

EFFECT OF ARTISANAL SURFACE MINING ON AGRICULTURAL LAND AND LABOUR AVAILABILITY IN IFELODUN LOCAL GOVERNMENT AREA OF KWARA STATE, NIGERIA

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ABSTRACT

This study evaluated the effect of artisanal surface mining on the availability of land and labour for agricultural production in Ifelodun Local Government Area of Kwara State in Nigeria. The main objective was to assess the extent to which land and labour for agricultural production had been lost to mining activities. Structured questionnaire were administered to seventy-one (71) randomly selected farmers in three communities which represent the major mining areas in Ile-Ire district of Ifelodun Local Government Area. Data collected were analysed employing descriptive statistics and T-test. The study results indicate that significant amount of agricultural lands cultivated by small holder farmers have been lost to mining. Similarly, a significant proportion of the labour force available for food production has shifted to the mines. Results of the T-test also indicate that health related problems resulting from mining activities have negative effect on farmers' productivity. It is recommended that government and its regulatory agencies enact laws that will regulate the activities of mining companies and those of artisanal miners to reduce the havoc perpetuated on productive agricultural lands.

KEY WORDS: *Artisanal Surface Mining, Land and Labour Availability, Farmers' Productivity*

INTRODUCTION

Mining of the earth for its rich deposits of minerals has been a practice for many years throughout the world. Pollutants such as mercury, sodium and cyanide contaminate not only the soil but also the water, killing many fishes and birds. It also has serious health consequences for the people who inhale the poisonous fumes and drink the contaminated water. Local communities are frequently displaced to make way for new areas for mining. Broadly speaking, artisanal and small-scale mining refers to mining by individuals, groups, families or cooperatives with minimal or no mechanisation, often in the informal (illegal) sector of the market. Despite many attempts, a common definition of ASM has yet to be established. In some countries a distinction is made between 'artisanal mining' that is purely manual and on a very small scale, and 'small-scale mining' that is more mechanised and on a larger scale. In this report, the terms artisanal and small-scale mining are used interchangeably.

Nigeria's mineral development has been highly focused on its oil industry. Nigeria is Africa's largest oil producer and contributes 3% to global production. As a result, the solid mineral mining industry has been largely neglected and has only been rekindled by the Ministry of Solid Minerals Development, intent on increasing the role of this sector of Nigeria's economy. Currently, mining contributes just 1% to Nigeria's GDP. Nigeria has

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significant coal and iron ore reserves as well as gold, uranium, tantalum, tantalite and other undiscovered minerals throughout the country (TWN Report, 2001). As a result of benefits accruing from surface mining, it has been practiced in many parts of the world. Foster (1993) concludes that the primary role of surface mining in the economy is wealth creation.

Artisanal miners employ rudimentary techniques for mineral extraction and often operate under hazardous, labour-intensive, highly disorganized and illegal conditions. Despite these factors, artisanal mining is an essential activity in many developing countries, particularly in regions where economic alternatives are critically limited. The International Labour Organization (1999) estimates that the number of artisanal miners is currently around 13 million in 55 countries, which is roughly equivalent to the global workforce of large-scale mining. From this, it has been extrapolated that 80 to 100 million people worldwide are directly and indirectly dependent on this activity for their livelihood.

Mining is a short-term activity with long-term effects. There can be no doubt that when it takes place in forest zones, it is a factor of degradation. It is estimated that together with oil prospecting, mining is threatening 38% of the last stretches of the world's primary forest (Bonta, 2000). Despite the promise of wealth that mineral development holds, in reality, the presence of mineral wealth can hold back national and local development (Payal, 2003). These dangerous trends of mining have therefore prompted several research studies into the effects of surface mining on different aspects of human endeavours.

The major objective of this study was to evaluate the effects of surface mining on the availability of land and labour for agricultural production in the study area. The specific objectives however were to;

- Describe the socio-economic characteristics of the farmers in the mine area being studied,
- Determine the socio-cultural and economic effects of surface mining on the inhabitant around the mines,
- Determine the magnitude of agricultural lands affected by mining activities in the study area, and,
- Evaluate the amount of labour that has shifted from agricultural production to mining activities.

METHODOLOGY

This study was undertaken at Ifelodun Local Government Area of Kwara State. The 1991 census put the total population of the area at 155,557. The area is located between latitude 11°22' and 11° 45' north and longitude 2°45' and 6°45' east. It covers an estimated area of 12,000 square kilometers (Km²) and extended from the northwest of Ilorin, the state capital. The vegetation of the area is guinea savanna. It is characterized by average rainfall of about 1,000 – 1,500mm and well distributed across the area.

Ile-Ire district of the local government area was purposely selected for the study due to high concentration of mining activities in the area. Seventy-five (75) structured questionnaires were administered to respondents in three communities (only 71 were returned) where major mining activities take place. Basically 30, 24, and 21 questionnaires were distributed in Babanlā, Oreke and Ganmu communities respectively. Data collected were analyzed through the use of descriptive statistic such as frequency distribution, percentages and also T-test was carried out to test the hypothesis specified for the study.

Statement of Hypothesis

- Ho1 : There is no significant relationship between the proportions of land lost to mining and the area of land cultivated.
- Ho2 : There is no significant relationship between the household labour available on the farm and the household members involved in mining.
- Ho3: There is no significant relationship between the household labour available on the farm and the household members affected by health related problems resulting from mining activities.

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Small-Scale Farmers in the Study Area

The socio-economic characteristics of the respondents have implications for involvement and performance in the mining activities and on agricultural productivity. This involves the distribution of the demographic characteristics of both farmers involved in mining activities and those not directly involved, but whose household members are involved in one way or the other. This covered the three selected communities within the local government area being studied.

Table 1: Distribution of Respondents by Communities in the Study Area

Name of Community	Freq.	%	No. involved in mining	%	No. not involved
Babanlā	27	38.0	24	33.8	3
Okere	24	33.8	22	31.0	2
Ganmu	20	28.2	19	26.8	1
TOTAL	71	100.00	65	91.6	6

Source : Field Survey 2005

Table 1 reveals that 91.6% of the respondents are involved in mining activities. This means that most of the small-scale farmers in the study area are involved in mining activities and this hinders their full participation in farming activities.

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Table 2: Socio-Economic Characteristics of Respondents

Age	Frequency	Percentage(%)
<20	4	5.6
20-29	10	14.1
30-39	13	18.3
40-49	26	36.6
50-59	12	16.9
>60	6	8.5
Total	71	100.0

Level of Education	Frequency	Percentage(%)
Illiterate	53	74.6
Arabic School	7	9.9
Primary School	8	11.3
Secondary School	3	4.2
Total	71	100.00

Farm size (Ha)	Frequency	Percentage(%)
1-3	19	26.8
4-6	41	57.7
7 and above	11	15.5
Total	71	100.00

Source: Field Survey, 2005

Table 2 shows that 36.6% of the respondents are in the age range of (40-49) years, this implies that more older people are into farming when compared with the very young people who are shying away from farming as only 5.6% of the respondent are below 20years of age. Rural-urban migration has also contributed to this phenomenon. Table 2 also reveals that most of the respondents (74.6%) are illiterates, these accounts for reason why most of them are involved in mining activities. Educated people view any enterprise from two ends, that is, positive and negative sides of it, but it is not so with the illiterates as they usually consider the good side of any venture and forgetting the negative and bad side. The implication of their involvement in mining activities has been the resultant consequence of mining in the area. Furthermore, Table 2 shows that 57.7% of the respondent and have a farm size of between 4-6 hectares with 26.8% having just between 1-3 hectares of land which implies that mining activities must have likely affected some area of lands.

Socio-Economic Effects of Surface Mining on Small-Scale Farmers

Social vices such as robbery and rape are peculiar to towns and cities are usually seen in the mine areas recent studies, according to Ross (2001), revealed that overall living standard in mineral dependent states tend to suffer from unusually high rates of social vices and corruption. Farmers households are also being attacked in the process.

Table 3: Distribution of Socio-Economic Effects of Surface Mining by Respondents

	Frequency	Percentage(%)
Number of People With Permanent Injuries from Robbery Attacks		
1-3	14	19.7
4-6	26	36.6
7-9	31	43.7
Total	71	100.0
Number of Rape Related Cases		
1-3	5	7.0
4-6	14	19.7
7-9	16	22.5
10-12	27	38.0
13-15	9	12.8
Total	71	100.0
Proportion of Sick Household Members		
	Frequency	Percentage(%)
Below half	38	53.5
Half	26	36.6
Above half	7	9.9
Total	71	100.0
Level of Vulnerability to HIV		
Less vulnerable	15	21.1
Vulnerable	23	32.4
Highly vulnerable	25	35.2
Don't know	8	11.3
Total	71	100.0

Source: Field Survey, 2005

Table 3 reveals that the farmers in the mine areas are constantly thrown into fear on their ways to farms, market, traveling and even within the community as a result of attack by robbers. As the table shows that 43.7% of the respondent agreed that (7-9) persons have sustained permanent injuries in the study areas as a result of robbery attacks the injuries ranges from bone injuries from gun shots and even fractures. These have restricted their performance in their farming activities. Also women's participation in social activities is being obstructed as a result of fear of rape, as it is shown by the table that 38% of the respondents reported that (10-12) persons (women and girls) have been raped across the communities where mining take place. This means that women can not compliment their family in terms of income generation as they are scared at being victims of rape.

Table 3 further reveals that people in the study area fall sick frequently as a result of the pollution of the environment by mining activities. 53.5% of the respondents admit that

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more than half of the members of their household fall sick often during mining activities. Also 35.2% which is the highest agreed that people that live around the mining areas are highly vulnerable to contacting HIV virus especially the women who are victims of rape in the area.

Availability of Labour for Agricultural Production

Table 4: Distribution Of Respondents As Regard The Source Of Labour Used For Production

Source of labour	Frequency	Percentage(%)
Self	2	2.8
Family	59	83.1
Hired	10	14.1
Total	71	100.0

Source: Field Survey, 2005

Table 4 reveals that majority of the respondent (83.1%) use family labour for their farm production activities, this labour comprises of their wives, children and the farmers themselves and this is the general practice in many rural setting as they see hired labour as a waste of resource. It is therefore significantly consequential on agricultural productivity and output when available labour required on the farm is lost to the mine fields.

Table 5: Distribution Of Respondents On How They Participate In Mining Process.

Level of involvement	Frequency	Percentage(%)
Full	28	39.4
Partial	37	52.1
None	6	8.5
Total	71	100.0

Source: Field Survey, 2005

From Table 5, it can be deduced that a total of 91.5% are either fully or partially involved in mining activities. This implies that those this is a mass shift to mining and that is less labour will be available for agricultural production and conveniently less food for the populace.

Table 6: Result Of Proportion Of Land Lost To Mining Activities Against Hectares Of Land Cultivated

STD Error	paired difference means	F	R	t-value	p-value	remark
0.228	3.730	70	0.500	16.366	0.001	S

Source: Computed from the Field Survey Data (2005)

From Table 6, the r-value shows a correlation between the proportion of land lost to mining and the hectares of land cultivated, and this is relatively high (0.500) the positive nature of this value proves a positive relationship between the two variables. The positives sign of r-value also means that as the hectares of land cultivated for agricultural

production increases around the mines the proportion of it that will be lost to mining activities will also increase.

Test for significance showed that t-calculated (16.366) at 5% level of significance was greater than t-tabulated (1.994). This led to the rejection of H_0 and it implies that there is a statistically significant relationship between the proportion of land lost to mining activities and the hectares of land cultivated by the farmers..

The p-value for the degree of confidence of the relationship was highly significant, since the decision rule for p-value state that, if at 5% level of significance <0.005 , the relationship is significant, from Table 6 above, the value for p is 0.001 which is less than 0.05 and so, implies that the relationship between the proportion of land lost to mining and hectares of land cultivated is highly significant.

Table 7: Result Of Household Members Working In The Mines Field Against The Household Labour Available On The Farm.

STD Error	paired difference means	F	R	t-value	p-value	remark
0.33	4.41	70	0.638	13.335	0.001	S

Source: Computed from the Data collected (2005)

The test for correlation between the variables was positive at 0.638. This high correlation shows that the household members working in the minefields and household labour available on the farm are closely related, which means that as the more people are available for family labour, more of such people also move to the mine fields.

The 2-tailed significance of 0.001 also signifies that the relationship between the variables is highly significant, since the decision rule for p-value states that, if at 5% level of significance, $p < 0.05$ the relationship is significant.

Test for significance indicated that the t-calculated (13.335) is greater than the t-tabulated (1.994) at 70 degree of freedom leading to the rejection of H_0 and it means that there is statistically significant relationship between the number of household members working in the mine fields and the household labour available on the farm.

Table 8: Result Of Household Members Working On The Farm Against Member Of Household Affected By Mining Illness.

Paired difference means	DF	R	t-value	p-value	Remark
6.040	70	-0.990	14.224	0.001	S

Source: Computed from Data Collected (2005)

The correlation for the variables appear to be negative, and this explains the fact that household members working on the farm and the members of household infected by mining illnesses, then less people will be available to supply the household labour needed in the farm.

Test for significance indicated that t-calculated (14.224) is greater than t-tabulated (1.994), leading to the rejection of H_0 . It means that there is a statistically significant relationship between the number of household members infected by mining illnesses and household members working in the farm.

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The p-value for the degree of confidence of the relations was highly significant, since the decision rule for p-value states that, if at 0.05 of 5% level of significance, $p < 0.05$, the relationship is significant and the value for $p=0.001$ which is less than 0.05 and so, implied that the relationship between the two variables is highly significant.

CONCLUSION AND RECOMMENDATION

The study revealed that surface mining has a serious effect on land and labour availability as labour on the farm has reduced significantly due to the influx of farm families into minefields. Surface mining also has a negative impact on the socio-economic life of the people in the study area.

It is recommended that farmers should be informed about environmental and social impact as well as long term effect of surface mining on their lives, lands and agricultural production by extension agents and other appropriate bodies

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