws governing mining activities and environmental protection by mining companies. The creation of such a specialized independent agency will be very instrumental as it will not only follow up environmental activities in ministries but will also intervene to guarantee respect of the rule of law by the investors working on the environment [131].

Hurdles Relating to Enforcement Mechanisms in Compliance with Provisions of International Laws

Despite being party to several international instruments on the regulation of mining activities and environmental protection, the government of Cameroon is still lagging behind in its obligations to implement the rights contained in these treaties. Cameroon is

a member of international standard UN ratified Conventions such as the Stockholm Declaration of 1972, the 1992 Framework Convention on Climate change, the 1992 Convention on Biodiversity, 1994 UN Convention to combat desertification, the United Nations Convention on Environment and Development of 1992 etc. All these Conventions regulate human activities that may cause harm to both the environment and local inhabitant within and out of the project area. However, these treaties are not effectively implemented reason why the right to healthy environment exists only on paper.

Human Malfunction

As seen above, staff of various environmental related services are required to identify investigate, appear in court and prosecute environmental offences. Ironically, these are staff trained in their specific disciplines and not as judicial officers. [132] For instance, the 2003 bio safety law define an inspector in the following words “an accredited and sworn official of the competent service, who is well specialized in disciplines relating to biotechnology/biosafety, and whose duties consist in verifying, assessing, managing and ensuring the follow-up of risks, and control with a view to granting a prior approval and/or authorization with full knowledge of the facts on notifications and release in the environment of genetically modified organisms and products thereof. He shall, in addition, be responsible for identifying offenders, formulating and/or proposing appropriate sanctions. [133] It is however obvious from the definition above that these officers who are specialize in their respective domains lack the requisite capacity to execute the judicial duties conferred on them. Not only that most of them lack basic knowledge of substantive criminal law and investigation skills, they know little or nothing about court procedure, the rules of evidence etc. [134] This vacuum has posed considerable challenge to the enforcement process and accounts partly for the escalating environmental harm cause by mining companies in Cameroon and renders enforcement unsuccessful.

Lack of Knowledge

Mining legislation in Cameroon within the 21st is still at its infancy same as the machinery

needed to enforce compliance. Most of the general prosecutors and police officers are not aware of the existing environmental criminal legislations available to offenders of environmental crimes. Consequently, a police officer cannot identify when an environmental offence has been committed, before commencing investigation. The truth is that one cannot do what he does not know. [135] Most of the magistrates and prosecutors are not aware of the existence of recent environmental legislations, despite the fact that they are over 10 years old. The statutes are not made available to the judicial officers. A majority of the lawyers show little interest in environmental issues and actually remain strangers to the laws. This constitutes a major handicap to the enforcement of legislations governing mining activities and environmental protection in Cameroon. A greater portion of the population is still ignorant of environmental concerns and it is a truism that citizens cannot seek the enforcement of a right, which they are not aware of its existence. Most of the victims of environmental harm are now engaging in artisanal gold mining which remained a quasi-illegal activity with the product sold quite through the informal circuit since the miners regarded themselves as outlaws.

CONCLUSION

This article has comprehensively discussed various laws governing mining operations and environmental protection in the Republic of Cameroon. The conclusion arrived at the end of the examination of the various laws governing mining operations and environmental protection in Cameroon is that the laws are fraught with problems; many are not effectively implemented and thus generally not effective. Notably, this article reflected that the laws governing mining operations and environmental protection are not effectively implemented in Cameroon. In order to meet up with the taste of time, or in an effort to enhance indispensable control over mining operations within the national territory, the Cameroon government has not stop ratifying international conventions, attending conferences on the environment and sustainable development, putting in place

national institutions and amending some of its old enacted laws in order to ensure effective regulation of mining activities and environmental protection within and around the project area and easily mitigate and adapt immediate and long term environmental injury that will foster a very sustainable environment within and around mining areas in Cameroon. But this national laws, international conventions and institutions has not achieved much on the regulation of mining activities and the protection of environment in Cameroon judging by persistent reports on the social media of environmental degradation, untold accident and diseases at the mine sites and dumping of toxic waste and radiocarbon materials and the spate of air and oil pollution in the Mobilong neighborhood in the East Region of Cameroon.

The above shortcoming of the laws governing mining activities and environmental protection resulted from disregard for existing legislation on environmental protection and inability by mining companies to meet up with compliance norms at the various stages of mining operations, generally understood as stage of careful planning of a mine operation, stage of mine operation and the final stage of mine closure. Equally, the Environmental Impact Assessment law also suffers from problem of compliance by both the Government agencies and the mining companies in Cameroon. Therefore, in order to have effective laws that will regulate mining activities and equally curb environmental degradation and pollution and as well guarantee effective protection of environment in Cameroon, it is suggested that the existing laws governing mining activities and environmental protection in Cameroon should be effectively implemented while some of the laws and their penalties should be reviewed to be in line with the taste of time. Equally, in order to avoid environmental hazards cause by mining activities, the Cameroon government should make it a condition sine qua non on all mining companies to create a department of environment within their company's offices that will cater for the unavoidable resulting mining hazards. Also the principle of polluter's pay should be reinforced on the mining

companies in order to mitigate the harm cause by mining activities within the local community. That is, adequate compensation should be given to the victim of mining hazard in the area where the mining activities is taking place or victims of environmental harm.

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