

## **The Safety Culture of Artisans at the Sokoban Wood Village Enclave, Ghana**

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### **Abstract**

*This study was carried out to assess the attitude of artisans towards safety at the Sokoban Wood Village Enclave (SWVE). 208 master craftsmen and apprentices participated in the study. A modified safety culture questionnaire comprising of five themes on work safety was used to collect data for analysis. Data analysis was done using descriptive statistics and one-way ANOVA. Results of the study showed that artisans do not receive training and supervision, have no safe work procedures, are not consulted as well as involved and receives no commitment from management on safety issues. On the contrary, there is a way of reporting safety. The study concluded that the safety culture at SWVE is not health-oriented culture and does not promote safety contrary to safety experts and as such reduce productivity of workers at the enclave. It was recommended that artisans should be educated on work safety and other related studies.*

**Keywords:** Sokoban wood village, safety culture, artisans, work safety, occupational safety, master craftsmen and apprentices.

### **1.1 Introduction**

As long as humans have existed, they have had to work, and throughout recorded history, there have been references to work under a variety of conditions. On 10<sup>th</sup> April 2004, 44 miners died in a mine explosion in Russia. The day before, electric shocks killed 12 workers and injured three others on a building site in China. In January 2004, an explosion at a gas complex in Algeria killed 27 workers. In November 2003, 10 workers died in a gangway in France. And as work nears completion at the venue of the 2004 Olympic Games in Athens, 154 work accidents occurred, killing 12 workers (ILO, 2004). These are but a few examples of work-related injuries, sickness and all too often death, of which most of them are preventable through good occupational safety and health program. Occupational safety and Health (OSH) is a cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work and employment. Occupational safety and Health also protect co-workers, family members, employers, customers, nearby communities, and other members of the public who may be impacted by the workplace environment (ILO, 2003). According to the ILO (2004), work kills more people than wars, some 6,000 a day. And almost 270 million accidents are recorded each year, of which 350,000 are fatal. Many people in the world had to work in unpleasant conditions, putting up at best as they can with dirt, noise, danger, fatigue, stress and others until the industrial revolutions and agitations era where much attention was drawn to the welfare and safety of workers and healthy practices.

In modern times, the international labour organization, World Health Organization and other organizations have made occupational safety and health a priority (ILO, 2013). In the UK, health and safety legislation is drawn up and enforced by the Health and safety executive and local authorities under the health and safety at work Act 1974. In the USA, the occupational safety and health Act of 1970 created both the National Institute for Occupational Safety and Health (NIOSH) and the Occupational Safety and Health Administration (OSHA) (Foulke Jr., 2007; ILO, 2013).

In 1978, the Canadian Centre for Occupational Health and Safety (CCOHS) was created by an Act of parliament. The act was based on the belief that all Canadians had “a fundamental right to a healthy and safe working environment”. CCOHS is mandated to promote safe and healthy workplaces to help prevent work related injuries and illness (CCOHS, 2008). In Malaysia, the Department of Occupational Safety and Health (DOSH) under the ministry of Human Resource is responsible to ensure that the safety, health and welfare of workers in both the public and private sector are upheld. DOSH is responsible to enforce the Factory and Machinery Act 1969 and the occupational safety and health Act 1994. In sub-Saharan Africa, the fatality rate per 100,000 workers is 21 and the accident rate 16,000. This means that each year 54,000 workers die and 42 million work-related accidents take place that cause at least three days absence from work (Alli, 2008).

In Ghana, the Factories, offices and shops Act 1970 and its related regulations were promulgated by the government to secure safe and healthy working practices for Ghanaian workers. The department of factories inspectorate is the enforcing agency. The Act provides for the health and welfare of workers as well as safe working practices. The Act provides sections amongst which are health, welfare, and safety, with regulations and measures to be observed by various factories and shops. Factories and shops like Volta Aluminium Company limited, Ghana cement company, Coca-Cola, Unilever Company limited and a host of others are making their best to ensure the safety and health of their workers and artisans with various policies. In Kumasi, the department of factories inspectorate sees to it that factories and shops go by the set standards on safety and healthy practices. One place of interest relevant to occupational safety and health is Sokoban Wood Village Enclave (SWVE), a wood working cluster at the outskirts of Kumasi. The activities of the cluster involves a wide number of occupational health and safety risks, some of which are obvious and others that are often not seen until it is too late. The practical solutions to these risks and occupational health are the safety precautions and health guidelines outlined by the factories inspectorate and other organizations. Workers in this informal economy are much more likely than formal workers to be exposed to poor working environments, low safety and health standards, and environmental hazards, and to suffer poor health or injury as a result. Most informal workers have little or no knowledge of the risks they face and how to avoid them (Alli, 2008; ILO, 2013).

In spite of the safety guidelines, some artisans still engage in some practices that are not safe. For instance, it is common to see some artisans lifting heavy loads manually, working without protective gadgets, putting dirty oils on the road, eating without washing hands, playing in shops, using sensitive equipment without seeking permission and testing live cables with bare hands among others. One cannot, therefore say whether these artisans are aware of industrial safety measures and healthy practices. In the same way, one cannot say whether the agencies responsible for checking the safety and health situations of artisans at the SWVE are doing their work or not, because they are there to ensure the safety of workshops and their artisans. According to HSE (2005), it should be remembered that, in the workshop, it is better to be safe rather than sorry. Sokoban Wood Village Enclave is a giant private sector business centre that offer jobs to many people, especially the youth who start as apprentices. However most artisans do not observe basic safety practices, it gives cause to question whether the various shop managers teach and organize fora to discuss workshop safety and healthy practices with their artisans or, that the artisans just refuse to obey basic safety practices. The human, social and economic costs of occupational accidents, injuries and diseases and major industrial disasters have long been cause for concern at all levels from the individual workplace to the national and international (Alli, 2008). Measures and strategies designed to prevent, control, reduce or eliminate occupational hazards and risks have been developed and applied continuously over the years to keep pace with technological and economic changes. Yet, despite continuous improvements, occupational accidents and diseases are still too frequent and their cost in terms of human suffering and economic burden continues to be significant.

## **1.2 Purpose of the study**

Industrial growth places increasing pressure on the environment, and Sokoban Wood Village Enclave is not an exception. There are a wide number of occupational health and safety risks at Sokoban Wood Village Enclave, many of which are obvious and others are gradual to manifest themselves. Artisans encounter risks from one job to another.

The purpose of this study is therefore to assess;

1. The attitude of artisans towards work safety at the SWVE.
2. The overall safety culture of artisans at the SWVE.

### **1.3 Research questions**

In order to have a successful study, the research is guided by the following questions:

1. What is the attitude of artisans towards work safety at the SWVE?
2. What is the overall safety culture of artisans at the SWVE?

### **1.4 Significance of the study**

The population of SWVE is fast growing and a study of this nature will be beneficial and useful to artisans, shop managers, agencies, educational institutions, the society and the nation as a whole.

Among the significance are:

1. The outcome of the study will add to the stock of knowledge already established about the safety and healthy practices of artisans at SWVE.
2. The outcome of the study will alert companies and shops to take proactive measures to ensure safety within their workplaces thereby saving lost production hours, legal proceedings and so on.
3. Outcome of the study will pave way for further research to be carried out on safety and healthy practices at SWVE.

### **1.5 Sokoban Wood Village Enclave in perspective**

Sokoban Wood Village Enclave (SWVE) is an industrial cluster which holds an enviable place in sub-Saharan African cluster of industrial estates and its potential is well recognized as an important sector of national development. The Sokoban Wood Village Enclave is Ghana's largest wood products manufacturing district. It is located on the outskirts of Kumasi, the capital city of the Ashanti Region. SWVE was created as a replacement for the long-established informal sector wood markets in the nearby settlements of Anloga. Wood working operations were relocated as part of a Kumasi Roads and Urban Development Project by the Government of Ghana and Agence Française de Développement (ADF).

The Kumasi Metropolitan Assembly (KMA) manage the industrial park which includes a 1 kilometre access road, electricity and water supplies, 62 large manufacturing and storage sheds, an administrative block and support services such as canteens, toilets, retail outlets and parking. SWVE created a new base for approximately 5,000 wood workers who had operated for over 50 years from temporary structures in a largely unregulated environment. Re-location to the new multi-purpose built settlement was presented as an opportunity to increase productivity, enhance working conditions and to reduce environmental impacts (ADF, 2010; KMA, 2009). The majority of the workers acquire their skills through traditional apprenticeships that involve a contractual arrangement between the apprentice or the parent/guardian and the master craftsman (Adams, 2008).

## **2. Methodology**

### **2.1 Research Design**

The study was a survey in nature. This design is useful when a study is concerned with the conditions or relationships that exist at a given place. The design was appropriate because the study sought to assess the nature of prevailing conditions, practices and attitudes of artisans on work safety at the Sokoban Wood Village Enclave. The study was conducted at SWVE in Kumasi in the Ashanti Region of Ghana. Artisans of all categories and traders of over 5,000 of both males and females were considered as the target population. As a result of the impossibility of covering the whole population and also to give credibility to the study, a sample of 208 artisans was selected from 62 large manufacturing and storage sheds. Forty percent of the artisans were master craftsmen and the remaining 60 percent were apprentices and workers of all grades. Because of the large and widely dispersed nature of the population, cluster sampling was initially employed, where first groups of elements (Sheds) were selected. After that quota, sampling was used to obtain representation of the master craftsmen and the apprentices, because of the differences in their numbers. Simple random sampling was lastly used to choose the respondents, where all master craftsmen and apprentices had an equal opportunity of being selected, and each chance was independent of any other choice.

### **2.2 Instrument for Data Collection**

To harness the needed information, a triangulation method comprising of questionnaire, interview and observation methods were employed in gathering data from the subjects. Closed ended form of questionnaire of 31 items was designed to elicit information from the respondents. The questionnaire items were divided into two main headings; bio-data and work safety elements.

The work safety elements were extracted from the WorkCover NSW safety culture survey questionnaire. The final modified version of the instrument grouped the elements into the following themes; training and supervision, safe work procedures, consultations, management commitment and safety reporting. The entire questionnaire sought information on a 4-point likert scale. The weightings of the scale were strongly agree =4, agree =3, disagree =2, and strongly disagree =1. The mean rating for each item was computed and then compared with the theoretical mean rating of 2.50 to determine whether respondents agreed or disagreed with the statement. The instrument was piloted on 10 roadside artisans.

The second instrument used to solicit information was an unstructured interview. No strict procedures were followed and the wording of the questions were not restricted, thus we had the discretion to form question on the spot, probe into issues and in some cases follow the order dictated by the situation. Interview was used alongside the other two instruments in order to have a face to face situation with artisans to obtain reliable and valid measure of behaviours and attitudes. In all 10 people were interviewed. The last instrument used for the study was observation. We visited the research centre (Sokoban Wood Village Enclave) ten different times. Non-participant observation was adopted for the study. We studied the subjects from outside the group by watching, listening and recording the information.

### 2.3 Method of Data Analysis

Analysis of data was done using statistical analysis from the SPSS version sixteen. Descriptive data analysis (Mean and standard deviation) were used to evaluate the responses. A mean of 2.5 and above indicate agreement with the statement while a mean of below 2.5 indicates disagreement. A one-way ANOVA was further conducted at an alpha level of 0.05.

### 3. Results

Table 1 revealed the bio-data where majority of respondents (87%) were males and the remaining 13% being females. The ages of the respondents also indicated that majority (34.6%) of the respondents were within 25-34 years while artisans who were above 55 years constituted the minority (5.8%). There were 65.9% Apprentices/Workers and 34.1% Supervisors/Masters.

**Table 1: Bio-data of respondents**

Elements (n = 208)		Frequency	Percentage
Gender	Male	181	87
	Female	27	13
Age	55+	12	5.8
	45-55	21	10.1
	35-44	45	21.6
	25-34	72	34.6
	<25	58	27.9
Class of respondents	Apprentices/Workers	137	65.9
	Supervisors/Masters	71	34.1

The mean rating of each of the five thematic areas for each item were computed as presented in Table 2. The computed means were then compared with the theoretical mean rating of 2.50 to determine whether the artisans agreed with the stated safety culture elements or not. Among the twenty-five items, only six items were rated above the theoretical mean. Majority of the artisans rated the remaining nineteen items below the theoretical mean of 2.50.

**Table 2: Mean ratings of work safety elements**

No.	Statement	Mean $\pm$ SD/Decision
<b>Training and Supervision</b>		
1	We all get induction training when we start	1.71 $\pm$ .699 (Disagreed)
2	We all get trained in safe work procedures for our jobs	1.71 $\pm$ .697 (Disagreed)
3	Our manager/supervisor makes sure we can do the work safely	3.57 $\pm$ .497 (Agreed)
4	We are always made aware of safety issues	2.99 $\pm$ .755 (Agreed)
5	We have enough time to learn our safe work procedures	1.71 $\pm$ .697 (Disagreed)
<b>Safe work procedures</b>		
6	Our company has worked out all the jobs/tasks in my area that have safety risks	1.71 $\pm$ .697 (Disagreed)
7	Our company has safe work procedures for all task-based activities in my area that have safety risks	1.71 $\pm$ .697 (Disagreed)
8	Workers are always involved in reviewing safe work procedures	1.71 $\pm$ .697 (Disagreed)
9	We always follow safe work procedures	3.29 $\pm$ .697 (Agreed)
10	Our company reviews and updates our safe work procedure regularly	1.71 $\pm$ .699 (Disagreed)
<b>Consultation</b>		
11	Managers communicate with us and listen to us about health and safety	1.71 $\pm$ .699 (Disagreed)
12	We are always involved in safety matters	1.71 $\pm$ .699 (Disagreed)
13	Management takes notice of what we say about safety	1.71 $\pm$ .697 (Disagreed)
14	We are involved in putting together procedures	1.71 $\pm$ .699 (Disagreed)
15	We always get feedback on what's happening with our safety issues within seven days	1.71 $\pm$ .699 (Disagreed)
<b>Management commitment</b>		
16	There is enough time put into safety	1.71 $\pm$ .697 (Disagreed)
17	I feel that there are enough resources/money put into safety	1.71 $\pm$ .699 (Disagreed)
18	Safety is a high priority for our company	1.71 $\pm$ .699 (Disagreed)
19	I feel like my health and safety matters here	1.71 $\pm$ .697 (Disagreed)
20	Managers/supervisors mean what they say and do what they say, in safety matters	1.71 $\pm$ .699 (Disagreed)
<b>Reporting safety</b>		
21	We have safety reporting procedures and we use them	1.71 $\pm$ .699 (Disagreed)
22	We always report safety incidents	3.29 $\pm$ .699 (Agreed)
23	We are always encouraged to report safety incidents	3.29 $\pm$ .697 (Agreed)
24	Safety incident reports always get followed up	3.29 $\pm$ .697 (Agreed)
25	If we report a serious problem where someone could get hurt, they put in a solution and fix it straight away	1.71 $\pm$ .697 (Disagreed)

Table 2 indicates the mean ratings of the 25 elements on work safety that were grouped under five thematic areas of safety culture. Out of the five thematic areas, it was only one (**Reporting safety**) that the artisans agreed on three of the assertions posed to them. Artisans disagreed on majority of the assertions on the remaining four areas.

**Table 3: ANOVA between master craftsmen and apprentices/workers on work safety**

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	3.385056	4	0.846264	2.084682	0.120856648	2.866081
Within Groups	8.11888	20	0.405944			
Total	11.50394	24				

Differences among the mean attitude of work safety by participants at SWVE were assessed with one-way ANOVA. Table 3 indicates that there was no any difference in attitude of the two groups. The ANOVA was not significant,  $F(4, 20) = 2.08, p > 0.05$ .

#### **4. Discussion**

As we try to familiarize ourselves with the hazards of woodworking and the control for protecting artisans from these hazards at SWVE, it became clear from Table 2, the mean ratings of the respondents on the five elements on training and supervision theme indicates that a great majority of the artisans disagreed on three of the five elements which makes it clear that artisans are not given the needed training and supervision on their work safety. Meanwhile, artisans are made aware of safe work procedures. These conflicts with one of the principles of occupational safety and health described by Alli (2008), that education and training are vital components of safe and healthy working environments. The situation is such that master craftsmen and supervisors do not offer training to apprentices as they come to work neither do they offer direct supervision to the artisans. Training and supervision is one of the most important tasks to be carried out by employers. Safety training is defined as knowledge of safety given to employees in order for them to work safely and with no danger to their wellbeing (Law, Chan & Pun, 2006). Workers need to know not only how to do their jobs, but also how to protect their lives and health and those of their co-workers while working. A system of inspection must be in place to secure compliance with occupational safety and health measures and other labour legislation. This was made clear by Lin and Mills (2001) who found that clear policy statements and safety training played an important role in reducing accident rate. Supervisors also play an important role in ensuring safety in the workplace and employees conform to safety rules and procedures when they perceived that the action of their supervisor was fair (Yule, Flin & Murdy, 2007).

On the theme of safe work procedures, respondents just agreed on only one element making it obvious that artisans do not follow safe working procedures. Machines used in woodworking are dangerous, particularly when used improperly or without proper safeguards. Artisans operating woodworking equipments are prone to common injuries like, severed fingers, laceration, amputation, and others. Wood dust and the chemicals used in finishing are health hazards, and workers at SWVE can suffer from skin and respiratory diseases. Meanwhile, Alli (2008), elaborated that workers and employers must be made aware of the importance of establishing safe working procedures and of how to do so. Efforts must be focused above all on primary prevention at the workplace level. Workplaces and working environments should be planned and designed to be safe and healthy and that has not been the case at the SWVE.

One key issue of work safety has to do with the level of consultation and involvement of employees on matters of safety, and this assertion was on the contrary at the SWVE, meanwhile it is clear that employers and workers and other stakeholders must be consulted. This should be done during formulation, implementation and review of all policies, systems and programmes on work safety. This was not the case, as managers refuse to carry out any form of consultations concerning safety matters relating to apprentices. Management do not hear out what the workers say neither do they give them any feedback on safety issues. Managers forgets that healthy workers are better motivated, enjoy greater job satisfaction and contribute to better quality products and services, thereby enhancing the overall quality of the organization and the life of individuals as well as the society at large. The health, safety and well-being of the working people are therefore fundamental for improvements in quality and productivity, and are of the utmost importance for equitable and sustainable socio-economic development in Ghana. While Alli (2008), elaborated that Participation is a fundamental workers' right, and it is also a duty as well as a precondition and a major contributing factor in the reduction of occupational diseases and injuries, this was not the case that was observed.

Similarly to the above thematic areas, management's commitment to safety issues also followed the same negative trend like the others, thus majority of the respondents disagreed with all the five assertions under that thematic area. This means that management do not invest much time, resources, and do not mean what they say in safety matters. This is in contrast with Marsh *et al.* (1995), who noted that besides leadership style, management commitment plays a vital role in all aspects of safety intervention. Management commitment to safety indicates the extent to which the organization's top management demonstrates positive and supportive safety attitudes towards their employees' safety (Hsu *et al.*, 2007). Like other safety experts, Yule, Flin and Murdy (2007) also noted that employees' perception of dedicated management's action to safety had resulted in accident reduction.

When management at SWVE demonstrates in words and action, through policies, procedures and financial incentives, that it is committed to workers' safety and health, then supervisors and workers will respond by ensuring that work is performed safely throughout the shops. The issue observed was not in tune with what Vassie and Lucas (2001) established that, although employee participation and involvement are crucial, the accountability and responsibility in the safety and health must come from senior management.

In contrast to the first four thematic areas on the safety culture of artisans at the SWVE, respondents conceded that they report issues relating to their safety to the appropriate supervisors and managers. Artisans agreed on three of the five items under that thematic area. To be precise, one of the tasks of a competent management is to ensure the establishment and application of procedures for the notification of occupational accidents and diseases by employers and appropriate measures taken to resolve all safety issues affecting the artisans. As emphasis by Vassie and Lucas (2001), a company's objective and communication of the objective to all workers is the crucial aspect of effective health and safety management as lack of communication may hinder employee involvement. According to ILO (2005), occupational accidents and ill-health are avoidable and cooperation among all people with a positive commitment will ensure this mission to be achieved.

Based on the research findings in Table 3, one-way analysis of variance was used to examine the statistical significance of the difference between master craftsmen and apprentices attitude towards safety at the SWVE. The results indicated no significance differences were found between the two groups of workers;  $F(4, 20) = 2.08, p > 0.05$ . This makes it clear that all the artisans perceived the safety elements in the same way.

## **5. Conclusion**

A healthy and motivated workforce is very crucial to the social and economic well-being of Ghana, and as such it is important to prevent occupational hazards to protect workers. From the study, the researchers concluded that most of the artisans at Sokoban Wood Village Enclave have low academic background but well-endowed and that makes artisans ignorant of their safety when working. The findings also revealed that health and safety issues affect all the people at the SWVE. In the view of Fleming and Lardner (1999), human factors contribute 80-90% of all industrial accidents as people neglect the correct procedure in doing their job. This was clearly the case that the study concluded on. Out of the five themes on work safety; training and supervision, safe work procedures, consultations, management commitment and safety reporting, only one (safety reporting) that the artisans agreed on majority of the items. This meant that there were procedures for reporting safety and artisans really use them. On the contrary, the remaining four themes depicted a negative safety culture. Artisans were clear that they were not trained on their job and also receive not much supervision when working. Also, the various shops have not provided them with safe working procedures and the accompanying risks related to their jobs. Consultation of artisans on safety issues was also neglected. In addition, commitment at the management level with regards to the issues of safety was very low.

Meanwhile, it was seen that artisans were not protected against anything. This conflicts with the meaning of safety given by the ILO. According to Alli (2008), safety is the state of being 'safe', the condition of being protected against physical, social, spiritual, financial, emotional, accidents, damage, harm or other event which could be considered non-desirable. The research brought to light that most of the workshops at the Sokoban Wood Village Enclave do not have first aid boxes which is against the factories, offices and shops Act 1970, which requires all shops to have first aid services in their shops. The researchers made it clear that artisans were not aware of the effects of workshop safety. For that reason, effective health and safety management and its relation to productivity must be considered an important element to manage the Sokoban Wood Village Enclave. The safety culture at SWVE is not health-oriented culture and does not promote safety. Therefore, there is a need for ongoing commitment and determination from all parties concerned to improve safety performance at the Sokoban Wood Village Enclave.

## **6. Recommendations**

Occupational and industrial accidents are all caused by preventable factors which could be eliminated by implementing already known and available measures and methods.

Based on the research findings, to improve the safety situation at Sokoban Wood Village Enclave, the researchers recommend the following;

1. Artisans should be given training on work safety and other related studies to help them to know their responsibility on work safety.
2. Authorities responsible for checking work safety should be encouraged and given enough resources to undertake supervision at Sokoban Wood Village Enclave.
3. The state should design a system to include artisans in the educational set up to upgrade them academically.

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