

## **Does Artisanal Tin Mining affect Academic Performance of Secondary School Students? Lessons from Barakin Ladi Community in Plateau State, Nigeria?**

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### **Abstract**

*The study examined the issue of artisanal Tin mining and academic performance of secondary school students in the mining community of Barakin-Ladi in comparison to Mangu a non-mining community all in Plateau State, Nigeria. The major objective of the study was to examine the difference in performance of students in secondary school terminal examinations such as WAEC/NECO and tertiary entrance examinations such as JAMB/UTME in Barakin-Ladi and Mangu. To achieve these objectives, relevant data was elicited from 732 respondents in the two LGAs. To determine the sample size, the Taro Yamane method was adopted. The simple random sampling technique was used to select the respondents who were secondary school students, from each from the two LGAs. The study relied on primary and secondary sources of data collection. Quantitative (simple percentage and chi-square) methods were used for data analysis. The findings revealed a link between social risks such as child labour as well as mining related conflicts and low performance of students in Barakin-Ladi when compared to Mangu where high academic performance was recorded in WAEC/JAMB examinations. These findings were proven through a comparative analysis of historical data on WEAC and JAMB results of the two study areas. The study recommends among others, community wide sensitization on the dangers of artisanal Tin mining on school children as well as the enforcement of regulatory policies on artisanal Tin mining in Barakin-Ladi.*

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**Keywords:** *Artisanal Tine Mining, Academic Performance, Secondary School, Students, Barakin-Ladi*

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### **Background**

Nigeria is endowed with enormous mineral resources which when properly harnessed and managed can provide the necessary economic momentum for industrial growth and development. It is a known fact that countries abundantly endowed with mineral resources become great industrial nations (Okpanachi, 2004). However, despite the abundance of natural and human resources that are all together necessary for a country specific industrial revolution, Nigeria has

continued to wallow in adverse socio-economic conditions resulting from inadequate management of these resources.

Tin mining was first discovered by subsistence farmers around 1700 -1750 in Kuza, near the river channel in Plateau State, Nigeria. Given their involvement in subsistent agriculture, Kuza people longed for advanced tools besides their hands and sticks. The people believed the discovery of tin was a gift from God (Cooper, 2010). Following this discovery, Tin mining began to develop in local villages and the villages started trading with those who came from Tripoli and across Sahara. The tin was melted and made into rods and by 1760 -1770, there were 13 indigenous blacksmith smelters in Narag uta, Jos North.

With the rise in demand for Tin in Europe, traders of the product began to invade the country's Tin depot which is Bauchi and Plateau for the product. Although tin was mined in Barkin Ladi the Hausa traders wanted to enjoy market monopoly and so did not want people to know the original source of tin hence the buying centre was located at Bauchi (Cooper, 2010).

Plateau state is endowed with mineral resources such as precious stones, bitumen among others. However, the mineral resource that has attracted much attention is Tin. The mining of Tin is basically carried out intensively in about four local government areas, namely Jos North, Jos South, Wase and Barakin-Ladi. Because of these mining activities there has been a significant influx of people to these local government areas, especially the Hausas who are referred to as Jasawa's (Jos Hausa's). Within the context of Barakin-Ladi where this study was conducted, Bisichi community attracts the highest concentration of artisanal miners. The people of this area are considered in the light of modern standards uneducated and backward.

It is important to note that like every crude mining processes in the world, the presence of artisanal mining activity in Barakin-Ladi exposes Tin miners to some identifiable social risks that dovetail to constrain normal activities such as schooling especially for secondary school children. For instance, the perceived short-term income generation associated with artisanal mining undermines schooling as young children are forced into labour conditions in the mines instead of going to school. This is in addition to intermittent closure of schools as a result of social conflicts arising from the struggle for mining fields as well as the spoils associated with artisanal mining activities in the study area.

### **Problem Statement**

It is important to note that all over the world, informal mediums of exploring and exploiting natural resources functions as a result of two mutually reinforcing factors. First is the inability of government to properly regulate the sector especially in terms policies that judiciously channel revenue into meaningful use for the general populace. Second, which necessarily is a falloff of the first, is widespread poverty among the masses which acts as a push-factor to undertake unrefined risks in mining such resources, undermining associated dangers to their health and environment. Sadly, the domain of illicit mining activities come with deleterious social, health and environment effects.

Not surprising, several studies have concentrated more on the health and environmental dimensions of artisanal tin mining on society leaving out the purely sociological risks (see; Stecking, 2004; Yeboah, 2008; UNEP, 2011; and Gboyega, 2011).

While the studies highlighted above have all contributed to the understanding of the health and environmental dimensions of legal or illegal mining activities, little or nothing is known about the social risks associated with mining activities and how these affect the academic life of children in mining communities. This constitutes a key academic gap requiring research to fill. As a result, this study examined the problem of artisanal Tin mining and academic

performance of secondary school students using in a mining (Barkin-Ladi) and a non-mining (Mangu) community. As a result, the study rests on the hypothetical assumption that in addition to inhaling harmful dusts, frequent social conflicts and the use of school children as labour hands in artisanal mining activities progressively leads to a decline in the academic commitment of school children in mining communities (in this case Barakin-Ladi) when compared to children from non-mining communities (in this case Mangu).

### **Objectives**

1. Examine the proportion of secondary school children that are working part-time in artisanal Tin mining fields in Barakin-Ladi as compared to those from Mangu.
2. Examine whether social conflicts resulting from artisanal Tin mining negatively affects secondary school activities in the mining communities of Barakin Ladi when compared to Mangu
3. Examine the difference between the performance of secondary school students in Barakin-Ladi and that of similar children from Mangu LGA with regard to terminal (WAEC) and tertiary entrances (JAMB) examinations

### **Hypothesis**

There is likely to be a significant difference in the performance of students from mining communities in terminal examinations such as WAEAC/NECO as well as the Unified Tertiary Matriculation Examination when compared to children from non-mining communities

### **Literature Review**

A rich natural resource endowment provides a large number of developing countries with a comparative economic advantage. Mining is an activity that is complex and requires significance capacity for its proper management. Artisanal and small scale mining is a complex and diversified sector that includes poor informal individual miners seeking to eke out or supplement a subsistence livelihood, to small-scale formal commercial mining entities that can produce minerals in a responsible way respecting local laws MPF (2012).

The history of mining until this century was one of small-scale operations, often crude in terms of technology and hazardous to health and safety but nevertheless providing the necessary mineral raw materials for society. In contrast, resources development in the twentieth century has been marked by the growth of large mining utilizing economics of scale (Adekeye, 2001:2). Depending on how the mining sector is managed, it could either reduce or reinforce poverty. The social impacts of large-scale mining projects are controversial and complex. Mineral development can create wealth, but it can also cause considerable disruption. Mining projects may create jobs, roads, schools, and increase the demands of goods and services in remote and impoverished areas, but the benefits and costs may be unevenly shared. If communities feel they are being unfairly treated or inadequately compensated, mining projects can lead to social tension and violent conflict. Communities feel particularly vulnerable when linkages with authorities and other sectors of the economy are weak, or when environmental impacts of mining (soil, air, and water pollution) affect the subsistence and livelihood of local people (ED, 2002)

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 or are left near the mine, where they may bear the brunt of pollution and contamination. Force

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.

One of the most significant impacts of mining activity is the migration of people into a mine area, particularly in remote parts of development countries where the mine represents the single most important economic activity... This influx of newcomers can have a profound impact on the original inhabitants, and disputes may arise over land and the way benefits are being shared...”Sudden increases in population can also lead to pressures on land, water, and other resources as well as bringing problems of sanitation and waste disposal (IED, 2002).

There is quite some debate (Adeleke, 2001) about the contributions of artisanal and illegal mining to sustainable development and sustainable livelihoods. For the thousands of poverty-stricken and hungry people in both rural and urban areas artisanal and illegal mining is a welcome solution to their problems. To many people, particularly those involved in gold and semi-precious minerals, artisanal mining represent the “fast track process to their earthly riches”. Yet, there are those who view artisanal and illegal mining with high contempt. This contempt is based on the belief that artisanal and illegal mining represent the greatest environmental disaster in the making.

Reiterating further on other forms of social consequences of artisanal mining, he made the case that, women and girls are prominent in the middle and upstream sectors of the industry i.e. processing and marketing. Also, in highly prosperous areas especially rich in gemstones, the enormous influx of miners commonly results in the creation of enclaves of overcrowded shanty settlements. There is increase in duty labour involving young boys and girls and school drop outs. This commonly leads to shortage of farm lands and hence loss of agricultural product. In addition, substantial immigration and human trafficking consequently result in increase in sexual trade, prevalence of sexually transmitted diseases (STD), unwanted pregnancies and early marriage (Adeleke, 2001).

### **Theoretical Framework: Marxist Political Economy Theory**

For the purpose of this study, the Marxist Political Economy Theory was adopted. Marxist Political Economy Theory is associated with the German Scholar, Karl Marx. As its tenet, the theory relies heavily on the materialist conception of history and therefore argues that all social processes in human history is determined by the inherent and ongoing economic activity cum relationship that act themselves out in that particular society.

In other words, Marxist political economy theory holds that all other institutions in any society are subject to the dictates of the economic institution. It therefore points out that in all instances, those that own the means of production in any society determine the shape of activities in other institutions such as religion, politics, education, etc. In the case of a peripheral capitalist society like Nigeria, the Marxist political economy theorists would see those who own the dominant means of production (the bourgeoisies) as exploiters of labour of the working masses and as such are always in conflict with the later. It is believed that the bourgeoisie who also are the ruling class (either directly or indirectly) are always developing policies that further their own class interest rather than that of the proletariat.

Marxist political economy locates artisanal Tin mining and associated social conflicts as well as school children’s labour within the context of the more fundamental poverty phenomenon which develops as a result of the inadequacy foisted upon a group of persons by structural circumstances (Yusuf, 1997). These structural circumstances involve relationships of social, political and economic nature among members of society with the economic relationship

being the base upon which the political and social relationships rest. This economic relationship is expressed in specific structural relations or what is referred to as social relations of production. Marx himself did justify this when he adduced that “at the production level, the co-operation of individuals, the labour of all members of the family, women and children inclusive are imperative (Marx, 1867 cited in Osiruemu, 2007)

Based on the above premise, the adoption of the Marxist political economy theory is justified for a study of artisanal Tin mining and academic performance of secondary school students especially when variables such as social conflict and child labour are basic intervening variables. This is because, as a theory, the Marxist Political Economy perspective enables us to see how social conflict, child labour and poor academic performance of secondary school students in mining communities of Barakin-Ladi LGA are driven by socio-economic activities within the artisanal mining sector. In the same vein, the conditions that fuel artisanal mining itself are products of a political economy of class exploitation. In other words, the capitalist system thrives under a situation that impoverishes the masses who have no choice but to involve themselves in illegal mining activities for the purpose of augmenting their income.

### Methodology

The survey research design was adopted in this study. The target population is secondary school students from the two Barakin-Ladi and Mangu. Based on the records of the Plateau State Ministry of Education (2015), the secondary school student population for Barakin-Ladi is put at 2,089, while that of Mangu LGA is put at 3,152. This together amount to 5,241 students. This figure constitutes target population for this study. The sample size is 732 and this was determined using the Taro Yamane. To select the sample, the simple random technique was adopted. The questionnaire and observational methods were adopted for data collection. The data gathered were analyzed using simple percentages, descriptive models and the chi-square ( $\chi^2$ ) test.

### Results

A total of 732 questionnaires were distributed. 707 (352 and 355 from Barakin-Ladi and Mangu respectively) were collated representing 97% response rate. This formed the basis for analysis below.

#### 4.1 Socio-Demographic Analysis

*Table 4.1: Socio-Demographic Data Of Respondents*

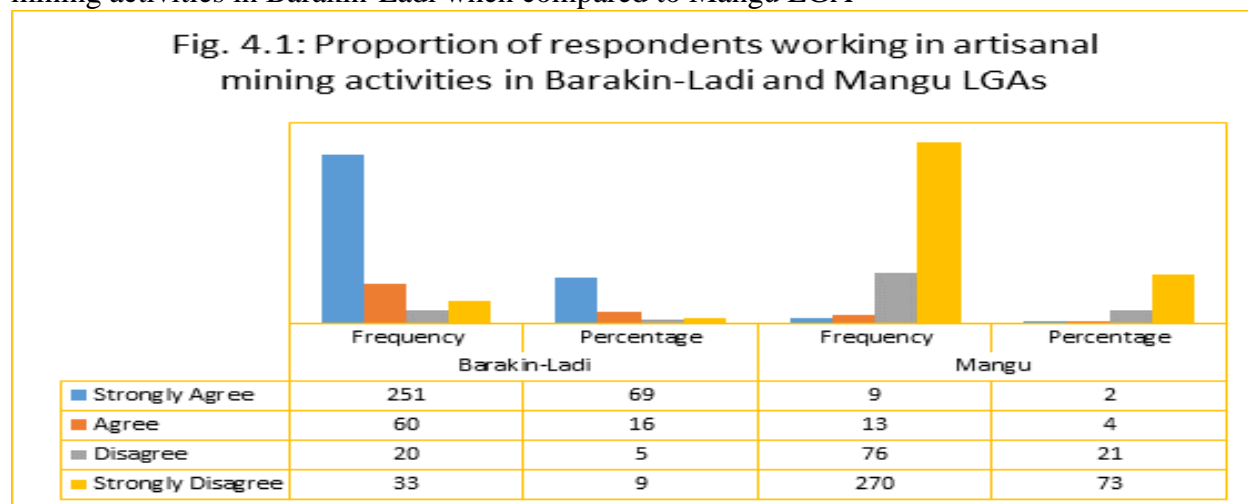
<i>Variables</i>	<i>Barakin-Ladi LGA</i>		<i>Mangu LGA</i>	
	<i>Frequency</i>	<i>%</i>	<i>Frequency</i>	<i>%</i>
<i>Age</i>				
<i>Below 10</i>	18	5	39	11
<i>10-11</i>	46	13	65	18
<i>12-13</i>	86	24	98	27
<i>14-15</i>	196	54	150	40
<i>16 and above</i>	18	5	16	4
<i>Total</i>	364	100	368	100
<i>Gender</i>				
<i>Male</i>	242	66	201	66
<i>Female</i>	122	34	167	34
<i>Total</i>	364	100	368	100
<i>Religion of Respondents</i>				
<i>Christianity</i>	253	70	272	75

<i>Muslim</i>	103	28	90	25
<i>Traditional</i>	8	2	6	2
<b>Total</b>	<b>364</b>	<b>100</b>	<b>368</b>	<b>100</b>

Source: Field Survey, 2016

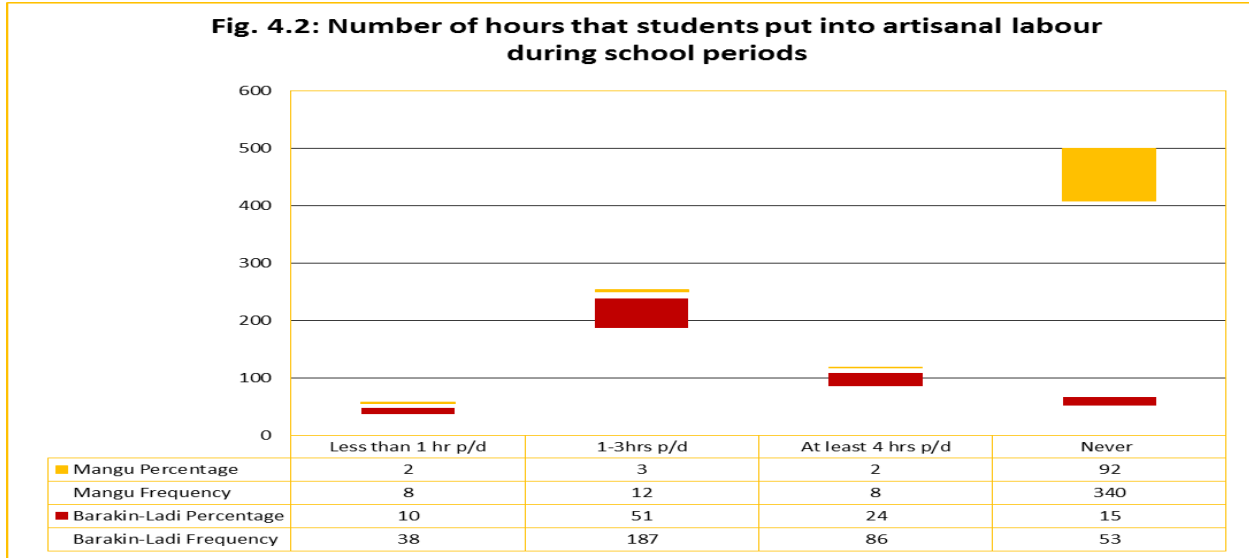
Table 4.1 above represents socio-demographic data. The first section highlights the age distribution of the respondents. From the data, the most common age range was 14-15 years (54% and 40%) followed by 12-13 (24% and 27%) in Barakin-Ladi and Mangu respectively. This is an indication that the majority of the respondents were students who are in the terminal period of secondary school education. Response from them helped to corroborate information from WAEC, NECO and JAMB. The next variable on Table 4.1 above is the gender distribution of respondents. From the data, 242 (66%) of the respondents were males, while 122 respondents representing 34% were females from Barakin-Ladi, while 201 respondents representing 66% were males and 167 respondents representing 34% were females for Mangu. This revealed that males were the highest respondents. Lastly, from the table above, data on the religion of respondents was also presented. The information revealed that on the average, more than 70% of the respondents are Christians for both Barakin-Ladi and Mangu, while less than 30% of the respondents are Muslims. This showed that the areas of study are mainly Christian dominated areas.

**Objective 1:** Examine the proportion of secondary school students that are working in artisanal mining activities in Barakin-Ladi when compared to Mangu LGA



Source: Field Survey, 2016

To address the first objective, Figure 4.1 shows data on the proportion of the respondents who work in artisanal mining activities. From the histogram, more respondents from Barakin-Ladi engage in artisanal mining labour as children than those from Mangu LGA. From the data, 251(69%) of the respondents from Barakin-Ladi strongly agreed that they work as child labourers in artisanal mining fields, 60(16%) of them agreed, 20(5%) of them disagreed, while 33(9%) of them strongly disagreed. Following non-artisanal mining activities in Mangu LGA, a significant number of the respondents 270(73%) of strongly disagreed to working in mining fields, 76(21%) of them disagreed, only 13(4%) and 9(2%) of them strongly agreed and agreed respectively to be working in artisanal mining fields sometimes.

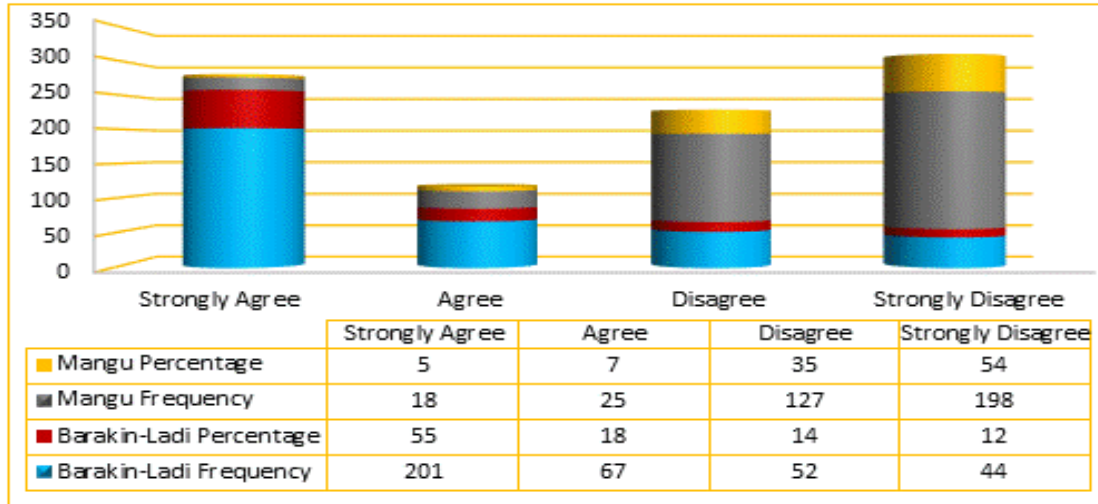


Source: Field survey, 2016

Still on the first objective, it was also necessary to find out the number of hours that students/respondents put into working in artisanal mining fields during school hours at least to establish the opportunity cost for mining in relation to schooling. Figure 4.2 above reveals information in this regard. Consequently, 38(10%) of the respondents from Barakin-Ladi said they work as least for less than 1 hour per day at the mines, 187(51%) of them said they work for 1-3 hours per day, 86(24%) of them said they work for at least hours per day, while 53(15%) of them said they never work at the mines. More differently, following non-artisanal mining activities in Mangu LGA, a significant number of the respondents 340(92%) said they have never worked at any artisanal mining field before, 8(2%) of them said they work for at least 4 hours per day, 12(3%) of them said they work 1-3 hours per day 8(2%) of them said they work for less than 1 hour per day. This analysis shows that more children from Barakin-Ladi put a significant part of the school hours working, while more children from Mangu put a significant part of their own time studying or going to school.

**Objective 2:** Ascertain whether social conflicts from artisanal Tin mining negatively affects secondary school activities Barakin Ladi when compared to Mangu

**Fig. 4.3: Social conflicts resulting from artisanal Tin mining negatively affects school activities**



Source: Field Survey, 2016

Figure 4.3 above reveals information on how social conflict resulting from artisanal mining negatively affects schooling in Barakin-Ladi when compared to Mangu. From the data, 201(55%) of the respondents from Barakin-Ladi strongly agree that frequent social conflict resulting from the struggle for artisanal mining spoils negatively affects their schooling activities, 67(18%) of them agreed, 52(14%) of them disagreed, while 44(12%) of them strongly disagreed. Following non-artisanal mining activities and reduced level of community conflicts that are usually associated with natural resources in Mangu LGA, a significant number of the respondents 198(54%) of strongly disagreed that social conflict has any negative effect on their schooling activities, 127(35%) of them equally disagreed, only 25(7%) and 8(5%) of them strongly agreed and agreed respectively that social conflict from mining activities affect their schooling. This is most likely reflective of the few Mangu students who raise income from mining activities in Barakin-Ladi to be able to go to school. Table 4.2 below shows the trend of social conflict arising from mining activities in Barakin-Ladi and the associated outcomes.

**Table 4.2 Showing Timeline of social conflicts associated with mining activities in some communities in Barakin-Ladi**

Communities	Month/Year	Numbers of houses burnt	Number of death recorded
Low-Bring	March, 2007	5	16
Kwi –Ropp	July, 2008	5	-
Rambu	November, 2009	3	10
Dogo-Nahawa	November, 2010	250	30
Bwan-Heipang	July, 2010	16	-
Nding	October, 2013	3	-
Gindi-Akwati	July,2013	7	-
Kugot	April, 2014	8	-
Show	May, 2014	3	20

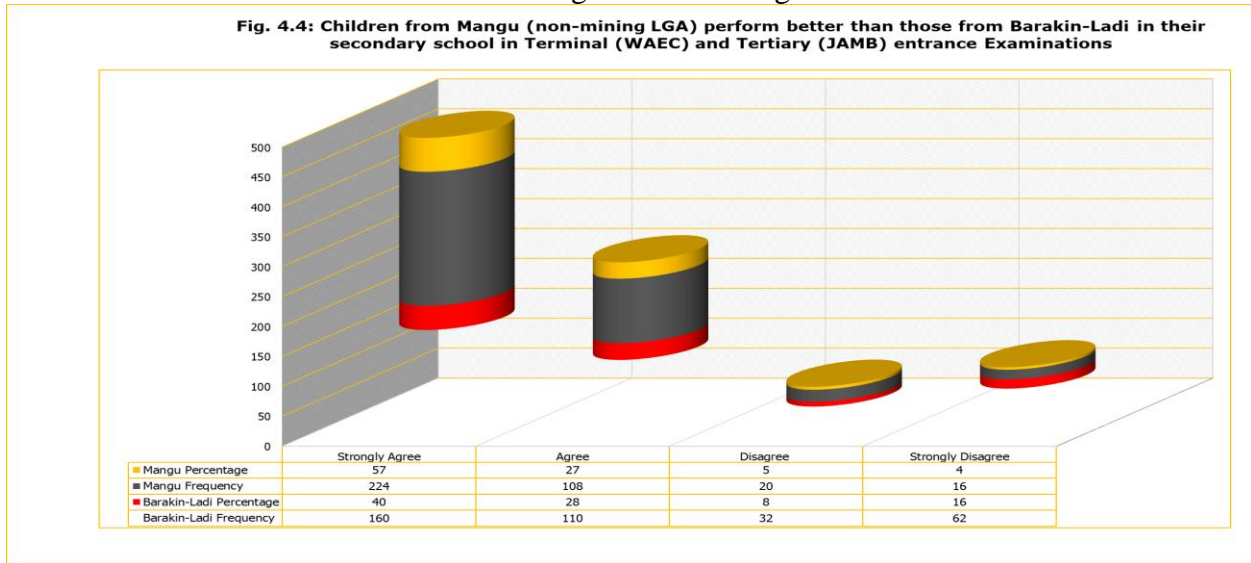


Co-forom	June, 2014	7	12
Zakupang	January, 2015	2	5
Bisichi	July, 2015	8	15
Kadunun	March, 2015	-	3
Ex- land	February, 2015	-	13
Gashish	June, 2015	2	14
Angwan-John	January, 2015	8	-
Vat	February, 2015	12	25

Sources: Field Survey, 2016

Table 4.2 above reveals a timeline of social conflicts in Barakin-Ladi Local Government Area, which is a mining community. These conflicts are mainly witnessed between Barakin- ladi indigenes and Hausa settlers who were migrants that settled in Barakin-ladi because of the trade and market of Tin. This is an indication that another the struggle for the resources from mining activities and some level of power balance between members of the community and new settlers almost always lead to conflicts of varying degree thereby causing serious havocs that undermine other activities in the communities one of which is schooling.

**Objective 3:** Examine the difference between the performance of secondary school students in Barakin-Ladi and that of students from Mangu LGA with regard to terminal examinations



Source: Field Survey, 2016

Figure 4.4 above shows data on whether children from Mangu (the non-mining LGA) perform better than children from Barakin-Ladi (the mining LGA) in the secondary school terminal examinations such as NECO and WAEC and tertiary entrance examination such as JAMB. From the data presented above, it can be easily seen that respondents from the two LGAs have similar opinion on this item. For instance, 160(40%) of the respondents from Barakin-Ladi strongly agreed, 110(28%) of them agreed, 32(8%) of the respondents disagreed, while 62(16%) of them strongly disagreed. Similarly, 224(57%) of the respondents from Mangu LGA strongly agreed to the item, 108(27%) of them agreed, 20(5%) of them disagreed, while 16(4%) of them strongly disagreed. This goes a long way to show that secondary school children from Barakin-Ladi do not do well in their NECO/WAEC as well as JAMB examinations when compared to their

counterparts from non-mining communities in Mangu LGA. However, to confirm the respondents' opinion, a ten years history of the NECO and WAEC results of secondary school children from the two LGAs were compared (see data below).

**Table 4.3: Cumulative grade points for secondary school students from Barakin-Ladi and Mangu LGAs (2010-20113)**

LGA	Number of Students	Alpha grades	(A) Credits	Pass	Fail
<i>Barakin-ladi</i>	115	14	334	693	215
<i>Mangu</i>	129	236	536	425	76

Source: West African Examination Council, Plateau State, 2016

Table 4.3 above presents secondary data on the performance of students in the Senior Secondary School Certificate Examination (SSSCE) for some secondary schools in Barakin-Ladi and some secondary schools in Mangu. From the information, it is clear that students from Mangu performed better than those from Barakin-Ladi. The analysis here confirms the academic performance disparity in the grades and statements of results of the Senior Secondary School Certificate Examination (SSSCE) from 2006-2013 conducted in secondary schools in Barakin-Ladi and secondary schools in Mangu. This is because more students from the mining communities failed the SSSCE when compared to their counterparts from none mining communities. This is further confirmed by similar data for JAMB examinations as shown below:

**Table 4.4: Annual number of successful candidates in JAMB exams for Barakin-Ladi & Mangu (2003-2011)**

LGA	2003	2004	2005	2006	2007	2008	2009	2010	2011
<i>Barakin-Ladi</i>	11	18	26	25	24	19	24	14	14
<i>Mangu</i>	83	87	100	82	100	100	52	482	408
<b>Total</b>	<b>94</b>	<b>105</b>	<b>126</b>	<b>107</b>	<b>124</b>	<b>119</b>	<b>76</b>	<b>496</b>	<b>422</b>

Source: Plateau State Scholarship Board, 2016

Table 4.4 above reveals information on the performance of students in the Joint Admission and Matriculation Board's (JAMB) examination for Barakin-Ladi and Mangu over a nine (9) year period. From the information in the table, it is clear that students from Mangu performed better than those from Barakin-Ladi. For instance, from a significant disparity in 2003 where 83 candidates and 11 candidates were successful in the JAMB examination for Mangu and Barakin-Ladi respectively to a very significant disparity in 2011 where 408 candidates were successful from Mangu and only 14 were successful from Barakin-Ladi, goes a long way to show that students from non-mining communities perform better in their academics than those from mining communities. Much as this is the case, this also accounts for why there are very few university students/graduates from Barakin-Ladi when compared to the huge number of university students/graduates from Mangu LGA.

### Test of Hypothesis

Secondary school students from Mangu are more likely to perform better when compared to those from Barakin-Ladi in terminal examinations such as WAEAC/NECO as well as the Unified Tertiary Matriculation Examination

**Table 4.5: Chi-Square computation**

<b>Category of Respondents</b>	<b>O</b>	<b>E</b>	<b>O-E</b>	<b>(O-E)<sup>2</sup></b>	<b>(o-e/e)<sup>2</sup></b>
<b>Barakin-Ladi</b>	187	194.43	-7.43	55.23	0.28
	107	92.99	14.01	196.31	2.11
	40	38.79	1.21	1.47	0.04
	30	37.79	-7.79	60.72	1.61
<b>Mangu</b>	204	196.57	7.43	55.23	0.28
	80	94.01	-14.01	196.31	2.09
	38	94.01	-56.01	3137.22	33.37
	46	94.01	-48.01	2305.05	24.52
<b>Chi-Square</b>	$\chi^2 =$				64.30

\*Degree of freedom =3; Chi-Square Table value =7.81.; Chi-Square Calculated Value=64.30

**Decision rule:** Accept null hypothesis if calculated value is less than table value and reject hypothesis if the calculated value is greater than table value.

**Interpretation:** Since calculated value for  $\chi^2$  is 64.30 and table value is 7.81, the hypothesis which states that “Secondary school students from Mangu are more likely to perform better when compared to those from Barakin-Ladi in terminal examinations such as WAEAC/NECO as well as the Unified Tertiary Matriculation Examination” is hereby accepted and upheld. Hence, since the margin between the computed  $\chi^2$  value is significantly higher than the table value, it is safe to make the submission that secondary school students from artisanal mining communities in Barakin-Ladi LGA perform significantly poor in terminal examinations such as WAEC and NECO as well as the Unified Tertiary Matriculation Examination (UTME) when compared to students from non-artisanal mining communities in Mangu LGA of Plateau State.

### Discussions

The study found that a large percentage of the respondents from Barakin-Ladi spend more school hours working in artisanal Tin mining fields. This goes a long way to show that most school children from Barakin-Ladi are used as child labourers at the mines. This supports the report of the International Labour Organization (ILO, 2015) which came to the conclusion that in mining societies, a significant part of the labour hands are provided by children under the age of 16 years. Similarly, it was revealed that more of the children spend at least 2-3 hours every day working at the mines. This shows the existence of an opportunity cost scenario where schooling hours are seen as opportunity for working at the mines by children from Barakin-Ladi. However on the contrary, a significant percentage of the school children from Mangu concentrate on their schooling instead of working in the mines.

The study also found that artisanal Tin mining actually generates conditions for social conflict in several of the communities where mining activities take place. This usually takes two dominant dimensions. The first is between migrant miners from other areas and native miners who usually battle for mining territories, while the second is between communities in most cases as a result of laying claim to ancestral ownership of the lands where Tin Ore is found. Most of the respondents said during these periods, they are often left with no choice but to remain at home while their

peers from Mangu still attend schools in their various communities. The timeline of conflict in the mining communities of Barakin-Ladi presented in Table 4.2 above goes to show that over the past eight (8) years, conflict has been persistent and the outcomes have been very devastating for the communities.

Finally, the study found that Artisanal Mining impacts negatively on the academic performance of secondary school children from the area thereby reducing their academic performance when compared to other children from non-mining communities. This confirms the disparity in the grades and statements of results of the students from artisanal Tin mining communities in Barakin-Ladi and Mangu in the Senior Secondary School Certificate Examination (SSSCE) from 2006-2013 and the Unified Tertiary Matriculation Examinations conducted by JAMB. The result from the chi-square test confirmed a significant difference in the pass rates of children from Barakin-Ladi in these exams when compared to those from Mangu. conducted in community secondary school Gassa Barakin-Ladi and and Kopshu secondary school Mangu (see Table 4.4 above). This goes a long way to justify the fact that children from the mining community of Barakin-Ladi register poor academic performances when compared with children from non-mining areas of Mangu where artisanal Tin mining activities are non-existent.

### **Conclusion**

Following the findings in this study, a few conclusions were reached. This is that mining activities will have long-term effect on children especially in the light of their involvement as child labourers in the mines. It is especially clear from the findings of this study that children from non-mining communities perform better than those from mining communities in their academics especially in terminal examinations such as WAEC as well as tertiary entrance examinations such as JAMB. This shortcoming in academic performance will go a long way to determine the progress of the community in the near future. It is important to note that this poor academic performance of students from mining communities when compared to those from non-mining communities is based on the adverse effect of working during school hours and the frequent social conflicts arising from the activities of miners in the area.

### **Recommendations**

- **Sanctions:** The government of Nigeria and indeed that of Plateau State have to evolve a stiff penalty against artisanal mining as a way of reducing or completely stopping it. If this is not done, artisanal Tin mining and its negative consequences on health will continue.
- *Community wide sensitization:* There is need to embark on a community wide sensitization with primary target groups such as artisanal Tin miners. This should be aimed at educating them on the negative health impacts of their activities on themselves on the one hand, and the entire community on the other hand especially school children.
- *Green Technology:* While this is considered difficult in the light of the fact that artisanal Tin mining is an illicit activity, it is important that new environmentally friendly technologies are deployed in the process to check environmental stressors resulting from such mining activities. This could go a long way to reduce associated health issues.
- *Termination of Child Labour:* It is also necessary for the State government to ensure enabling laws are put in place and enforced against the use of school children as child labourers in the mining fields. This could go a long way to reduce school dropout rates and failure rates.

## References

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