

Gender Dimensions of Rural Livelihoods in Artisanal and Small-scale Mining in Itesiwaju Local Government Area of Oyo State, Nigeria

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Abstract

Mining activities contribute to livelihoods and welfare of rural households in communities that are endowed with mineral resources. Oyo State is one of the states in Nigeria where artisanal and small-scale mining (ASM) livelihood activities are undertaken. ASM is an important driver of local economic development, while simultaneously contributing to a complex array of positive and negative socio-economic, health and environmental impacts. There is however, dearth of empirical studies on the gender dimensions of ASM. This study therefore, assessed the gender dimensions of ASM in rural households in Itesiwaju Local Government Area of Oyo State, Nigeria.

Multistage sampling technique was used in selecting respondents. Random sampling method was used to select men and women respondents from three communities in the study area. The communities are Igbojaye, Ofiki and Komu. Both qualitative (key informant interviews) and quantitative (structured questionnaire) methods were used to gather data. A total of 120 respondents, comprising both men and women were surveyed. Information collected include: socio-demographic characteristics of miners, income level of miners, as well as perceived health and environmental impacts of mining activities. Data were analysed using both descriptive and inferential statistics.

Findings revealed significant differences in the socio-economic characteristics, income levels, perceptions on health

and environmental impacts of mining activities by gender. The average age of men was 37.34 (± 9.02) years while that of women was 30.06 (± 5.05) years. Household size of men averaged 5.69 (± 2.70) persons while that of women was 4.58 (± 1.87) persons. Average years of experience in mining activities for men and women were 10.36 (± 4.98) and 8.32 (± 3.44) years, respectively. The types of minerals mined in the study area were tourmaline and tantalite. Twenty two percent of the women and 38.6% of the men earned more than 25% of their monthly income from ASM activities. Both men and women agreed that mining activities have impacts on other livelihood activities like food hawking and petty trading as well as health and environmental impacts. Both men and women generate income from ASM.

Key Words: Mining, Artisanal and Small-scale mining, Itesiwaju Local Government Area

Introduction

Mining is a major economic activity in many developing countries (Tauli-Corpuz, 1997). Artisanal small-scale mining (ASM) is common to developing countries, like Nigeria, where the populace in the rural areas find it difficult to meet household demands (Eftimie *et al.*, 2012). Oyo State is one of the States in Nigeria where rural dwellers are involved in ASM (Oladeji *et al.*, 2010). Women constitute a significant proportion of the labour force in ASM, and involvement in ASM can take place at all stages of the mining production and value chain (Eftimie *et al.*, 2012). ASM includes a wide variety of participants performing a range of functions, including wage labourers paid by license holders, cooperatives, or financiers (Levin and Gberie, 2006). This structure and array of participants and roles vary across countries, and activities at a given site may be dominated by men or women or both (Eftimie *et al.*, 2012). The 2012 World Development Report on gender, equality and development finds that women's lives around the world have improved dramatically, but gaps remain in many areas (<http://go.worldbank.org/CQCTMSFI40>).

Among the more than 20 million artisanal and small-scale miners active around the world, the proportion of women miners was estimated at about 30 percent in 2003; their involvement may now be much higher (Hinton *et al.*, 2003). Women make up well over 10 percent to even more than 50 percent of miners in some Asian countries. In Latin America, they comprise approximately 10–30 percent. In Africa (see Table 1), women may make up anywhere from 40 to 100 percent of the workforce (Lahiri-Dutt 2008; Onuh, 2002; Amutabi and Lutta-Mukhebi, 2001; Jennings, 1999).

Table 1: Estimated number of miners and percentage by gender in selected countries

Country	Number of miners	% of women
Burkina Faso	100,000 – 200,000	45
Ghana	180,000 – 200,000	50
Malawi	40,000	50
Mali	200,000	30
Tanzania	550,000	25
Uganda	196,000	45
Zambia	30,000	30
Zimbabwe	350,000 – 500,000	44
Average		39.9

Source: Eftimie *et al.*, 2012

In addition to working directly in mining, women often work part time at informal mining operations and occupy ancillary roles (e.g., as cooks and service providers). Similarly, Susapu and Crispin (2001) show that women are more frequently associated with transporting and processing materials, as opposed to digging, they are not always

identified as miners. However, Wasserman (1999) observes that significant discrepancies exist between the estimated and actual numbers of women involved in ASM. Generally, we know that women perform different mining activities and that some of these activities are largely unrecognized and undervalued (Eftimie *et al.*, 2012).

Therefore, this study explores gender analysis of rural livelihoods in ASM in Itesiwaju Local Government Area of Oyo State. Gender analysis in ASM is typically only in small part based on their different physical capabilities. According to Eftimie *et al.* (2012), the difference in gender roles is mainly determined by cultural or traditional factors, functions, and expectations; and that although specific roles and expectations vary around the world and even within countries, most cultures usually have fairly strong prescriptions for men's and women's roles in the domestic and community spheres. Examining links between gender and ASM suggests analysis of respondents in communities by the interaction between men's and women's gender-ascribed mining activities and implications for social, economic, health and environmental development.

Additionally, extractions of mineral resources by the miners undergo many processes which have to do with environmental resources. The impact of mining activities degrades land and destabilizes the ecosystem such that it affects the land available for carrying out farming activities. Mining activities involving the open cast method have adversely affected people and agriculture due to the formation of pits and ponds as a result of excavation of mineral and materials during mining operation (Oladeji *et al.*, 2010; Olujide, 2006).

In the Cokoase Camp at Tarkwa in Ghana, risks associated with underground mining are given as justification for women carrying gold ore and water and pounding rocks rather than digging. Women who transport gold ore and water and pound rocks yield salaries 60 percent lower than men involved in digging (Akabzaa and Darimani, 2001). In Siguiri, Guinea, women and men work side by side washing gold from the lateritic soil. For every five calabashes (a large carrying container) of ore that the women wash, male intermediaries (buyers) receive the profits from four; the women retain only one (USAID, 2000).

Approximately 90 percent of mineral processing activities are conducted by women in Burkina Faso and Mali, where women constitute approximately 45 percent of the ASM workforce (Gueye, 2001; Keita, 2001). The labour division of men engaged in digging and women in hauling, processing, and service provision has been documented for metallic mineral and gemstone production in Bolivia, Brazil, Burkina Faso, Colombia, India, Kenya, Lao PDR, Mozambique, Peru, the Philippines, Sudan, Suriname, Republica Bolivariana de Venezuela, Zimbabwe, and elsewhere (Veiga, 1997; Jennings, 1999; Heemskerk, 2000; Amutabi and Lutta-Mukhebi, 2001; Chakravorty, 2001; Dreschler, 2001; Hentschel *et al.*, 2002; Veiga and Hinton, 2002; Lujan, 2004). Women are also involved in the mining and processing of many industrial minerals, such as clay in Bangladesh; stone aggregate, and limestone in Uganda; stone aggregate and sand in India; stone, sand, and clay in Ghana; and marble in Zambia (ANU and World Bank 2008, Babu, 2004; Dreschler, 2001; Hilson, 2001; Hinton, 2006; Sahnaj, 2004).

Further, cultural beliefs and traditions strongly influence interactions between individuals and groups and the nature of community organization and societal rules or norms. Although these factors are critical in terms of women's socioeconomic status and overall health and well being, they have been poorly studied in the context of ASM. In the assessment of women's participation in tin mining in the Jos region of northern Nigeria, (Pamma *et al.*, 2000) ascertained that the role of a woman is largely determined by her husband in the case where mining is predominantly conducted by women.

Materials and Methods

Study Area

The study was conducted in Itesiwaju Local Government Area in Oyo State, Nigeria (see Figure 1). The headquarters of Itesiwaju Local Government Area is Otu. It has an area of 1,514 km² and a population of 127,391 as at the 2006 census and population density of 84.1 people per km²(<http://www.citypopulation.de/php/nigeria-admin.php?adm2id=3017>). Itesiwaju is prominent for its mineral resources, and mining activity is a major source of livelihood for the rural dwellers.

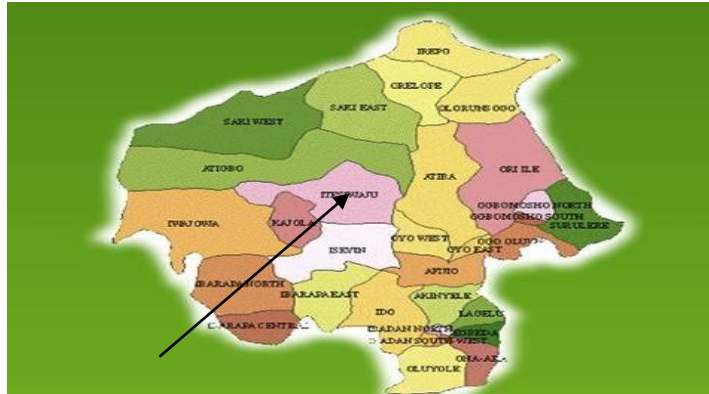


Figure 1: Map of Oyo State showing the study area

Type and Source of Data

The mining locations in Itesiwaju are: Igbojaye, Ofiki and Komu. The mining sites at Igbojaye are Balogun Ojo, Budo Are and Budo Fulani. The mining site of Ofiki is at Iluku and the mining site of Komu is Agate and Abuja Leather. Igbojaye and Komu were purposely selected for the study. A total of one hundred and twenty (120) respondents, comprising both men and women, were randomly and proportionally sampled. Both qualitative (key informant interviews) and quantitative data collection methods were employed. The combination of both quantitative and qualitative data enhanced robustness of findings of the study. The study was carried out in four mining locations, comprising Budo Are, Budo Fulani, Agate and Abuja Leather. Table 2 shows the study locations and total sample size.

Table 2: Site selection and sample size

Location	Mining site	Men	Women	Total sample
Igbojaye	Budo Are	18	13	28
	Budo Fulani	18	13	28
Komu	Agate	17	12	27
	Abuja Leather	17	12	27
Total		70	50	120

Analytical Techniques

Descriptive statistics (including charts and tabular analysis) and inferential statistics (Chi square tests) were employed in the analyses.

Results and Discussion

Socio-economic characteristics of ASM by gender

The results of the socio-economic characteristics (age, religion, educational background, marital status, migrant status, and household size) of ASM respondents by gender are presented in Table 3.

Table 3: Socio-economic characteristics of ASM by gender

Socio-economic characteristics		Men (%)	Women (%)
Age	15-30	30.0	66.0
	31-45	57.1	34.0
	46-60	12.9	-
	Mean and SD	37.34±9.02	30.06±5.05
Religion	Christianity	22.9	14.0
	Islam	62.9	70.0
	Traditional	14.3	16.0
Educational background	No formal education	55.7	60.0
	Primary	10.0	20.0
	Secondary	25.7	20.0
	OND	8.6	-
Marital status	Single	14.3	8.0
	Married	80.0	84.0
	Divorced	5.7	8.0
Indigene-ship	Indigene	21.4	26.0
	Non indigene	78.6	74.0
Household size	1-3	20.0	16.0
	4-6	41.4	78.0
	7-9	32.9	6.0
	10-12	5.7	-
	Mean and SD	5.69±2.70	4.58±1.87

Age

The age range of respondents shows that 30.0% of the men that are involved in mining activities are between ages 15-30 years while women in this age range (15-30 years) are 66.0%. Between ages 31-45 years are 57.1% for men and 34.0% for women. The average age of respondents is 37.3 (±9.02) years for men and an average of 30.1 (±5.05) years for women. This indicates that both men and women engage in ASM in their youthful ages.

Religion

Most of the respondents are Muslims (63% of men and 70% of women). Only 14.0% of the women and 22.9% of the men are Christians. Traditional religion was practiced by 14.3% of the men and 16.0% of the women.

Educational background

The educational background reveals that 55.7% of men and 60.0% of women had no formal education, 10.0% of men and 20.0% of women had primary education, 25.7% of men and 20.0% of women had secondary education and 8.6% men were Ordinary National Diploma (OND) holders. Generally, majority of respondents had no formal education.

Marital status

The marital status of the respondents shows that 14.3% of the men and 8.0% of women are single. Also, 80.0% of men were married and 84.0% of women. About 5.7% of men and 8.0% of women that are divorced are into ASM. From the results, it is an indication that mining activities were practiced predominantly by married men and women.

Migrant Status

Both indigenes and non-indigenes are involved in ASM of the communities. Non-indigenes that are men constitute 78.6% of ASM while women are 74.0%. Men and women that are indigenes made up to 21.4% and 21.6%, respectively. This is an indication that non-indigenes are mostly involved in mining activities.

Household size

The household size has implication for family labour and welfare. The results show that 41% of men (male respondents) have household size of 4-6 persons while the women have 78% of the household made up of 4-6 persons. The average household size for men is six persons while the women (female respondents) have household size of five persons.

Mining Characteristics and Type of Minerals Explored

The years of experience of ASM respondents reveal that the average was 10.4 (± 5.0) for men and 8.3 (± 3.44) for women (see Table 4). Those whose years of experience in mining activities is between 1-5 years were 17.1% of men and 20.0% of women, 6-10 years experience have 41.4% of men and 58.0% of women had 6-10 years of involvement in ASM.

Table 4: Mining Characteristics

Characteristics	Items	Men	Women
Years of experience in mining activities	1-5	17.1	20.0
	6-10	41.4	58.0
	11-15	27.1	18.0
	Above 15	14.3	4.0
	Mean and SD	10.36 \pm 4.98	8.32 \pm 3.44
Type of minerals mined	Tourmaline	100.0	100.0
	Tantalite	24.3	22.0

The average age of involvement in ASM is 10.36 (± 4.98) years for men and 8.32 (± 3.44) years for women. Tourmaline and tantalite are the minerals that are explored in the study area.

Contribution of Mining Activities to Overall Income of ASM

Mining activities are sources of income for the miner. The results in Figure 2 show that 61.4% of the men have 25% or less income from mining activities, 30% have 26-50% income from mining activities and 8.6% have 51-75% income from mining activities. On the other hand, 78% of women have 25% or less of their income from ASM. Only 8% of the women have 51-75% of their income from ASM. Overall, the results indicate that incomes from ASM are complemented from other livelihood activities.

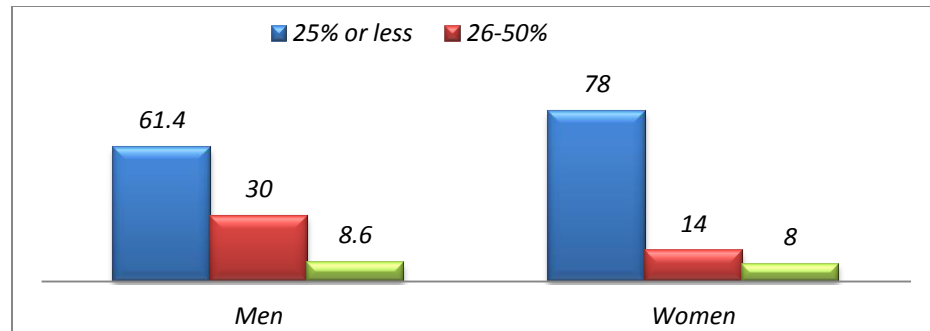


Figure 2: Percentage of respondents by share of income from mining activities

Perceived Effects of Mining Activities on other Livelihood Activities by Gender

Observations and experience from the field reveal that the respondents were involved in other complementary livelihood activities. To this extent, some livelihoods were perceived as either favourable effects or otherwise on ASM activities. The results in Table 5 revealed the perceptions of the effect of ASM on other livelihood activities in the study area.

Food vending and petty trading thrive in the mining communities. It was noted that coming out of the mining sites to get edible things is always difficult and expensive so food vending and snacks as well as other petty trading were complementary livelihood activities. Those who have vehicles are also using it to ply the road leading to the sites because the roads are deplorable. Shoe making and blacksmithing are also some of the complementary livelihood activities, as shoes/boots and the equipments used by respondents are manufactured locally by the local artisans.

Table 5: Effects of mining activities on other livelihood activities by gender

List of other livelihood activities	Effects: percentage of those that said mining activities are favourable to identified other livelihood activities	
	Men (%)	Women (%)
Crop farming	17.1	26.0
Fishing	77.1	52.0
Hunting	17.1	26.0
Gathering of forest produce	1.4	2.0
Tapping of palm wine	91.4	88.0
Bush meat production/farming	12.9	24.0
Agricultural production and processing	8.6	10.0
Hired labour	32.9	34.0
Carpentry	32.9	32.0
Blacksmith	97.1	88.0
Food hawking	100.0	100.0
Petty trading	100.0	100.0
Sales of building materials	32.9	32.0
Mechanic	42.9	26.0
Butchery	95.7	72.0
Cane weaving	8.6	10.0
Shoe making	97.1	78.0
Livestock rearing	31.4	42.0
Transportation	100.0	96.0

The results on the perceived effects of mining activities on other livelihood activities in the study area revealed crop farming is hampered by ASM activities but encourages fishing, tapping of palm wine and blacksmithing. Livestock rearing which is another source of livelihoods in the study area was said to be favoured by mining activities. It was observed that both men and women rear livestock to feed their family and sell to generate income. Both men and women agreed that mining activities favour petty trading and sales of building materials in the study area.

Health and environmental impacts of mining activities

The indicators considered to constitute health and environmental impacts of mining are: dust, water/air pollution, dangerous pits/shaft, land degradation and ecosystem disorder. The results of the multiple response analysis (Table 7) reveal that most of the respondent rated dust as the highest health and environment impact of ASM; even as water/air pollution was ranked second by the men (67.1%) and women (64%). Dangerous pits/shaft, land degradation and ecosystem disorder were the other health and environmental impacts of mining activities in the study area. Legal framework (institutional control) should be implemented in the process of registration and permits for mining sites so as to enforce standard of operations and mitigate the environment impacts of mining activities. Similarly, health facilities should be provided for the purpose of health awareness and healthcare needs of the miners.

Table 7: Ranking of the perceptions on health and environmental impacts of mining activities by Gender (multiple response analysis)

Health and environmental indicators	Men					Women				
	1 st	2 nd	3 rd	4 th	5 th	1 st	2 nd	3 rd	4 th	5 th
Dust	97.1	2.9	-	-	-	100.0	-	-	-	-
Water/air pollution	2.9	67.1	21.4	8.6	-	-	64.0	28.0	8.0	-
Dangerous pits/shaft	72.9	-	27.1	-	-	66.0	-	34.0	-	-
Land degradation	27.1	61.4	11.4	-	-	26.0	70.0	4.0	-	-
Ecosystem disorder	8.6	60.0	31.4	-	-	10.0	54.0	36.0	-	-

Source: Field Survey (2012)

The hypothesis of no significant difference in the contribution of income from mining activities to overall income by gender was accepted as the test statistic was not significant (Table 8). The result established that there is no significant difference in the contribution of income from

mining activities to overall income by gender. This result implies that both men and women generate similar patterns of income from ASM.

Table 8: Chi square test of difference in the contribution of income from mining activities to overall income by gender

Pearson Chi-Square value	Df	level of significance	Decision
4.384	2	0.112	Not significant

Conclusion

Artisanal small-scale mining activities in Itesiwaju Local Government Area of Oyo State, Nigeria, involving the exploration of tourmaline and tantalite, are sources of livelihoods for men and women. The activities of ASM favour other sources of livelihood activities, including agricultural and non-agricultural activities. The perceived health and environmental impacts of mining activities include: dust, water/air pollution, dangerous pits/shaft, land degradation and ecosystem disorder.

It is recommended that mining activities be promoted and expanded as sources of employment for men and women, especially the youths. Also, there is the need to develop the ASM in the study area through the provision of social and economic infrastructure like health facilities and road networks so that the ASM could contribute more to employment creation, income generation and poverty reduction for men and women. This will also promote the multiplier effect of ASM on other downstream activities, including agricultural and non-agricultural income generating activities. Health and environmental impacts of mining activities could be ameliorated through awareness creation and institutionalization of appropriate mitigation measures with a view to promoting sustainable development in artisanal small-scale mining.

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