Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Dolomite Mining and Local Livelihood in some Selected Communities of Kwara and Oyo States, Nigeria

[1]Abdulazeez Alao, ADEKOLA (Ph.D.)
aaadekola50@gmail.com / +2348030710254

[2]Tamunoiwomabia Elevation, OMGBOANGA
iwotek@yahoo.com /+2348126515857
ORCID iD: https://orcid.org/0009-0009-2126-6637

[1,2]Centre for Peace and Security Studies
Al-Hikmah University, Ilorin, Nigeria.

DOI : https://doi.org/10.5281/zenodo.22914784

Abstract
This study examined the effects of dolomite mining on the socio-economic livelihoods in some selected communities of Oreke, Babanloma, Isale Osin, Eleja, Igbeti, and Alagutan in Kwara and Oyo States, Nigeria. Although dolomite mining contributes to employment, income generation, infrastructure development, and industrial growth, it also creates environmental and socio-economic difficulties that threaten sustainable livelihoods. Guided by the Sustainable Livelihood Theory, the study adopted a survey design using a mixed-methods approach. Quantitative data were collected by structured questionnaires administered to 384 respondents selected from study area with 372 retrieval, whereas qualitative data were obtained through Focus Group Discussions, In-Depth Interviews, Key Informant Interviews, non-participant observation, and secondary sources. Quantitative data were analysed using descriptive statistics and multiple linear regression, whereas qualitative data were subjected to thematic analysis. The findings showed that dolomite mining significantly influences socio-economic livelihoods. Mining activities generated positive outcomes, including employment creation, increased household income, business expansion, market growth, infrastructure development, vocational opportunities, and boosted economic participation of women. However, adverse effects such as environmental degradation, declining agriculture productivity, worsening health conditions, social conflicts, displacement, insecurity, and inadequate corporate social responsibility were also identified. The study concludes that although dolomite mining stimulates rural economic development, its long-run sustainability depends on harmonising economic gains with environmental protection and social welfare. It recommends stricter enforcement of environmental regulations, livelihood diversification, vocational training, improved corporate social responsibility, and greater community participation in mining governance to boost sustainable development in host communities.

Keywords: *dolomite mining, socio-economic, livelihood.*

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

1. Introduction

Dolomite mining represents a significant global economic activity, driven by demand from the construction, steel, glass, agricultural, and chemical industries. This sector contributes to employment, government revenue, industrial development, and foreign exchange earnings. Major producers, including the United States, China, India, Germany, and Brazil, have expanded production to meet industrial demand (U.S. Geological Survey, 2023). The importance of mining to modern civilisation is highlighted by Max Planck's assertion that "mining is not everything, but without mining everything is nothing" (Dada & Ajadi, 2020). Despite these economic benefits, mining also creates substantial socio-economic challenges for host communities, particularly where livelihoods depend heavily on natural resources.

Socio-economic livelihoods globally refer to the means by which households secure income, food, shelter, education, healthcare, and general well-being. In rural areas, livelihoods often depend on agriculture, fishing, livestock, forestry, and ecosystem services (Haile et al., 2021; Nelson et al., 2023). Dolomite mining alters land-use patterns through excavation, blasting, transportation, and processing, leading to agricultural land loss, soil degradation, water pollution, and vegetation destruction. These environmental changes can diminish agricultural productivity, household income, food security, and economic resilience (Wegenast & Beck, 2020). Evidence from mining communities demonstrates that dust from blasting and crushing contaminates farmland, reduces crop yields, and increases respiratory health risks. Additionally, mining-related water pollution affects irrigation, fisheries, and domestic water supplies, thereby restricting traditional livelihoods and elevating risks of poverty and unemployment (Sutrisno & Azhari, 2020).

The challenges linked to mining are especially pronounced in Africa, where mineral extraction significantly contributes to economic growth and government revenue. Despite these advantages, many mining-host communities persistently experience poverty and underdevelopment. Weak institutional capacity, inadequate environmental governance, and insufficient regulatory enforcement often permit unsustainable mining practices (Oruonye & Ahmed, 2020). In response, the African Mining Vision promotes mineral-resource governance that integrates economic development alongside environmental protection and community well-being (Jourdan, 2024).

In Nigeria, dolomite deposits are found in Abuja, Edo, Kogi, Nasarawa, Kwara, Oyo, and Yobe States (Omoseebi & Tanko, 2021). While mining activities generate employment and stimulate local businesses and infrastructure, they also degrade agricultural land, pollute water sources, reduce vegetation, and undermine livelihoods (Yisa et al., 2026; Zinke, 2021). These negative effects can lead to respiratory illnesses, declining incomes, displacement, and conflicts arising from inadequate compensation and limited community participation (Shackleton, 2020; Egunyu & Boakye-Danquah, 2024).

In Kwara and Oyo States, the socio-economic consequences of dolomite mining are apparent in communities such as Oreke, Babanloma, Eleja, Isale Osin, Igbeti, and Alagutan. In these areas, mining-related dust, land degradation, and deforestation threaten agricultural activities and are linked to reduced yields, lower incomes, food insecurity, and heightened economic vulnerability (Olatunji et al., 2017). Although the Nigerian Minerals and Mining Act (2007) and National Environmental (Mining and Process of Coal, Ore, and Industrial Minerals) Regulations 2009 establish environmental safeguards, weak implementation, insufficient funding, limited

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

institutional capacity, and the prevalence of informal mining continue to constitute significant challenges (Olujobi & Irumekhai, 2024).

Although existing research documents the environmental and livelihood challenges associated with mining, integrated empirical evidence on how dolomite mining affects socio-economic outcomes in selected communities in Kwara and Oyo States remains limited. The main gap is the lack of community-level evidence linking these environmental pressures to reduced agricultural productivity, income, food security, and economic vulnerability, particularly amid regulatory challenges. This study addresses this gap by assessing the socio-economic effects of dolomite mining in these communities to inform environmentally sustainable mining policies, stronger environmental governance, livelihood protection, and equitable benefit sharing. It also tends to provide empirical evidence to guide policymakers, mining authorities, and development agencies in promoting sustainable livelihoods, poverty reduction, environmental governance, and equitable benefit sharing.

2. Statement of the Problem

Dolomite mining supports employment, income generation, and local economic activities in mineral-producing communities. However, its environmental consequences may adversely affect household livelihoods. Research on mining in Nigeria has identified environmental concerns such as land degradation, soil contamination, air pollution, and reduced agricultural productivity (Eludoyin, 2017; Merem et al., 2017). For example, Olatunji et al. (2017) found elevated heavy-metal concentrations in agricultural soils near dolomite processing areas in Igbeti, raising concerns about agricultural suitability. Despite these findings, most existing studies have focused on environmental and physical impacts, with limited empirical evidence linking these conditions to employment, household income, agricultural productivity, food security, and broader socio-economic livelihoods in dolomite-mining communities. This study addresses this gap by investigating the socio-economic livelihood effects of dolomite mining in selected communities in Kwara and Oyo States, Nigeria.

3. Aim and Objective of the Study

The aim and objective of the study is to examine the effects of dolomite mining on socio-economic livelihood and proffer solution to its adverse effect in some selected communities in Kwara and Oyo States, Nigeria.

4. Research Hypothesis

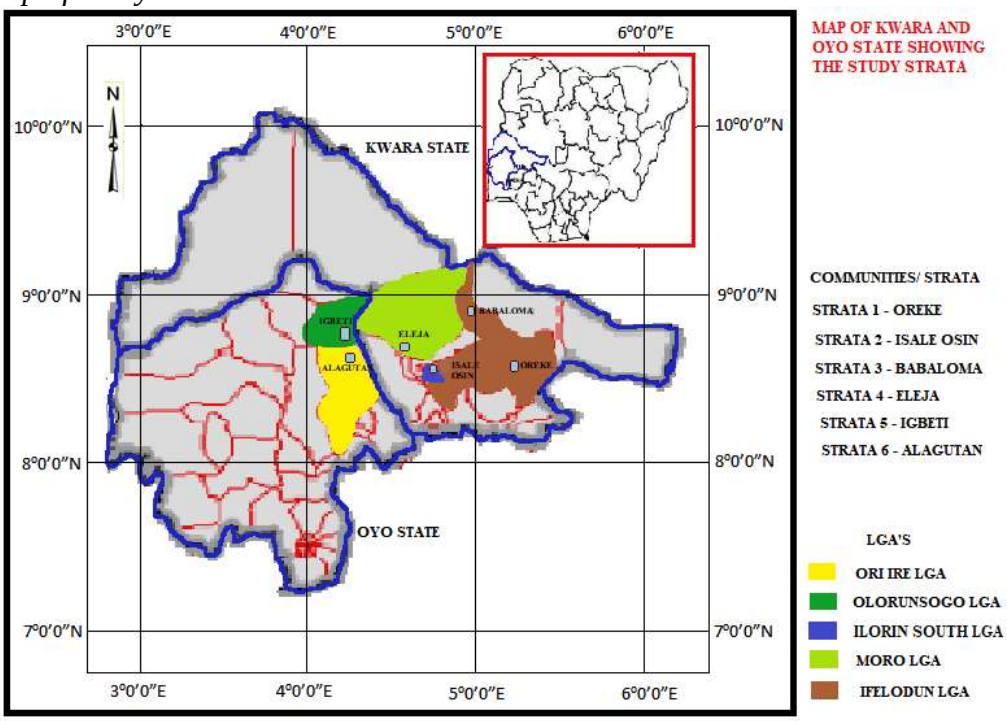
i. H_0: Dolomite mining has no significant effect on socio-economic livelihood of mining communities in Kwara and Oyo States

   H_1: Dolomite mining significantly affects the socio-economic livelihood of mining communities in Kwara and Oyo State

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - *E*- ISSN: 3156-5492 | *P*- ISSN: 3156-5514

5. Scope of Study

Figure 1
Map of Study Area



Source: NESREA Kwara Field Office ICT Unit, 2025

The study examines the effect of dolomite mining on socio-economic livelihoods in Oreke, Babanloma, Isale Osin, and Eleja, in the Ifelodun, Ilorin South, and Moro Local Government Areas of Kwara State, as well as Igbeti and Alagutan in the Olorunsogo and Ori Ire Local Government Areas of Oyo State, Nigeria. It evaluates the effect of mining activities on these communities' social and economic well-being. The study offers insights regarding the socio-economic consequences of dolomite mining and informs evidence-based recommendations to strengthen environmental protection, safeguard livelihoods, promote sustainable mining practices, and mitigate adverse effects on affected communities.

6. Literature Review

Dolomite, a sedimentary carbonate rock composed of $CaMg(CO_3)_2$, is widely utilised in construction, agriculture, cement, steel, and chemical industries. Despite increased extraction driven by urbanisation and industrialisation, scholarly attention to dolomite mining remains limited compared with gold, oil, and limestone (World Bank, 2024). Ogunleye and Arije (2026) describe dolomite formation through dolomitisation, while Werner et al. (2019) focus on technological advancements such as GPS, drones, remote sensing, and three-dimensional geological modeling, primarily from a mining efficiency perspective. Although these studies enhance geological and technological understanding, they do not sufficiently address the consequences for household livelihoods.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Research on the economic impacts of mining yields divergent conclusions. Hilson (2016), Nigeria Extractive Industries Transparency Initiative (NEITI, 2021), Kemp et al. (2021), and Chipangamate et al. (2023) link mining to increased employment, income, economic activity, and infrastructure development. Conversely, Haruna et al. (2022) reports negative outcomes such as agricultural land degradation, reduced productivity, food insecurity, and heightened livelihood vulnerability. These contrasting findings indicate that aggregate economic benefits may occur alongside deteriorating household livelihood conditions. Notably, the existing studies differ in their geographical and analytical scope and offer limited evidence regarding dolomite-dependent communities in Nigeria.

Environmental research also identifies land degradation, vegetation loss, erosion, biodiversity decline, and water contamination as consequences of mining (Adeniyi et al., 2022). However, these studies primarily focus on environmental variables and do not systematically connect them to livelihood indicators such as agricultural productivity, income, food security, and household vulnerability. In contrast, Ayuk et al. (2020) and Narula et al. (2017) highlight sustainability measures including reclamation, restoration, pollution control, community participation, regulatory enforcement, and livelihood diversification, yet provide limited empirical evidence regarding their effectiveness in dolomite-mining communities.

In Nigeria, dolomite deposits are found in Kogi, Edo, Kwara, Ogun, Oyo, Nasarawa, and Yobe States (U.S. Geological Survey [USGS], 2017). However, the existing literature offers insufficient comparative evidence regarding the livelihood consequences of dolomite mining in Oreke, Babanloma, Isale Osin, Eleja, Igbeti, and Alagutan. This study seeks to address this empirical gap by integrating mining-related environmental pressures with household socio-economic livelihood outcomes in these selected communities.

7. Theoretical Framework

The Sustainable Livelihood Framework (SLF) provides a direct analytical basis for examining how dolomite mining influences the socio-economic livelihoods of communities in Kwara and Oyo States. The theory originated from Robert Chambers' work in the mid-1980s and was further developed by Chambers and Conway in 1992 (Morse, 2025; Natarajan et al., 2022). Rather than treating the five livelihood capitals (human, natural, financial, social, and physical) as general categories, this study operationalises them in relation to the empirical variables measured. **Human capital** is reflected in employment opportunities, vocational training, and health conditions, recognising that mining can simultaneously create skills and employment while exposing residents to health risks. **Natural capital** relates to access to and quality of land, water, vegetation, and other environmental resources affected by mining activities. **Financial capital** is represented by income improvement, economic opportunities for women, local businesses, and market expansion. **Social capital** encompasses community participation, social relationships, collective action, conflicts, and displacement associated with mining. **Physical capital** covers infrastructure and community facilities, including roads, healthcare facilities, and other services influenced by mining activities.

The framework's **vulnerability context** is applied to mining-related environmental and socio-economic shocks, including land degradation, water contamination, dust, worsening health conditions, erosion, displacement, and fluctuations in livelihood opportunities. These pressures influence households' capacity to sustain livelihoods and shape their coping and adaptation

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

strategies, consistent with Natarajan et al. (2022). The **transforming structures and processes** comprise government agencies, environmental regulations, mining policies, community development associations, licensing, monitoring, enforcement, consultation, and sensitisation measures. These institutional processes determine access to livelihood assets and influence how mining benefits and risks are distributed.

Thus, TSL moves beyond a historical description to provide an explicit framework linking environmental pressures, livelihood assets, institutional responses, and socio-economic outcomes. Although criticisms concerning oversimplification, inequality, politics, and governance remain (Wubayehu, 2020; Jiren et al., 2021; Morse, 2025), its holistic and people-centred orientation (Serrat, 2017; Ngamwong et al., 2024), including its compatibility with digital approaches (UNDP, 2016), makes it appropriate for this study.

8. Methodology

The study used a convergent parallel mixed-methods design to collect quantitative and qualitative data simultaneously and independently, providing complementary perspectives on socio-economic livelihood (Creswell & Plano Clark, 2018). Questionnaires generated quantitative data, while interviews, focus group discussions, observation, and secondary sources provided contextual insights. Both data types were analysed concurrently and integrated during interpretation to corroborate, complement, or clarify convergent and divergent findings. The study population included mining workers, host-community residents, miners association, artisans, transportation association, environmental consultants, and regulatory agencies. However, the approved projected population comprises 10,889 residents in Oreke, 32,706 in Babalomo, 1,322 in Isale Osin, 1,011 in Eleja, 31,132 in Igbeti, and 1,290 in Alagutan, totalling 78,350 residents (National Population Commission, 2025). The study applied the Sample Z-Score formula to obtain a sample size of 384 respondents at a 95% confidence level and 5% margin of error.

A total of 384 questionnaires were equally allocated across six strata, with 64 administered in each community and 372 retrieved. Multistage sampling used disproportionate stratified and cluster techniques for quantitative respondents, while purposive sampling selected 50 qualitative participants, including 17 key informant interviews (KII), 9 focus group discussions (FGD), and 24 in-depth interviews (IDI). The questionnaire used five-point Likert scales, with validity established through expert review and reliability confirmed by Cronbach's Alpha (≥ 0.75). Quantitative data were analysed using descriptive statistics and multiple linear regression, whereas qualitative data were subjected to thematic analysis. Ethical considerations of informed consent, confidentiality, privacy, and voluntary participation were rigorously utilised.

9. Results

The results from the study on the effects of dolomite mining on socio-economic livelihood in Kwara and Oyo States are presented. Data derived from the questionnaire, Focus Group Discussion (FGD), In-depth Interview (IDI), Key Informant Interview (KII), and Non-Participant Observation were analysed respectively. The Table summarise the demographic characteristics of the respondents on age, gender, marital status, educational attainment, and occupation.]

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - *E*- ISSN: 3156-5492 | *P*- ISSN: 3156-5514

Table 1
Demographic Information of Respondents

Variable	Category	Frequency	Percentage (%)
Age [Years]	Less than 18	10	2.7
	18 and above	362	97.3
Total		**372**	**100**
Gender	Male	246	66.1
	Female	126	33.9
Total		**372**	**100**
Marital Status	Married	202	54.3
	Single	158	42.5
	Others	12	3.2
Total		**372**	**100**
Academic Qualification	SSCE	72	19.3
	NCE/OND	58	15.6
	HND/1ST D/PG	165	44.4
	Non	77	20.7
Total		**372**	**100**
Occupation	Miner	74	19.9
	Farmer	90	24.2
	Government	68	18.3
	CSO	14	3.8
	Community Res	79	21.2
	Others	47	12.6
Total		**372**	**100**

Source: Author's analysis 2025

Table 1 shows the demographic characteristics of respondents. The Table indicated that most respondents were aged 18 years and above (97.3%), while 2.7% were below 18 years. Males constituted the majority (66.1%), compared with females (33.9%). Regarding marital status, 54.3% were married, 42.5% single, and 3.2% reported other statuses. Educationally, 44.4% possessed HND, first-degree, or postgraduate qualifications, while 20.7% had no formal education, 19.3% had SSCE, and 15.6% held NCE/OND qualifications. Occupationally, farmers represented the largest group (24.2%), followed by community residents (21.2%), miners (19.9%), government officials (18.3%), and civil society organisation members (3.8%). The remaining 12.6% engaged in other occupations. Overall, the respondents represented diverse demographic, educational, and occupational backgrounds, providing varied perspectives relevant to assessing the socio-economic livelihood implications of dolomite mining in the study communities.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Table 2

Perception of respondents on the effects of dolomite mining on socio-economic livelihood in Kwara and Oyo States.

S/N	Research Question 4	SD	D	NS	A	SA	TOTAL
i	Employment opportunities	60 (16.13%)	42 (11.29%)	16 (4.30%)	141 (37.90%)	113 (30.38%)	372 (100%)
ii	Improvement in income level	20 (5.38%)	29 (7.80%)	52 (13.98%)	148 (39.78%)	123 (33.06%)	372 (100%)
iii	Attraction of businesses/services	30 (8.06%)	6 (1.61%)	53 (14.25%)	116 (31.18%)	167 (44.89%)	372 (100%)
iv	Expansion of local markets	6 (1.61%)	9 (2.42%)	101 (27.15%)	144 (38.71%)	112 (30.11%)	372 (100%)
v	Development of infrastructures	24 96.45%)	57 (15.32%)	67 (18.01%)	116 (31.18%)	108 (29.03%)	372 (100%)
vi	Improvement in healthcare	33 (8.87%)	112 (30.11%)	128 (34.41%)	58 (15.59%)	41 (11.02%)	372 (100%)
vii	Social conflicts/displacement	77 (20.70%)	107 (28.76%)	25 (6.72%)	89 (23.92%)	74 (19.89%)	372 (100%)
viii	Worsening health conditions	64 (17.20%)	117 (31.45%)	34 (9.14%)	50 (13.44%)	107 (28.76%)	372 (100%)
ix	Vocational training opportunities	19 (5.11%)	110 (29.57%)	104 (27.96%)	101 (27.15%)	38 (10.22%)	372 (100%)
x	Economic opportunities for women	11 (2.96%)	27 (7.26%)	35 (9.41%)	173 (46.51%)	126 (33.87%)	372 (100%)
xi	Dolomite mining has effect on socio-economic livelihood of mining communities	13 (3.49%)	34 (9.14%)	25 (6.72%)	208 (55.91%)	92 (24.73%)	372 (100%)

Source: Author's analysis 2025

Table 2 presents responses from **372 respondents** on the socio-economic effects of dolomite mining. Employment opportunities recorded **68.28% agreement,** while improvement in income level recorded **72.84%.** Attraction of businesses/services had **76.07% agreement**, and expansion of local markets **68.82%.** Infrastructure development recorded **60.21% agreement**, whereas healthcare improvement had only **26.61%.** Social conflicts/displacement showed **43.81% agreement**, while worsening health conditions recorded **42.20%.** Vocational training opportunities attracted **37.37% agreement**. Economic opportunities for women had the highest positive response at **80.38%.** Overall, **80.64% agreed** that dolomite mining affects socio-economic livelihoods.

To further analyse the data generated, a multiple linear regression was used at the 95% confidence level to assess the effects of dolomite mining on socio-economic livelihoods. From Table 2, item xi is the dependent variable, while items i – x are independent variables. Responses used a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Table 3

ANOVA Result and Model summary of Linear Regression

Source	Sum of Square	Df	Mean Square
Model	152.471	10	15.247
Residual	63.914	361	0.177
Total	216.385	371	

Number of Observations	= 372
F (10, 361)	= 86.113
Prob. > F	= 0.0000
R – Squared	= 0.709
Adj. R – Squared	= 0.701
Root Mean Square Error	= 0.421

The model summary in Table 3 shows a strong positive relationship between the independent variables and socio-economic livelihoods (R = 0.842). The R^2 of 0.709 indicates that the predictors explain 70.9% of the variation in livelihoods, while the adjusted R^2 of 0.701 confirms substantial explanatory power after accounting for the predictors. The analysis of variance further demonstrate that the regression model is statistically significant ($F = 86.113$, $p < 0.05$). Therefore, the null hypothesis is rejected, indicating that dolomite mining significantly affects socio-economic livelihoods. The findings reveal both benefits, including employment, income and business growth, and adverse effects such as social conflicts and deteriorating health conditions.

Table 4

Regression Coefficients

Variables	**Beta Coefficient**	**t-value**	**Sig.**	**Decision**
Employment opportunities (X_1)	0.284	4.912	0.000	Significant
Improvement in income level (X_2)	0.301	5.387	0.000	Significant
Attraction of businesses/services (X_3)	0.336	6.014	0.000	Significant
Expansion of local markets (X_4)	0.248	4.103	0.001	Significant
Development of infrastructures (X_5)	0.229	3.984	0.002	Significant
Improvement in healthcare (X_6)	-0.081	-1.733	0.084	Not Significant
Social conflicts/displacement (X_7)	-0.144	-2.842	0.005	Significant
Worsening health conditions (X_8)	-0.119	-2.401	0.017	Significant
Vocational training opportunities (X_9)	0.173	3.006	0.003	Significant
Economic opportunities for women (X_{10})	0.352	6.291	0.000	Significant

Regression analysis showed that most independent variables considerably influenced socio-economic livelihoods at the 95% confidence level. Economic opportunities for women exhibited the highest positive coefficient ($\beta = 0.352$), followed by the attraction of businesses and services ($\beta = 0.336$), showing the significance of women's empowerment, investment, commercial activities, and economic development. Income improvement and employment opportunities also appeared as significant predictors. In contrast, social conflicts, displacement, and deteriorating health conditions negatively impacted community well-being. As significance levels were below 0.05, the null hypothesis (H_0) was rejected in favour of the alternative hypothesis (H_1).

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Respondents reported that dolomite mining produces both positive and negative socio-economic effects. It generates employment, increases household income, attracts investors, and improves living standards, infrastructure, water supply, and social amenities, while strengthening community interactions. Conversely, mining contributes to deforestation, soil degradation, water depletion, reduced agricultural activities, food insecurity, and school dropouts among youths seeking immediate financial benefits.

Similarly, an environmental consultant during a key informant interview reported that:

> Dolomite mining has created job opportunities, prompted migration into mining areas, and enhanced both formal and informal income-generating activities. Dolomite provides essential materials for processing industries, improves transportation access for communities, and fosters development through population growth. However, mining activities can limit movement during blasting operations and have negatively impacted traditional livelihoods such as agriculture and hunting (KII4, Representative of NESREA, 2025).

Another environmental consultant in a key informant mentioned that "mining has bolstered local businesses, facilitated community development, offered social services like pipe-borne water, decreased outward migration, and strengthened the local economy" (KII9/Representative of KWMISMD, 2025).

Further, a key informant from the MSMD in Oyo State pointed out that:

> Although mining has created jobs, increased demand for various goods and services, increase in income allowances, and expanded economic activities, it has also contributed to conflicts of interest and banditry within the communities, and affected their traditional ways of life like hunting and farming (KII3/Representative of MSMD, 2025).

Additionally, some participants indicated that dolomite mining has led to infrastructural advancements, converted certain rural communities into more urbanised regions, attracted a surge of newcomers, boosted spending power, broadened commercial activities, and improved local revenue through taxes and other levies. Insights from detailed interviews showed that mining operations have spurred development, drawn in labour migrants, generated job opportunities, elevated business activities, and increased rental prices for housing.

An in-depth Interviewee also pointed out that:

> There is progress such as the establishment of schools and police stations the communities, although the rise in traffic congestion linked to mineral transport was recognised as an issue. Workers earn a significant income, estimated at around ₦18,000 per tonne of processed material. Recently, there are reports of conflict and kidnapping in areas like Oreke which has temporarily interrupted mining activities (IDI2/Representative of Miners Association, 2025).

Also, a key informant from MSMDA explained that "dolomite mining has created jobs in the host communities of Igbeti and Alagutan, enhanced businesses, community development, reduced migration from the communities, enhanced economic life but affected agricultural output" (KII11/Representative of MSMDA, 2025).

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

An in-depth interviewee explained that:

> Dolomite mining has enhanced economic development, improved buying and selling, increased immigration, and enhanced corporate social responsibilities like bore holes. On the other hand it has affected agricultural development and increased banditry precisely in the Oreke axis. There was a kidnapping attack that around the community that led to the death of an expatriate and some other persons. This has led to stoppage of mining in the community (IDI3, Head of Mining Facility, 2025).

Furthermore, participants in a focus group discussion held in Igbeti noted that dolomite mining has led to increased income levels, although mining companies were viewed as contributing minimally in terms of corporate social responsibility, and no significant conflicts were reported (FGD2/Artisan Association, 2025). Some interviewees asserted that mining operations had not caused discord but had instead provided royalties to both the communities and government authorities, enhancing personal income and creating business opportunities. Nonetheless, participants also pointed out that the influx of population, growth in job opportunities, and expanding commercial activities have brought along escalating instances of substance abuse, kidnapping, banditry, and other security issues. Additionally, they voiced concerns that community development and social responsibility efforts by mining companies are still insufficient, despite the economic advantages linked to dolomite mining.

10. Discussion of Findings

The findings reveal a significant trade-off associated with dolomite mining, whereby improvements in some aspects of household livelihoods occur alongside deterioration in others. Mining converts natural resources into financial and physical assets but may simultaneously reduce natural, human, and social capital. Consequently, the observed benefits and adverse effects are interconnected outcomes of mining, reflecting differences in how its economic gains and associated costs are distributed.

The positive livelihood effects observed align with Hilson (2016), who identified employment opportunities for miners, machine operators, transporters, traders, and service providers. Similarly, this study found that excavation, transportation, equipment maintenance, security, catering, and trading generate both direct and indirect employment. However, the findings indicate that mining influences livelihoods through mechanisms beyond employment alone. Mining increases household purchasing power, stimulates local markets, and creates demand for ancillary businesses, generating multiplier effects within host communities. This observation aligns with Kemp et al. (2021) and Chipangamate et al. (2023), who associated mining with investment and infrastructure development. Nonetheless, infrastructure and commercial expansion should not be equated with sustainable development, as benefits may be concentrated among households with the skill capital and crucial connections needed to access mining-related opportunities.

Mining's positive impact on women's economic opportunities further illustrates mining's uneven yet potentially transformative effects. Women's involvement in mineral processing, trading, catering, and related services can diversify household income and reduce reliance on agriculture. However, increased participation does not necessarily eliminate vulnerability. Women may gain access to income while remaining exposed to environmental hazards, rising living costs, and

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

limited control over productive resources. Therefore, the positive regression effect associated with women's economic opportunities should be interpreted as evidence of livelihood diversification rather than as proof that mining universally improves welfare.

In contrast, the reported environmental and social consequences highlight the costs associated with generating certain economic benefits. Excavation and land clearing reduce productive agricultural land, thereby diminishing the natural capital that supports farming households. This finding corroborates Haruna et al. (2022), who linked mining-related land degradation to reduced agricultural productivity and increased vulnerability. The key implication is that mining may increase financial capital in the short term while simultaneously eroding the natural resource base necessary for long-term livelihood security. As a result, households benefiting from mining employment may experience economic improvement, whereas those primarily dependent on farming may face declining livelihood security.

The reported health problems offer an additional explanation for this paradox. Mining-related environmental pressures can elevate health risks and increase household expenditures, while declining health can reduce workers' productivity and their ability to engage in income-generating activities. Similarly, social unrest, insecurity, antisocial behavior, displacement, and increased pressure on housing and social services suggest that heightened economic activity can undermine social cohesion. Therefore, the economic benefits identified in the regression analysis should be considered alongsi]de these associated welfare costs.

Sustainable Livelihood Theory explains these findings well by conceptualizing livelihoods as the interaction among financial, physical, natural, human, and social capitals. Ngamwong et al. (2024) emphasize the importance of maintaining these interconnected livelihood assets. In the study communities, mining increases financial capital through employment and business opportunities and may enhance physical capital through infrastructure development. However, these gains can coincide with losses in natural capital due to land degradation, human capital through adverse health outcomes, and social capital from conflict and displacement.

Accordingly, these findings do not contradict previous studies; instead, they demonstrate that seemingly divergent conclusions can coexist within the same mining context. The central concern is how benefits and costs are distributed and sustained. Dolomite mining can create immediate economic opportunities while shifting environmental and social costs onto households and communities. Achieving sustainability therefore requires mechanisms that protect agricultural land, minimize health risks, strengthen community participation, and ensure that economic gains translate into durable livelihood assets. Thus, mining should be evaluated not solely by income generated, but by whether improvements in financial and physical capital adequately compensate for, and do not permanently undermine, natural, human, and social capital.

11. Conclusion and Recommendation

Dolomite mining and local livelihood in Oreke, Babanloma, Isale Osin, Eleja, Igbeti, and Alagutan communities in Kwara and Oyo States, Nigeria where examined. The findings demonstrate that dolomite mining has a dual and complex influence on the socio-economic livelihoods of the host communities. While mining provides employment, increases household income, attracts businesses and services, expands local markets, improves infrastructure, and creates economic

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

opportunities for women, these benefits coexist with substantial livelihood challenges. Social conflicts, insecurity, declining agricultural activities, worsening health conditions, environmental degradation, and inadequate corporate social responsibility indicate that mining-related economic gains may be accompanied by increased household vulnerability.

The statistically significant regression result at the 95% confidence level further confirms that dolomite mining is an important determinant of socio-economic livelihood conditions in the study communities, resulting in rejection of the null hypothesis. Overall, the findings suggest that the sustainability of mining cannot be assessed solely through income and employment gains. Effective regulation, environmental protection, community participation, health safeguards, agricultural protection, and responsible corporate practices are therefore essential to ensure that mining contributes to durable and equitable livelihood improvement.

Based on these findings from the study, it is recommended that;

- National Environmental Standards and Regulations Enforcement Agency (NESREA), Ministry of Solid Minerals Development (MSMD), and other federal and state government organisations should carry out stricter enforcement of environmental regulations to curb unsustainable mining practices.
- MSMD should ensure that mining facilities strengthen corporate social responsibility agreements through investments in healthcare, education, potable water supply, and community infrastructure before giving exploitation license.
- Community participation in decision-making and equitable compensation mechanisms should be enhanced to minimize conflicts and promote sustainable development in host communities.

Reference

Adeniyi, A. G., Emenike, E. C., Iwuozor, K. O., Okoro, H. K., & Ige, O. O. (2022). Acid mine drainage: The footprint of the Nigeria mining industry. *Chemistry Africa, 5*(6), 1907–1920. https://doi.org/10.1007/s42250-022-00493-3

Ayuk, E. T., Pedro, A. M., Ekins, P., Gatune, J., Milligan, B., Oberle, B., Christmann, P., Ali, S., Kumar, S. V., & Bringezu, S. (2020). *Mineral resource governance in the 21st century: Gearing extractive industries towards sustainable development*. International Resource Panel, United Nations Environment Programme.

Chipangamate, N. S., Nwaila, G. T., Bourdeau, J. E., & Zhang, S. E. (2023). Integration of stakeholder engagement practices in pursuit of social licence to operate in a modernising mining industry. *Resources Policy, 85*, 103851. https://doi.org/10.1016/j.resourpol.2023.103851

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Dada, S., & Ajadi, J. (2018). Exploiting Kwara State mineral resources for economic sustainability. In A. Musa (Ed.), *Kwara at 50: Achievements and aspirations* (pp. 123–137). Fifty-Fifty Institute Ltd.

Egunyu, F., & Boakye-Danquah, J. (2024). A systematic review of the socio-economic impacts of mining in Africa: Do research methods influence participation? *The Extractive Industries and Society, 17*, 101408. https://doi.org/10.1016/j.exis.2024.101408

Eludoyin, A. O., Ojo, A. T., Ojo, T. O., & Awotoye, O. O. (2017). Effects of artisanal gold mining activities on soil properties in a part of southwestern Nigeria. *Cogent Environmental Science, 3*(1), 1305650. https://doi.org/10.1080/23311843.2017.1305650

Haile, D., Seyoum, A., & Azmeraw, A. (2021). Does building the resilience of rural households reduce multidimensional poverty? Analysis of panel data in Ethiopia. *Scientific African, 12*, e00788. https://doi.org/10.1016/j.sciaf.2021.e00788

Haruna, U. A., Amos, O. A., Dara, O. O., Wuraola, S. F., Kilonzo, J. S., Olorunfemi, O. E., Musa, S. M., & Lucero-Prisno, D. E. (2022). Agriculture and food security in Northern Nigeria, Part II: The impact of mining. In M. J. Cohen (Ed.), *Advances in food security and sustainability* (Vol. 7, pp. 149–160). Elsevier. https://doi.org/10.1016/bs.af2s.2022.07.002

Hilson, G. (2016). Farming, small-scale mining and rural livelihoods in sub-Saharan Africa: A critical overview. *The Extractive Industries and Society, 3*(2), 547–563. https://doi.org/10.1016/j.exis.2016.02.003

Jiren, T. S., Riechers, M., Bergsten, A., Dorresteijn, I., Collier, N. F., & Fischer, J. (2021). A leverage points perspective on institutions for food security in a smallholder-dominated landscape in southwestern Ethiopia. *Sustainability Science, 16*(3), 767–779. https://doi.org/10.1007/s11625-021-00936-9

Jourdan, P. (2024). *Continental frameworks for mineral resource governance in Africa: Strategies for enhanced domestication*. International Institute for Democracy and Electoral Assistance (International IDEA). https://doi.org/10.31752/idea.2024.119

Kemp, D., Owen, J. R., & Lèbre, É. (2021). Corporate social responsibility and the sustainability of mining communities. *The Extractive Industries and Society, 8*(2), 100938. https://doi.org/10.1016/j.exis.2021.100938

Merem, E. C., Twumasi, Y., Wesley, J., Isokpehi, P., Shenge, M., Fageir, S., Crisler, M., Romorno, C., Hines, A., Hirse, G., Ochai, S., Leggett, S., & Nwagboso, E. (2017). Assessing the ecological effects of mining in West Africa: The case of Nigeria. *International Journal of Mining Engineering and Mineral Processing, 6*(1), 1–19. https://doi.org/10.5923/j.mining.20170601.01

Morse, S. (2025). *Having faith in the sustainable livelihood approach: A review*. *Sustainability, 17*(2), 539. https://doi.org/10.3390/su17020539

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Narula, S. A., Magray, M. A., & Desore, A. (2017). *A sustainable livelihood framework to implement CSR project in coal mining sector*. *Journal of Sustainable Mining, 16*(3), 83–93. https://doi.org/10.1016/j.jsm.2017.10.001

Natarajan, N., Newsham, A., Rigg, J., & Suhardiman, D. (2022). *A sustainable livelihoods framework for the 21st century*. *World Development, 155*, 105898. https://doi.org/10.1016/j.worlddev.2022.105898

Natarajan, N., Newsham, A., Rigg, J., & Suhardiman, D. (2022). A sustainable livelihoods framework for the 21st century. *World Development, 155*, 105898. https://doi.org/10.1016/j.worlddev.2022.105898

National Population Commission. (2025). *Projected population of Ifelodun, Ilorin South, Moro, Olorunsogo, and Ori Ire LGAs*. National Population Commission

Nelson, L. K., Cullen, A. C., Koehn, L. E., Harper, S., Runebaum, J., Bogeberg, M., et al. (2023). Understanding perceptions of climate vulnerability to inform more effective adaptation in coastal communities. *PLOS Climate*, *2*(2), e0000103. https://doi.org/10.1371/journal.pclm.0000103

Ngamwong, N., Darakorn Na Ayuthaya, S., & Kiattisin, S. (2024). *Factor analysis of sustainable livelihood potential development for poverty alleviation using structural equation modeling*. *Sustainability*, *16*(10), Article 4213. https://doi.org/10.3390/su16104213

Nigeria Extractive Industries Transparency Initiative. (2021). *NEITI solid minerals industry audit report 2021*. Nigeria Extractive Industries Transparency Initiative. https://neiti.gov.ng/cms/wp-content/uploads/2023/09/NEITI-SMA-2021-Report.pdf

Ogunleye, A., & Arije, O. Z. (2026). Petrographic, mineralogical and geochemical characterization of metacarbonate (marble) rocks from the Oreke area, southwestern Nigeria: Implications for industrial applications. *International Journal of Economic and Environmental Geology, 17*(2), 83–88. https://doi.org/10.46660/int.j.econ.environ.geol.v17i2.864

Olatunji, O. O., Adebayo, K. K., & Emmanuel, O. C. (2017). Effect of dolomite dust on some soil properties in selected agricultural areas of Igbeti, Oyo State. *Journal of Wetlands and Waste Management, 1*(4), 12–17.

Olujobi, O. J., & Irumekhai, O. S. (2024). Strategies and regulatory measures for combatting illicit mining operations in Nigeria: A comprehensive legal perspective. *Resources Policy, 88*, 104459. https://doi.org/10.1016/j.resourpol.2023.104459

Omoseebi, A. O., & Tanko, I. Y. (2021). Geochemistry and determination of mineral properties of dolomite deposit in Ikpeshi Southern, Nigeria. *European Journal of Environment and Earth Sciences, 2*(5), 41–46. https://doi.org/10.24018/ejgeo.2021.2.5.175

Oruonye, E. D., & Ahmed, Y. M. (2020). The role of enforcement in environmental protection in Nigeria. *World Journal of Advanced Research and Reviews, 7*(1), 48–56. https://doi.org/10.30574/wjarr.2020.7.1.0237

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation

Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - *E*- ISSN: 3156-5492 | *P*- ISSN: 3156-5514

Serrat, O. (2017). The sustainable livelihoods approach. In *Knowledge solutions: Tools, methods, and approaches to drive organizational performance* (pp. 21–26). Springer. https://doi.org/10.1007/978-981-10-0983-9_5

Shackleton, R. T. (2020). Loss of land and livelihoods from mining operations: A case in the Limpopo Province, South Africa. *Land Use Policy, 99*, 104825. https://doi.org/10.1016/j.landusepol.2020.104825

Sutrisno, & Azhari. (2020). The study of socioeconomic and environmental aspects of dolomite limestone mining in Tuban Regency. *Journal of Socioeconomics and Development, 3*(1), 63–73. https://doi.org/10.31328/jsed.v3i1.896

U.S. Geological Survey. (2017). *Mineral resources of the United States: Dolomite*. U.S. Geological Survey.https://pubs.usgs.gov/sir/2017/5118/elements/Dolomite/Dlmt_txt.html

U.S. Geological Survey. (2023). *Mineral commodity summaries 2023*. https://doi.org/10.3133/mcs2023

Wegenast, T., & Beck, J. (2020). Mining, rural livelihoods and food security: A disaggregated analysis of sub-Saharan Africa. *World Development, 130*, 104921. https://doi.org/10.1016/j.worlddev.2020.104921

Werner, T. T., Bebbington, A., & Gregory, G. (2019). Assessing impacts of mining: Recent contributions from GIS and remote sensing. *The Extractive Industries and Society, 6*(3), 993–1012. https://doi.org/10.1016/j.exis.2019.06.011

World Bank. (2024). *Nigeria: Mineral Sector Support for Economic Diversification Project (MinDiver) (P159761): Implementation status & results report*. World Bank. https://documents1.worldbank.org/curated/en/099072424164014172/pdf/P159761-917106d2-9ae2-4b30-8d72-464105056ec9.pdf

Wubayehu, T. Z. (2020). Review of the evidence: The interface between poverty, livelihoods, institutions, and community development. *Journal of Sustainable Development, 13*(4), 104–117. https://doi.org/10.5539/jsd.v13n4p104

Yisa, A. G., Omada, S. E., Samuel, S. A., Gana, A. S., Simon, J., Edogbo, B., Gana, B. W., Oniye, S. J., & Gobak, H. K. (2026). Risk assessment of potentially toxic elements in water, sediment, aquatic mussels, and edible crops from a gold-mining-stressed river in Northern Nigeria. *Discover Chemistry, 3*, 135. https://doi.org/10.1007/s44371-026-00579-8

Zinke, L. (2021). Post-mining recoveries. *Nature Reviews Earth & Environment, 2*, 5. https://doi.org/10.1038/s43017-020-00130-y