

**BRITISH MINING POLICY IN JOS PLATEAU,
NIGERIA: AN ASSESSMENT, 1900-1960**

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ABSTRACT

The discovery of tin ore and production in Nigeria during the colonial rule provides another source of revenue for the post-colonial government to tap for socio-economic growth and development of Nigeria. This paper examines the onerous environmental effect of tin mining and production on the people of Jos Plateau State during the British colonial administration. It discusses the colonial administrative policy on the exploration and production of Tin in Jos, particularly specific laws and ordinances established to create an enabling environment for Tin Mining Companies. It argued that the operations of British Mining Companies in Jos Plateau brought degradation and pollution of land in the producing local area. For proper data analysis, this paper employed both primary and secondary sources. It further explained that despite the activities of Tin Mining Companies in Jos city, most local people has experienced loss of farm land, degradation and poverty. It concludes that there is urgent need for a re-direction of policy on Tin exploration and production by the Federal government to forestall socio-economic growth of the Tin city and Nigeria at large. It recommends that until the above is put in place, only then would the potentialities of tin mining would be achieved.

Key words: Tin-Mining, Production, Jos-Plateau, Degradation.

INTRODUCTION

Jos Town is the Capital of Plateau State and of the Jos Division of the Local Administration. Jos is located almost in the geographical centre of Nigeria, about 1,000km North-East of Lagos, 400km South of Kano, 900km North of Port Harcourt, 600km South-West of Maiduguri, and 1,000km South-East of Sokoto. It is located at the Northern part of the Plateau which bears its name at an elevation of about 1,200m above sea level. As a town, it is the most asymmetrically placed State Capital in the whole of Nigeria, located at the extreme Northern end of the State. Except on its Northern part, the town is almost surrounded by hills.¹

To the East were the Dogon-Dutse and share Hills which rise to over 1,300m and 1,400m respectively. On the Western side are the Jenta Hills which also rise to over 1,280m above sea level. To the South are many small and large inselbergs, rocks and crops. In the North, the topography is worsened by many unclaimed old mining paddocks although a few of these have been reclaimed. Jos lies within the basin of the Delimi River, a tributary of the Shari River system which flows to the North-East and drains into Lake-Chad.

The Delimi and its tributaries of which the most important are the Niger, Curly and Canteen Greeks have been straddled by the built up area of Jos. Because of the seasonality of flow caused by the rainfall regime, these streams contain water during the rainy season (April to October) but dry up in the middle of the dry season (November to March). Apparently, today most of

their channels have been widened by mining and other activities such as quarrying of sand for building purposes leaving extensive pools of water in the dry season. It is noted that, on account of its altitude, Jos town experiences cooler temperatures and in some cases, higher rainfall than the surrounding towns.

Tin Mining is said to be one of the oldest industry known to mankind. It has been in existence long before the coming into contact with the European. Evidence from the Nok culture suggests that tin had been worked in the Jos area several centuries before the 19th Century. The tin ore was prospected mainly in local streams as in tins pans. Tin was put to different uses by blacksmiths who worked on the metal as on brass and bronze. It was used for the production of luxury items of ornamentation for men and women. More so, with the coming of the British rule in 1900s, land were taken over either by direct force or by, craftily influencing their leaders.² Thus, Jos mining industry became one good example in which Nigerian resources were exploited during the colonial period. To a large extent, the colonial mining policy has laid down a firm root for post-colonial government to tap and ensure accelerated growth and development of Jos city and Nigeria at large.

Several scholarly works have been written on mining activities in Nigeria, but for the purpose of this research, some relevant ones have been consulted. To start with, the work by Bingel, provides relative information on the origins and the development of the people. This work suggests that before the coming of colonial rule, there were few foreigners who had

established contacts with the people of Jos-Plateau. They were mainly from the neighbouring ethnic groups such as the Hausa Fulani, Jukun among others. However, the imposition of colonial rule led to massive influx of immigrants both within and outside Nigeria to the area. Bingel's work therefore provides useful information on the fact that the tin-mining was the major factor that attracted immigrants to the Jos-Plateau was tin mining.³ According to Charles, B.K and others the tin mining industry in Jos Plateau started in 1904 during the colonial era. After the survey of the area in 1902, the expatriate mining of tin ore began in 1904 despite the resistance offered by the people. From then onwards, the British extracted large quantities of tin ore from the Jos Plateau such that by 1938 Nigeria's export of tin ore to Britain stood at 10,486 tons which was valued at £1,435,157. It rose to 11,164 tons in 1951/52 and 11,942 tons in 1952-53. Many people got attracted to Jos Plateau as a result of tin mining, while a few to Naraguta and Delimi where mining activities also took place. During this period, only very few people worked in government establishments as labourers and messengers. Those who worked in the mining camps were immigrant Hausa people or Kanuri from Kano, Zaria, Bauchi and as far as the Emirate of Bornu and Chad Region.⁴ In the same vein, studies by Rene, at different times over the years indicates that tin ore is one of the several minerals found around Barkin Ladi Local Government Area. It contains toxic crystalline silica, which has been associated with lung cancer and other respiratory diseases. For decades, mine workers have been working with little or no protection against this toxic substance. The abandoned mines are also death traps, as

children and adults occasionally drown and the ever increasing population of people living around the ponds means more and more people are exposed to dangerous radioactive particles.⁵The literature is also useful and throw a great deal of light on the current study.

On the role of women in the tin mining production, studies carried by out by Alahira entitled 'Berom Women and Colonial Tin Mining Enterprise: Jos Plateau, Northern Nigeria', reveals that women were mostly engaged in the unskilled labour and were paid lowest wages. The Berom women actively involved in the washing, picking tin and pottering, and at the same time engaged with other auxiliary jobs. It explains further that though women were equally involved in local trade in food, firewood, beer brewing and other entertainment, the tin mining added extra burden to their domestic and agricultural role. From this study, it is clear that the role of women in tin mining was however marginal, because they were subjected to double exploitation of their labour by men and colonial agents.⁶ Oresegun and Babalola found that the environmental damaged caused as a result of the mining operation in Jos has continued to affect the inhabitants over the years. But the discovery of oil in Nigeria in the mid-1950s resulted in a shift in emphasis from tin mining. With the shift, Jos was caught cold and left blighted with challenge of degradation and devastation to the soil and the environment. Tin exploration and mining left a grotesque legacy of over 4,000 abandoned mining ponds, which have continued to pose a serious threat to the environment and the inhabitants. Quite a lot of damage was done to the land, particularly around

Jos. Dozens of people have drowned in the deep unmanned ponds and there are speculations that the ponds have radioactive elements, which represent further danger to the people in the area.⁷

Aigbedion, and Iyayi, mentioned the three stages of mineral development, exploration, mining and processing, have caused different types of environmental damages, which include ecological disturbance, destruction of natural flora and fauna, pollution of air, land and water, instability of soil and rock masses, landscape degradation and radiation hazards. The environmental damage has in turn resulted in waste of arable land, as well as economic crops and trees. Since much of the damage is inevitable, if the minerals must be developed, both the government and the mineral industry must be involved in taking precautionary and remedial measures that can minimize the ill-effects of mineral development.⁸

To Janet, the Jos area of Nigeria has been identified as a high background radiation.⁹ The waste products (tailing) from the mining of tin ore to obtain tin and columbite are discarded and dumped around the mining sites. Radioactivity contaminated land can arise as a result of industrial processes, including past waste disposal or accident. Radionuclide could be present on land as a result of a number of past land uses. Contamination of land could occur during the extraction and handling of materials containing high levels of Naturally Occurring Radionuclide Materials (NORM). The intake or ingestion of radionuclide contaminated feed, e.g. grass by animals can concentrate

radioactivity in tissues. The uptake of radionuclides by animals is dependent on the animal species, mass, age, and growth rate of animal and the digestibility of the feed. Ingestion of soil during grazing can be an important contributor to intake of activity, particularly for radionuclides that are not taken up readily by grass. Hence, contamination of meat is mainly the result of animal grazing, but contaminated drinking water might also be an important pathway. Clearly, communities in the mining area of Jos have been exposed internally to radionuclides through eating the products of animals which have eaten contaminated substances.

The environmental impact of Tin mining operations has been largely felt in some old mining centres in some Jos communities like, Bitsichi, Bukuru, and Ropp, particularly on their agricultural activities. For example, farming on soils situated in high background radiation areas can result to enhanced radiation exposure scenarios and pathways to humans. To assess the likely levels of exposures, farm soil samples were collected from different farmlands in three old tin mining localities (Bitsichi, Bukuru and Ropp) in Jos Plateau Nigeria, known for high radiations. The soil samples were analyzed to ascertain the level of its impact on the people. It was found that the radiation shows the possibility of health risk among the farming population and workplace environment which often is not covered by regulations concerning health protection.¹⁰Hence, lack of enabling environmental policy have brought health challenges on most communities in the tin mining areas of Jos.

JOS ECONOMIC ACTIVITIES BEFORE THE DISCOVERY OF TIN ORE

The pre-colonial political and economic activities of various ethnic groups that formed what is called Jos-Plateau had communal lifestyles with heads of clans as leaders. The local people were governed through a well-established ruling house. It should be added that the extent of political activities was based on different dimensions as a result of diversities in political awareness, culture, ethnic background and religious differences.¹¹ In their traditional political system, the people of Jos practiced self-governance with a social structure that constituted a traditional heads and council of elders who were responsible for the checks and balances of the society¹².

It is important to note that the British colonial administration reshaped the political system of Jos. In fact, most of the political decisions were taken by the British between the 1900 and 1960.¹³ In modern times, the city has been administratively, divided into three local government areas, namely; Jos north, Jos south and Jos east. The city lies between Jos-north and Jos-south. Jos-east houses the prestigious National Center. Jos-north is the State capital and the area where most commercial activities of the state takes place although as a result of the recent communal clashes a lot of commercial activities have shifted to Jos-south.

As was common in most part of Africa and Nigeria in the pre-colonial period, agrarian economic activity was predominant among the people of Jos. Evidence has revealed that most of

them were actively engaged with farming, others in hunting and trading inform of barter system. There were evidences of long-distance trade particularly by the caravan traders within the north central and the middle belt.¹⁴As a result of the central location of Plateau State in Nigeria, its climatic conditions have made the city conducive for the cultivation of a large variety of agriculture products. The availability of abundant land and low population density has made intensive agricultural production an important part of the rural economy. It is noted that Kanam Local Government Area's traditional economy were mainly based on agriculture. The main crops grown include: maize, cotton, groundnuts, beans and millet. Kanam is credited to be the highest producer of quality cotton in the State. Similarly the economy of Kanke Local Government Area was agrarian with such food crops as guinea corn, groundnuts, acha, maize, millet, beans, cassava, rice, cocoyam, cotton and sweet potatoes.¹⁵ The Langtang North Local Government Area was rich in the production of crops such as groundnuts, yams, guinea-corn, maize, and cotton.¹⁶

The large scale agricultural production of the State has made some Local Governments to develop very significant grain markets. For instance Mangu Local Government Area's economy is mainly agricultural with cash crops such as Irish potatoes, maize, beans, millet, wheat, rice, sorghum, and guinea corn being grown in commercial quantities and marketed both within and outside the State as well as to neighbouring countries.⁵ The popular Mangu Friday grains market attracted traders from near and far. The Qu'an Pan Local Government

also produces mainly yams, rice, maize, guinea corn, melon and groundnuts.¹⁷

Riyom Local Government Area of Jos equally specializes in the production of a wide variety of vegetable products namely, Cabbage, Lettuce, Carrots, Green Beans, Cucumbers, Peas, Green Peppers, and a host of horticultural products. These are produced throughout the year by both irrigation farming. Other crops that are produced in the Local Government Area include acha, rice, sweet and Irish potatoes, maize and millet. Similarly, the availability of pasture as a result of the favourable rainfall, abundance of sources of water supply and the temperate climate of Plateau State makes it conducive for livestock rearing. The practice of transhumance also makes Plateau State a favourable destination for flocks of livestock from the North West and North East zones of the country. For example, major livestock reared in the Plateau: Cattle, Sheep, Goats, Pigs, Poultry and Rabbits. The livestock sub-sector generates revenue for Plateau State through its many diverse upstream and downstream enterprises e.g. Livestock trade tax, slaughter fees paid in government owned abattoirs, Hides and Skins Buyers License fees and clinical treatment fees for livestock at government veterinary clinics.¹⁸ A large scale national trade network in livestock exists and Plateau State serves as one of the supply centres of this intricate trade.

Other local enterprises included; food processing, beer brewing, and the manufacture of cosmetics, soap, rope, jute bags, and furniture. Heavy industry produces cement and asbestos cement,

crushed stone, rolled steel, and tire retreads. It should be added that Jos is a centre for the construction industry and has several printing and publishing firms. The Jos-Bukuru dam and reservoir on the Shen River provide water for the city's industries.¹⁹

BRITISH MINING LEGISLATIONS AND THE DISCOVERY OF TIN ORE IN JOS

The foundations and the development of commercial tin mining in northern Nigeria began in the early 20th Century. It should be noted that such fundamentally unknown space i.e. an underground zone lying at the edge of Empire, which was constructed as a mineral rich region, and subsequently integrated with capital and commodity markets in Europe as an extractive economy. From 1902 onwards, the landscape of the Jos Plateau was re-worked to supply tin ores and concentrates to smelters, refineries and fabricators in Europe.²⁰ At their height, the mines of northern Nigeria provided almost one-tenth of the world's tin. Since exploration and exploitation of mineral wealth in British colonies were rapid and prior to the oil discovery in the southern Nigeria, there was an abundance of tin ore to be exploited on and around Jos Plateau in North Central Nigeria.

In addition, the exploration of tin began with a small-scale activity until 1904, when prospectors from the Royal Niger Company discovered the source of the tin in the alluvium of rivers draining the granite complexes of the Jos-Bukuru-Ropp area of the Jos Plateau. However, with the discovery of the

source area, commercial exploitation of the deposits began immediately. One of the major factors that attracted immigrants to Jos-Plateau was tin mining. As a result of colonial conquest of the North Central part of Nigeria, colonial tin mining started in 1903 following the forceful suppression of the local miners in places like Ririwan Delma, Tilda Fulani, Narabi and Garbi, all in Bauchi. More importantly, one of the instruments which facilitated the process of colonial tin mining was the Land Proclamation Acts of 1904 and 1910 and Mineral Acts of 1903 passed by Lord Lugard.²¹ This led to the alienation of huge land from the people for tin mining, which later resulted into land devastation and land crisis in the area. As a result of these Land Proclamation Acts many British prospectors and mining companies rushed for land in the area. The number of these companies increased from 50 in 1911 to 83 in 1982.²² At the same time, the rise in the number of mining firms was followed by rapid increase in the production of tin ore.

OPERATIONS OF MINING COMPANIES IN JOS

One of the ways by which man impacts his environment has been through mining activities. Tin mining industry is one of the oldest industries in the world and its importance cannot be over emphasized. Mining on the whole is the extraction of valuable mineral resources or other geological minerals from the earth, usually from an ore body, vein or seam. It has equally been described as an act or process of extracting minerals of economic importance from their natural environment and transporting them to points of processing and use. Mining in Nigeria started as far back as in the eighteenth century.

Over 500 occurrences and deposits of different minerals are known to have existed in Nigeria with the exploration of some on a smaller scale.²³One of the major cases of mineral exploration and exploitation that boomed within the nation has been that of Tin ore in Jos-Plateau. Tin was one of the oldest mineral resources known to man as its valuable importance was recognized as far as some 300 years ago when its hardening effects on copper was discovered. Since then, tin ore have been mined in several parts of Nigeria including Zaria, Kano, Bauchi, Ilesha and Plateau Province, with over 80% of the production coming from the Jos Plateau.

The tin mining industry in Jos Plateau started in 1904 during the colonial era. After the survey of the area in 1902, the expatriate mining of tin ore began in 1904 despite the resistance offered by the people. From then onwards, the British extracted large quantities of tin ore from the Jos Plateau such that by 1938 Nigeria's export of tin ore to Britain stood at 10,486 tons which was valued at £1,435,157. It rose to 11,164 tons in 1951-52 and 11,942 tons in 1952-53.²⁴Interestingly, the Land Proclamation Acts of 1904 and 1910 and the Mineral Acts of 1903 passed by Lord Lugard enabled the British colonial government to take over most lands which were leased for mining. This led to alienation of huge land from the people for tin mining and later created land crisis in the area.

In 1902 and 1909, two mining companies, (i.e. Niger Company and Champion Nigeria Tin Field Company), obtained licences

to start their mining operation in the southern and Jos Plateau of northern Nigeria.²⁵ The Niger Company's licence covered approximately 900 square miles along the Plateau and Bauchi area. The licences also required the mining companies to consider the protection of agriculture lands, forest and rivers and the mining lease agreement required the restoration of land to a state suitable for agricultural operation after mining had stopped, particularly if such land had previously been of pastoral value. The miners had to comply with the payment of rents and royalties to the colonial government in Nigeria, as well as the native community.²⁶ The mining for tin actively began with the improvement on transportation, with communication facilities and the construction of roads to reach the centres of production. It should be noted that improved communication had a great impact on the opening up of areas, particularly railway construction in the north from Baro-Kano-Lagos across the Jebba bridge. Discovery of tin was made in the Jos area of the Plateau and Bauchi in the north by the two mining companies partly as a result of large capital investment by the industry.

TIN ORE IN JOS: ANY POTENTIAL FOR NIGERIA ECONOMIC RESUSCITATION?

Tin Mining and Jos Economy

As stated above, tin mining started in the 'Tin City' of Jos way back in 1902 and by the mid-1940s the British government formally entered into exploration and mining in the region, making it the number one foreign export from Nigeria to Europe. Colonial government required the establishment of tin mining in Nigeria on a capitalist basis to serve the industrial

needs of the West. Pre-colonial social organization prevented the release of sufficient labour for this purpose. After the British conquest, a migrant labour force was built up in conjuncture with a growing reserve army of labour by means of cash taxation, penetration of the market, weakening of slavery and state use of forced labour.²⁷ This shows how commercial exploitation of the Plateau's tin resources radically re-configured both physical landscapes and forms of social organisation in the Plateau, thereby generating novel socio-natural juxtapositions that came to be experienced as poor working conditions, environmental hazards, and conflicts between farmers and miners over access to land.²⁸

Furthermore, the mining of tin have been largely responsible for profound changes in the landscape and in the social economic structure of Jos. Limited arable land was experienced in Jos Plateau area as a result of the high rate of surface mining. It should be noted that mined soils are poorer in agricultural value compared to adjoining natural land. Crops grown on such mined land are of low agricultural value, quick maturing and low nutrient demanding such as acha, dauro, maize, millet and irish potato. Calvert revealed that the indiscriminate mining on the Jos Plateau led to many parts of the area being exposed to erosion and reduces the available arable land for crop production.²⁹ Jos South local government area was an extensively mined area, dominated by use of heavy earth moving equipment and draglines. The zone experienced deep excavations and dumping of high overburden, mine ponds, mine tailings and slurry wash deposit during the colonial rule.³⁰

Table 1.1: Output of tin, 1910-1914

Year	Tin Exported(Tons)	Ore Worth
1910	739	77, 310
1911	1,529	181, 759
1912	2,803	336, 330
1913	4, 142	568,428
1914	6,174	706, 987

Source: Nigeria Handbook.

The above table reveals the output of tin within the period 1910 to 1914. The capital investment by the London Company increased output from 739 tons in 1910 to 6,174 tons in 1914. Also, the output of tins also rose to 9,996 tons in 1917, but has fallen to about 7,000 tons by the 1920s.

Table 1.2: Export of tin, 1915-45

Year	Volume (Tons	Value(E)
1915	6,535	723,840
1918	8,294	1,770, 003
1920	7,913	1,785, 724
1925	9,293	1,737, 578
1930	12,069	1,373, 466
1935	8, 949	1,456,753
1940	14, 843	2, 726, 911
1945	15,166	3,129, 265

Source: Nigerian Handbook; Annual Report of the Mines Department, Lagos Government Printers

This table above reveals the rapid increase in the output of tin in tons to 1915, with about 6,535 tons valued at 723,840 pound sterling. There was a sharp decrease in the output of tin ore before 1918 and the 1920s as a result of the wars, but the revival of the industry in the 1930s resuscitated the volume from 12,069, valued at 1,737, 578 to 15, to 166 tons in 1945, valued at 3,129,265 pound sterling. Apparently, the process of mining in Jos Plateau attracted migrants labour within the north central and from other parts of the country. It drastically reduced over dependence on arable farming among the local people who were fully engaged with wage labour in the colonial mining companies.

ENVIRONMENTAL IMPACTS OF TIN PRODUCTION ON THE LOCAL PEOPLE (BEROM)

Tin mining in Jos Plateau has positively impact on the revenue generation both to the Federal Government, State, the local people as well as the mining companies. For example, Berom women used this opportunity and derived more revenue through the sale of local food to the miners. The local women equally made more money from the sale of chickens, goats and ducks during this period. Some others engaged in the sale of firewood to the mining companies which then was an essential commodity in the camps. Berom women and those of their neighbouring ethnic groups took this opportunity and made brisk business from selling firewood. On the other hand, the local men also got more money from the sale of grains.³¹The discovery of

Tin Ore in Jos Plateau has brought changes both to the environment and its host communities over the years. Jos is renowned for Tin mining production, particularly during the colonial era. The area played an important role in the generation of internal revenue for the District Colonial Office as well as met the local needs of the Berom and other ethnic people.

It is noted that the Jos environment has been affected negatively as a result of the operations of mining companies over the years. According to Jibiri and Agomuo, the traditional farming system of the indigenes has become distorted today as a result of shortage of land so that the people especially in these mining communities, because of socio-economic pressure had to farm on the same piece of land yearly and with the poor quality of the land, produce yields have been reported very poor.³² It should be noted that mining has reduced the size of their farmland and 34.2% had been lost, as well as about 1.5 to 2 and half of their land to mining. Bearing in mind that majority of them were subsistent farmers, it means many of them had lost the whole of their land to mining. More so, the tin mining industry on the Jos Plateau had led to extensive man-made environmental damage, with vast tracks of pastoral land systematically destroyed in the quest for cassiterite and columbite. Also, with increased radioactive waste as a result of dumping of mine tailings and several heaps of mine dumps (overburden) and also mine ponds scattered all over the area. These mine ponds have resulted in several deaths, with about 106 recorded from the years 1980 to 1993.³³

Furthermore, the bio-diversity of the mining areas has been badly damaged as a result of the mining activities. According to Howard and Ramson, the minerals were extracted and used by industries, the earth crust had been disturbed. They argued that this crust was inhabited by some living things whose life patterns were disturbed when mining was undertaken. This resulted in a loss of biodiversity.³⁴ Similarly, mines, both active and inactive, constituted potential water contamination sources. According to Davies, the Mining excavations created direct connection between ground water and the land surface.³⁵ Hence, oxidation of exposed minerals which led to acid mine drainage in the mining communities of Jos.³⁶ Leaching of heavy metals has threatened the local people. In fact, drainage of materials from abandoned mines has contaminated the ground water source for years after mining operations had stopped.³⁷ The extent of the landscape originally disturbed by the large scale commercial tin mining operations on the Jos Plateau is put at 325 km² and represented more than 17% of the agricultural land with 8,600 km² of the entire Jos Plateau region, the bulk of which is virtually covered by rock outcrops.³⁸ Tin Mining activities had adversely affected the plateau people. These resulted in the alienation and destruction of farmlands, diversion of labour from food production, environmental degradation and exploitation of surplus from the peasants and shortage of food. The Plateau people did not benefit from tin mining as they occupied low position in the social hierarchy after the Hausa, Yoruba, Igbo and other foreigners.³⁹

It should be noted that for easy access and marketability of tin ore, a substantial reduction in transport costs was necessary to the valuable deposits which were now located around Ray field and Bukuru. A rough motor road was built in 1910 from Rahama at the foot of the Plateau to link the mineral fields with the Baro – Kano railway a Rigachikun, a few kilometers North of Kaduna. Another positive effect of the tin mining activities on the Jos Plateau was the infrastructural development which was linked to the advent of tin mining. This led to the construction of railway lines, Nesco Hydroelectric Power Company and roads. Between 1901 and 1910, the output of tin ore had risen from 50 to nearly 600 tons.⁴⁰

GOVERNMENT RESPONSES TO ENVIRONMENTAL PROBLEMS IN JOS

The legacy of landscape dereliction and waste led in 1982 to the State Government declaring much of the central area of the Plateau to be a 'disaster area'. Two major factors influenced this decision: first, it was a response to mounting public concern over the danger to children playing around in the abandoned area and secondly, it was an attempt to attract further funds for reclamation from the Federal Government. This whole question of reclamation of the tin fields is a controversial topic and until the fall of the Shagari Government in 1983 it had been the focus of much political friction between the State and Federal Governments. Although legislation covering mineral rights, registration of leases and compensation for loss of land was introduced soon after 1904, it was not until the introduction of the 1946 Minerals Act that regulations covering reclamation

were included in any legislation.⁴¹The introduction of this Act caused a flurry of restoration by two of the larger mining companies.

In the early 1960s, the Federal Government took some steps in response to the environmental hazards in the mining community, but it was not efficiently controlled. Reclamation began again with the creation of a separate Plateau State in 1976, with funding from the Federal Government, a small reclamation unit established within the Ministry of Animal and Forest Resources. Political differences, between the State and Federal Government, greatly reduced the effectiveness of this unit. Amid accusation of misappropriation of funds, the Federal Government in 1979 set up the Joint Consultative Committee on Mines and Reclamation (JCC), to oversee reclamation throughout Nigeria. The JCC was given Federal funds to use for reclamation and rather than disbursing these to State organizations, they allowed contracts to be competitive tender. Two of such schemes were successfully completed on the Plateau before serious economic problems hit Nigeria in 1983 and all funding for reclamation ceased. It is apparent that some of the decline in soil conditions that has occurred in the Mining Resource Areas (MRA) occurred as a result of poor management practices. There is, however, an increasing volume of evidence from mining cite which indicates that in certain circumstances eucalypts can directly cause long-term deterioration in soil conditions.⁴²

Conclusion

This paper has examined Tin mining and environment, with a focused on Jos Plateau. Evidence found that environmental hazards posed by mining activities can be reduced by adapting best mining practices such as mine reclamation after mining, while mine waste should be properly disposed. This study has revealed that Solid minerals contributed immensely to the economic development of Nigeria in the pre-independence years. This study also revealed that the mining communities experienced varying degrees of farm land reduction by tin mining activities ranging from soil erosion problems, swampy nature of neglected mined excavation, mine dump, pits and industrial use of the arable land. These in turn result in low productivity in crop farming, land fragmentation, land disputes and conflicts, and unemployment in the area. However, irrigation water was derived from the mine ponds. Some of the ponds are so deep that they are recharged by ground water, thus making them permanent water bodies, with high potentials for irrigation, fisheries, water supply and recreation. Consequently, the ponds and dams created by mining operations now provide water for irrigation farming in the study area. The ponds are also very valuable livestock watering points and sources of domestic water to many nearby settlements. In addition, some dry mining pits provide ready-made and cheap sites for refuse disposal.

This paper has further revealed that Mining activities have not only impacted on the environment of the Jos Plateau by way of depriving the farmers their means of livelihood but has

contributed to the growth in population. This increase in population has brought with it the resultant social vices, such as crime rate, prostitution, traffic congestion, stress on facilities and even loss of cultural heritage. Mining laws enacted by the Government should be strictly enforced to ensure compliance and prevent future unwholesome practices. Over all, the shift in emphasis from tin mining to crude oil led to a decline in the contribution of tin to the formal economy, just as weak regulatory frameworks have contributed to the informality associated with tin mining in Jos, Plateau.

Improving environmental governance in the mining sub-sector is a critical step towards addressing the challenges posed by tin mining activities at both formal and informal levels. Efforts towards addressing this challenge through the Ecological Funds given to the States by the Federal Government, as well as the move towards the call by civil society for the establishment of the Land Reclamation and Ecological Development Board in Plateau State has done little or nothing in tackling mining induced devastations in Plateau State and beyond. Also, current mines should be properly planned to minimize the amount of hazardous waste they produce, while on historical mines where waste already exist, remedial action maybe required, such as suitable land use planning, so as to restrict the use of contaminated sites. It should be noted that an established and well managed solid minerals sub-sector would accelerate economic, social and political growth of Jos Plateau and Nigeria at large by provision of gainful employment and a rise in national income earnings far exceeding the petroleum sector.

Solid minerals would provide local raw materials for industries and bring vital infrastructure and wealth to rural areas

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