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SURVEY OF INFORMATION NEEDS OF THE LOCAL MINERS IN THE LEAD POISON AFFECTED AREAS OF ANKA AND MARU LOCAL GOVERNMENT AREAS OF ZAMFARA STATE, NIGERIA

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Abstarct

Purpose: *This studyexamines the information needs of the local miners in the lead poison affected areas of Anka and Maru local Government areas of Zamfara state.*

Design Methodology/Approach: *This study adopted survey research design, 245 local miners in the affected areas were used as population of the study, and simplerandom sampling technique was used for the study. Self-structured questionnaire was used as instrument for data collection from respondents.*

Findings*: The major findings of this study indictaed that local miners need information on accidents associated with mining such as drowning, tumling, suffocation, rock fall and how to improve thier work through the use of modern facilities.Their constraints to good access to information include: lack of access to sources of safety information, lack of time, ignorance, language barrier, cost of information and lack of infrastructures.*

Implication: *Government agencies need to consider how to provide better safety information services to the local miners and make knowledge of the use of safety equipment a requirement for qualifyingto participate inmining activities. Adequate penalties for failure to comply with government regulations may be required to compel the local miners to ensure compliance with safety rules and regulations.*

Originality/Values: *The paper's originality lies in the information needs of the local miners in the lead poison affected areas of Anka and Maru local Government areas of Zamfara state, Nigeria.*

Key words: *Information, Information needs, Local miners, Information sources*

Paper types: *Empirical research*

Introduction

Mining is the process of digging out useful mineral resources from the earth's crust. It is a process that involves extraction of mineral resources through excavation or digging which involves prospecting, exploration, development and exploitation ofmineral resources beneath the surface of the earth, and each of these activities could be carried out on a large-scale, small-scale or artisanal level. McBell (2018)stated that miningis the extraction of valuable minerals or other geological materials from the earth, usually from an orebody, lode, vein, seam, reef or placer deposit. These deposits form a mineralized package that is of economic interest to the miner.Ores recovered by mining include metals, coal, oil shale, gemstones, limestone, chalk, dimension stone, rock salt, potash, gravel, and clay. Mining is required to obtain any material that cannot be grown through agricultural processes, or created artificially in a laboratory or factory. Mining in a wider sense includes extraction of any non-renewable resource such as petroleum, natural gas, or even water.William,George and John(2020) define mining as process of extracting useful minerals from the surface of the Earth, including the seas. A mineral, with a few exceptions, is an inorganic substance occurring in nature that has a definite chemical composition and distinctive physical properties or molecular structure. Mining is ctaegorized into two which includes: large scale mining, artisinal mining or small scale mining.

Large scale mining is a type of mining where machinaries are used to carry out mining activtities. Artisanal mining adopts manual methods of digging with hoes, diggers and shovels to look for minerals, and extraction of the minerals is done by direct hand sorting and washing in artificial ponds and other water sources. Small-scale mining differs a little; it is mechanizedto an extent as the mining can be done using compressors, wagon drillers, tractors, dumpers, jugs and crushers; non-standardized small-scale mining activities make use of both manual and mechanized methods. According to Lawal (2011), most of the small-scale miners that carried out mining activities in northern Nigeria are small-scale levels miners, and most of them are non-standardized and illegal.

Generally, miners are exposed to a variety of hazards such as accidents and criminal behaviour, as well as indiscriminate smoking, alcoholism and prostitution,leading to health challenges such as HIV/AIDS and STDs. The International Labour Organization (1999) has identified five major health risks in mining, especially small-scale mining which make them to require relevant information to curb such menace. These include: exposure to dust (Silicosis); exposure to mercury and other chemicals; effectsof noise and vibration; effects of poor ventilation (heat,humidity, lack of oxygen) and effects of over-exertion, inadequate work space and inappropriate working conditions (Hentschel, 2003).Grossman (2012) has identified similar hazards in Nigeria. Like all other professions, miners have various needs, and they require and seek for information to meet those needs. In line with Fisher, Landry, and Naumer(2007) observations about context sensitivity of information, the information behaviour of miners will differ from that of workers in other sectors, and specific examination of this group of artisans may help policy makers improve their safety at work and their contribution to national development. One of the ways to reduce the safety challenges that confront miners is to provide them with safety information.

Miners particularly need information and training about prevention of occupational hazards, thermal stress, acclimatization, disease exposure and knowledge about the environmental and social impact of their activities. Safety information needs differ among countries, geographical zones, the miners themselves and the nature of theminerals mined. Miners are mainly hired on a day-pay basis, and they are always busy at the sites trying to beat schedules and meet productionexpectations. They have no time to listen to radios, watch television or read newspapers, and many of them cannot read the information leaflets sometimes provided by the government and other agencies. Miners work at odd hours; they have no regulations guiding when and how much work they do each day.The chances of getting the mineral resources they are looking for is unpredictable, and miners have to keep working, in the event that the next shovelful would provide a prize find. Moreover, most artisanal and small scale (AS) mining is illegal, and government agencies may not be committed to eensuring the supply of safety information to this category of persons, or may not even know where they are located in case they wouldwant to supply them with information. Artisanal and small-scale miners in Nigeria are therefore at the forefront of the problem of lack of utilization of adequate safety information about protection equipment, health-care services, accidents, geological hazards anddiseases associated with mining. Many accidents that occur in mine sites are believed to be avoidable, but miners often either do not have adequate information or are not using the information provided for them (National Academy of Sciences 2007). Furthermore, the illegal nature of artisanal and small-scale mining activities might mean that the information practices of the miners would be influenced by personal consciousness and commitment to safety or by their employers' understanding and action about information about the safety of their staff. Many studies have been carried out on mining activities in Nigeria (Lawal 2011).Gatheringinformation about issues such as exploration, excavation,

exploitation and marketing of mined minerals, and many of the studies showed thatartisanal and small-scale miners do not observe safety rules. Aderogbin (2006) has stated that negligence of safety measures by artisanal and small-scale miners could probably be due to low or non-availability of the right information and their own poor attitude towards information as well as low information literacy. However, no study has paid attention to safety information practices of the miners, it is to this regard that this study would be carried out to investigate information needs of local miners in the affetced lead poison areas in Anka and Maru local government area of Zamfara state.Information needs is very vital for different categories of individual in society. The local miners especially in the affected areas of lead poison whose information need required to be identified. This is based on the fact that there is no empirical study so far on the information needs, information seeking behaviour of local miners of the affected areas. Thus, necessitating a research with reference to Anka and Maru where local mining take place in Zamfara State.

Purposeof the Study

i. To identify information needs of local miners in affected areas of lead poison
ii. To ascertain the sources of information by the local miners
iii. Factors affecting access to information by local miners

Scope of the Study

The focus of this work is basically on the survey of information needs, information seeking behaviour of the local miners in the lead poison affected areas of Anka and Maru Local Government Areas of Zamfara State, Nigeria.

Zamfara State is an agrarian state, and traditionally most villagers relied on farming to earn a living. However, some villages were also rich in many minerals, including gold. Nowadays, the price of gold is rising and many villagers have been mining gold to earn more money. Lead is a naturally occurring heavy metal; it is mostly occupied in some areas in the state with high levels of lead. The lead poisoning is widespread, thousands of children had dangerous levels of lead in their blood, and hundreds of children and animals had died throughout the region.Zamfara State has appreciable concentrations of heavy metals in its mineral-rich rocky soils. One of the notable mineral deposits in the state is gold. Gold mining has been on for many decades, however in recent times, it becomes a widespread and very profitable endeavour.

Literature Review

Concept of Information

Information is a necessity product for man's survival and also an indispensable product to function in a society. The arrival of information and communication technologies brought profound changes in the society and still changing. The word "information" is derived from a latin word, 'information' (to inform) in the sense of 'to give from the mind", "to discipline". "Instruct", or "teach" (Shapiro, 2002). There is a number of terms such as knowledge, facts, data, news message, etc. used in common parlance as synonymous or near synonyms for information but none of these items or definition has been universally accepted. Scholars and author have tried to defined information from their various views and professional standpoints. Aina (2013) defined information as accumulation of knowledge by human begins in all areas of endeavour that is used to solve problems and reduce uncertainty. It is what they need for clarity of uncertainty and decision making.Regardless of profession or activities, information is a necessary product for man's survival and also an indispensable product to function in a society. The arrival of information and communication technologies brought profound changes in the society and is still changing. One of these changes concern the way information is being produced and distributed.

Concept of Information Needs

Information need is a basic concept in information science. Need implies a lack of something, which if present would further the

welfare of a man or make it easier for the attainment of whatever objectives he/she may have in mind. Information need could be expressed in the question: what information would further this job or this research and could be recognized as doing so by the recipient. Information needs is also understood in information science as stemming from a vague awareness of something missing as culminating in locating information that contribute to understanding and meaning. It is an anomalous state of knowledge, or a gap in individual's knowledge in sense making situations (Igwe, 2019).

For a person to experience information needs, there must be a motive behind it. Information needs of individuals in any society are influenced by the purpose and goals at hand. The more urgent the information need, the more desperate for its search. Those information needs that show close relationship to the solution of the matter at hand are considered more relevant. Information needs of individuals differs, due to variation in nature of their activities and job. Individuals in different sectors of society such as students, lectures, researchers, farmers, business men, company executives, scientists, diplomats, policy makers, labourers etc. have varied information needs (Kolawale, 2016).

Information Needs of Local Miners

Like all other professions, miners have various needs, and they require and seek for information to meet those needs. In line with Fisher, Landry, and Naumer's (2007) observations about context sensitivity of information, the information behavior of miners will differ from that of workers in other sectors, and specific examination of this group of artisans may help policy makers improve their safety at work and their contribution to national development. One of the ways to reduce the safety challenges that confront miners is to provide them with safety information.

Safety information describes that information which someone who performs a risky job requires or seeks in order toperform tasks safely. Usually, persons whose jobs are life-threatening are provided with, or are expected to seek, information on how to keep safe at the workplace (Nwagwu and Olatunji 2012). Mining is a risky occupation, and persons engaging in it particularly those that are involved in digging, excavating and other similar tasks should usually be provided with information about safety. Individual miners are also expected to be active seekers and users of information about workplace safety.

Furthermore, the illegal nature of artisanal and small-scale mining activities might mean that the information practices of the miners would be influenced by personal consciousness and commitment to safety or by their employers' understanding and action about information about the safety of their staff. Many studies have been carried out on mining activities in Nigeria (Adekeye 2010; Lawal 2011) gathering information about issues such as exploration, excavation, exploitation and marketing of mined minerals, and many of the studies showed that artisanal and small-scale miners do not observe safety rules. Aderogbin (2006) has stated that negligence of safety measures by artisanal and small-scale miners could probably be due to low or non-availability of the right information and their own poor attitude towards information as well as low information literacy. However, no study has paid attention to safety information practices of the miners and their employers. It could be speculated that segmentation factors such as gender, age, marital status and level of education might relate to safety information needs, information sources, information-seekingbehavior and use of information sources by artisanal and small-scale miners. It could also be further speculated that individual behavioral characteristics and attributes could explain their information behaviors.

Information Sources of Local Miners

Information sources are avenues through which individuals obtain information for the satisfaction of their information needs. The nature of information need determines the information sources to be consulted/adopted. For instances, educational and academic information needs of a researcher williugpropel him to consult information sources like libraries,

information and documentation centres, and the internet. The following are some list of information sources:

a. Libraries, documentation centre and information resources centre
b. The internet
c. Broadcast media of radio and television
d. Workshop centre like Churches and Mosques
e. Governmental agencies and their publication
f. Non-governmental Organization (NGOs), Community-based Organization (CBOs) and Civil Society Organization (CSOs).
g. Professional Association and Bodies,
h. Books, Monographs, Pamphlets, Journals, Newspaper, and magazines.
i. Billboards, Posters, Brochure, Handbills, Bulletins and Leaflets.
j. Lectures, Conferences, Seminars and Workshops.
k. Friends, Relatives, Colleagues, and Associations.

The availability and accessibility of the above-listed information sources, especially libraries and information centres that houses diverse categories of information materials and service delivery systems, are for the satisfaction of the information needs of individuals in the society (Qadiri and Abiodun, 2017). Furthermore, Abdullahi (2018) adds that satisfaction with the information product itself and satisfaction with the system that provides the information product. System are here refers to the - information sources, thereby sending a signal that the information sources, including libraries and information centres should acquire, required and requisite information resources/products, as well as provide functional and result-oriented services for the users.

Barriers to accessibility and utilization of Information by Local Miners

The utilization of information is processed with availability and accessibility of that information. In other words, extent of availability and accessibility of information determines the level of utilization. In addition, the use of information could also be affected by a variety of factors such as background of the potential user, motivation, professional orientation and other characteristics; and the social, political, economic, legal and regulatory systems surrounding the users (Ojedokun, 2007). There are also several other factors that act as challenges and impediments to the accessibility and utilization of information. They include (Imeremba, 2004):

i. Language: when someone is passing information across in a language which the recipient does not understand; information is likely to be hindered. Again, if a publication is done in a language which a recipient does not understand, he will find it difficult to access and use the information.
ii. Cost: the cost of information records such as books, journals, newspapers, access to the internet, etc, is more and more becoming prohibitive. Disability issues can be placed under cost, because disability may not be a problem here if one has the financial power.
iii. Illiteracy: if a recipient cannot read and write, this hinders him from accessing and using information.
iv. Geographical Distance: Distance becomes a problem if communication facilities are lacking.
v. Censorship: this is also a serious obstacle to the access to information. When publications are censored by the government, accessibility and utilization will be affected. For instance, the former USSR government did not allow publications that were opposed to communism.
vi. Ignorance: ignorance becomes a factor when you need information, and you don't know where to get that

information. This shows that there is lack of information literacy skills.

Effects of poor Aaccess to Iinformation by the Llocal Miners

Since mining often includes the extraction of goal, metal and other minerals resources deep under the surface, is good to have access on the information need to carry out such activities, Poor access to such information more especially by the local miners, can lead to serious injuries on the environment and human health, which can even lead to death in the near future. Apart from human health and environmental effect, local miners also need information on the strategies that will enhance the process in other to meet the demand of the precious resources, which are crucial for our daily lives. Some of the effects that poor access to information by the local miners can cause on human health, include: lung diseases, cancer, hearing issues, injuries, heavy metal contamination. On the environmental effect, some causesinclude, soil erosion, water pollution, air pollution, soil pollution, deforestation and global warming, other effects include, effects on plants, effects on animals, effects on aquatic life and effects through the food chain etc.

Research Methodology

Research Design

Survey research design wasadopted for the study, information needs local miners study of some affected areas of lead poison in Zamfara State, Nigeria. Survey research designis interested in observing and describing characteristics or features of an event or situation without manipulating any variable. All local miners in the lead poison affected areas in (Maru and Anka) Zamfara State, Nigeria comprised the population of the study. Self-structured questionnaire was used as an instrument for data collection.The instrument was given to an expert in the field of measurement and evaluation and one from Library and Information Science profession in order to determine the face validity of the instrument. Modified Likert type Scale was used for the research. The questionnaire was analysed using percentage frequency.

Data Presentation and Analysis

The data collected from respondents through questionnaire from the survey. It also presents its corresponding analysis and interpretations.

Research question 1: Information needs of local miners in affected areas of lead poison

S/N	ITEMS	SA	A	SD	D
1.	Information on protection equipment such as helmet, hand gloves, safety boot, Goggles	200 (82%)	45 (13%)	-	-
2.	Information on diseases associated with mining such as cholera, tetanus, typhoid, malaria, musculoskeletal disorders	180 (73%)	65 (27%)	-	-
3.	Information on geological hazards such as flooding, landslides(rock falls), erosion, tremors (minor earthquake), etc.	83 (34%)	71 (30%)	65 (26%)	26 (10%)
4.	Information on accidents associated with mining such as drowning, tumbling, suffocation, rock fall, etc.	213 (87%)	8 (3%)	22 (9%)	2 (1%)
5.	I need information on how to improve my work through the use of modern facilities	214 (87%)	30 (12%)	1 (0.4%)	-
6.	I need information on current trend in mining	189 (77%)	18 (7%)	13 (5%)	25 (10%)
7.	I need information on the marketing of my products	123 (50%)	110 (45%)	8 (3%)	4 (2%)
8.	I need information on government policies on mining	199 (81%)	15 (6%)	20 (8%)	11 (4%)

(**Source**: Field survey, 2020)

Table above shows that 200 representing (82%) of the respondents strongly agreed that they need Information on protection equipment such as helmet, hand gloves, safety boot, googles, 180 representing (73%)need information on diseases associated with mining such as cholera, tetanus, typhoid, malaria, musculoskeletal disorders, 83 representing (34%) of the

respondents made it clear that the type of information they need include information on geological hazards such as flooding, landslides(rock falls),erosion, tremors (minor earthquake), 213 representing (87%) out of the respondents revealed that they need information on accidents associated with mining such as drowning, tumbling, suffocation, rock fall, 214 representing (87%) out of the total number of respondents need information on how to improve thier work through the use of modern facilities, 189 representing (77%) out of the total number of respondents strongly agreed that they need information on current trend in mining, 123 representing (50%) out of the total number of respondents need information on the marketing of my products, 199 representing (81%) out of the total number of respondents need information on government policies on mining. The findings of this is in line with Fisher, Landry, and Naumer (2007) observations about context sensitivity of information, the information behavior of miners differ from that of workers in other sectors, and specific examination of this group of artisans may help policy makers improve their safety at work and their contribution to national development and one of the ways to reduce the safety challenges that confront miners is to provide them with safety information.

Research question 3: Sources of providing information to the local miners

S/N	ITEMS	Adequately provided	Provided	Low provided	Not provided
1.	Lecture/ talks	-	-	-	245(100%)
2.	T V	-	-	-	245(100%)
3.	Government agencies i.e NOA	-	245(100%)	-	-
4.	Seminars/ workshop	-	-	-	245(100%)
5.	Inter personal conversation	245 (100%)	-	-	-
6.	Associations	245(100%)	-	-	-
7.	Radio	245(100%)	-	-	-
8.	Friends	245(100%)	-	-	-
9.	Social medias	245(100%)	-	-	-
10.	Books	-	-	-	245(100%)
11.	Newspapers	-	-	-	245(100%)
12.	Charts	245(100%)	-	-	-
13.	Town crier	-	-	-	245(100%)
14.	Magazines	-	-	-	245(100%)
15.	Pamphlet	-	-	-	245(100%)
16.	Government extension workers	-	-	-	245(100%)

(**Source**: Field survey, 2020)

Table 3 above reveals that 245 representing (100%) of the local miners have respectively stated that they are not provided with the information through lecture/talks and TV, seminar/workshops, books, newspapers, town crier, magazines, pamphlets and government extension workers.245 representing (100%) shows that information through government agencies was provided to them.However, interpersonal conversation, associations, radio, friends, social medias, charts were provided for them.

Research question 4: Constraints to access to information

S/N	ITEMS	SA	A	SD	D
1.	Non availability of relevant information	211(86%)	23(9%)	4(1%)	7(3%)
2.	Computer literacy	217(89%)	2(0.1%)	8(3%)	18(7%)
3.	Lack of awareness on how to find the information	245(100%)	-	-	-
4.	Financial constraints	245(100%)	-	-	-
5.	Lack of knowledge of existence of safety information	112(46%)	89(36%)	26(11%)	18(7%)
6.	Lack of access to source of information	245(100%)	-	-	-
7.	Most relevant information is lengthy	245(100%)	-	-	-
8.	Lack of time	245(100%)	-	-	-
9.	Illiteracy	245(100%)	-	-	-

10.	Ignorance	245(100%)	-	-	-
11.	Language barrier	245(100%)	-	-	-
12.	Geographical location	245(100%)	-	-	-
13.	Cost of the information	239(97%)	1(0.4%)	1(0.4%)	4(2%)
14.	Lack of infrastructures	234(95%)	2(0.8%)	10(4%)	4(2%)

(**Source**: Field survey, 2020)

Table 4 above shows that 211 representing (86%) of the respondents strongly agreed that their constraints to access to information includes non-availability of relevant information, others include: computer literacy 217 (89%), ack of awareness on how to find the information and245 (100%). Their constraints to good access to information includes: lack of access to sources of safety information, lack of time, illiteracy, ignorance, language barrier, geographical, cost of information and lack of infrastructures with (98%) of the respondents. The findings in line with Imeremba (2004) where he stated that some of the constraints to access to information by local miners includes: language, cost, illiteracy, and geographicaldistance, lack of infrastructure, underdevelopment as well as ignorance among others.

Conclusions

This study survey information needs and information seeking behaviours of local miners with particular reference to some affected areas of lead poison in Zamfara State. Safety is a major concern for artisanal and small-scale miners. Providing information to miners about what they could do to prevent risks associated with their jobs, and about how and why they need to regularly seek safety information could reduce the consequences of the risks they face.

Based on the findings of the study, government agencies that take oversight of the activities of the miners need to consider how to separate their roles as information providers from their compliance and regulatory activities such as taxation in order to ease access to, and collaboration and interaction with the miners. The routine visits of government officials to mining sites should not be focused on taxation and related issues, but should be expanded to include issues related to safety in the workplace. Government agencies need to consider how to provide better safety information services to the local miners in the area under study. Adequate penalties for failure to comply with government regulations may be required to compel the local miners to ensure compliance with safety rules and regulations.

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