

## **Workplace Accidents And Diseases Affecting Informal Construction Workers In Ruvimbo And Rujeko Suburbs Of Chinhoyi, Zimbabwe**

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**Abstract:** The study sought to investigate workplace accidents and diseases affecting workers in the informal construction industry in particular builders and assistants in the high density suburbs of Ruvimbo and Rujeko in Chinhoyi, Mashonaland West province of Zimbabwe. The study came about after the realisation that there were occupational accidents and diseases that are affecting workers in the informal construction industry which are causing minor to serious injuries and even deaths. The study adopted the mixed methods approach with questionnaires, interviews and observations as key research instruments to gather data. The estimated population for the study was 200 informal construction workers in Rujeko and Ruvimbo suburbs. A sample size of 20 respondents. Key findings of the study revealed that workers in the informal construction industry are well aware of the health and safety hazards that are in their industry. The workers are also aware of what they should do to protect themselves from accidents and diseases. The researchers also found out through observations that the informal construction workers are not making use of protective clothing and wares when doing their work. The study also found out that a number of factors such as inhaling of dust and cement contribute to diseases. The research found out that the major challenges being faced by workers in the informal construction industry include the quality of equipment and protective wares as well as the availability of funds to purchase protective wares and standard equipment for use. The study recommended that government through statutory institutions and bodies like the National Social Security Authority (NSSA) should hold awareness campaigns to ascertain if workers in the informal construction industry are fully aware of the requirements of occupational health and safety. NSSA should carry out random inspections on construction work being carried out to ensure compliance with health and safety requirements. NSSA should carry out random inspections on construction work being carried out to ensure compliance with health and safety requirements.

**.Keywords:** Workers, Health, Safety, Informal, Construction

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### **I. INTRODUCTION**

#### **1.1 Background to the Study**

Accidents and diseases relating to work processes cause loss of work time in organisations and bring suffering among the affected workers worldwide. Technological advances have not prevented work accidents and diseases. ILO and WHO estimates that each year around 1.2 million work-related deaths, 250 million accidents and 160 million work-related diseases occur worldwide. Statistical data show that, worldwide, the highest rates of occupational deaths occur in agriculture, forestry, mining and construction. In sub-Saharan Africa, the fatality rate per 100,000 workers is 21 and the accident rate is 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). Zimbabwe recorded 116 fatal workplace accidents and 1400 injuries and diseases in 2003, out of its 1.6 million registered workers in the formal sector (NSSA Journal: Sept 2005, Volume 11 Number 3 P4). By 2013, the number of serious occupational injuries reached 5 666 and resulted in 76 fatalities. These figures show only a tip of the iceberg as most deaths, injuries and diseases go unreported due to non-reporting by workers in the informal industry. According to NSSA (Occupational Safety and Health (OSH) Annual Report for year 2013), the average number of workers in formal employment and contributing to NSSA fell to 1 208 402 from 1 332 228 in 2012. Companies in Zimbabwe are registered with the National Social Security Authority Accident Prevention Compensation Scheme and they report workplace accidents and diseases to the authority for recording and compensation purposes.

The Labour Act (Chapter 28:01) outlines the fundamental rights of employees at the work place where it says that an employee has the right to a safe and healthy working environment. Part-time workers are a group of employees who may suffer from not being covered by safety and health provisions. This is why the Part-Time Work Convention, 1994 (No. 175), stipulates that “measures shall be taken to ensure that part-time workers receive the same protection as that accorded to comparable full-time workers in respect of occupational safety and health issues.

Many people in Zimbabwe have become jobless due to the economic hardships that have forced many companies to close. The people have resorted to purchasing residential stands to build houses in order to do away with expensive rentals. This has seen a steep rise in construction of houses in both high density and low density suburbs. Because of the economic hardships, the workers in the informal construction industry are failing to acquire standard equipment and tool for use. This has resulted in them having to make use of makeshift equipment such as ladders, ramps and scaffolds and they also have to work with chemicals without protective wares. These wares include overalls, gloves masks, helmets and safety shoes. It is against this background that the workers working in the informal construction industry are exposed to workplace hazards and risks in terms of accidents and diseases. Using makeshift equipment such as ladders can lead to falls that are dangerous and also building material like cement can cause diseases to the worker.

The World Health Organisation (2009), asserted that according to the principles of the United Nations and the International Labour Organisation, every citizen of the world has a right to a healthy and safe work environment that enables him/her to live a socially and economically productive life. In light of this assertion, there have been perceived shortcomings in the provision of healthy and safe work environments with regards to protective wares, safe working environment and safe working equipment for the informal construction workers.

### **1.2 Statement of the Problem**

Due to economic hardships that have befallen Zimbabwe, many people have left formal employment to pursue personal jobs so as to earn a decent living. Many of these people have ventured into the informal construction industry as builders or as assistants. High costs of rentals have forced many people to resort to building their own houses so as to cut costs. This has seen a significant growth in construction activities in residential areas increasing. The informal construction industry has not been spared by the economic hardships as many of the workers have resorted to working under unsafe and unhealthy conditions just for the sake of making money and earning a living. Protective wares for use while performing the construction work have become expensive and inaccessible to the general construction workers. Improvised and substandard equipment has become the norm in the performance of work activities by these workers. Thus this study became necessary to venture into the informal construction industry and look into factors affecting the concerned workers in relation to accidents and diseases arising from their work activities.

### **1.3 Research Objectives**

The objectives of the study were;

- To establish if workers in informal construction had any knowledge on occupational health and safety;
- To identify the types of accidents and diseases that occur in the informal construction industry;
- To establish the causes of the accidents and diseases in the informal construction industry; and
- To establish the type of equipment and material used as well as the availability and use of protective wares.

### **1.4 Research Questions**

- What knowledge do informal construction workers have about occupational health and safety?
- What are the types of accidents and diseases that occur in the informal construction workplace?
- What are the causes of the accidents and diseases?
- How can the health and safety of informal construction industry workers be improved?

### **1.5 Assumptions**

- There are serious occupational accidents and diseases occurring in the informal construction sector.
- Some workers in the informal construction sector lack knowledge regarding occupational health and safety.
- Workers in the informal construction sector are failing to acquire standard equipment and protective clothing for use in their work because of high costs involved.
- Equipment and protective wares being used in the informal construction sector were substandard.

## **II. REVIEW OF RELATED LITERATURE**

Occupational Health and Safety (OHS) is generally defined as the science of the anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and

well-being of workers, taking into account the possible impact on the surrounding communities and the general environment, ILO Convention on Occupational Health Services (No. 161).

The research was informed by the multiple causation model presented by Petersen in 1971. This model was inspired by his belief that many contributing factors, causes, and sub-causes are the main culprits in an accident scenario. Under this concept, the factors combine together in random fashion, causing accidents. By using multiple causation model, the surrounding factors to the accident would be revealed (Abdelhamid and Everett, 2000).

Maloney (2012) asserted that the most common construction site accidents according include; falls from high heights or scaffolding; slips and falls; falling debris, materials or objects; getting caught in-between objects or materials; fires and explosions; machinery accidents and trench collapses.

Accident don't just happen, they are caused. According to Ridley, (1986), 99 per cent of the accidents are caused by either unsafe acts or unsafe conditions or both. As such, accidents could be prevented. Tam et al (2004) did a study in China and noticed that the causes of accidents were due poor safety awareness from top leaders; lack of training; poor safety awareness of project managers; reluctance to input resources for safety; reckless operation; lack of certified skill labour; poor equipment; lack of first aid measures; lack of rigorous enforcement of safety regulation; lack of organizational commitment; low education level of workers; poor safety conscientiousness of workers; lack of personal protective equipment (PPE); ineffective operation of safety regulation; lack of technical guidance; lack of strict operational procedures; lack of experienced project managers; shortfall of safety regulations; lack of protection in material transportation; lack of protection in material storage; lack of teamwork spirits; excessive overtime work for labour; shortage of safety management manual; lack of innovative technology; and poor information flow.

According to ILO Protocol to the Convention 155 (2002), specifies that occupational disease is "any disease contracted as a result of an exposure to risk factors arising from work activity." ILO Convention 121 considers an occupational disease as arising out of the exposure to some substance or dangerous conditions in process, trades or occupations.

**Table 1: Types of Diseases in Construction**

<b>Job Title</b>	<b>Hazardous Job Task</b>	<b>Associated Disease</b>
Roofer	Apply asphalt to cables, pipes or roofs	Photoirritant dermatitis
Brick, block & stone mason	Grind or cut tiles, stones, bricks	Silicosis
Concrete or terrazzo worker	Mix & lay cement or concrete	Silicosis
Carpenter	Work with glue solvents Remove old paint	Acute solvent syndrome
Plumber, pipe Fitter, or steam fitter	- Repair or remove water lines or cast iron soil pipes	Lead poisoning

**Source: Recording and notification of occupational accidents and diseases: An ILO code of practice (Geneva, ILO, 1996).**

Some working conditions can cause immediate injuries. Examples hot surfaces, hot oil or greaseslippery or uneven floors, unsafe ladders or lack of training for their proper use, working at heights, working too quickly, unguarded machines, knives and other sharp objects, cluttered work areas, poorly designed tools, heavy lifting, trenches that can cave in, workplace violence (assaults, threats, verbal abuse, robberies.(WOSHTEP, 2010).

As an essential part of a health and safety program, workplaces should be inspected. Inspections are important as they allow employers and employees to identify existing and potential hazards, determine underlying causes of hazards, monitor hazard controls (personal protective equipment, engineering controls, policies, procedures), recommend corrective action, listen to the concerns of workers and supervisors, and gain further understanding of jobs and tasks. (WOSHTEP, 2010).

The purpose of personal protective equipment is to reduce employee exposure to hazards when engineering and administrative controls are not feasible or effective to reduce these risks to acceptable levels. Personal Protective Equipment is needed when there are hazards present. Personal Protective Equipment has the serious limitation that it does not eliminate the hazard at source and may result in employees being exposed to the hazard if the equipment fails, (2001 ILO Tripartite Meeting on the Construction Industry).

### **III. METHODOLOGY**

The study adopted the mixed methods approach. A sample of 20 informal construction workers (builders and assistants) was chosen from 200 informal construction workers who are working in Rujeko and Ruvimbo suburbs of Chinhoyi involved in the construction of residential houses. Questionnaires were given to 10 respondents while 5 were interviewed and 5 were observed. The researchers adopted the use of the interviews, questionnaires and observations in-order to solicit more accurate information. Questionnaires were used so that respondents could express themselves without fearing influence from the researchers. Interviews were used to probe further into answers given by the respondents. Observations were used so that the researchers could see for themselves, how the respondents went about their work.

### **IV. RESULTS AND DISCUSSION**

#### **4.1 Respondents Work Experience**

Respondents by work experience show that zero respondents had less than 2 years' experience at work. There was one, (10%) respondent with 2-3 years' experience, one respondent (10%) again had 4-5 years' experience, four (40%) had 6-10 years' experience and those with above 10 years' experience were also four (40%). This distribution of 8 respondents above 6 years' experience shows that the respondents were likely to give accurate and reliable answers based on their experience in the informal construction industry.

#### **4.2 Knowledge of occupational health and safety**

On knowledge of occupational health and safety, seven (70%) indicated that they knew the importance of protective clothing when doing their work, two (20%) indicated that there was need for safe work practices to avoid accidents and diseases while one (10%) said that there was need to inspect work equipment before use to ensure safety. These responses show that informal construction workers have some knowledge about occupational health and safety. Workers interviewed showed that they had knowledge of health and safety and it's important to them.

#### **4.3 Source of knowledge in occupational health and safety among the informal construction workers**

Results showed that five (50%) of the respondents got their knowledge on occupational health from their daily work (work experience), one (10%) indicated that he received training in occupational health and safety while four (40%) said they worked for some construction companies some time back hence they knew about occupational health. This shows that some workers in the informal construction industry have some background knowledge with regards to occupational health and safety at work.

#### **4.4 Occupational health and safety, an important aspect in the work-place**

On the importance of occupational health, two (20%) of the respondents agreed that occupational health and safety is important in the informal construction industry, while eight (80%) of the respondents strongly agreed that health and safety issues are important in the informal construction industry. No respondents disagreed or strongly disagreed with the assertion that health and safety is important in the informal construction industry. The responses show that the majority of informal construction workers appreciated the importance of safe work practices through occupational health and safety.

#### **4.5 Types of accidents that occur in the informal construction industry**

On types of accidents, seven (70%) of the respondents said that falling from scaffolds was common, two (20%) said the accident was rare while one (10%) said the accidents was very rare. On being hit by falling debris, five (50%) said the accident was common, three (30%) said it is rare while two (20%) said it is very rare. Hitting one's self with a tool had six (60%) respondents saying it was common, three (30%) said it is rare while one (10%) said it is very rare. Trench collapses are very rare as indicated by nine (90%) respondents while one (10%) said they are rare. Stepping on sharp objects is common as indicated by five (50%) of respondents, four (40%) said it is rare while one (10%) said it is very rare to get injured by sharp objects. This is in agreement with Malony (2012) who also indicated the same as types of accidents in construction.

#### **4.6 Causes of accidents in construction**

Respondents were asked about the causes of accidents in construction and three (30%) agreed that stress caused accidents, seven (70%) strongly agreed with that assertion. Faulty and makeshift equipment had two (20%) agreeing that they caused accidents, seven (70%) strongly agreed while one (10%) disagreed that faulty and makeshift equipment caused accidents. Cluttered workplaces show that two (20%) agreed that they cause accidents, four (40%) strongly agreed, two (20%) disagreed while another two (20%) strongly disagreed that cluttered workplaces cause accidents. Horseplay shows that three (30%) agreed that it causes accidents at work, four (40%) strongly agreed, three (30%) disagreed with that assertion. Findings also showed that

drunkenness at work had four (40%) agree, one (10%) disagreed and one (10%) strongly disagreed that drunkenness causes accidents at work. The responses also show that two (20%) agreed that carelessness causes accidents, three (30%) strongly agreed, three (30%) disagreed while two (20%) strongly disagreed with the assertion. A research by Tam et al (2004) confirmed the factors explained above as causes of accidents in construction.

Asked about the causes of accidents at the workplace, one interviewed respondent said that the causes of accidents were drunkenness at work, negligence on the part of some workers, poor scaffold setting, and working on rooftops soon after it has rained. Another respondent concurred with the above when he said that the major causes of accidents was the use of substandard equipment by the workers. Another respondent pointed out to the issue of stress as a cause of workplace accidents in the informal construction industry.

From the first site observed by the researchers, the workers were not making use of protective wares to prevent accidents and diseases at their workplace. There was no use of helmets to protect their heads gumboots to protect their feet from sharp objects. One worker was observed applying termite poison onto roofing timber without protective gloves and a mask. From the second site observed, the worker was using a hammer to demolish a section of the wall but he was not wearing a helmet, goggles and safety shoes. From the third site observed, workers were preparing a mixture of cement and sand for building. The workers had no gumboots, protective gloves and masks for protection. From the fourth site observed, workers working on a high wall had no safety belts, and helmets for protection. The workers were using makeshift ladders to climb the walls. These findings indicate that workers were not making use of protective wares. However, Samelson (1993) advocated for the use and availability of high quality protective wares.

#### **4.7 Types of diseases that affect workers in the informal construction industry**

On types of diseases, eight (80%) respondents said that tuberculosis was a common disease, while two (20%) said the diseases is rare and zero said the diseases is very rare. Dermatitis had zero responses for the common and rare responses while those who said the disease was very rare were ten (100%). Tetanus is a common disease as indicated by five (50%) of the respondents who said the diseases is common while another five (50%) said the diseases is rare. Flu is a common disease as indicated by six (60%) responses while four (40%) said the diseases is rare. Back problems had two (20%) respondents saying they are common while five (50%) said they are rare and three (30%) said back problems are very rare. Cancer is a very rare disease in the construction industry as indicated by very rare responses with ten (100%). Asbestosis is also a very rare disease in the informal construction industry as indicated by ten (100%) of the respondents. Recording and notification of occupational accidents and diseases. An ILO code of practice (Geneva, ILO, 1996) confirms the above disease as disease that are found in the construction industry.

#### **4.8 Causes of diseases in construction**

Responding on causes of diseases, two (20%) of respondents agreed that inhaling dust and cement causes diseases, eight (80%) strongly agreed with this assertion. Other responses show that three (30%) agreed that working in direct sunlight causes diseases, three (30%) strongly agreed, two (20%) disagreed while a further two (20%) strongly disagreed with that assertion. On lifting heavy objects three (30%) agreed that it caused diseases, six (60%) agreed while one (10%) disagreed that lifting heavy objects caused diseases. The responses also show that four (40%) agreed that being cut by asbestos or iron sheets caused diseases, four (40%) strongly agreed while two (20%) disagreed with the assertion. Coming into contact with chemicals had two (20%) agreeing that it caused diseases, eight (80%) strongly agreed with that assertion. These findings concur with ILO (2002) when they identified exposure to risk factors arising from work activities as cause of diseases in construction.

In responses to the types of diseases, one interviewed respondent said that cancer, flu, skin rash and back problems were diseases found in the informal construction industry. He concurred with another respondent who highlighted that he suffered from some severe skin itchiness as a result of coming into direct contact with cement. The respondents were in agreement that some diseases were caused by inhaling dust from bricks and cement, coming into contact with chemicals such as carbolinium and termite poison. Another respondent said that diseases are caused by not using protective clothing and wares to protect ones' self from harmful substances.

#### **4.9 Protective clothing in construction**

When asked about the type of protective clothing required for use in the informal construction industry, respondents revealed that as builders and building assistants, the protective clothes and wares he required most were gumboots, helmet, respirators and rubber gloves. The respondents were all in agreement as to the basic protective clothing they require for use. The respondents went on to emphasise the use of the protective clothing despite the size of the job.

Asked about how often they use protective clothing and wares, one respondent said that he doesn't always use the protective clothing and wares when doing his work because the items like respirators were expensive to buy since they could only be used once and disposed so he could not afford to buy respirators daily owing to the economic hardships in the country. One respondent said that he doesn't take chances with his health so he uses protective clothing always when doing his work.

## V. CONCLUSION

Accidents and diseases were indeed prevalent in the informal construction industry. Research found out that some accidents were a result of negligence while others a result of substandard or faulty equipment. The workers in the informal construction industry are aware of what health and safety was as well as what they had to do to protect themselves from accidents and diseases. Workers in the informal construction industry did not regularly use protective clothing and wares because they said the items were too expensive.

## VI. RECOMMENDATIONS

Based on the research findings, the research recommended that:

- The Government through statutory institutions and bodies like the National Social Security Authority (NSSA) should hold awareness campaigns to ascertain if workers in the informal construction industry are fully aware of the requirements of occupational health and safety.
- NSSA should carry out random inspections on construction work being carried out to ensure compliance with health and safety requirements.
- Informal construction workers should make full use of protective clothing every time they are carrying out their work.
- Informal construction workers should buy their equipment and protective wares from reputable stores where they can be guaranteed of high quality items.
- NSSA should enforce the requirements of the Factories and Works Act in terms of occupational health and safety such that accidents and diseases can be reduced in the informal construction industry.
- NSSA needs to work in conjunction with Municipality Housing Inspectors to enforce the requirements of the Factories and Works Act.

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