

## CONTRIBUTIONS OF ARTISANAL MINING TO LIVELIHOOD ENHANCEMENT IN KADUNA STATE, NIGERIA

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### Abstract

Artisanal mining is one of the sources of livelihood which employ lots of people in the rural communities of the world. This study assesses the contributions of artisanal mining to livelihood enhancement in Kaduna State, Nigeria. A mixed-methods approach was used, which includes both quantitative and qualitative data collection techniques. Data for the study was analysed using descriptive statistic like percentage and mean. Result shows that the study had grand mean scores of 4.55 and 4.67 for both mining and non-mining communities respectively, meaning agreed based on the standard for rating likert scale. This indicates that households in the mining communities of Kaduna State benefit from artisanal mining role of job creation, income generation, increase well-being and asset acquisition, reduction in poverty and rural-urban migration and increase empowerment. This has made them to engage in mining of minerals such as tantalite, zircon, Sapphire and tin to earn a living without considering the detrimental effects of such activity on their life. It is therefore, recommended that miners should be encouraged to invest using their earnings from artisanal mining such as establishing of provision stores, selling of clothes, mining equipments, building of houses for rent, purchase of motor cycles and vehicles for commercial use to reduce their over reliance on mining of minerals.

**Keywords:** Artisanal Mining, Livelihood Enhancement, Contribution, Employment and Wellbeing.

### Introduction

Artisanal mining represents a significant livelihood and source of income and employment for rural communities and poverty-driven population in the world (Ulrike *et al*, 2012). For example, Oliveri (2019) noted that some 20 to 30 million people are employed by artisanal mining across the world. Also between 10 to 50 percent of women are involved in artisanal mining in different countries (World Bank, 2016). They take artisanal mining as a livelihood opportunity that enables them to generate income for their families. Such activity can be a resilient livelihood choice for people who are vulnerable or looking for economic diversity in their livelihoods (Buxton, 2013). According to Swiss Agency for Development and Cooperation (SDC, 2011) artisanal mining is an important source of local income and often drives local development. Artisanal mining is a livelihood strategy adopted primarily in rural areas (Hentschel, *et al*, 2002). In many cases, mining represents the most promising, if not the only, income opportunity available in the rural areas.

In Africa, Artisanal mining provides significant livelihood opportunities such as employment and income for rural communities and serves as a means of poverty alleviation (Funoh, 2014; Donkor *et al*, 2024). For example, there are approximately three million people employed directly by artisanal mining in Africa (Aboagye, *et al*, 2014). This activity adds value as part of rural livelihood

diversification strategies for people (Arthur *et al*, 2016). In sub-Saharan Africa, artisanal mining provides direct employment and cash income to tens of millions of people, and has created innumerable economic opportunities for many millions more in the downstream industries it has spawned (World Bank, 2013; Arthur *et al*, 2016; Traore *et al*, 2024). Artisanal miners contribute over 60% of world gold in sub-Saharan African (World Bank, 2013; Arthur *et al*, 2016). Poverty is considered to be the main driving force for people into artisanal mining and fuelling its rapid expansion in all corners of rural sub-Saharan Africa. However, Musah-Surugu, *et al* (2018), Bagah, Angko and Tanyeh (2019) argued that institutional failure, including foreign/external takeover, poor politico-regulatory environment and unfavourable climate have forced rural people to engage in such hard and unsafe livelihood support activity which degrades the environment. This sector is generally labour intensive and requires small capital and technical investments, with modest levels of production and efficiency.

In Tanzania, artisanal mining accounts for over 90 percent of mining sector's employment, and is more accessible to the poor, especially in rural areas (World Bank, 2015). For example, between 1987 and 1997 artisanal mining accounted for almost the entire Tanzania's production of gold, copper and silver and currently is the major producer of gemstones, copper ore, iron ore, tin, bauxite, industrial minerals and building materials (World Bank, 2015). In Ghana, artisanal gold and diamond mining generated over US\$140 million for Ghana since 1989 (Amankwah and Anim-Sackey, 2004). Apart from making important contributions to foreign exchange and national mineral outputs, at least 60% of Ghana's mine labour force is employed within the artisanal sites (Aboagye, *et al*, 2014). It is a dominant livelihood strategy in Wa east district of Ghana, employing about 76.2% of household at various levels (Baddianaah, Tuu and Baatuuwie, 2021). That is why Aboagye *et al* (2014) noted that the sector has been helpful in wealth creation and the provision of social/business services to local communities through the re-investment and proceeds.

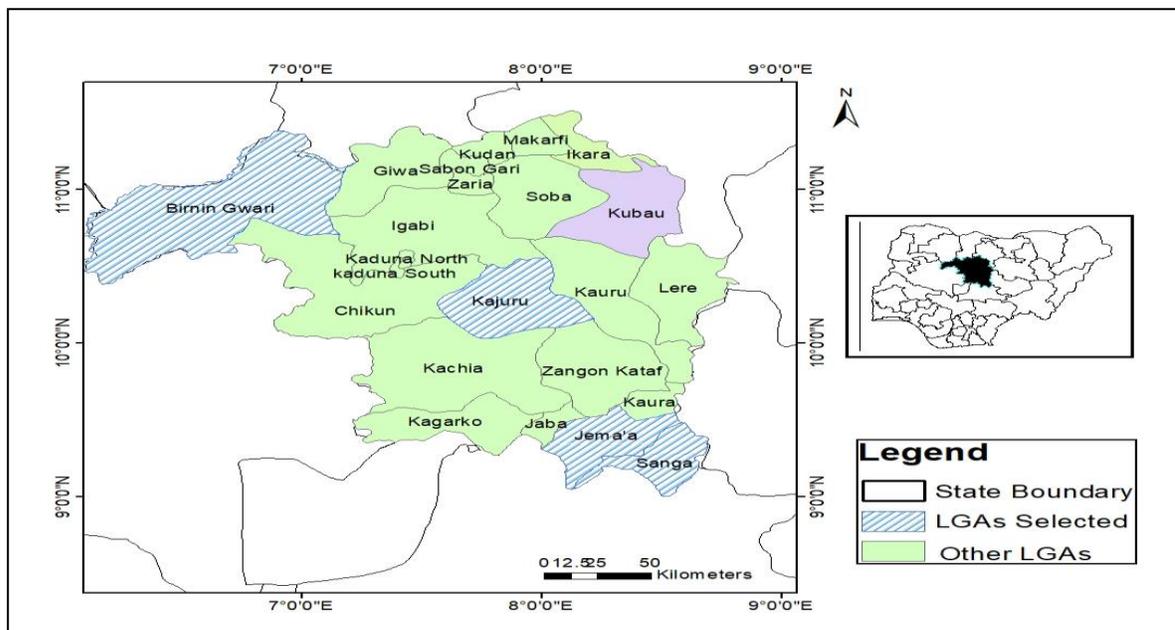
In Nigeria, mining contributes very little income to the national economy despite the abundant deposits of different kinds of minerals such as tin and columbite, iron-ore, coal, lead and gold. The sector accounted for only 0.18% of GDP in 2018, and today, the activity is largely poverty-driven and supports the livelihoods of at least 500,000 people (Ango *et al*, 2019). Artisanal mining provides livelihood opportunity for people by providing employment and lot of income for them in Nigeria (Bansah *et al*, 2018).

Kaduna State is also endowed with different kinds of mineral resources in commercial quantities such as tin, tantalite, sapphire, zircon, gold and nickel across the 23 local government areas. These minerals have contributed to the growth and development of the State and the country at large. Presence of these minerals have led to occurrence of artisanal mining in different parts of the State such as Birnin Gwari, Antang, Godo-Godo and Kajuru (Kareem & Owao, 2000; Adekoya, 2003; Yunana and Banta, 2014; Gadzama, 2015). Most of those who involved in such activity are household members including men, women, children and individuals that need the minerals to sale in order to generate income for their survival. This has caused them to abandon their traditional livelihood occupations such as herding and farming activities. Artisanal mining also lead to loss of vegetation which is a source of food and medicinal herbs, loss of farmlands due to mining pits and loss of soil fertility, quality that prevent agricultural practices and pollution and contamination of domestic water sources. However, this study assesses the contributions of artisanal mining to livelihood enhancement in Kaduna State, Nigeria with a view to providing information for sustainable living and management of natural resources.

## Material and Methods

### The Study Area

Kaduna State is located in north Central Nigeria, a country in West Africa; it is one of the 36 states of the Federal Republic of Nigeria. It lies from latitudes  $9^{\circ} 03'$  to  $11^{\circ} 32'$  N and longitudes  $6^{\circ} 05'$  to  $8^{\circ} 38'$  E East of the Greenwich Meridian. It covers an area of 46, 053 km<sup>2</sup> which is about 5% of the total land area of Nigeria. It is bordered to the north by Kano, Katsina and Zamfara States to the east by Bauchi and Plateau States, to the west by Niger State, to the south by FCT and Nasarawa State respectively. Politically, Kaduna State consists of 23 local governments (Gadzama, 2015) as shown in Figure 1.



**Figure 1: Map of the Study Area**

**Source: GIS Lab, Department of Geography, Bayero University Kano**

Kaduna state has AW type of climate as classified by Koppen with two distinct seasons (dry and wet). The wet (rainy) season is much longer in the southern part of the State around Kafanchan and Kagoro where it begins in April and ends in October, while, in the northern part (Zaria and Makarfi), the rainfall regime is similar to that of the Kano region which lasts from mid-May to September (Abaje *et al*, 2018). The State experiences single peak of rainfall either in August or September. The seasons are influenced by the tropical maritime and tropical continental air masses. Mean annual rainfall of the study area decreases from about 1659.44 mm in the southern part of the State (Kafanchan) to about 1245.97mm in the central (Kaduna) and 1016.66 mm in the northern part (Zaria) (Abaje *et al*, 2018). The average annual rainfall and humidity for the whole area are 1307.36mm and 56.64% respectively. The average minimum and maximum temperature ranges between  $15.1^{\circ}\text{C}$  and  $35.18^{\circ}\text{C}$ . The orographic effects of the Jos Plateau and the Kagoro hills have positive effects on the climate in the southern part, influencing rainfall, temperature, and relative humidity (Ishaya and Abaje, 2008).



The study area lies within the Guinea savanna region of Nigeria where rainfall is heavier and are not subjected to too much seasonal fire occurrence (Buba, 2015). The geology of the study area consists of underlain Pre-Cambrian rocks of the basement complex which are mainly granite, gneiss, migmatite and quartzite (Nigeria Mining Sector (NMS, 2017) which promotes mining of minerals. While, dominants economic activities are farming, mining and commerce, rearing of animals and hunting. The population is culturally diverse with differences in traditions and social norms between the predominantly Hausa/Muslim population in the northern part of the State and Christians of a variety of ethnic groups in the south.

### **Data Collection**

The study involved a reconnaissance visits to mining areas with the help of subsistence miners present to have first-hand information about the study area. These visits identified four local government areas in Kaduna State where mining occurs (Sanga, Jema'a, Kajuru and Birnin-Gwari local governments) which purposively selected for the study. Data for this study was collected through the questionnaire, Focus Group Discussion (FGD), in-depth interview and direct field observation. Qualitative and quantitative data collection techniques were adopted because they gave the researchers ample opportunity to acquire more data from rural households and discuss their views extensively. Rural household heads from both mining and non-mining communities were purposively selected for the study because these groups of people are directly affected by artisanal mining and were in a better position to share their knowledge as well as voice out their concerns and worries about the mining activities. Household heads from the mining communities were selected based on proximity to mining sites and intensiveness of artisanal mining activities in such areas. While, those of the non-mining communities serve as "control" Household heads at the age of 18 or above were contacted because of their adequate knowledge and information they have on artisanal mining activities, assets and livelihood outcomes. The minimum age threshold was used because, at that age, every person could decide for themselves and participate in decision making at both local and national level.

A total of three hundred and eighty four (384) respondents were administered with a questionnaire across the study area. Total of 384 was considered for the study based on (Krejcie & Morgan, 1970). This involved self-questionnaire administration to avoid incompleteness of questionnaire and increase response rate of the respondents. The study had two focus groups involving miners and farmers in each local government selected for the study. Collectively, eight focus groups were conducted in the study area. A group of 6-10 people of a particular category was selected in a place, followed by another category in chronological order to discuss issues and questions itemized for the research. Twelve (12) people involving officials of the miners, farmers and community heads were selected for the in-depth interview from the local government areas selected. They were contacted personally and discussed issues itemized for the study. The FGD and In-depth interview were carried out in order to complement the result obtained from the questionnaire survey.

### **Data Analysis**

Data for the study was analysed using percentage, mean and Nvivo, version 11.0 software. Nvivo is a software program used for qualitative and mixed-methods research. Specifically, it analyses unstructured text, audio, video, and image data. It has the capacity to condense large qualitative data from interview, FGD, in-depth interview and participatory rural appraisal in textual format. It has the flexibility of transcribing, coding voluminous qualitative data base on people's opinions, perception into few lines.

## Results and Discussion

### Demographic Characteristics of the Respondents

**Table 1: Demographic Characteristics of the Respondents**

Variable	Categories	Mining Community n (%)	Non-Mining Community n (%)	Total n (%)
<b>Sex</b>	Male	105 (54.7%)	138(71.9%)	
	Female	87(45.3%)	54(28.1%)	
<b>Total</b>		<b>192(100%)</b>	<b>192 (100%)</b>	<b>384 (100%)</b>
<b>Age</b>	Less than 20	24(12.5%)	14(7.3%)	
	20-29 years	32(16.7%)	30(15.6%)	
	30-39 years	77(40.1%)	80(41.7%)	
	40-49 years	41(21.4%)	19(9.9%)	
	50-59 years	12(6.3%)	45(23.4%)	
	60 and above	6(3.0%)	4(2.1%)	
<b>Total</b>		<b>192(100%)</b>	<b>192(100%)</b>	<b>384(100%)</b>
<b>Marital Status</b>	Single	20(10.4%)	8(4.2%)	
	Married	110(57.3%)	144(75%)	
	Widow	62(32.3%)	40(20.8%)	
<b>Total</b>		<b>192(100%)</b>	<b>192(100%)</b>	<b>384(100%)</b>
<b>Education</b>	Non formal Education	38(19.8%)	21(10.9%)	
	Basic	77(40.1%)	66(34.4%)	
	Secondary	46(23.9%)	57(29.7%)	
	Tertiary	27(14.1%)	46(23.9%)	
	Others	4(2.1%)	2(1.1%)	
<b>Total</b>		<b>192(100%)</b>	<b>192(100%)</b>	<b>384(100%)</b>
<b>Occupation</b>	Farmer	78(40.6%)	115(59.9%)	
	Artisan/farmer	11(5.7%)	22(11.5%)	
	Trader/farmer	17(8.9%)	25(13.0%)	
	Civil Servant	19(9.9%)	28(14.6%)	
	Miner	67(34.9%)	2(1.0%)	
<b>Total</b>		<b>192(100%)</b>	<b>192(100%)</b>	<b>384(100%)</b>

Source: Field survey (2021)

Table 1 depicts the demographic characteristics of the respondents in both mining and non-mining communities. However, more than half 54.7% (105) and 71.9% (138) of the respondents were males in both mining and non-mining communities, while, 87(45.3%) and 54(28.1%) were females respectively. 40.1% and 41.7% fall within the age range of 30–39 years respectively in both communities. About 57.3% and 75% were married respectively in both communities, 19.8% did not attend school in mining communities and 10.9% in non-mining communities. In terms of farming, 40.6% and 59.9% respectively were farmers in both mining and non-mining communities. However, even those who claimed not to be farmers practice little agriculture such as planting of crops and rearing of animals in their gardens.

### Contributions of Artisanal Mining to Livelihood Enhancement in the Rural Communities of Kaduna State

Table 2 presents and discusses the result of contributions of artisanal mining to livelihood enhancement in Kaduna State, Nigeria. The result shows that people benefit from artisanal mining

role of job creation, income generation, increases well-being and asset acquisition, reduce poverty and rural-urban migration and increases empowerment.

**Table 2: Contributions of Artisanal Mining to livelihood enhancement in the Rural Communities of Kaduna State**

S/N	Item	Mean		Remark
		Mining Com	Non-Min Com	
1	Artisanal mining and job creation	4.44	4.40	Agreed
2	Artisanal mining and increase in income generation	4.55	4.79	Agreed
3	Artisanal mining and increase well-being	4.68	4.69	Agreed
4	Artisanal mining and increase assets acquisition	4.43	4.77	Agreed
5	Artisanal mining and poverty reduction	4.45	4.63	Agreed
6	Artisanal mining and reduction rural-urban migration	4.61	4.59	Agreed
7	Artisanal mining and increased empowerment	4.68	4.80	Agreed
	Grand Mean	4.55	4.67	Agreed

Source: Field Survey (2021)

Table 2 shows the mean score on contributions of artisanal mining to livelihood enhancement in Kaduna State, Nigeria. From the table, it shows that the mean score for item 1-7 in the mining communities are 4.44, 4.55, 4.68, 4.43, 4.45, 4.61 and 4.68 respectively, while, those of the non-mining communities are 4.40, 4.79, 4.69, 4.77, 4.63, 4.59 and 4.80 respectively which were above 3.00 the benchmark for acceptance based on the standard (See appendix I) for rating likert scale (Brown, 2010). This means that artisanal mining contributes a lot to livelihood enhancement through job creation, income generation, increase well-being and acquisition of assets, reduce poverty and rural urban drift and increases empowerment to household businesses in the rural areas of Kaduna State, Nigeria. The grand mean scores of all items in table 2 are 4.55 and 4.67, indicating agreed. Therefore, artisanal mining contributes to livelihood enhancement in Kaduna State of Nigeria.

### Artisanal Mining and Job Creation

Artisanal mining is one of the livelihood strategies that have benefited rural households in the mining communities especially in the developing countries of the world. The result of the study (Table 2) shows that households benefit a lot from artisanal mining role of job creation as it helps them to increase their income level. Due to availability of mineral resources, hardship, unemployment/underemployment in the country, covid-19 lockdown, insecurity and poverty, have made people to pick employment in artisanal mining to improve their living conditions.

Coupled with the high level of insecurity in Nigeria where people are killed, farmlands worth millions of Naira and homes destroyed everyday as a result of different types of conflicts across the country have made people to shift their occupation from agriculture and picking employment in artisanal mining. Artisanal mining is a coping mechanism for shocks such as loss of employment, conflicts or natural disaster (Buxton, 2013). Many households picked employment in artisanal mining to generate money (income) to rebuild their homes destroyed due to crises or to solve other family needs. Again, the level of hardship caused by the Covid-19 lockdown also posed serious threat to mankind where a lot of youths lost their jobs in the cities and were forced to return home which led many of them to gain employment in artisanal mining in the rural communities of Kaduna State. That is why Arthur et al (2016); Ledwaba (2017), DFID (2018), Musah-Surugu et al (2018) associated the causes of artisanal mining to high levels of poverty, economic hardship, quick/high

income earnings from the mining, low income earnings in agriculture and unemployment and growing inequality. This perception was well illustrated differently by two of the discussants:

“This recent crisis in our area has caused many people to engage in mining of minerals to settle some of their challenges. This is because most people in this area lost their belongings including homes, food items and clothes when this area was under attacks. This forced many people who did not even dream of becoming miners to go into mining of minerals due to hardship”.

Covid-19 lockdown posed serious hardships to people in Nigeria and this forced a lot of people to lose their jobs in the urban centres and return home because most of the organisations where they working shutdown operation. This caused some of them to involve in mining of minerals to settle their problems.

Artisanal mining provides both direct and indirect employment to people in the mining communities of Kaduna State. It provides direct employment to people such as miners and head porters (plate 1A) and indirect employment to others like food and water vending, cloth sellers, transporters (Commercial Motorcycle riders and truck drivers) and blacksmithing (plates 1B,C and D). Result of this work is in line with previous studies (UNDP, n. d; Ibrahim, 2015; Gadzama, 2015; Isung *et al*, 2021) which reported that artisanal mining directly and indirectly employs a number of people on temporary basis. That this income generating activity plays a vital role in providing vocational jobs that sustain the livelihood of the community living in the mining environment. Artisanal mining provides employment to different kinds of people such as men, women and children. Others include school teachers who are under employed due to low earning from their works also involved in artisanal mining to earn a living. This study supports that of international Labour Organisation (ILO) which estimated that between 11.5 and 13 million people engage in artisanal mining worldwide (CDSUWS, 2004).

Artisanal mining has benefited a lot of people in rural communities of Kaduna state in different ways. It has helped students to pay their school fees from secondary schools to tertiary institutions and has changed the life of many households in mining communities from poverty to wealthy people. It has given many households the opportunity to cultivate large pieces of land thereby increasing their level of crop production. Apart from that, artisanal mining has boosted lot of businesses in the mining communities of Kaduna State. This perception was well illustrated by two different discussants:

“A lot of people are benefiting from artisanal mining role of job creation. It provides employment opportunities to people such as mining workers, buyers, head porters, food vending, transporters and blacksmithing which help them to meet their daily needs”.

“People especially primary school teachers who are under employed and do not have regular payment of their salaries also engage in artisanal mining to earn a living. Also, this activity has helped a lot of people in paying their school fees from secondary to tertiary levels of education”.

That is why Amankwah and Anin-Sackey (2004) stressed that since 1987; small scale mining has provided direct employment to over 100,000 people and improved the socioeconomic life of many individuals and communities in Ghana. There are a number of people in the mining communities of Kaduna State who have amassed a lot of wealth due to their involvement in artisanal mining and its activities. This has given them the opportunity to acquire different kinds of assets. This agrees with the outcome of previous studies (Aboagye *et al.*, 2004; World Bank, 2009; Villegas *et al.*, 2012; South Australian Centre for Economic Studies, 2013; Bansah *et al.*, 2018; Mancini and Sala, 2018; Mancheri, *et al.*, 2018) which revealed that informal artisanal mining has found to be a significant source of livelihood for many rural people who have few employment alternatives.

However, in non-mining communities of Kaduna State, respondents also admitted that artisanal mining and its activities have great benefits on the people that involved in it such as employment and income generation. However, they noted that mining activity has adverse effects on the life of the people as agricultural lands are damage, people are injured or die during mining and is associated with outbreak of diseases and high level of social vices like prostitution, rape cases, under age pregnancies and armed robbery.



**Plate 1A, B, C and D: People that Benefit from Artisanal Mining Activity in Kaduna State**  
**Source: Field Survey (2021)**



## Artisanal Mining and Income Generating Opportunity in the Study Area

Artisanal mining serves as a means of income generating opportunity to people in different parts of the world. The result of the study indicated that artisanal mining generates income to households in the mining communities of Kaduna State (Table 2). Artisanal mining provides high income to different kinds of people such as miners and non-miners in the mining communities. For example, it generates a lot of income (Traore *et al.*, 2024) to miners who involved in extraction of minerals as they sell it, as well as those who sale food items, clothes, transporters (truck drivers) who convey sand to the nearby rivers for washing and Commercial motorcycle riders and taxi drivers who convey miners, petty traders and other set of people to the mining sites and return them home every day after their daily works to earn their income.

Artisanal mining pays a lot of money to butchers who sell meat (Suya) in the mining sites as well as herders that sell animals products such as milk and animal fat. The cost of bush meat is higher when miners troop into the mining regions as the population increases. This has given hunters the opportunity to hunt for wild animals to generate income for their families in the mining communities of Kaduna State. That is why Bryceson and Macinnon (2012) noted that income is attracted by mineral resources offering high return on investment and labour by the prospect of high wages, relative to other available opportunities.

Mining also generates income to land owners who give out their lands for mining and receive compensation from the high rate of tax collection from every miner during the mining operation. For example, direct field observation, FGD and in-depth interview shows that in mining areas of Godogodo and Gidan Waya, miners pay ₦12000 for every mining pit they dug to the land owners and ₦2000 as registration fee for the mining community. Income generated by the miners showed that female miners earn about ₦7000 from daily operation which amount to ₦196000 a month while, male miners earn about ₦300000 and above in a month. Truck drivers charged about ₦5000-₦9000 per troop of sand taken to the river for washing (panning) to get the mineral which can amount to about ₦25000 or ₦45000 daily for five troop carried to the river for washing by a driver. This has changed their living conditions today as many of them have change from miners to potentials buyers of minerals. This was what one of the FGD participants has to say:

“Artisanal mining has helped a lot of households in terms of income generation. For example, Okada riders transport miners, food vendors and cloth sellers to mining sites and return them home every day. Food vendors and cloth sellers also sale their items every day during mining operation, land owners charge miners some money to pay as compensation of their land damaged during mining and mining communities also tax miners to pay some monies as registration fees. This has given them the opportunity to earn more income”.

This study supports the assertion which says that artisanal mining reduces vulnerability by providing people with income to buy food, which in turn reduces food insecurity and improves households living conditions (Ingram *et al.*, 2011; Arthur *et al.*, 2016). It also supports that of Buxton (2013) who reported that presence of artisanal mining stimulates considerable local economic development around artisanal mining sites.

However, households in non-mining communities also admitted that artisanal mining is a means of income generating opportunity because they noticed that many households in the mining communities gained a lot of money from the mining activities. However, they noted that mining has



had undesirable effects on the life of the people around the mining communities such as spreading of diseases, death and prostitution, child pregnancy as well as environmental degradation (Donkor *et al*, 2024). They asserted that agriculture which is the bedrock of the rural economy has had serious problem in the mining communities due to mining of minerals. This is because agricultural lands are taking over by mining pits and ponds which have reduced the sizes of their farms or total loss of farmlands. That is why many households in the mining communities struggled to seek for farmlands from their neighbours or in the non-mining communities, spending a lot of money in treatment of their injured or sick relations. This has further increase their level of vulnerability and poverty.

### **Artisanal Mining and Increased Well-Being of Households in Kaduna State**

The result of the study (Table 2) also indicated that artisanal mining increases well-being of households in the artisanal mining communities of Kaduna State. People's well-being depends on their sources of income generation. Those who have more income generating opportunities live a better life than people who rely on single source. Artisanal mining is a livelihood activity that supports many households in the rural areas of the world. In the rural communities of Kaduna State for instance, this activity has made households who find it difficult to feed their families twice or thrice daily to do so by providing income for them. Those who do not have assets and relied on others were able to acquire different kind of assets such as land, houses, motor cycles and vehicles from the income they gained from mining of minerals and its activities. Their level of expenditures changed from bad to good as they obtained a lot of money from mining. This has enables them to meet their households livelihood demand by settling medical bills, provision of food, and payment of school fees to their children. This supports that of Arthur *et al* (2016) who noted that artisanal and small scale mining reduces poverty situations among rural households in the developing countries of the world.

Though artisanal mining is associated with occupational hazard such as injuries and death which increases vulnerability and dependency level of miners and their families, yet mining serves as one of the rural livelihood strategy that gives people the opportunity to improve their living conditions. This activity has helped different people to improve their level of education by paying their school fees from secondary school to tertiary institutions in Kaduna State. This finding is contrary to W. H. O (2016) and OECD (2017) which admitted that artisanal gold mining has undesirable health consequences and worse in well-being on miners, their family members as well as nearby communities which influence their quality of life.

However, in non-mining communities, respondents also agreed that artisanal mining increases well-being of people in mining communities. They associated this to the high level of poverty and economic hardship across the country which has forced people to engage in different livelihood activities for survival. The respondents noted that they have seen positive changes in mining communities such as buying of vehicles, motor cycles, grinding machines and building of more houses but their agricultural lands have been taken over by mining pits and ponds which have more effects on food security.

Mining has a greater potential and positively contributes to well-being in rural areas of Kaduna State under the right circumstances. State of well-being in non-mining communities depends majorly on agriculture and most of the farmers produce crops on subsistence basis mainly to feed their families and just little for sale. This does not give them the opportunity to acquire more assets as it is done in the mining communities. But in mining communities, households have the capacity to buy as more assets as they want and improve their living conditions from their earnings in artisanal mining. This

supports claims that mining regions make important contributions to national growth and prosperity in terms of material well-being indicators such as income (OECD, 2017), but contrary to Gautam and Adersen (2016) which noted that livelihood diversification is found to have a highly skewed effect leading to inequality of income and well-being among individuals which in turn, deprives poor households from exploiting new economic opportunities even in the future.

### **Artisanal Mining and Increased Asset Acquisition in Kaduna State**

In life, people are vying to acquire different kinds of assets to improve their living conditions. The result of the study (Table 2) shows that artisanal mining increases assets acquisition in the mining communities of Kaduna State. In mining areas of Kaduna State, mining has given people the opportunity to acquire different kinds of assets, such as vehicles, motor cycles, houses, land and hotels. For example, in Godogodo community, De Cool Mind and One Corner Hotels were built by miners who got their money from artisanal mining and later became potential buyers of minerals and other commodities in the study area (Plate 2). Level of landed properties development such as houses and hotels has increased more especially in some mining communities in Kaduna State due to mining. Apart from that, mining also gave them the opportunity to acquire and own other properties like vehicles and motor cycles for their personal or commercial uses. As quoted from one of the discussants:

“Artisanal mining has given us the opportunity to acquire a lot of assets such as vehicles, motor cycles, houses and hotels in our community. In fact, lives of people have changed positively. Look at the owner of Cool Mind hotel here in Godogodo was a miner. He graduated from being a miner to a buyer and today, he is one of the richest people in the town. We really appreciate God for providing minerals for us in our land”.

This work is in conformity to that of Ellis (1999) which noted that cash resources obtained from diversification may be used to invest in, or improve the quality of life, for example, sending children to school or buying equipment like a bicycle that can be used to enhance future income generating opportunities. Acquisition of assets by miners or those who depend on mining indirectly has given them the opportunity to own properties that they have never dreamt of having them before.



**Plate 2: Hotel Built by a Miner at Godogodo**  
Source: Field Survey (2021)



In non-mining communities however, respondents also agreed that mining has increased the level of assets acquisition by people in the mining communities. They noted that they also acquire assets based on their means of income generation such as agriculture but asset acquisitions in the mining communities are higher than what they acquire. It was observed that different miners have hit a lot of money of about/more than a million from artisanal mining just in a moment which agriculture and other livelihood sources in the rural areas cannot provide. This has allowed them to acquire more assets like houses, cars, motor cycles and land. For example, immediately after the violent conflict that engulfed the southern Kaduna sub-region in the year 2016 which led to the loss of lives, destruction of homes and other properties worth millions of Naira, people returned to artisanal mining and generate lot money that enabled them to rebuild their houses, buy cars and other things necessary for their living. Acquisition of assets such as motor cycles and vehicles made some of them to abandon their mining occupation and became commercial drivers/riders to generate income for their personal uses.

### **Artisanal Mining and Poverty Reduction in Kaduna State**

Finding of this study (Table 2) reveals that artisanal mining reduces poverty in the rural areas especially in the mining communities of Kaduna State. Mining of minerals reduces poverty among rural households due to their earnings from such activity. They generate high income from mining of minerals which makes such occupation so attractive to them. Result of this study is in line with findings of Bansah et al (2023); Fagariba et al (2024) which noted that mining of minerals has helped many households to reduce their level of poverty by providing jobs inform of mining of minerals, food and water vending, cloth selling, transporters and blacksmithing to generate income to solve their family needs. Artisanal gold mining has improved smallholder farmers' socioeconomic conditions. They claimed that poverty has forced a lot of people to get involved in artisanal mining in the rural areas of Kaduna State. This agrees with the result of European Union (2017); Traore et al (2024) which associated the causes of mining to poverty (making a living) to entrepreneurial (making profit).

However, some of the participants acknowledged that artisanal mining does not reduces poverty, instead, it increases the level of poverty among the populace in the study area. For example, occupational hazards do occur where miners get injuries and sometimes die, leaving their families in extreme poverty. When injury occurs to miners, families used to spend a lot of money to treat the victims. Example is the case of a victim of mining at Bayya Gidan Waya who had spinal cord injury as a result of subsidence that forced his family to spend more than one million Naira (₦1000 000) at Jos University Teaching Hospital (JUTH). This forced his family to sell their belongings such as land, livestock, and other valuables to raise money for his treatment. This is what one of the participants has to say:

Injuries or dead use to occur during mining of minerals. Injuries use to force family of the victims to spend lots of money on treatment. Example of this is the case of miner who lost his spinal cord due to collapse of underground roof at Bayya Gidan Waya. The family span more than one million Naira at Jos University Teaching Hospital for his treatment. This forced them to sell their belongings such as land and livestock.

Sometimes, victims of this hazard (accident) do lost parts of their bodies (paralyses/amputation) and depend on family members and friends for provision which has further increased the level of poverty amongst them. Instead of reducing poverty, artisanal mining has increased a lot burden to such



family. This study is in line with the outcome of a previous study (Wilson *et al*, 2015) which noted that miners and their families often end up in a “poverty trap” of low productivity and indebtedness, which reduce even further their economic options. But high level of poverty among rural households has forced them to get involved in artisanal mining in the rural areas of Kaduna state.

Mining helps them to provide their family needs such as paying children school fees, buying of food stuff and paying medical bills, building of houses and acquisition of vehicles and motor cycles. There are a lot of them who have found it difficult to eat food twice or thrice a day due to low earning in agriculture. This is because they are agrarian farmers who produce crops on subsistence basis (just to feed their families, leaving little for sale). But their involvement in mining of minerals has given them the opportunity to solve some of these problems. This was well illustrated by one of the discussants:

“We get involved in mining because of high level of poverty and hardship we face in our area. We find it difficult to eat food three times daily due to poverty, but our involvement in artisanal mining has enabled us to solve some of our family needs, such as provision of food, payment of children school fees, and buying of books. I didn’t have a mattress in the past but today, I have it because of my involvement in mining of minerals”.

This supports the work of Ellis (1999) who noted that farming on its own is increasingly unable to provide a sufficient means of survival in rural areas. A lot of money is generated through artisanal mining of minerals in Kaduna State. But this activity increases the level of poverty amongst the rural households as agricultural lands are taken over by mining pits and ponds. This reduces the sizes of farmlands across the mining communities in the State. This has rendered lot of families to extreme poverty in the mining communities of Kaduna State as some of them have lost their arable lands to mining pits and ponds which have further increased the level of poverty among them. This is in line with previous studies which noted that artisanal mining has had adverse effects on livelihood/household income as it induces vulnerability through destruction of farmlands as well as rendering some to extreme poverty (World Bank, 2014; Arthur *et al*, 2016; Sheriff *et al*, 2018). This is the major causes of food insecurity and low agricultural productivity and food crops in many parts of the developing world (Onwuka *et al*, 2013; World Bank, 2014; Arthur *et al*, 2016; IGF, 2018).

Reduction in level of poverty and hardship among the populace by creating jobs available and income to set up businesses may prevent people from participating in artisanal mining, as such, increases sustainable utilisation of our environmental resources. This supports the assertion made by Zankan *et al* (2019) who noted that a lot of money is generated through woodfuel business which forces many people to be involved in commercial woodfuel harvesting. However, when poverty is reduced to a level that would warrants them to carter for their family needs such as paying children school fees, provision of food, clothes and settling medical bills without going to their stores, would prevent them from going into the forest for commercial woodfuel harvesting.

### **Artisanal Mining and Rural-Urban Drift**

The level of rural urban migration in Nigeria is very high as youth move to the cities in search of greener pasture. However, in mining communities of Kaduna State, artisanal mining reduces the movement of masses to the urban centres to look for white collar job (Table 2). There are different factors which are responsible for the reduction in number of people who returned to the urban centres in the study area. These include underemployment where people are paid very little on the

services they rendered, increase in hardship in the country caused by covid-19 pandemic lockdown which forced people home due to lack of food and income and government policies and availability of minerals. This has forced some of them to get involved in artisanal mining and as a result, refused to return to the cities for their works because of high earnings in artisanal mining. Outcome of this study is in line with that of Arah Arah (2015) which noted that in Ghana towns like Konongo, Obuasi, Tarkwas, Kwaebibrem and Nkawkaw have had a lot of influx of youth from other towns as a result of the mining activities.

A lot of youth dropped their works in the cities to pick employment in artisanal mining in the rural areas for what they gained from artisanal mining was higher than those of the cities. For example, those who involved in building construction where payment of ₦1500 or ₦2000 was done on daily basis realised that artisanal mining pays more than that amount and refused to return to the cities to continue with their works and this increased the population of the rural areas. This is what one of the discussants had to say:

“Artisanal mining reduces rural–urban migration in our villages because of the amount of money it pays to miners, food vendors and cloth sellers. Earning from artisanal mining is higher than some jobs in the cities such as building construction. This has forced us to stay at home for mining and agriculture to solve our family needs instead of dying of hunger in the cities”.

This work agrees with that of Asare and Darkoh (2015) which noted that mining leads to a rapid growth of the population through migration, which outstripped the ability and capacity of the town’s social services such as housing, to cope with the surging tide of migrants.

However, in the non-mining communities of Kaduna State, respondents admitted that artisanal mining provides employment and income to households in the mining communities such as miners, food and water vending and cloth sellers. This has discouraged their youths from going back to the cities for a white collar job since these jobs are not available to the common man in Nigeria today. There were a number of ladies who went to the cities to work as house help to be paid monthly but when they discovered that people gain more in artisanal mining operation, they refused to go back and continue their businesses such as food and water vending. This has giving them a lot of opportunities to get more money for their families. People need food to get more strength to do work. As the demand for food becomes higher, more markets are open for food vendors. This makes a lot of them to sale food in the mining centres or mining sites and this has discouraged them from going back to the cities for any job. This perception was well illustrated by a food vendor:

“We went to the cities and work as house helps and received salaries at the end of every month but when we discovered that people earn more money in artisanal mining activities in our community, we decided not to go back to the cities. As such, we engaged in selling of different food items to the miners to generate money. I can’t go back to the city to suffer in the hands of another person anymore”.



Result of this work is contrary to the claims that there is general withdrawal of the younger generation from farming especially as younger men tend to migrate looking for work in the cities (Morse *et al*, 2009) but it agrees with Gough *et al* (2019) which noted that salaries and associated benefits in mining are very attractive, resulting in people relocating from the capital city to the rural areas.

### **Artisanal Mining and Increase Empowerment in Kaduna State**

People engage in different activities in the world for a living. These activities include agriculture which is the main livelihood strategies in the rural areas. Others include mining, hunting, fishing, transportation and other businesses. The result of the study (Table 2) indicates that artisanal mining increases empowerment to people to do different kind of businesses as well as farming as respondents agreed with a mean score of 4.68. For example, artisanal mining has given people the capacity to do different kinds of businesses in the rural areas of Kaduna State including farming. Increased in mining activities in Kaduna State has increased the influx of people to mining communities like Godogodo, Gidan Waya, Maganda and Agamati. This mandated households to build more houses for rent, hotels, shops and open ways for more businesses.

A lot of people are turning to business men in the mining communities due mining of minerals such as tin, tantalite and Sapphire. As more people come into the mining communities, more businesses are boomed. This is because the need food, clothes, accommodations and other items necessary for their living increases every day in these communities. This has caused increase in prices of different commodities in the study area. As such, those whose businesses were small began to have more gains. For example, the owner of Cool Mind hotel was a potential miner but turned into a buyer of the minerals and today, he transacts business in different commodities. This reflects the view of Ontoyin and Agyemang (2014) who viewed that despite the negative effects of mining, its operation has improved other sources of livelihood in mining communities of Talensi-Nabdam region of Ghana by increasing the level of trading activities such as food vending, kiosks and sales of water. It also supports that of Sheriff *et al* (2018) which noted that presence of mining have benefited people a lot in terms of improvement in their businesses. It is an activity that response to declining agricultural sector in Nigeria.

In non-mining communities however, respondents also agreed that artisanal mining increases empowerment for people to do different kind of businesses. They had this view because of how different businesses are boomed in the mining communities due to the number of people that arrived in those areas for the mining of minerals. Mining gives them the capacity to establish different businesses such as food and water vending, provision stores, selling of clothes and development of hotels. Some of them also feel the impact of the mining as they take their food items, water or clothes to the mining sites for sale to generate incomes. In non-mining communities such as Kogum and Mikyali, people depend solely on agriculture and majority of the farmers produce crops on subsistence basis which does not give them the opportunity to establish more businesses as in the case of mining communities due to few income generating opportunities. But more people are trooped into the mining communities which attract more businesses, even though agricultural lands are taken over by mining pits and ponds.



## **Conclusion and Recommendation**

Availability of minerals is one of the reasons responsible for mining in an area. Mining is one of the human activities that employ many households in the rural communities of the world. They engage in such activity to earn a living. Artisanal mining enhances households in the rural communities where minerals are produce in different ways. Many households considered mining to be one of their livelihood strategies by involving in it due to high level of poverty, unemployment, availability of minerals, insecurity and low monitoring service by the security agencies. They benefit from artisanal mining through income generation, employment, increase wellbeing, asset acquisition and reduction in poverty. Presence of mining activities in Kaduna State has creates employment opportunities for people (such as miners, food and water vendors, and transporters), paved more ways for businesses to strive and gives ample opportunity for people to acquire different kind of assets such as vehicles, motor cycles, houses and building of hotels and this has led to increase well-being among rural dwellers in the study area. This has encouraged many households to engage in artisanal mining. However, such activity has detrimental effects on their life such as death and injuries, loss of agricultural land and pollution and contamination of domestic sources of water. It is therefore, recommended that miners should be encouraged to invest using their earnings from artisanal mining such as establishing of provision stores, selling of clothes, mining equipments, building of houses for rent, purchase of motor cycles and vehicles for commercial use.

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