A Review of the Occupational Safety and Health Regulations in the Nigeria Telecommunication Industry

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Abstract— *This paper provides a review of the current state of occupational safety and health in the Nigeria telecommunications industry. Specifically, the study identifies the regulatory gap, i.e., government commitment and involvement as a missing instrument to achieving sustainable occupational safety and health administration in the industry. A sustainable solution to address this gap is proposed. Data for this research were gathered from (1) primary sources - expert knowledge of the authors' telecommunication industry and (2) secondary sources - findings from research work in the field of study. This study recommends that the government should emphasize more on Occupational Safety and Health integration into telecommunication services and/or operations through sensitization programs. Also, the government should provide clear communication of health and safety requirements in support of the Nigeria Communications Act 2003, No. 19 to enhance the excellent safety culture in the industry. Ultimately, the regulatory body should adopt involvement strategies to support existing efforts made by some companies in the industry.*

Index Terms— *Awareness, Enforcement, Health, Industry, Occupational, Safety, Telecommunication*

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1 INTRODUCTION

It is germane to mention that efforts made by telecommunication industry stakeholders to guarantee a sustainable positive health and safety culture through curtailment of occupational health and safety hazards can only be effectively achieved when every work activity in the industry is guided by appropriate Occupational Safety and Health (OSH) regulations and enforcement which guarantees compliance at all levels. In Nigeria, the foundation of OSH regulations begins with the introduction of [4] as amended and ends with the Bill on Labour, Safety, Health, and Welfare.

The series of work-related accident occurrences in the Nigeria telecommunications industry which cut across a road traffic accident, tower collapse, fire, fall from a height, wildlife attacks, as well as fatalities without accountability to any appropriate regulatory agencies, calls for concern. This is corroborated in the works of [1]. He clearly demonstrated the ineffectiveness and nonfunctional state of the OSH regulatory system in Nigeria. Going by the recent revolution witnessed in the Nigeria telecommunication industry including growth pattern and infrastructural development, it is projected to worsen the failed OSH regulation in the industry. This is because accidents, injuries, and fatalities will increase without accountability to any appropriate regulatory agencies like NCC. However, postulation and opinions of experts and scholars on OSH regulation in Nigeria remain outlandish until the OSH Bill is accorded a presidential assent.

It is necessary for the Nigerian Communications Commission (NCC) to establish a holistic framework that guarantees access

to the telecommunication industries' OSH reports with a focus on continual analysis and evaluation of these reports. This will ensure that the needed visibility will be provided on the OSH performance across the industry while at the same time allowing for ascertaining early warnings on the identification of companies' vulnerabilities to OSH issues. Also, a better understanding of the consequences of these vulnerabilities and the probability of the occurrence of any type of loss may be exposed early. Thus, the problems may be prevented where possible, and companies may be well prepared for unexpected situations to achieve the desired accountability on measures to prevent accidents, eliminate health and safety hazards, and enhance operational excellence.

It is important to note that the lack of industry-specific OSH guidelines that align with international best practices [2] in the Nigeria telecommunications industry (i.e., zero enforcement and compliance) has paved ways for companies to go without any consequence of accident of any magnitude. This goes to the extent of non-payment of compensations of any form to victims [2]. Safety performance non-accountability to appropriate telecommunication regulatory agencies such as the NCC is a major challenge affecting the industry as of date. According to the [10], the Nigeria telecommunication industry has the poorest.

2 FUNDAMENTALS OF EFFECTIVE OSH ADMINISTRATIONIN IN THE NI-

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GERIA TELECOMMUNICATIONS INDUSTRY OPERATIONS

According to [2], it is suggested that an independent regulatory body like NCC outlines the importance of a positive health and safety culture. The International Labour Organization (ILO) document details key characteristics needed to achieve the establishment of a positive health and safety culture at enterprise and regulatory levels like the Nigeria Telecommunication industry. These characteristics as explained by [2] includes but not limited to:

[1] Inspiring honest and open reporting of failures (without the fear of punishment and supporting a collective understanding of which actions are blameworthy);

safety records amongst other industries like power, manufacturing, and oil & gas. As a consequence, the telecommunication industry has the least published records of injuries and fatality rates among other industries in the country.

Arguably, those at the greatest risk of injury and fatalities are site workers. Clear messages from regulatory agencies need to be communicated that safety is critical and safe behaviors need to be consistently adopted throughout the industry. It is opined that high injury and fatality rates are due to lack of safety regulations in the industry operations which in part, is due to the lack of a consistent and industry-wide understanding of the meaning of safety competency, with the sector traditionally not recognizing behaviors such as leadership commitment and involvement [7] as enshrined in the International Organization for standardization ISO 45001: 2018.

[2] Assuring that accident investigations aim to identify the deeper, systemic causes of errors, identification of potential failure scenarios and provision of staff training to respond to such emergencies.

[3] Management commitment and involvement to occupational safety and health (or 'mindful leadership') characterized by anticipatory commission of appraisals often in response to incidents occurrences with objective of guaranteeing conformance and/or compliance as may be applicable, engagement with front line staff to obtain a realistic picture of operations 'on the ground' and investment of the necessary resources in safety management.

Further, [13] recommend that organizations should work towards developing and implementing the following characteristics:

[1] A *reporting* culture characterized by good reporting systems in an atmosphere of trust within the origination; with the intent to learn from previous incidents and not to apportion blame to any stakeholders involved.

[2] A *just* culture whereby responses to mistakes are proportionate to the nature and consequences of mistakes and there is a system of consequences and rewards in place that is perceived as fair and constructive.

[3] A *learning* culture whereby information is communicated and shared effectively both horizontally –across different departments and vertically across hierarchical levels within the organization but also with customers and sub-contractors.

[4] A *flexible* culture that acclimatizes effectively to external demands without compromising safety.

[5] An *informed culture one* in which those who are managing and operating the occupational safety and health system have contemporary knowledge about the human, technical, organizational and environmental factors that determine the safety of the system as a whole.

3 REVIEW OF COMTEMPORARY OSH PRACTICES IN THE NIGERIA TELECOMUNICATIONS INDUSTRY

Unregulated OSH standard administration in Nigeria telecommunications industry has accounted for the non-availability of reliable accident statistics in the industry [12]. Industry leadership commitment and involvement in OSH are far from being encouraging as most leaders in the telecommunication business viewed safety and health measures as intrusive and fruitless [8]. The refusal of so many industry sub-contractors to compliance typifies this problem. Most telecommunication operators and allied services providers erroneously believe that the provision of insurance coverage to direct consequence of accidents is enough while undermining the unintended indirect consequences that are often uninsurable (i.e. reputational damage, man-hour loss, customer dissatisfaction, etc.).

The work of [11] in compliance with OSH regulations in Nigeria's public regulatory agencies revealed that 10 out of every 48 staff of the Federal Ministry Labour and Productivity that were assessed committed to non-compliance with OSH regulations that they should enforce once signed into law. This is an indication of evidence of the decay system of enforcement and compliance with OSH. [12] Concluded that this could probably be due to the non-domestication of a safety culture at the systemic level. Most telecommunication service providers in Nigeria have the tendencies not to show commitment or involvement in OSH when adequate procedures are not spelled out in the operations and services requirements [8]. Conversely, the reverse is the case where there are adequate regulations that are appropriately enforced [3].

3.1 Regulatory Framework and Commitment to OSH Data Management

The traditional ways of communication in Nigeria is through the transportation system, which has been revolutionized with the advent of global systems of mobile telecommunications. There are international labor conventions on OSH, such as that of the 1981 convention (No.155), to which Nigeria is a signatory that is required to be adopted and ratified through appropriate policy, regulatory framework, and provision of enforcement by the relevant agency. This convention forms the basis for developing laws relating to OSH and applies to any industry.

The [4] is the foundation of OSH governance in Nigeria till date. It has basic clauses that stipulate provisions for the protection of workers and the workplace environment. The pronouncement indicates the duties and responsibilities of three major stakeholders: employers, employees and government inspectors. However, this framework has remained difficult to apply because of the long-awaited OSH bill that is yet to be signed into law. We thus identify a lack of locally domesticated policy framework at sectoral level (telecommunication industry in specific) coupled with the existence of lack of awareness of the existing regulatory provisions as challenges that need to be accorded urgent attention to reflect a national level of OSH Policy.

Few available information may mislead the real understanding of OSH situation in the Nigeria telecommunication industry as most management teams in the sector pay little or no attention to its significance in operational efficiency. Hazard prevention strategies are limited to a personal level. Mainly, hazards prevention focuses only on training safety representatives and providing them with personal protective equipment. Other hierarchies of controls are rarely observed. There is a wide variation between the existing risk management strategies and the risk management standard according to the ISO 31000. Major work-related accidents accompanied by serious injuries and fatalities are investigated in most cases to determine who is culpable rather than unfold the underline causes and related factors that could provide lessons learned for continuous improvement purposes. The official identification and documentation of work-related injuries and fatalities that can be used for workers' compensation are usually not established, and as a result, not practiced in the industry [3].

According to [6], even though the potential of OSH to achieve operational efficiency with reliability is undeniable, there are several pitfalls, which, if not circumvented, can lead the whole effort towards failure. Several potentially serious problems abound in the Nigeria telecommunications industry today. Example includes cost-cutting on safety-critical activities, ineffective auditing system, failure to account for problems in the safety management system, reluctance to communicate 'bad news' to senior management team, management ignoring early warning signs of impending catastrophe, deficiency of incident reporting to appropriate regulatory agency like NCC, and the inconsistencies in organization of OSH records which has make it difficult to use computerized databases to monitor and evaluate safety performance in telecommunication industry in Nigeria [3].

3.2 Summary of Current Gaps in the Nigeria

Telecommunication Industry

We identify the following current gaps in the telecommunication industry that require urgent attention:

1. **Research gaps**: Uncoordinated effort and lack of strategic research action plan have made the research institutions including academia unproductive in influencing the achievement of OSH regulation in the Nigeria telecommunication industry. Most of the research works on OSH relative to Nigeria are not adequate and remain unlinked to the telecommunications operations and allied services.

2. **Training gaps**: Deficiency of formal structure available in the training profile of OSH personnel has crippled the effectiveness of safety administration in telecommunications workplaces.

3. **Know-how gaps**: This is primarily linked to the availability of limited resources and skilled OSH professionals within the regulatory agency. The absence of effective OSH professionals that could make a significant transformation in decision-making based on evidence continues to be a challenge.

4. **Policy and regulation gaps**: There is no mechanism for ensuring the reporting of incidents. There is no penalty for non-compliance and often, statutory procedures are such that there are more penalties for disclosure than for non-reporting.

5. **Organizational gaps**: The failure to provide relevant units of OSH with adequately trained manpower and other resources is yet another obstacle faced in the administration of OSH in the Nigeria telecommunication industry.

6. **Industry outsourcing safety accreditation gaps:** Most telecommunications operations in Nigeria are out-source driven where there is a scarcity of regulations from the NCC mandating OSH onboarding standard requirements such as safety permits or safety accreditation from the regulatory agency.

7. **Nonexistence of databanks:** Relevant variables (leading and lagging indicators) at a governmental level are very important (but very scarce) to enable the evaluation of OSH performance-related activities in the Nigeria telecommunications Industry.

8. **The deficiency of administrative thoughtfulness**: Safety employees are faced with a serious hierarchical problem in the telecommunication industry due to lack of regulatory commitment and involvement in OSH that has majorly affected safety performance and accountability in the industry.

9. **Erroneous "safety perception"**: Safety is not job number one priority and efficiency are the best-known norm in the telecommunication industry in Nigeria. Safety implementation and enforcement procedures are perceived as a cost rather than an investment.

10. **Lack of industry-specific safety guidelines:** Relevant regulatory safety charter documents that incorporate appropriate applicable safety codes are scarce.

4 A FRAMEWORK FOR EFFETIVE AND SUSTAINBLE OSH PROGRAMS FOR OPERATIONAL EXCELLENCE

Several key factors that, if addressed, could help create a more favorable atmosphere for progressing the principles of health and safety integration in the Nigeria telecommunication industry are highlighted below:

1. Determining why health and safety integration is important and how it should be defined: A clearer demonstration of the value proposition for health and safety integration is needed, along with a better definition of the components that make up OSH programs

2. Formulating what should be measured to evaluate the impact of OSH programs: A set of key metrics is needed (leading and lagging indicators), which could be used to measure the effectiveness of OSH strategies and programs and determine their value for employers, investors, and policymakers, along with the development of a health and safety index that could rate a company's performance in integrating programs.

3. *Describing how employers can systematically develop and implement OSH programs*: A set of practical, scalable, comprehensive guidelines is needed for employers—and specifically, for their health and safety teams—offering step-by-step advice on how to integrate strategic health and safety programs across operational silos.

Admitting that this has been an age-old reality in the practice of OSH in Nigeria telecommunication industry, it is suggested that with strong and sustained NCC commitment, the details of health and safety integration can begin, using the five-point strategies highlighted below:

Phase [1] Planning: **Develop justification for why the integration of OSH into telecommunication undertakings is important and needed**.

The first phase of integration involves explaining the rationale for why an organization should integrate its health and safety activities, and what the impact would be for its business. This phase involves outlining the value of integration; engaging organization leadership, including the C-suite; enunciating a vision, and evolving an organizational policy statement on integrating health and safety.

Fundamental messages to communicate to stakeholders are that safe and healthy employees are less likely to be injured while on the job; they are more likely to be active, involved, and high performing; and that all of these are good for the organizational bottom line. A wide variety of studies [5] have demonstrated that healthier and safer employees are:

- Good for business and help improve productivity

- Create a happier, less stressful, and more prosperous business environment

- Do better at their jobs and contribute more

- Are absent from work less and more productive when at work

- Enjoy their jobs more, reducing turnover costs

When working to improve the safety, health, and well-being of workers, and organizational vision or vision statement is a powerful and meaningful commitment both inside and outside of the organization and can often serve as an important foundational step towards integrated health protection and health promotion. Nevertheless, to be fully realized, the vision must be reflected in both words and actions. The connection of workforce health and safety to the values, services, and core products should also be acknowledged by leaders and communicated widely and at regular intervals. A vision and supporting mission statement can help organizations:

- Create a human-centered culture by inspiring effective programs and policies

- Keep health and safety issues "front and center" for senior leaders because they balance organizational priorities

- Set the tone for interactions between mid-level managers, front-line team leaders, and workers

- Engage workers by seeking active worker participation, commitment, and involvement

- Show community and industry leadership to customers, shareholders, and other stakeholders

The final element of this phase is developing a policy statement. Polices are the enduring cornerstones of culture-building because organizations begin efforts to integrate health and safety across silos. Policies or similar operational documents may be found within many constituents of an organization, including within business or strategic plans, budget planning materials, human resources manuals, health insurance and benefits guidelines, and many other resources. Policies can also be used to ensure participatory approaches to program design and implementation, promote strong program communication, and to hold responsible parties accountable for moving the vision and mission forward.

Phase [2] Assessment: Appraise the present Health and Safety Status of the industry

The second phase of the approach to OSH integration is an assessment target for achieving a better understanding of an organization's current health and safety status and establishing metrics to evaluate its performance as they evolve. Gathering information related to the overall health and safety of the workforce and the associated metrics of health care costs and workers' compensation claims is an important starting point in the initial assessment. Depending on the size of the organization, this information may exist within various departmental silos, or perhaps with one individual responsible for general management. For larger organizations, some of the more common sources of assessment information, and the metrics that can be gathered include:

- *Benefits*: healthcare-related costs, participation in medical plans, short- and long-term disability

- *Human resources*: absenteeism, workforce demographics, employee turnover, job satisfaction, and employee engagement

- *Risk management*: workers' compensation insurance costs and /or claims

- *Safety*: statistics, incidence rates, other safety performance metrics

The objective of the data-gathering process is to determine how the organization is trending from a productivity, and performance perspective. Studies [7] over the last several years reflect rising costs of health care and workers' compensation due to the increasing percentage of workers with chronic health conditions such as total permanent disability and/or partial permanent disability. It is worthy to ensure that managers ask themselves how their organizations are trending relative to the outcomes in these metrics and what can be done to mitigate the illness burden of their workers. Based on the initial assessment, one or more opportunities may be quickly identified for improvement.

Phase [3] Implementation: Develop and implement a new integrated strategy and vision

This phase involves implementing the vision and strategies identified. In [9], the author promotes an implementation methodology to achieve success.

Several of Kotter's [9] general guidelines are applicable to phase 3, which include:

- *Establishing a sense of urgency*: This step is the catalyst necessary to break from the status quo on the path to achieve a new vision.

- *Creating a guiding coalition*: This team-building step includes seeking alignment with key stakeholders and defining the roles and responsibilities of each party necessary to succeed.

- *Developing a change vision*: This vital step helps bind the strategies that will be tied to the overall initiative and creates a compelling communication of the desired result.

- *Empowering broad-based action*: This step is instrumental in developing best practices, removing obstacles to change, and identifying goals and objectives to achieve a vision of integration. A strong emphasis is placed on education and training in this step.

- *Communicating the vision for buy-in*: The main objective of this step is to turn words into actions so that "what is said turns into what is done." Management must be perceived as backing up its words with actions in pursuit of the newly established vision.

- *Phased roll-out*: During this step, organizations build momentum by achieving short-term successes (from 6 to 18 months from the planning and assessment phases), consolidating these gains by sustained action, and eventually incorporating these changes into the workplace culture

Phase [4] Monitoring and Evaluation: Creating a system for data gathering, monitoring, and evaluation of programs implemented

Incorporated health and safety programs should be examined not only to evaluate participation and engagement level, but also to measure the value of the investment. It is rational to monitor participation in particular programs every month. This will permit program managers to decide whether more frequent or different communications about program offerings are required, or whether strategies should be changed.

When establishing an OSH monitoring plan, it is imperative to note that it will usually take at least 2 to 3 years before significant indicator results can be seen. Although for rapid intervention programs, some results may become noticeable after the first year. Information should be compiled into meaningful categories for stakeholders. Gathering information about participation in programs and the resulting impact on health risks, injury rates, or incident impacts can be of interest to risk management. Similarly, return-on-investment information can be meaningful to the organization's chief financial officer. Knowing the interests of the various stakeholders in an organization is important in creating reporting to meet their needs.

Phase [5] Review: Measure progress periodically, identify gaps if any and implement corrective action as needed

The concluding phase of incorporating occupational health and safety activities involves appraising and fine-tuning or evolving corrective action as necessary. Three steps are essential—program evaluation, integrating lessons learned, and providing consequence and reward and/or recognition.

- *Program assessment*: A formal process should be established to determine the successes and failures of new programs. The appraisal should include a close examination of anything that was planned during the process as well as anything that happened but was not anticipated. Particular attention should be devoted to whether appropriate metrics and goals were used and whether they have been achieved, and whether supplementary metrics are needed to measure success. Determining the success of programs can be achieved through interviews, group-discussion meetings, and anonymous appraisals. These can also be used to promote continuous improvement. A timeline for evaluation should be developed based on key milestones in the integration process.

- *Communicating lessons learned*: It is imperative to communicate lessons learned during the OSH integration process so that both senior leadership and employees appreciate program performance and buy-in to the program. Consultations should be scheduled to appraise findings and what measures have been taken to prevent or promote the reoccurrence of issues as part of continuous process improvement. The next steps should be determined from lessons learned, employee feedback, and key metric results.

- *Consequence, reward and /recognition*: Rewards and recognition are of key importance in incentivizing workers and encouraging their acceptance of new programs, whereas, the consequence is meant to guide against infractions. Financial incentives that help promote participation will aid in the success and return on investment, ranging from dis-

counts at local health clubs, additional days off, and direct salary/bonus payment incentives.

4.1 Metrics to evaluate OSH programs in the Nigeria telecommunication industry

We propose the following metrics that need to be measured to evaluate the impact of OSH programs in the Nigeria Telecommunication industry:

1. Accident/incidence rates for employees, contractors, and fleets (a trend every year)

- *Frequency*: Total Recordable Incidence Rate for employees and contractors—(number of recordable incidents × 1,000,000/number of hours worked)

- *Severity*: Restricted duty days for employees and contractors (number of lost/restricted workdays × 1,000,000/number of hours worked)

- *Severity*: Lost/restricted workday case rate (number of lost/restricted workday cases × 1000,000/number of hours worked)

- *Vehicle accident rate*: Vehicle accidents per year × 1,000,000 divided by total miles driven in the same period

2. Hazard identification parameters (Annual data)

- The total number of inspections and/or audits per year to include the number of correct (safe conditions) and the number of adverse/at-risk (unsafe) conditions/inspection or audit conducted.

- Total number of near-miss reported/year

- Total number of observations reported/year (safe conditions) and number of adverse/at-risk (unsafe) conditions/observation reported

- Percentage of owned or leased work locations that have implemented an occupational safety health management system. Percentage of those locations that have been audited by an independent third party

3. Employees participation in hazard and near-miss reporting

- Percentage of workforce submitting observations (safe, at-risk conditions), near misses annually

4. Hazard prevention/closure rate

- Percentage completion of corrective actions for adverse (unsafe) conditions reported for inspections/audits/near miss and observations within the due date

5. Awareness creation through training

- Number of hours of training/employee as a percentage of objective

- Total training days completed per annum divided by the average number of employees for the year

- The percentage of employees trained before the start of work

6. Wellness programs

- Percentage of employees completing an annual health risk assessment

7. Prevalence of chronic health conditions and health risks

- Percentage of employees in high health risk levels at baseline and annual follow-up

- Percentage of employees in low, medium, and high health risk categories at baseline and annual follow-up.

8. Impact of health conditions

- Working days lost per year by disease category (i.e., diabetes, obesity, and hypertension) × 100 divided by working days available in the same year.

9. Community engagement

- Number of community activities engaged in annually

5   DISCUSSION AND CONCLUSION

This study considers major regulatory challenges facing the OSH administration with a focus on the Nigeria telecommunications industry. As a consequence, the need for the NCC to build robust OSH requirements (Charter, Standards, and Codes) that meet the acceptable global standard needed to protect the national critical assets within its purview is identified.

The industry requires guidelines on health and safety at work to preserve, maintain and improve the individual and collective health of workers and avoid work-related accidents. The design of a management system focused on safety and health at work that provides safety, care, and education to employees must involve audit-based evaluation criteria. This is expected to lead to programs that diminish work-related accidents, prevent occupational diseases, and also optimize the productivity of companies. The process must involve the development of criteria for analyzing the tasks or functions of each person. It is vital to anticipate dangerous or harmful events or incidents, to identify potentially dangerous tasks, and prioritize and apply corrective action. Telecommunications operators and allied service providers in Nigeria currently focus attention on the profits they can make rather than the investment required in implementing OSH standards. The time is now for the NCC to commit herself to exercise

the International Labour Organization Convention on Occupational Safety and Health: 155/1981 to which Nigeria is a signatory. The scarcity of knowledgeable personnel in OSH within the regulatory agencies like NCC may pose a setback in achieving the development and administration of industry-specific framework needed to fill these identified OSH gaps in the telecommunications industry. These challenges can be solved if there is a structured and consistent training based on the needs and priorities of NCC coupled with the establishment of relevant units within the regulatory agency with respective adequate human capital and provisions of other limited resources to achieve institutionalized OSH within the telecommunications industry in Nigeria.

The scarcity of Occupational Safety and Health performance monitoring metrics in the Nigeria telecommunications industry coupled with limited adequate professionals at both industry and regulatory levels has primarily been responsible for many of the challenges mentioned in this study. Addressing these gaps is paramount. Depending on how well developed the culture of health and safety is within a company, there are unique routes to operationalize and institutionalize the integration of health and safety strategies to achieve measurable benefits that will enhance the overall operational efficiency. It is sturdily proposed that adequate measures as discussed in this study are taken by the NCC to generate appropriate and industry-specific relevant Occupational Safety and Health metrics based on Sections 70,130, and 136 of the Nigerian Communications Act, 2003 that aligned with International Organization for Standardization (ISO) requirements to achieve the desired operational excellence objectives in the telecommunications industry.

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