

## HEALTH AND SAFETY CONDITIONS AT CONSTRUCTION SITES IN NAIROBI COUNTY, KENYA

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### **Abstract**

The construction industry is widely regarded as the driving force in economic growth and job creation in both developed and developing countries. Some of the important contributions of the construction industry is employment generation, improvement on income per capita and provision of a source of livelihood to a large number of people. This is widely recognized in the global economy of the 21<sup>st</sup> century. In the construction industry, health and safety of workers on construction sites have been seen to determine the success of a project. Recent surveys conducted in this country by the Federation of Kenya Employers (FKE) indicate that more focus was on physical accidents at the construction sites rather than environmental hazards affecting the health and safety of workers. The objective of this study was to establish factors that influence the health and safety of workers at construction sites. A cross sectional descriptive study was carried out among workers at three construction sites in Kasarani District. Data was collected using a structured questionnaire, key informant interview guide and an observational check list. Majority of the workers at construction sites were male (79%) who had worked for a period of 18 to 24 months (57%). Most of the respondents (39%) obtained food from vendors and kiosks (32%). 46% of the workers were not provided with water to wash hands before eating while 46% used borehole water for drinking which was not treated. Though pit latrines were available at construction sites, they were inadequate and not clean. Besides, they were shared between males and females. Majority of the workers (72%) were not provided with HIV and AIDS Information Education and Communication (IEC) materials and 64% did not receive HIV protection. The results of this study indicate that personal hygiene and sanitation practices at construction sites are wanting and this poses a risk to the health of workers. Additionally, the safety standard guidelines are not strictly adhered to. There is therefore need to improve water supply and hygiene practices at construction sites to ensure safety and good health of the workers.

**Key words:** Safety and healthy, construction industry, construction workers, construction sites

### **1.0 Introduction**

The vital function of any government is to ensure workers' safety in a modern construction industry (Helen & Stephen, 2005). A safe workplace is central to the ability to enjoy health, security, and the opportunity to achieve success in life. Health and safety at construction sites can be achieved by provision of enough clean water, proper and enough sanitation facilities, health friendly environment, knowledge of handling of machines, plants and equipment and hygienic practices. Health and safety standards on construction sites are set by the International Labour Organization (ILO) and are based on international conventions and recommendations on occupational health and safety (ILO, 2002). In Kenya, they are enforced through National Workmen's Legislation (Cap 236).

Although the construction industry contributes to economic growth of a nation through production of physical infrastructure : buildings, roads,, railways, ports, bridges and through the employment created in the process of construction it is faced with health and safety challenges (Okumbe, 2001). Workers in a construction site may be exposed to various hazardous substances and physical agents such as. asbestos, lead, silica dust, organic solvents, sewer gases, welding fumes, radiation, noise and vibration. Excessive exposures to these substances/agents may result in acute injury, chronic illness, permanent disability or even death. Loss of concentration at work and fatigue arising from poor health conditions may increase the risk of accidents (Perry, 2003), Construction work is featured by high labour turnover, constantly changing work environment and conditions on site, and different types of work being carried out simultaneously by several contractors. These features would further increase the health risks of workers. Construction site hygiene encourages good housekeeping, provides workers with clean drinking water, sanitary restrooms, and washing facilities to clean up. Access to clean water and restrooms encourages good hygiene on the job and helps avoid cross contamination to safeguard worker health and safety Gahlot *et al.* (2002), In Kenya, the directorate of Occupational Health and safety services is responsible for ensuring the necessary and adequate provisions at all work places, at all times for prevention of occupational diseases and accidents. Despite these efforts, workers safety and health on construction sites continues to deteriorate. There is currently no documented

data on health and safety conditions on construction sites in Kasarani, Nairobi. This formed the basis of this study.

### **1.1 International Safety and Health Standards**

According to ILO (2002), the International standards on safety and health are set by the International Labour Organization (ILO). These standards are based on International Conventions and recommendations on occupational safety and health. The most important and wide ranging convention is the 155 convention of 1981 concerning occupational safety and health and working environment which applies to all workers in all areas of economic activity.

The convention articulates the principles for a national policy on occupational safety and health and sets out actions to be taken by the state, employer and trade unions at the national and at work place level. Each state that ratifies the convention should formulate, implement, and periodically review a coherent national policy on occupational safety and health and the working environment. This policy should be reviewed at regular intervals to identify major problems and develop effective methods for prioritizing and dealing with these problems. The policy must be given effect through the development and enforcements of laws. There must be an adequate and appropriate system of inspection, and the enforcement system must provide adequate penalties for the violation of the laws (Ibid).

### **1.2 Safety Hazards at the Workplace**

These are those aspects of work environment that have the potential of causing immediate and sometimes violent harm to a worker. These safety hazards include: poorly maintained equipment, unsafe machinery, exposure to hazardous chemicals among others. Potential injuries include: Loss of hearing, eye sight or body like cuts, burns, bruises, broken bones and electric shock (ILO, 2002). Njuguna (2007) asserts that providing a safe environment and minimizing potential risk are both the moral and legal responsibility of the organization and that a safety culture should be maintained at workplaces. He continues to describe a good safety cultures as one on which workers are rewarded when they are attentive to safety issues, Joy (2005) also advises that a positive safety culture at work can be developed through the allocation of praise, promotions and cash to employees who behave safely. This implies that when workers are well motivated to behave safely. This implies that when workers are well motivated they behave safely at the work place this minimizes the human error that may cause or create unsafe working environment.

### **1.2 Problem Statement**

The construction industry is one of the world's major industries. The achievement of the industry is in rebuilding areas devastated by both natural and man-made disasters, and in providing power, means of transport and communications to meet the rising needs and expectations of people throughout the world. Despite advances in mechanization, construction industry remains a major employer of manual labour in Kenya. The industry employs between 9 and 12 per cent of a country's working population, and sometimes as much as 20 per cent (ROK, 2008).

Despite the role that these workers play in national development, they are exposed to several challenges. These range from poor pay to poor working conditions/environments which lead to safety and health problems. These may include exposure to materials that can cause serious illness and affect the worker's health in the long-term. In the face of challenges brought about by safety and health problems at construction sites, there is need to establish the nature of hazards and factors that influence workplace health and safety at construction sites in Kasarani, Nairobi county. The purpose of the study is to assess factors that influence workplace health and safety of workers on construction sites in Kasarani, Nairobi County. This is important because health and safety play a vital role in social and economic development of the nation.

## **2.0 Objectives of the Study**

### **2.1 General Objective**

The main objective of the study was to determine factors that influence health and safety of workers at construction sites in Kasarani, Nairobi County.

#### **2.1.1 Specific Objectives**

The specific objectives of the study were to examine personal hygiene and sanitation practices among workers on construction sites in Kasarani, Nairobi County, examine the use of HIV & AIDs Information Education and

Communication (DEC) materials on the construction sites in Kasarani, Nairobi County and suggest ways of improving construction workers health and safety on construction sites in Kenya.

## **2.2 Conceptual Framework**

The health and safety status in any construction shows the level of adherence to the safety standard guidelines. An affective safety and Health construction system has several critical components. These include: Government Policy, Administrative factors. Provision of education and training in safety and health issues and availability of emergence facilities. These

## **3.0 Materials and Methods**

### **3.1 Study Area**

The study was carried out among construction, sites in Kasarani District, Nairobi. Nairobi is the capital and largest city of Kenya with an elevation of 1795 m above sea-level. Nairobi is the most populous city in East Africa, with a current estimated population of about 3 million who live within 696 km<sup>2</sup> (269 sq mi). Nairobi is currently the 12th largest city in Africa, including the population of its suburbs. Kasarani is one of the 9 districts in Nairobi County. The district has a total area of 86 sq. Km and a population of 128,224 (2009 census).

### **3.2 Study Population**

The study population comprised of workers on construction sites in Kasarani, Nairobi County. This included: foremen, skilled and unskilled laborers.

#### **3.2.1 Inclusion Criteria**

- All workers who had been on the construction site for more than one month.
- All consenting workers.

#### **3.2.2 Exclusion Criteria**

- Workers at the construction sites for less than one month.
- All workers who do not consent to participate in the study.

### **3.3 Research Design**

This was a cross sectional descriptive study (Mugenda & Mugenda,2003)

#### **3.3.1 Sampling**

The study population was divided into strata according to the trade. Random sampling was used to select respondents from each stratum. According to Cooper and Schindler (2000) stratified random sampling gives various advantages such as increase in a sample's statistical efficiency, provides data for analyzing the various sub-populations and enables different methods and procedures to be used in different strata.

#### **3.3.2 Data Collection Tools**

Data was collected through use of open and close ended questionnaires for operatives, schedule interviews for construction site managers and government public health inspectors and observation checklists

#### **3.3.4 Pilot Testing**

The purpose of pilot testing is to assess the clarity of instrument that is validity and reliability of each of the items in the instrument as well as suitability of the language used in the instrument (Borg and Gall, 1993). Pilot testing was conducted among workers in construction sites in Embakasi district.

## **4.0 Results**

### **4.1 Demographic Characteristics of Workers on Construction Sites**

Majority (79%) of the respondent were male while 21% were female. (50%) of the respondents had attained secondary certificate of education, 29% had attained primary certificate as their highest level of qualification while 21% had attained vocational certificate. Further, the study established that those who had vocational certificate had qualified in masonry, carpentry, plumbing and electrical wiring.

#### **4.2 Respondents by area of Trade**

Most (43%) of the respondents were serving at masonry department, 29% at carpentry department, 11% were those in plumbing and electrical department as in each case while 7% were those at painting services (Figure 2).

#### **4.3 Duration of Working in Construction Sector**

Majority (57%) of the respondents had served within construction sector for a period of 18-24 months, 22% had served in construction sector for a period of 6-12 months, 14% had served for a period between 12-18 months while the rest (7%) had served 0-6 months.

#### **4.4 Access to Food**

Most workers (39%) accessed food from vendors, 32% from kiosks, 21% at hotels while 7% prepared food from their own homes (Figure 3).

#### **4.5 Provision of Hand Washing Water**

More than half (54%) of the respondents indicated that they were provided with water to wash their hands while 46% were not. Hand after visiting the toilet was practiced by 17% of the workers while 32% washed their hands before taking meals. The sources of drinking water among workers at construction sites are shown in Table 1.

#### **4.6 Sanitation Facilities on Construction Sites**

Majority, 93% reported availability of pit latrine in the construction site while 7% indicated that there were no latrines at all. There was indiscriminate defecation among 40% of the sampled respondents. The ratio of latrine to user a 1:100 in 50% of the construction sites.

#### **4.7 HIV/AIDS Prevention and Protection**

##### **Provision of HIV/AIDS Information on Construction Sites**

Majority (72%) of the respondents indicated that they were not provided with any information relating to HIV/AIDS information at the site the information was in form Information Education and Communication (IEC) materials.

#### **4.8 Provision of HIV and AIDS Protective Materials**

Most (93%) of the respondents revealed that they were provided with the male condoms while 7% indicated they were supplied with female condoms by their supervisor and through dispensers placed at sites office respectively. Majority (64%) of the respondents indicated that HIV/AIDS protective materials were provided monthly, 29% weekly while 7% indicated that HIV/AIDS protective were available daily. Additionally, the study found that condoms supplies were not adequate (Table 2).

#### **5.0 Discussion and Conclusions**

From the findings on personal hygiene and sanitation practices among workers in the construction sites, the study established that most of the workers shared rooms due to their inadequacy. The rooms were small and poorly ventilated. This is consistent with findings by Njuguna (2007). The study also established that water provided to construction workers was unsafe for drinking. This may pose the risk of water related diseases. Further the study found that foods were supplied to the workers at the construction sites was prepared in unhygienic conditions where the public health standards were not met. This is at the risk of food borne diseases.

On the use of HIV & AIDS Information Education and Communication (IEC) materials on the construction sites, the study established that HIV/AIDS information to the workers was limited such that there was no set session or individuals who could give information to the worker. However, the study established that protective measures were provided to the workers. There is need to improve the health and safety conditions at construction sites for continued health of the workers.

#### **Acknowledgements**

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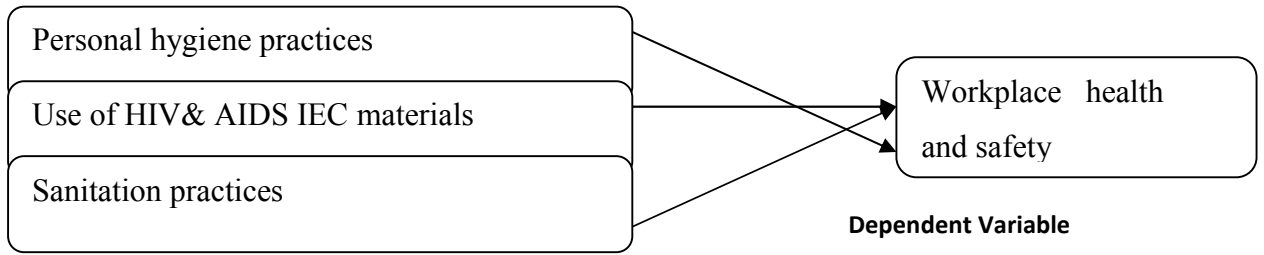


Figure 1: Conceptual framework

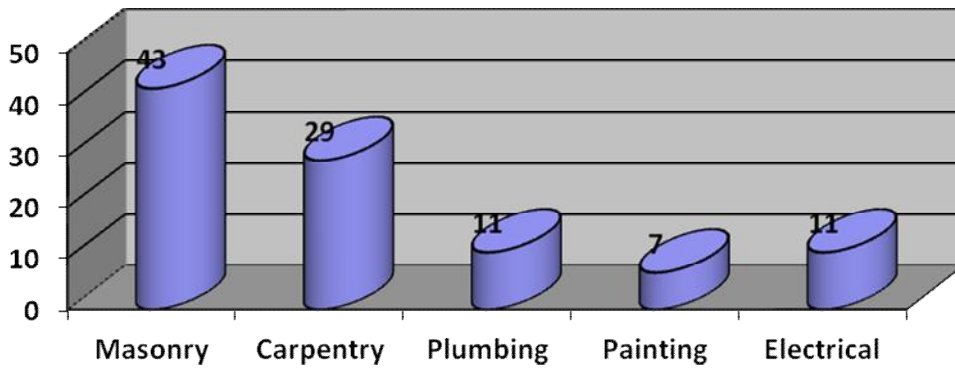


Figure 2: Respondents by area of trade

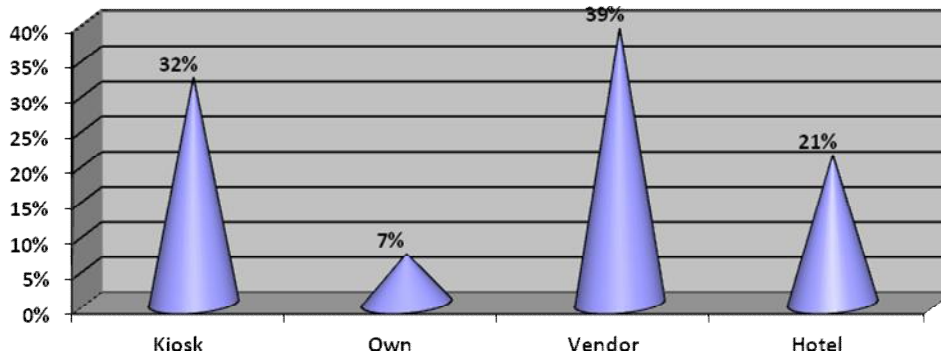


Figure 3: Access to food

Table 1: Sources of drinking water

	Frequency	Percentage
Piped	4	14
Borehole/pit	13	46
Vendor	7	25
Stream/river	2	7
non response	2	7
<b>Total</b>	<b>28</b>	<b>100</b>

Table 2: Frequency of condom supply among workers at construction sites

	Frequency	Percentage
Daily	2	7
Weekly	8	29
Monthly	18	64
<b>Total</b>	<b>28</b>	<b>100</b>