THE HEALTH SAFETY AND ENVIRONMENT (HSE) NARRATIVE IN SOLID MINERAL CONCERNS: A STUDY OF CRUSHED ROCKS INDUSTRIES, EBONYI STATE NIGERIA

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Abstract
Health, Safety and Environment (HSE) is a popular global issue that implies the consideration of human and animal health, community health and environmental safety. This is so because of the neglect of health and safety by companies the world over. Avoidable accidents, injuries and death and pollution of the environment are the results of such neglect. The solid minerals industries are not left out especially quarries. This study considers the narrative of HSE at Crushed Rocks Industry Quarry Site, Ishiagu Ebonyi State Nigeria. The study relies on findings from series of field work carried out at the site and found it necessary to investigate the compliance of the company to globally acceptable HSE standards. The Study adopted the descriptive survey research method supported by physical observation at the site. It was discovered that the Quarry has only one HSE certified staff. The study also discovered that air and dust emissions need to be steadily controlled. The Quarry is not strict on its operators in the usage of such protective wears and does not make safety gadgets available to customers and visitors on field trip. The study therefore recommends that the company should immediately train its entire staff on HSE and get them certified. The study also recommends that the Nigerian Institution of Estate Surveyors and Valuers (NIESV) should ensure that HSE certification should be a prerequisite for any valuation in the solid mineral industry and indeed the entire mining sector.
Key words: Health, safety, environment, mineral concerns

Introduction

Health Safety and Environment abbreviated as HSE is an issue as old as humanity and is increasingly a growing concern the world over. This is more pronounced in the present generally capitalist world economy where profit is ranked above health and safety. In recent times however world leaders have begun zeroing into HSE evidently because of business and manufacturing related ailments. This preempted many countries and business concerns to make HSE certification a prerequisite for qualifying to work or engage in contracts.

HSE is a discipline and specialty that studies and implements practical aspects of environmental protection and safety at work. In simple terms it is what organizations must do to make sure that their activities do not cause harm to anyone (Kavianian, 1990). It is viewed from the health, safety and environment standpoints. From a health & safety standpoint, it involves creating organized efforts and procedures for identifying workplace hazards and reducing accidents and exposure to harmful situations and substances. It also includes training of personnel in accident prevention, accident response, emergency preparedness, and use of protective clothing and equipment.

From an environmental standpoint, it involves creating a systematic approach to complying with environmental regulations, such as managing waste or air emissions all the way to helping sites reduce a company's carbon footprint.

Successful HSE programs also include measures to address ergonomics, air quality, and other aspects of workplace safety that could affect the health and well-being of employees and the overall community.

HSE covers many fields but the focus here is solid mineral concerns in Nigeria especially granite quarries. The solid mineral industry in Nigeria, though not operating at a high level of expectation, is still a beehive of activities because of its relevance in construction especially.

Health, Safety and Environment (HSE) Standards and Training

Kavianian (1990) is of the view that various issues are of concern when referring to HSE and they cut across different sectors. They include the environmental concern, occupational health and safety, community health and safety. This is further broken down as follows:

a. Environmental

Under the environment concern the following items are considered:

- Air emissions and ambient air quality
- Energy conservation
- Wastewater and ambient water quality
- Water conservation
- Hazardous materials management
- Waste management
- Noise
- Contaminated land

b. Occupational health and safety

Under the occupational health and safety concern the following items are considered:

- General facility design and operation
- Communication and training
- Physical hazards
- Chemical hazards
- Biological hazards
- Radiological hazards
- Personal protective equipment (PPE)
- Special hazard environments
- Monitoring

c. Community health and safety

Under the community health and safety concern the following items are considered:

Water quality and availability
Structural safety of project infrastructure
Life and fire safety (L&FS)
Traffic safety
Transport of hazardous materials
Disease prevention
Emergency preparedness and response

The aforementioned considerations are very key to sustainable HSE programme in any sector or going-concern. There are now many HSE training institutes accredited by the International Standards Organization (ISO) which offers various levels of HSE Certification Courses to interested persons. As earlier mentioned HSE is one of the pre-qualification requirements for jobs in the mining industry. Such courses consider a wide range of HSE related issues which are not limited to:

- Principles of health and safety
- Understanding the responsibilities placed on employers and employees
- Hazard identification and control
- The importance of risk assessment as a technique for accident and ill health prevention
- Understanding unsafe acts and unsafe conditions as the main causes of harm to workers(manual handling, hazardous substances, exposure to noise and vibration)
- Understanding the hierarchy of controls to eliminate or reduce hazards to acceptable level
- Understanding the relations between companies and host communities
- Appreciate how workplace equipment and task design affect health and safety
- Contributing to health and safety management system
- Understanding the effects of drug and alcohol abuse in the workplace
- Occupational health and hygiene
- Appreciating the importance of accident investigation and reporting
- Understanding environmental issues and sustainable development
- Emergency first aid

Other scholars have also given their account of the kinds of risks associated with mining operations. Clark (2018) cited in www.miningreview.com opined that there are seven common risks associated with mining concerns and they are: dust inhalation, noise, whole body vibration, ultraviolet exposure, musculoskeletal disorders (MSDs), thermal stress and chemical hazards. It is very worrisome that industries especially in the tropics do not bother so much about such risks because of their capitalistic minded nature and lack of sensitivity to workers' health protection. It is the duty of regulatory agencies like the ministry of health and Standards Organization of Nigeria to ensure adequate compliance to such needs.

The Study Location

The study location is Crushed Rocks Industry Limited, Ishiagu Ebonyi State Nigeria Granite Quarry site. This location is a Quarry; producing Granite Chippings of various sizes. The company's operations are also in Abuja, Lagos and Port Harcourt. It is located at Ishiagu in Ivo L.G.A. of Ebonyi State, Nigeria. The company has mined granite for construction purposes for more than 46 years. It prides itself as one of the few granite sites in South East Nigeria and has mined millions of tons of granite for

different construction purposes. Ishiagu community is a beehive of granite and the community prides itself as such. That is the reason for their too many demands from their company which includes provision of light and water, payment to land owners and so forth. A brief history of the community will suffice.

A Brief History of Ishiagu Clan Community

Ishiagu is a large clan community of seventeen villages varying in size in terms of land and population. It is one of the largest autonomous communities in Ivo Local Government Area. It is located on the plains of the south-eastern savannah belt in Nigeria.In the case of the seventeen village groups that constitute Ishiagu clan community, most of the people of the seventeen villages identify themselves as belonging to a common ancestral descent, even though evidence abounds that the movements to, and the settlement in Ishiagu land, were piece-meal, uncoordinated, and occurred at different periods of time. According to Anyata (2010), it is difficult to imagine that the original eleven villages were of the same ancestry, in terms of being the offspring of members of one family. The traditional method of sharing common community interests and things along the customary line suggests that the arrival and settlement of the early ancestors of each village to their present site differ greatly from the others. This traditional group-sharing method was symbolic of the differences in their periods of arrival. Each village community has its own traditional history of arrival and settlement. Even in one village there might exist several traditional histories of arrivals and settlements of the ancestors coming from quite different communities outside Ishiagu land.

Some schools of thought hold the view that the purported dates of arrivals of the ancestors were not really arrival as imagined, but the community sharing technique was meant to reflect the period when each village came to join the other village groups. Through the passage of time it appeared that the founding fathers of Ishiagu community started to refer to the people of the eleven villages as the children or descendants of Echelle. The name Echelle started to be the second bond of unity after the acquired name of Ishiagu being applied to the land.The belief that Ishiagu people were the children of Echelle might have been derived from the need to provide a strong sense of unity, since there existed a central belief in Echelle as mythical, legendary or real founder of ishiagu land. In any case the search for the origin of the name Echelle continues. We shall now consider why Ishiagu is described as a clan community.

When one talks of a community one has in mind a number of people associating together on account of residence in the same locality, who are bound together by the same laws, norms, belief systems and values. The terms are then applied to a group of people with a common territory and common interests and objectives. It may be necessary to distinguish between a village community from a clan community.A village community can be described as a cluster of people living within a continuous, somewhat small area, and who share a common way of life. A village community is usually a local territory group. On the other hand a clan community is a larger territorial group where people who live in the community can come from various village communities, but all are united in the belief that they have a common ancestral descent, and have certain common links such as religion, economy and tradition. Each village community may be made up of wards and kindred groups.

With this classification in mind, which is rather loose, it can be asserted that Ishiagu clan community is made of seventeen village communities, each varying in size and population as well as the number of wards and kindred groups.

There are several smaller and larger village communities within Ishiagu clan community. There are certain unifying factors that tend to bind the seventeen village communities together to form a cohesive clan community. These will include the following:

· All the inhabitants, except those who arrived at the scene late, and those who live close to the borders, speak the same dialect of Igbo language.

· Religious belief and practices have always tended to unite people together. The entire people of the various village communities had tended to worship the same deities in ancient times, and Christianity has also brought all together in the modern time. It might be correct to say that religion not only provides social unity, but also a sense of meaning to life, and explanation to the mysteries of the world to those who share the same faith, and also promotes a sense of belonging among its members.

· The common belief that most of the villages had a common origin makes the unity of the clan people of Ishiagu much stronger.

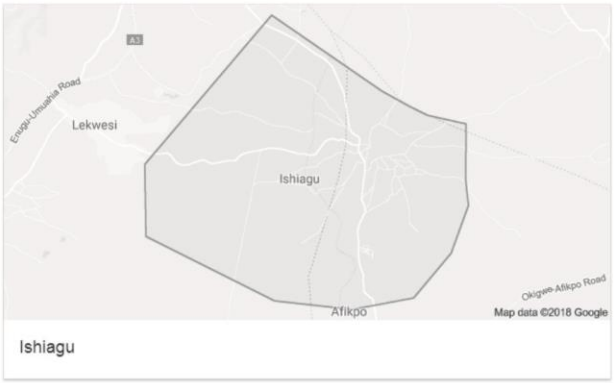
· The influence of the Eke market as a unifying factor cannot be over emphasized. The choice of the market square to serve the socio-economic needs of the clan community had been a masterpiece, since the centrality of its location made it possible and easy for the people from the various village communities to meet there for purposes of exchange, social interaction and entertainment purposes.

· Common cultural belief systems, values and practices are shared by all the members of village communities. There were common beliefs in the cycle of life under the watchful eyes of the ancestors, the existence of the land god, (ajali), the yam gods (aho, and njoku), and these factors tend to exert a strong unifying influence on the people. The regulation of the agricultural activities of the people from one season to another, in order to complete the cycle of year, provides a very strong force to unite the people as belonging to one clan.

These factors demonstrate that Ishiagu people have since been occupying a definite geographical area known and called Ishiagu, and that they had since been constituted as a self-governing social unit long before the colonial era. They have developed to a high degree some common values and have been experiencing a sense of belonging to one another, but that each village had always tended to maintain its own separate identity and limited autonomy in certain respects. This is why it might be true to say that Ishiagu clan community is made up of seventeen semi-autonomous village communities.(Anyata, 2010)

Cases the Company has with the Community bothers on a whole lot of issues that are HSE related. For instance, it is reported that some matters with the community are in court bothering on damages from drilling and blasting, air quality and lack of water and power supplies. The community has been seen in the past barricading the entrance gate to the Quarry until. It is hoped that the company will resolve such issues as they affect the daily living of the Community. The unity factor earlier mentioned gives the community an edge in terms of its ability to challenge the management of Crushed Rocks in the recovery of lands they claim have been taken over by the company. This must not be overlooked because the company is on the losing side in terms of profit when their operations are forcefully shut down.

Following is a Google Map showing Ishiagu, Host Community of Crushed Rocks Industries Ltd



Source: Google Map © 2018. Fig 1: Map of Ishiagu

The HSE Narrative in Solid Mineral Concerns

Without a very rigorous investigation, one has from hind sight, observed the non implementation and negligence of solid mineral operators in respect of the health and safety of their workers and the safety of their immediate environment. This narrative is based on series of field trips organized at the granite site at Ishiagu Community. The researcher, from physical observations of the processes of mining granite at the site, was prompted to investigate the compliance of Crushed Rocks Industries to HSE parameters and standards. This study contains pictures of various parts and facilities of the miner. What is the company's HSE policy and to what extent have they implemented it for the well-being of its workers, customers and visitors. The researcher engaged the presumed safety department of the quarry and gathered the following account.

The Quarry Site generates and manages three principal kinds of waste: solid, liquid and gaseous wastes

Solid Waste: This includes paper waste, nylon bags waste, cartons, overburden rocks and scrap metal, plastic containers, broken glasses. They said waste is stored in an empty drum provided by ESWAMA (since they are registered with ESWAMA (Enugu State Waste Management Authority)

Liquid Waste: This includes lubricant, oil waste and water. The company stores liquid waste in a closed a drum locked up to be disposed or sold locally to truck drivers.

Gaseous Waste: This includes waste from generators, internal combustion engines and particle, dust and smoke. To control such waste the company's generator has a chimney height the enables dispersal into the atmosphere.

Other waste: Crushed Rock industry does a waste segregation scheme with standard containers given to them.

Dust from crusher: They pump water collected from their oval mine pit to control dust by deploying water sprinklers each time.

Operators: The Company noted that air conditioned vehicles used to ensure the health safety of machine and equipment operators.

Safety Gadgets: The Company does not provide safety gadgets and wears to customers or visitors. They only give it to their staff. They emphasized it is not the company's duty to provide gadgets. Students on excursion must come with gadgets…e.g. safety boots, helmet, nose musk, ear muff, head gear, glass wear, overall wear. They do not provide the gadgets because of the cost implication to them of the cost.

Traffic Safety: There are flags around to indicate movement while coming in and going out. A red flag indicates that a vehicle should not move because there is an oncoming vehicle on the Weighing Bridge or coming towards its direction to avoid accidents.
Traffic safety in the industry is as important as traffic safety in the host community. Horberry, Harris, Shi, Kirsch, Rifkin & Harris (2013) are of the view that major companies in the minerals industry are increasingly recognizing that their operations have an impact in the wider community. In terms of transportation issues they added that the impact extends beyond purely the safety of company vehicle fleets to consideration of Community Road Safety (CRS) concerns, which address the driving, walking, and riding practices of community members in a locale with increased heavy vehicle traffic.
Medication: The Quarry has a trained Industrial Nurse. They also offer clinical and first aid services
Draw Backs: The major drawback witnessed is the lack of constant training and retraining of staffers at the Quarry on HSE issues. This is caused by lack of funds. Unfortunately only the Safety Officer has HSE certificate. This is a terrible setback because it will expose their staff and customers to hazards from their day-to-day operations. Another drawback is that their system of blasting affects the buildings around. Regular cracks are noticed because of the houses where the local communities live are very close to the Quarry and in addition the residents used mud for construction and they do not follow the standard distance of a building from a Quarry site which is 500 meters as provided by statute. The communities do not understand this and even shuts down the company's operations from time to time.

Researchers' Personal Observation
Safety Gadgets: It was observed that due to lack of training and certification on HSE, some of the workers do not put on the necessary wears to protect them from career related ailments. The following pictures reveal the level of dust that both workers and visitors on excursion are exposed to. This has serious health implications. In addition, the air quality within the precinct is compromised.



Plate 1: Equipment showing dusty emissions



Plate 2: The mine pit, showing reduced water levels during dry season which in turn affects dust control. As

can be seen, it takes time for dust to settle and unfortunately, there are local dwellers around exposed to such health risk.



Plate 3: Uncontrolled dust levels during crushing Activity



Plate 4: A view of students (receiving lectures) on mineral valuation field trip without protective wears.

Conclusion and Recommendations

In as much as profit maximization is important in mining concerns, risk minimization is even more important because every participant must be safe and healthy to continue with solid mineral interests. A company with over 46 years' experience should not have only one HSE certified staff. This could have serious implications on life expectancy of staff, customers and visitors. It is true that there is neglect of revenue sources from solid mineral concerns in Nigeria because of over dependency on oil revenue but HSE compliance is very necessary for a better environment and quality health. The company must resolve all environmental and health issues raised by the host community.

Implications for Mineral Valuation

Estate Surveyors and Valuers are experts authorized to value property, plant, equipment and all going concerns. The Nigerian Institution of Estate Surveyors and Valuers should include HSE Certification in its requirements for valuation of mineral interests and indeed all other valuations subject to hazard. If that is done, the safety and health of its members will be guaranteed. This is even more pertinent especially now that Estate Surveyors and Valuers are expanding their practice to valuation of oil vessels and appurtenances and environmental valuation.

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