CAUSES AND CONSEQUENCES OF ACCIDENTS IN NIGERIA OIL AND GAS INDUSTRY

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ABSTRACT

Accidents are problems which have been rocking the oil and gas industry; the construction industry and even the Agricultural sector have not been spared of this monstrous invisible element called "Accident". Accidents don't just happen; they are primarily caused by human errors. The research methods adopted for this paper were: Field Surveys, Questionnaire administration, Personal interviews and Focus group discussions. The research findings show that 95% of accidents that happened were traceable to risk behaviors of workers, while 5% of accidents recorded were attributed to equipment failure. The research also exposed some sharp practices by some companies who supply subs-standard PPE'S, poor working environment, poor motivation, late payment of salaries and allowances to their workers. Finally, as a way of reducing accidents at the work sites, this research paper recommends that Companies, Organizations should do everything humanly possible to motivate their workers, by paying good salary, and on time, providing enabling or conducive work environment, and develop good safety programs like Job Safety Analysis (JSA),Planning Phase Hazard Analysis (PPHA),Risk Assessment/Analysis (RA), Stop Work Authority (SWA), should be robustly developed and deployed to the workers as a way of reducing accidents at the work sites. In addition to the recommendations above, proper orientation and training of personnel both on-the-job and off-the-job should be deployed to the personnel as another way of removing the notion or believe that "Accident is one of those things that are bound to happen ".

Keywords: *Accidents, Oil and gas Workers, environment, perception, Remuneration, Training.*

INTRODUCTION

Accident could be defined as an unwanted occurrence, unexpected, unusual and external action which has the possibility of causing injury to personnel, damage to equipment, and environment. Like we have seen, accidents are primarily caused by two factors namely- Unsafe Act of people and Unsafe condition (Vescovi, 2005). Accidents are problems which have been rocking the oil and gas industries; the construction industries and even the agricultural sectors have not been spared of this monstrous invisible element called "Accident". Statistics have shown that 95% of all accidents in the oil and gas industry are traceable to "Human Error" (Eckley, et al.,2003). The main crux in this paper is to look at the consequences of accidents, when we allow it to rear its ugly head at our work sites or environment. Like we know, unsafe acts cause four times as many accidents and injuries as unsafe conditions. At this juncture, thequestion on our minds is how does an unsafe act cause four times as many accidents and injuries than unsafe condition?

This is a million-dollar question that requires a million-dollaranswer. I am going to put it in the following ways:

Accidents occur for many reasons. In most oil and gas industries, people tend to look for "things" to blame when an accident happens, because it's easier than looking for the "root causes", such as those I am going to list below.

- **Taking shortcuts**: Every day we make decisions we hope will make the job faster and more efficient. But do time savers ever risk your own safety, or that of other crew members? Short cuts that reduce your safety on the job are not shortcuts per say, but an increased chance for injury to take place. When you continuously take shortcuts, be rest assured that it could boomerang one day and the consequences could be disastrous.
- **Being Over Confident**: Confidence is a good thing, but over confidence could be dangerous. The attitude of "It will never happen to me" is an attitude that could lead to improper procedures, tools, or methods in your work. Any of these can lead to an injury. Always maintain a sense of vulnerability and have it at the back of your mind that "It could happen to me, if I don't take care".
- **Starting a task with incomplete instructions**: For you to do the job safely and right the first time, you need complete information. Statistics have shown that improper information or lack of proper communication could lead to accident. Whenever there is communication breakdown, the next thing could be accident. We need to communicate effectively, as effective communication is one of the antidotes against accident.
- **Poor Housekeeping:** Housekeeping is an accurate indicator of everyone's attitude about quality, production and safety. Poor housekeeping is an ugly invitation for accident to visit the work site; it creates all forms of hazards. A well-maintained area or work site sets a standard for others to follow. Good housekeeping is another antidote against accidents or incidents at our work sites (Peter, et al., 2011).
- **Ignoring Safety Procedures**: According to (Vogel, et al., 2004; Oriola,1994), when one purposely fails to observe safety procedures, it could endanger your safety and the safety of your co-workers. As an employee, you are being paid to follow the Company safety policies, not to make your own rules. Always follow safe work practices and procedures are one of the tenets of Safety. Remember that being casual about safety can lead to a casualty.
- **Mental Distractions from work**: Having a bad day at home and worrying about it at work is a hazardous combination. Dropping your 'mental 'guard can pull your focus away from safe work procedures. You can be distracted when you are busy working and a friend comes to talk while you are busy working. Distraction is an accident causative factor which must be avoided at all times. A minute of loss of concentration could land you in hospital bed (O'brien, et al., 1992). Always concentrate on the job at hand and don't allow home troubles to affect you at your place of work. Remember, don't be a statistic because you took your eyes off the machine "just for a minute". As submitted by (Bohie, 2001;Oriola, 1994), you are directly responsible for your own safety and the safety of your co-workers working together with you.

Failure to Pre-plan the work: There is a lot of talk today about Job Safety Analysis. JSA's are an effective way to figure out the smartest ways to work safely and effectively. Don't be in haste, take your time and do the job safely. We have a slogan that says" Do it safely or not at all, there is always time to do it right". Being hasty in starting a job or task, or not thinking through the process can put you in the line of fire- i.e. placing yourself in position where you could be trapped or injured is referred as "Line of Fire". In vulnerability concepts, the index to consider while carrying out assessment comprises of three sub-indices of exposure, sensitivity, and adaptive capacity. Thus vulnerability is a function of the risks, exposure and sensitivity to risks, and adaptive capacity (Peter, et al., 2011).

Instead plan your work and then work your plan. If you fail to plan, you will then plan to fail. Being proactive is the name of the game as far as safety is concerned. Remember that it is better to be careful 100 times than to get killed once (Mark Twain, 2004).

The Double Structure of Vulnerability to Accidents

The double structure of vulnerability is a framework developed by (Bohie, 2001) meant for the assessment of vulnerability. Vulnerability under this framework is viewed as having two sides:
the external and internal sides. While the external side refers to the exposure to risks and shocks, the internal side is the inherent capacity of the system to anticipate, cope with, resist and recover from the impact of a hazard (Figure 2).

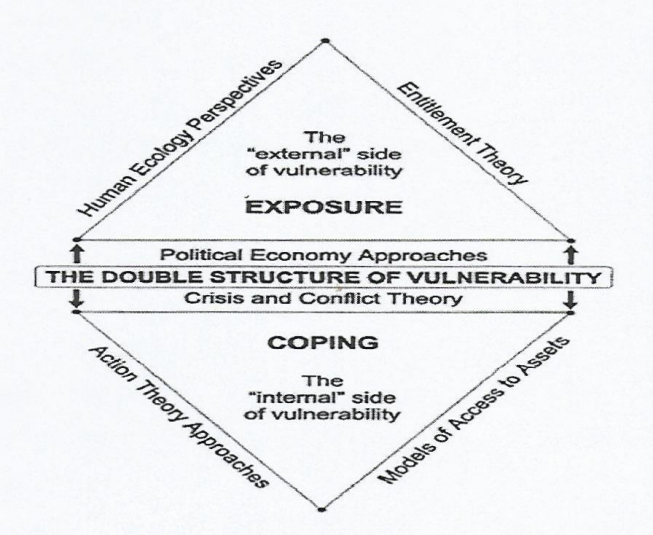

Figure 2.: The Double Structure of Vulnerability

This framework by implication therefore indicates that the vulnerability of a system cannot be adequately characterized without simultaneously assessing those processes that increases defenselessness, coping and response capacity of the system. Bohle's conceptual framework is therefore based on the fact that vulnerability is the result of the interactions between exposure to external stressors and the coping capacity of the household, group or society (Birkmann, 2006). Hazard and Risk Framework of Vulnerability
In contrast to the double structure of vulnerability which views vulnerability as the result of the interaction between the exposure to external stressors and the coping capacity of the system, vulnerability within the hazard and risk framework is viewed as a separate feature, different from coping capacity and exposure. In this case, vulnerability is viewed as one of the components of disaster risk, which is the sum of the measures of hazard, exposure, vulnerability and capacity. This framework also viewed vulnerability as having different dimensions: physical, social, economic and environmental.
Notable amongst the contributors to this framework is the International strategy for disaster reduction (UN/ISDR) which viewed vulnerability as a key factor in determining risk and its assessment was recommended for any effective risk assessment.

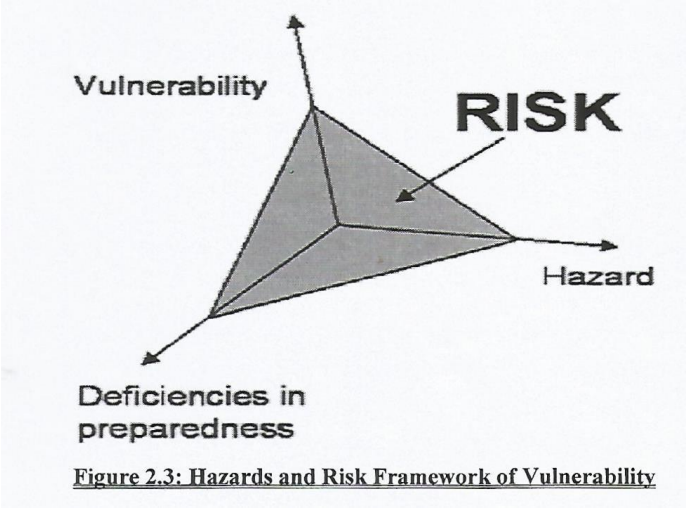

Figure 2.3: Hazards and Risk Framework of Vulnerability

The UN/ISDR also places vulnerability and the risk reduction element within a framework called the sustainable development context. This is meant to underline the necessity of linking risk reduction and sustainable development which means risk reduction strategies should promote sustainable development by making the best use of connections among social, economic and environment goals to reduce risks (UN/ISDR, 2004),

The Onion Framework

The onion framework is one of the two frameworks developed by United Nations University institute of environmental and human health safety. It views vulnerability as it relates to the economic and social spheres. The framework analytically distinguishes vulnerability into the reality and opportunity axis. The reality axis shows the economic impact of the hazard while the opportunity axis shows the impact of the hazard on the social aspects which often lead to disasters.

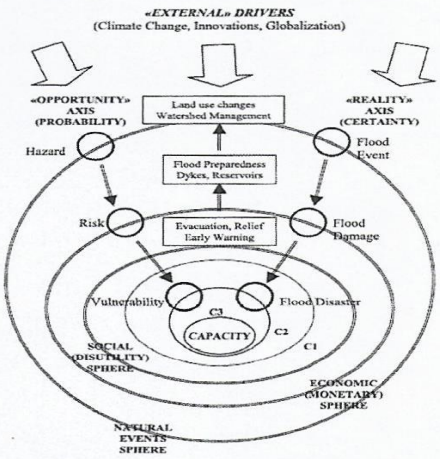

Figure 1.8 The onion framework.
Source: Bogardi/Birkmann, 2004.

Figure 2.4: The Onion framework

By implication this framework is indicating that economic assets in most cases can be replaced, but the disruption of the inner social sphere of a society would cause long term injuries and losses. Thus the conversion of a hazard to a disaster depends almost as much on the preparedness and coping capacity of the affected society as on the nature of the hazard itself (Bogardi and Birkmann, 2004).This framework thus stresses the fact that if a community's or person's losses goes beyond economic losses to social losses (such as loss of confidence) then vulnerability is evident, This framework also shows the potential response activities related to the two spheres of vulnerability (Birkmann, 2006).

Another important vulnerability framework that needs special mentioning is BBC framework (Figure 2.5); it consists of different elements of thought that links vulnerability assessment to the concept of sustainable development. This framework views vulnerability as a process with emphasis on the need to focus on exposed and susceptible elements together with the coping capacities. It also includes the need to have an understanding of vulnerability beyond the estimation of damages and the probability of loss.

The framework developed by (Heltberg et al., 2008) presents and applies the social risk management and assetbased approaches to the context ofaccidents. The social risk management (SRM) and asset-based approaches provide a conceptual framework for understanding the sequential links between risks, human exposure and sensitivity, the impacts of risky events and risk management (or adaptation) strategies.

This framework provides a unifying conceptual framework to examine the characteristics of the risks faced by workers; how adaptation responses at multiple levels depend on livelihoods, policies, institutions and workers vulnerability outcomes. It highlights the importance of a multidimensional and equitable approach to adaptation policy and the need to include higher level (national and international) risk management interventions in the oil and gas industry. The framework also include social policy and social protection interventions to build resilience at the junior workers level through improved human and physical capital and access to risk management instruments such as safety nets and insurance.

This analytical framework helps focus on the sequential links between job risks, human vulnerability and interventions to help manage vulnerability to accidents.

From the aforementioned points, youcan deduce the fact the if we fail to do the right thing at the right time, we shall be left with reactive measures, instead of being proactive. This will lead us to the consequences of accidents if we fail to checkmate the aforementioned lapses, as the consequences of accident to the employee, Company and the Nation could be serious, and it would leave in its trail some devastating consequences; especially the employee and his immediate family suffer most.

Methodology Research

3.2 Data Acquisition

The dataset used for this project was sourced from different areas, especially within the oil and gas industries. The data of Accidents that happened within the time of this research were tracked and reviewed accordingly. A total of 120 questionnaires were distributed but only 85 were returned for analysis. Analysis of collected data was processed using SPSS and Microsoft Excel packages. Information derived and other data collated are useful for mitigation measures against futuristic accidents/Incidents preventions within the oil & gas industry and beyond.

RESULTS AND ANALYSIS

When safety consciousness is not displayed, or thrown overboard while carrying out any assignment, accident usually rear its ugly head. Accidents risk management (or adaptation) has to be multidimensional and span interventions at household, community, national and (increasingly) international level.

Institutions and good governance are keys to a multi-dimensional and multi-sectoral approach to improved adaptation to oil and gas industry.

An accident may involve the following:

- Injury to employees.
- Damage to property only.
- It could lead to both injury to personnel and damage to property and environment.
- There could be no injury to personnel and no damage to equipment, property or environment. In other words, we refer to this type of accident as a Nearmiss.A Nearmiss is an intended accident but with unrealized consequences. The problem with Nearmiss is that it is an indication that something could possibly go wrong if restraint or care is not exercised. A Nearmiss today could lead to a serious accident in future if the main cause of the Nearmiss is not properly investigated.

At this juncture, it would be pertinent for us to look at the Effects of accidents.

Effects of Accident on an employee:

The effects of accident on an employee could be enormous. The employee suffers most whenever accident rears its ugly head at our work sites. The employee could suffer physical andpsychological pains. The employee bears the pains of the accident that is if he is alive to tell the story. In addition to this, the employee may suffer disability that could lead to Permanent Partial Disability (PPD), Permanent Total Disability (PTD), etc. The employee may pay with his life, which is called Fatality in safety (FAT). As a result of this disability suffered by the employee, the company may declare him or her redundant.

Loss of earning power is another serious consequence of an accident. When an employee is involved in an accident, if he survives it, the company might ask him to do a restricted duty or do a job lower than his previous grade. Invariably, this would reduce his earning power as he may not be able to earn more than his current salary.

Another serious effect of accident to an employee is the loss of leisure activities such as playing table tennis, football and other recreational activities.

Like I said earlier on, there could be loss of life which is death. When this happens, the employee leaves sorrow, pains and anguish behind for his/her loved ones. The final and most painful effect of accident is the consequences it would have on the family of the victim. The immediate family of the victim would suffer serious consequences as a result of this singular incident on their bread winner. There would be no money to pay for children education bills, house rent, and feeding money. This would definitely plunge the immediate family into suffering and psychological defeatism. If there is no money to pay school fees for the children, the children could turn out to be miscreants, vagabonds and even armed robbers as the case may be. Such children will become a problem to themselves in particular and the society in general.

Effects of Accident on the Company.

. Loss of reputation: Any company with bad safety record would definitely attract negative publicity. Clients may withdraw their patronage from such company. There could be mass exodus of experienced and tested employees

from such company. These experienced employees would definitely join other companies after the first company with bad reputation had expended so much money in training these employees only to lose them to other companies as a result of their bad reputation. When a company is faced with this type of situation, the next alternative would be for them to go into liquidation or moribund.

• Money Loss: TheCompany will incur losses through payments of medical bills for their employee that was involved in an accident. There would be provision for burial expenses in the case of death of an employee, payment of salary while the employee is still sick in the hospital and that would amount to zero production for the company. The company may also pay compensation for disability arising from that accident, equally pay for insurance premium, and replace or repair damaged equipment or property that were involved in the accident.

• Time Loss: In this ever-changing business world, we all know that time is money. Production time lost due to the accident is money lost. Fellow employees will leave the work site to help the injured victim, by doing this; a lot of productive man-hours would be lost. The fellow employees of the accidented victim would gather together to discuss the accident and may equally devote time to visit their injured colleague at the hospital. If eventually the injured victim dies, colleagues would abandon their jobs and go for the burial. Time will equally be lost in the cause of carrying out accident investigation to unravel the immediate and remote causes of the accident.

Effects of Accident on the Nation:

Government derives revenue from taxes based on the profits made by companies. As a result of this singular accident, Government would lose revenue both from the company and the employee involved in the accident. When the revenue that accrues to the Government reduces, it would have negative effects on development, as Government would find it extremely difficult to meet their obligations to its citizens. In some countries, when the Government can no longer provide some of the basic infrastructural facilities and amenities, which is their constitutional duties, it could lead to uprising and civil unrest in such countries. A case in point was the recent uprising in some Arab nations.

RECOMMENDATIONS/CONTROL MEASURES:

The importance of carrying out Risk Assessment prior to commencement of any job cannot be over emphasized. This process would help to expose all the potential hazards that may rear their ugly heads while the job is ongoing. Job Safety Analysis equally comes in to play. Job safety analysis is the process of breaking down jobs into various stages, hazards associated with each step would be properly analyzed and control measures to mitigate such hazards would be proffered

Another control measure is the thorough application of step back 5X5 program. This program is the process of engaging the mind before the hand. It is equally a time out taken to reappraise the job, the environment and the safety measures in place.

Companies should as a matter of fact employ competent and tested employees who understand the intricacies of their jobs. Companies should equally invest time and money to send their employees to trainings both local and overseas as a way of enhancing the professional competence of their employees.

The ABBI principle should equally be applied as way of ensuring that no one gets hurt at our work sites. The principle of looking- Above, Below, Behind and Inside should be applied by employees whenever they are working.

Weekly safety meetings and daily toolbox talks are one of the ways to control accidents at our work sites. Thorough and complete application of what we call Stop Work Authority (SWA). This SWA is a permit given to employees to stop fellow workers when they are deviating from lay down safety rules or regulations. Or when employees are working at risk or putting themselves in the line of fire. You as an employee has the right to stop your colleague when he or she is working in an unsafe manner. You are not doing them a favor by allowing your colleagues to work in an unsafe manner.

Good and qualitative Safety orientation is another antidote to accidents; especially to new employees who are yet to receive their first baptism of fire at the work sites. New employees are hazards to themselves in particular and the entire workforce in general.

CONCLUSION/REMARKS:

This requires pro-activeness and a change of paradigm from emergency management to accident risk management in order to avert a disaster. The available option for consideration is the control of further damage through vulnerability assessment and the development of adaptive measures to withstand the already existing adverse effects. Accidents and associated hazards may be inevitable, but they can be minimized and turned into an opportunity to transform society into a higher level of sustainability.

Assessment of accidents will require knowledge of accident risk areas in order to ascertain the cause of the problem, develop prevention as well as mitigation measures.

Accidents are ill wind that blows no body no good. We should strive to nip this hydra headed monster in the bud. Employees should as matter of fact avoid short cuts. We should adopt proactive approach while handling our jobs and desist from assumption because assumption kills. Consequences of accidents are enormous, especially on an individual and his immediate family. If it is not safe, do not do it. Let us put on our thinking cap and implore the services of the brain in all that we do. Reducing accident or eliminating accident completely is a task that must be accomplished. This is a collective responsibility, and we must come together to actualize this.

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