

## QUESTIONNAIRE /SURVEY FORM

***PhD Research***

***Name: Itohan Otoijamun***

***Institution: African University of Science and Technology, Abuja Nigeria***

***Department: Material Science and Engineering***

### **ARTISANAL BARITE MINING IN NASARAWA, PLEATEAU AND TARABA STATES**

Sir/Ma,

This study aims at investigating the presence of Barite, types of Barite, reserve estimate, mining activities, machineries, environmental, health and socio-economic effects of artisanal mining in ..... region of .....state. This survey is carried out solely for the purpose of academic research work. Any information provided will be strictly confidential and not intended for any purpose outside research.

#### **SECTION A: DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS.**

1. Name of Community/Settlement.....
2. Type of Location (a) Town (b) Village (c) Hamlet (d) Others (Specify).....
3. Community type (a) Mining Community (b) Non-Mining Community
4. Local Government Area.....
5. Nationality.....
6. Gender (a) Male (b) Female
7. Marital Status (a) Married (b) Single (c) Others
8. Household size of respondents.....
9. How long have you been living in this town/village?.....
10. Age of respondent.....
11. Highest educational level attained (a) Primary School (b) Secondary School (c) Polytechnic  
(d) College of Education (e) University (f) No formal Education.
12. Present occupation of respondents (a) Agriculture (b) Mining (c) Petty Trading (d) Agriculture and Mining (e) Agriculture and petty trade (f) Government employee (g) Construction worker (h) Agriculture and livestock (i) Others (Specify).....

13. What was your initial occupation before you switch to the present occupation (a) Agriculture (b) Mining (c) Petty Trading (d) Agriculture and Mining (e) Agriculture and livestock (f) Government employee (g) Construction worker (h) Agriculture and petty trade (i) Others (Specify).....
14. List some of the reasons for the occupation change.....
15. How long have you been engaged in this present occupation?.....
16. How many years did you spent on the previous occupation.....
17. What is your annual income then?.....
18. What is your annual income now?.....
19. Do you own or rent house here?.....
20. How much do you pay as rent?.....
21. Are you aware of any mining activity around you? Yes / No
22. How many members of your family are in the business of mining?.....
23. How has mining in your area affect you? A) Positively, b) negatively, c) no effect.
24. Estimated distance from your residence to the nearest mining site in kilometers
- a) 1 kilometer
  - b) 2 kilometers
  - c) 3 kilometers
  - d) 4 kilometers
  - e) 5 kilometers
25. what is the means of transportation to the mining site
- a) Foot
  - b) Bicycle
  - c) Motorcycle
  - d) Car
  - e) others
26. Estimate cost of transportation to the nearest mining site from your residence.....
27. Do you have any family member in the mining industry? Yes No
28. If you are mining worker, which aspect of mining do you work

- a) Mine owner/proprietor of mine shaft
  - b) Digger
  - c) Security
  - d) Mine intermediary
  - e) Mineral buyer
  - f) Please give names of minerals mined here.....
  - g) What is your annual, monthly or daily remuneration?
29. If you are mine owner how much do you pay as royalty?.....

### SECTION B: MINING AND PROCESSING ACTIVITIES

30. Who determines the site
- a) Professionals
  - b) Nonprofessionals
  - c) Investors
  - d) By inhabitants
31. How is the site determined
- a) seismic
  - b) GPS
  - c) Coincident
32. What technology is used in the mining process
- a) Hand tools
  - b) Heavy machines
33. Where are these stone washed?.....
34. Collection point of the ore after mining
- a) Mining site
  - b) Close to site
  - c) Market
  - d) Factory

35. Collectors of minerals (barite ore)
- a) On site Buyers
  - b) Investors
  - c) Mineral processors
  - d) Local market
  - e) End users
36. Challenges in the mining activities
- a) Lack of Technical know how
  - b) Poor mining tools
  - c) Poor road network
  - d) Health hazards
  - e) Environmental hazards
  - f) Poor remuneration
  - g) Poor pricing
  - h) Government action and inaction
37. Challenges in processing of barites
- a) Few processing plants/companies
  - b) Distance between mining sites and processing plants
  - c) Impurities associated in the core
  - d) Old Equipment for processing
  - e) Expert/professionals to operate the machines
  - f) Others
38. How much is a bag of 20/50 kilogram of barite .....

## SECTION C: SOCIO-ECONOMIC IMPACT OF MINING ACTIVITIES

**Table S1.** Socio-economic impact of mining activities.

Benefits	Very high (5)	High (4)	Moderate (3)	Low (2)	Very low (1)
Conflict between indigenes and migrant worker					
Creation of employment					

Drop in school enrollment					
Improved electricity supply					
Improved social life					
Improvement in living standard					
Improvement in sale of petty trade items					
Increase in crime					
Increase in health-related diseases					
Increase in land price					
Increased food crop sales					
Increased house rent price					
Increase social vices. Specify					
Large scale influx of immigrants and visitors in search of jobs					
Low agricultural productivity					
Security threat					
Truancy					
Others (Specify)					

#### SECTION D: ENVIRONMENTAL IMPACT OF MINING ACTIVITIES

Kindly rate the environment effects of mining on this community as indicated in table  
(Please tick as appropriate)

**Table S2.** Environmental impact of mining activities.

Disadvantages	Very high (5)	High (4)	Moderate (3)	Low (2)	Very low (1)
Increased dust release					
Air pollution					
Increase in mine pit collapse					
Threat to farmland and crops					
Damages to buildings					
Noise from blasting					
Deforestation					
Land degradation					
Others (Specify)					

#### SECTION E: HEALTH & SAFETY IMPACT OF MINING ACTIVITIES

39. Please indicate any of the under listed diseases you or your family member may have had as a result of mining of barite:

- a) Pulmonary diseases e.g asthma, lung inflammation etc. please indicate.....
- b) Infectious diseases Please indicate.....
- c) Skin rashes
- d) Others

40. Has there been any loss of relative as a result of mining and processing of barite

- a) Yes
- b) No

41. Which of the following do you wear to your mining sites?
- a) Coverall
  - b) Safety boots
  - c) Helmet
  - d) Safety glasses
  - e) Nose mask
  - f) Hand gloves
42. Have you experienced any accident at the mining site?
- a) Incident
  - b) Accident
  - c) Near miss
  - d) Others
43. Have you received any training on Health and Safety in mining
- a) Yes
  - b) No
44. Do you have any safety protocol/permit to work before mining
- a) Yes
  - b) No
45. Do you have and first aid kit at the site
- a) Yes
  - b) No
46. Where is the nearest health Centre or facility
- a) 1km
  - b) 2km
  - c) 3km
  - d) 4km
  - e) Others

47. Is there anything to make your operation safer? .....

#### SECTION F: GENDER IMPACT

48. Are there gender roles in mining?

- a) Blasting M/F
- b) Digging M/F
- c) Washing M/F
- d) Collection M/F
- e) Drying M/F
- f) Sorting M/F

49. Any negative impact on women? .....

50. Any role for children? .....

51. Any income disparity between men and women?

#### SECTION G: GENERAL

52. What are the problems confronting the mining of barite .....

53. Is state government involved in the mining of barite.....

54. What steps is government taking towards exploiting this mineral for the development of this

community.....

.....

.....

55. What other relevant information do you have in respect of mining in this

community.....

.....

#### Supplementary information

The socio-economic characteristics of respondents are shown in Table S3.

**Table S3.** Socio-economic characteristics of the respondents.

Socio-economic characteristics	Range	Percentage of respondents
Age	<18	12.0
	18-30	17.5
	31-50	62.0
	51-60	7.0
	>60	1.5

Marital status	Single	10.5
	Married	49.0
	Divorced	17.0
	Widowed	23.5
Highest Educational Qualification	None	41.5
	Primary	31.5
	Secondary	18.5
	Tertiary	9.0
Household size	1-5	17.0
	6-10	46.5
	11-20	29.0
	>20	7.5
Number of family members in mining	1-5	50.5
	6-10	29.0
	11-20	18.0
	>20	7.5
Years of experience in mining	<5	28.5
	6-10	38.0
	11-20	17.0
	>20	16.5
Type of mineral mined	Barite ore	61.0
	Galena	14.5
	Salt	16.0
	Limestone	8.5
Present occupation	Mining only	12.5
	Agriculture only	4.5
	Trading only	6.0
	Govt employee	4.0
	Mixed	73.0
Occupation before switching to mining	None	27.0
	Agriculture	46.5
	Trading	12.5
	Govt employee	9.5
Annual income before mining (1000 Naira)	<N50	24.5
	51-150	30.5
	151-300	32.0
	301-500	13.0
	501-1000	0.0
Annual income now as a miner	<N50	15.0
	51-150	38.0
	151-300	18.5
	301-500	23.5
	501-1000	5.0
Impact of mining on your livelihood	No impact	7.0
	Positive impact	72.0
	Negative impact	21.0