UNIVERSITY OF CAPE COAST

OCCUPATIONAL HEALTH AND SAFETY ISSUES IN THE INFORMAL MANUFACTURING SECTOR OF CAPE COAST METROPOLIS

ABIGAIL NANA-OTOO

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BY

ABIGAIL NANA-OTOO

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Name: Abigail Nana-Otoo

Signature:…….…… Date…….

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Name: Dr. K.S. Aikins

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ABSTRACT

Despite numerous occupational health and safety interventions made in recent years, poor occupational health and safety practices are still prevalent in Ghana's informal sector. This study therefore sought to explore the main health and safety issues faced by informal manufacturing sector workers in Cape Coast metropolis in order to suggest preventive and control measures. The study adopted the qualitative research design to study 10 workers each from the informal food processing, textile and garments, wood processing and metal work categories within the Cape Coast metropolis. Convenience sampling was adopted to select the workers and purposive sampling was used to select officials of the National Board for Small Scale Industries and the Department of Factories Inspectorate.

The study revealed a significant institutional gap in the provision of health and safety to informal manufacturing workers. It also showed that occupational health and safety institutions are under resourced in their service delivery. The research further revealed that informal manufacturing sector workers do not have the necessary awareness, technical means and resources to implement health and safety measures.

Pursuant to these outcomes, the study recommends that a long-term strategy be developed to address the issue. The strategy should include awareness creation, training for informal workers on the use of Personal Protective Equipment, provision of health and safety services to informal workers and periodic visits by health officials to assess practices of informal workers. Additionally, employers and employees should be encouraged to make conscious efforts in improving health and safety at their work place.

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DEDICATION

To my dearest uncle, Oscar Kwantwi, for his selfless commitment to ensuring that I attain the highest academic laurels.

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LIST OF ABBREVIATIONS

CCMA	Cape Coast Metropolitan Assembly
COI	Cost of Illness
DFI	Department of Factories Inspectorate
EPA	Environmental Protection Agency
ESCAP	Economic and Social Commission for Asia and the Pacific
GDP	Gross Domestic Product
GHS	Ghana Health Service
GLSS5	Ghana Living Standards Survey Five
GNI	Gross National Income
GSS	Ghana Statistical Service
HSE	Health and Safety Executive
ILO	International Labour Organisation
MOH	Ministry of Health
NBSSI	National Board for Small Scale Industries
NHIA	National Health Insurance Authority
NHIS	National Health Insurance Scheme
NIA	National Income Accounts
NYEP	National Youth Employment Programme
OHS	Occupational Health and Safety
PNDCL	Provisional National Defence Council Law
PPE	Personal Protective Equipment
SADC	Southern African Development Community
SPSS	Statistical Product and Service Solutions
SSNIT	Social Security and National Insurance Trust

STMA	Sekondi-Takoradi Metropolitan Assembly
UN	United Nations
UNDP	United Nations Development Programme
USEPA	United States Environmental Protection Agency
WHO	World Health Organisation
WIEGO	Women in Informal Employment Globalising and Organising

CHAPTER ONE

INTRODUCTION

Background to the study

The process of globalisation has facilitated a rapid increase in informal employment, and has been associated with the "generation of employment that is often flexible, precarious and insecure" (Lund & Nicholson, 2003, p.13). This process of globalisation coupled with rapid technological progress, significant developments in transport and communication, shifting patterns of employment, changes in work organisation practices, different employment patterns of men and women, structure and life cycles of enterprises and the discovery of new technologies generate new types and patterns of workplace hazards, exposures and risks (Alli, 2008). Similarly, demographic changes and population movements, and the consequent pressures on the global environment can also affect health and safety in the world of work especially in informal jobs, an area hardly under the purview of institutions that have the mandate to oversee occupational health and safety (OHS) at the workplace.

Though definitions vary, it is generally agreed that the scale of the informal sector is often bigger than the formal sector in many developing countries especially in terms of employment. Estimates show that informal employment comprises "one-half to three-quarters of non-agricultural employment in developing countries: 48 percent in North Africa; 51 percent in Latin America and 65 percent in Asia" (Chen, 2002, p.8). In sub-Saharan Africa for instance, informal employment comprises about 72 percent of non-

agricultural employment. With the exclusion of South Africa however, this figure rises to about 78 percent (Chen, 2002), making this region the leader in the growing global trend towards an increased informal sector in the labour market.

In Ghana, growing informality is partly explained by low educational attainment. As per the 2008 report of the Ghana Living Standards Survey Five (GLSS5) on educational attainment, about 31 percent of Ghanaians aged 15 years and above had never attended school. A total of 55.7 percent of Ghanaians had attained only basic education and 13.6 percent had attained secondary education or higher. It was realised from the survey that a large percentage (86.7%) of the Ghanaian population do not have secondary education or higher education, which to a large extent, is a requirement for employment in the formal sector. Hence, those who do not have the requisite qualification to work in the formal sector engage in informal sector activities. Generally, Ghanaian men have higher educational attainment than women; hence, women dominate the labour force in the informal sector (Ghana Statistical Service [GSS], 2008). In addition, the report outlined that the inability of the formal private sector to generate jobs in their required quantities has also pushed many into the informal sector. The periodic layoffs of employees by employers as well as the policy of hiring freeze being maintained by most public and private institutions as a cost-saving measure ultimately results in the formal sector losing grounds in terms of its share of total employment. In the absence of appropriate social protection mechanisms such as unemployment benefit, engaging in informal activities has become a major source of survival for many Ghanaians.

Many informal jobs are however not only "flexible, precarious and insecure", but are also very hazardous in the way they are executed as well as the work environments within which they take place. Most of these work environments which include waste dump sites, potentially inflammable areas, and roadsides "expose workers to environmental hazards, disease, traffic accidents, fire hazards, crime and assault, weather related discomfort, and muscle-related injuries" (Alfers, 2002, p.4). In spite of all these potential hazards, informal workers in most African countries are not properly protected by the institutions that officially govern occupational health and safety at the workplace (Alfers, 2002).

The decline of jobs with secure and lasting contracts and work-related social benefits as well as the corresponding rise in informal work means that for many, employment may not only fail to secure a successful pathway out of poverty but will also further contribute to existing exposure to adverse externalities (Chen, Vanek & Carr, 2004). While there have been some recent interventions made by some major development agencies and international financial institutions, such as the World Bank, in considering the important role of social protection for informal workers (Chen, *et al.*, 2004), the impacts of, and strategies to protect against a major potential source of informal workers' exposure to hazards such as the risks presented by work related injury and illness, have largely not been factored into most national development agenda.

The International Labour Organisation (ILO, 1996) defines OHS as a discipline with a broad scope involving many specialised fields. In its broadest sense, it aims at: 1) the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; 2) the

prevention of adverse effects on health caused by workers' working conditions; 3) the protection of workers in their employment from risks resulting from factors adverse to health; and 4) the placing and maintenance of workers in an occupational environment adapted to physical and mental needs.

In Ghana's context, the national constitution gives every citizen the right to work under satisfactory, safe and healthy conditions and to receive equal pay for equal work without discrimination of any kind. The various labour laws in Ghana such as the Labour Act, Workmen's Compensation Law, National Pensions Act and the Factories, Offices and Shops Act however seem not to distinguish between formal and informal sector workers in coming out with conventions to protect their health and safety. As a result, the labour laws of Ghana do not take into account the peculiar circumstances of informal sector work (Osei-Boateng & Apratwum, 2011).

A point to note is that, it seems informal sector workers are either ignorant about safety issues in their field of work or they simply cannot afford protective gadgets. It is generally assumed that occupational health and safety issues are very rampant in manufacturing industries of the formal sector where they even have laid down rules on safety precautions. It is therefore suggestive that workers in the informal manufacturing sector are more highly exposed to bad environmental and other hazardous conditions that constitute a threat to their health and safety. Other related issues in the informal sector in Ghana apart of OHS are lack of job security and social protection to include pension, maternity leave and paid sick leave. Informal sector workers escape the regulation of government and as a consequence, are usually not considered in

policy making. As a result, most informal sector workers are victims of policy interventions (Osei-Boateng & Apratwum, 2011).

Work-related injury and diseases play a much larger role in morbidity and mortality. According to the ILO (2012), an estimate of 2.34 million people die each year from work-related accidents or diseases while about 317 million suffer from work-related injuries in developing countries. Being aware of the effects of poor workplace conditions is therefore essential to decision-makers in attempting to wisely allocate scarce resources. A limited number of studies have however focused on and tried to measure the hazards associated with general informal work. A survey of 1,585 informal workers in rural and urban Zimbabwe found similar occupational injury and mortality rates to those found in the formal economy, but higher rates of occupational illness (Loewenson, 1998). In this and other studies in Southern Africa, informal workers reported problems of 'poor work organisation, poor access to clean water and sanitation, ergonomic hazards, hazardous hand tools and exposure to dusts and chemicals' (Loewenson, 1999, p. 19).

Additionally, although studies on OHS do not comprehensively address the economic costs of occupational injuries and diseases, one is likely to observe a significant impact of cost of occupational injuries and diseases on workers' economic wellbeing and subsequently, the national economy at large. In terms of cost for instance, statistics in Ghana shows that OHS related accidents, diseases and hazards cost the economy about seven per cent of the country's Gross Domestic Product (GDP) (Adei & Kunfaa, 2007). The calculation of economic cost of injury and diseases is among the most urgent questions of the consequences of unsafe and unhealthy working conditions that

have least been investigated particularly in the informal sector of Ghana. If the aim of every country is sustainable growth, then it is prudent to factor in the high cost of work-related accidents and ill-health in the quest for higher productivity and economic and social welfare.

There is therefore the need for government, employers and employees to collectively put mechanisms in place to manage risks at the workplace such as facilitating training and education on OHS in the informal sector, specifically the manufacturing sub-sector. According to Osei-Boateng and Apratwum (2011) trade unions in Ghana have achieved some modest success in improving the conditions of work of informal sector operators. Burton (2009) also noted that informal sector operators have special needs, which require special attention from trade unions in order to get these special needs addressed. That is, the collective voice of informal sector workers can provide appropriate and a suitable legal and social protection schemes for informal sector workers in Ghana.

Subsequently, a number of interventions have been initiated by local governments to address occupational injuries and illness. In Ghana, the savings and retirement scheme was introduced by the Social Security and National Insurance Trust (SSNIT) in an attempt to serve this purpose. One other intervention introduced is the National Health Insurance Scheme (NHIS). Nevertheless, some weaknesses still exist within the mainstream conceptualisation of OHS and its regulatory mechanisms that limit the protection of health and safety standards worldwide. That is, conventional OHS regulations continue to operate through formal employment structures and therefore offer limited or no protection to informal workers. Such

institutional constraints raise a number of critical questions about the reality of extending OHS protection to informal workers. For instance, does the institutional context of OHS support the provision of occupational health and safety protection to informal workers? Who should take responsibility of OHS protection at the workplace; employers or employees? Do non-conventional OHS stakeholders such as local governments promote preventive occupational health and safety measures? (Marriot, 2008).

As part of efforts to address these key questions affecting OHS, most local governments especially in Africa, resort to the ILO to address issues of social and labour protection of informal workers. This is mainly attributed to the fact that, the protection of workers against sickness, disease and injury related to the working environment especially in developing countries has been a central issue for the ILO since its creation in 1919 (ILO, 2004).

The growing importance and recognition of the informal sector in Ghana as well as the continuing extensive institutional and policy changes designed to build and support a more inclusive economy and society, together provide an interesting and important context to investigate the health and safety conditions of informal sector workers in an attempt to improve and protect their labour standards. The informal manufacturing sector in Cape Coast metropolis provides an ideal context of the work place hazards informal workers are exposed to.

To date, there are only two factories, Ameen Sangari Soap Factory and Pan Sawmill located in the metropolis. This clearly indicates that even within Cape Coast's formal manufacturing sector, there are no significant large industrial establishments within the metropolis. Informal sector activities have

therefore become a major component of survival strategies adopted by most households in Cape Coast in order to cope with declining welfare and wages. As a result, several small-scale enterprises have sprung up. Particularly, workers of the informal manufacturing sector of Cape Coast who constitute about 85 percent of the working population in Central Region are employed in key industrial activities including agriculture (52.3%), wholesale and retail trade (11.8%), manufacturing (10.5%) and fishing (5.9%) (Ghana Statistical Service, 2010). It is therefore well established that the manufacturing sector, which is the third most significant industrial activity in Central Region is most predominant in the Cape Coast metropolis. Indeed, the need to carry out a research focusing explicitly on the sector that dominates the Cape Coast metropolis, the informal manufacturing sector, cannot be over emphasised.

The focus of this study consequently leads to the identification of particular institutions and bodies that were considered in this research. Debates and theories of OHS issues such as the domino theory on accident causation at the workplace will be reviewed to provide an avenue for exploring the potential role of a variety of institutions and individual stakeholders in the delivery of safe and healthy work environment for workers in the informal manufacturing sector of Cape Coast. The domino theory which is a health and safety improvement system consists of a chain of events and circumstances that ultimately lead to injury.

This study was conducted with the understanding that informal sector workers cannot afford to continue experiencing occupational injury and illness, particularly for those working in the informal manufacturing sector. The research recognises occupational health and safety as a right of the individual

and that OHS especially within the informal environment cannot be comprehensively addressed with short-term interventions. Having observed the background to the study, the next session addresses the statement of the problem.

Statement of the problem

Ghana is now classified as a middle income country by the World Bank with its 2011 Gross National Income (GNI) per capita standing at US$1,410 (World Bank, 2013). The country currently has a population of about 24.97 million, and is undergoing a steady process of urbanisation (World Bank, 2013). Nevertheless, levels of formal employment are still very low in Ghana with over 80 percent of the employed working in the informal sector. (Osei-Boateng & Ampratwum, 2011). To this end, most people make a living by engaging themselves in informal sector activities where working conditions are not so safe and healthy.

The International Labour Organisation's definition for OHS encompasses the social, mental and physical wellbeing of workers in a broad contest. Nevertheless, evidence over the years shows that over dependence on ILO in addressing OHS issues especially in developing countries seem to yield little results because the problem is not broken down and analysed in the specific context where people work (Osei-Boateng & Apratwum 2011). Furthermore, the ILO Safe Work Programme's preoccupation with appropriate design and content of OHS interventions for informal workers appears not to address important questions such as who can and should take responsibility for

such protection. Meanwhile, informal sector activities especially in the non-agricultural sectors dominate most economies of developing countries.

Due to the unofficial nature of the informal sector in Ghana, most of the occupational health and safety conventions have been channelled to the formal sector. This is in spite of the fact that most Ghanaian workers are found in the informal sector where unhealthy conditions are at an increasing rate, especially in the manufacturing sector. Most workers in the manufacturing sector of the informal sector are not protected by the institutions that are officially responsible to govern OHS policies in Ghana. This is because these organisations have been structured to protect only formal workers in formal work environments such as offices and large industries, and so have no bearing on the working conditions of those who work in more unconventional (informal) settings (Adu-Amankwah, 1999).

According to Atim, Fleisher, Hatt, Masau and Arur (2009, p.21) "informal workers have more often than not been ignored in the design of national social protection schemes in Ghana" although they constitute a larger share of Ghana's labour force and are also highly exposed to work-related hazards. In fact, most researchers (e.g., Adei & Kunfaa, 2007; Adu-Amakwah, 1999, Alfers, 2002) have revealed that Ghana has no national policy on occupational health and safety. The only identified OHS policy was the one developed jointly by the Ministry of Health (MoH) and the Ghana Health Service (GHS). The document, "Occupational Health and Safety; Policy and Guidelines for the Health Sector" was however tailored to health sector workers with no attention given to informal sector workers.

Further, the current national Labour Act 651 does not also include any comprehensive provisions on OHS in the informal sector. It was recently (in 2003) that a national policy, the National Health Insurance Scheme (NHIS), was introduced to take into consideration, workers of the informal sector. Later in 2008, the National Pensions Act, Act 766 was established. This was because, pension schemes that have been operated in the country so far have, beside their limitations, also failed to consider the plight of workers in the informal sector, who constitute about 80 percent of the working population in Ghana. For instance, clause 107 (1) (b) of the Act states that a personal pension scheme applies to individuals in the informal sector who are not covered by any retirement or pension scheme under the mandatory part of the three-tier pension scheme.

Although the NHIS and the National Pensions Act represents a major step forward in acknowledging the health needs of informal workers in Ghana in terms of access to curative health care, much less time or attention has been given to the preventive health and safety needs of informal workers in the design of social protection schemes as well as an input to inform national policy. Apart from policy issues, it has been established that occupational injuries have higher mortality, longer disability, and higher treatment costs than non-occupational injuries.

As a result of all the above challenges, the informal sector has received increasing attention in the labour and development discourse in Ghana. It has, in effect, been the target of some policy initiatives and activities by both governmental and non-governmental institutions and organisations including trade unions. However, not much progress has been made in transforming the

sector because these institutions primarily "lobby for improved accountability of those conventionally responsible for protecting workers" (Marriot, 2008, p.2).

Although it is commonly acknowledged that informal work carries with it a high level of risk, studies that focus mainly on occupational health and safety in the informal manufacturing sector, particularly in Ghana, are very rare. A blind survey of some of the informal manufacturing activities within the Cape Coast metropolis revealed that, workers in this sector do not usually put on protective clothing for the prevention of occupational injuries and diseases simply because they either do not have money to afford them or they are not provided for by their employers. It was also revealed that most workers in the sector relied on "divine protection of God" and their years of experience at the workplace for their safety. Notwithstanding this however, some injuries and accidents were observed even during the blind survey. The most critical ones involved (a) a food worker who sustained burns on the foreskin of her leg from a container of boiling oil; and (b) a visitor who sustained injuries from the sparks of a welding machine that was being operated by a metal worker. Additionally, some institutions such as the National Board for Small Scale Industries (NBSSI) that work with informal workers in the Cape Coast metropolis revealed that OHS issues are only discussed among industries within the informal manufacturing sector of the metropolis that register with them.

Objectives of the study

The general objective of this study was to explore the main OHS issues faced by the informal manufacturing sector in Cape Coast in order to suggest preventive and control OHS measures for the sector. Specifically, the research sought to:

1. Examine the institutional context of OHS in Cape Coast metropolis from the perspective of the informal sector;
2. Describe the existing working conditions faced by informal manufacturing sector workers in Cape Coast metropolis;
3. Evaluate the economic costs of occupational injuries and diseases in the informal manufacturing sector of Cape Coast metropolis;
4. Examine interventions by government, employers and employees and other relevant stakeholders to manage OHS issues in the informal manufacturing sector of Cape Coast; and
5. Suggest ways to promote preventive and control occupational health and safety measures in the informal manufacturing sector.

Research questions

In order to achieve the above outlined research objectives, the following research questions were proposed:

1. How is OHS institutionalised in the context of the informal sector?
2. What are the health and safety working conditions of workers in Cape Coast's informal manufacturing sector?
3. What are the economic costs of occupational injuries and diseases of the informal manufacturing sector of Cape Coast?

4. What measures have been put in place by government, employers and employees and other relevant institutions to manage OHS in Cape Coast's informal manufacturing sector?
5. What ways can occupational health and safety risks be minimised and prevented in the informal manufacturing sector?

Significance of the study

The findings of this study could be an input for policy making in integrating occupational health and safety practices of the informal sector within the scope of Ghana's national framework for OHS. Specifically, it will bring to recognition that national development should be approached in a holistic manner through the inclusion of the informal sector in the national development agenda. This study would also improve public understanding of risks faced by informal manufacturing sector workers. It is also expected that the study will form the basis for further research work.

Organisation of the study

The study was organised into five chapters. A brief of the remaining chapters, that is, chapters two to five is as follows. Chapter two reviewed literature on the concept of occupational health and safety in general, and further narrowed it to the informal sector in particular. International and local laws and conventions governing OHS in informal work operations such as that of ILO and Ghana's legislation on the rights of workers concerning OHS was also explored. The chapter also presents a conceptual framework, which gives a

summary of the entire review and also served as a baseline for the generation of interview schedule, interview guide and observation checklist.

Chapter three focused on the choice and profile of the study area to provide a basis for understanding the study components. A detailed research methodology was also undertaken in chapter three. The chapter further describes the research instrument and their application and concludes by giving considerations to some ethical issues. In chapter four, results of data collected and findings of the study were analysed and discussed to reflect the main objectives of the research in relation to the conceptual framework. Finally, chapter five presents a summary of the study and key findings emanating from the data analysis. Recommendations were also made based on the findings of the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

This chapter provides a review of related literature on occupational health and safety in the informal sector. It begins by reviewing the history of the informal sector in general narrowing it to its development in Ghana. The domino theory which is a theory on accident causation at the workplace was reviewed together with its critics to aid in the management of OHS issues in the manufacturing sector of the informal economy. The theoretical models on the economic cost of OHS injuries and diseases were also reviewed.

International laws and conventions governing OHS in informal work operations such as that of ILO and the World Health Organisation (WHO) were explored. Subsequently, Ghana's legislation on the rights of workers concerning OHS would also be looked at. They include the Labour Act 2003, Factories, Offices and Shops Act of 1970 and the Workmen's Compensation Law. The chapter also presents a conceptual framework that explains the needed measures that can be combined to improve OHS for workers in the informal manufacturing sector.

The informal sector

The term informal sector has been used to describe a myriad of work and economic activity that more often than not falls outside official institutional regulation and is "beyond formal systems of labour and social

protection" (ILO, 2000, p. 1). The term was invented in the 1970's by Heith Hart. Even at such an early stage, an essential feature of labour in the informal sector was heterogeneous, which provided for variety of peasant proprietors and agricultural labourers, distribution agents, buyers, transport owners and employees, porters and repairers (Adu-Amankwah, 1999). Livelihoods and forms of employment vary widely within the informal economy and informal work exists in the vast majority of sectors. The most visible informal workers include those working in public places such as street vendors or waste pickers whereas the less visible ones include casual day labourers or industrial wage or subcontracted home workers, and more generally those working informally in remote and rural areas (Atim *et. al.*, 2009)

The continuing expansion and growth of the informal sector, estimated to comprise "one half to three quarters of non-agricultural employment in developing countries" (Chen, 2002, p.18), as well as an ever-increasing amount of employment in developed countries is viewed as a response to unemployment in developing countries. Additionally, according to many theorists, the growth of the informal sector has been actively driven by three decades of increasing global competition and capital intensive growth strategies and their associated processes of flexible specialisation, wide-scale retrenchment, deterioration of wage levels and working conditions and the increased bargaining power of employers and contractors over employees (Bourguignon, 2005).

The description of the term informal sector economy first used by the ILO in the early 1970s, was not actually significantly different from the traditional sector comprised of petty traders, small producers, and a range of

casual jobs (Chen, Jhabvala & Lund, 2001) previously conceptualised by the original development theorists in the 1950s and 1960s. However, the birth of the new term instigated a rigorous debate surrounding the conceptual and working definitions of the informal sector and over the last 30 years a number of competing theories have evolved to explain its origins and growth, its role in socio- economic development and its relationship to the formal economy. The debate led to a fundamental shift in thinking away from development economics that viewed the sector as a static and unproductive feature of developing countries that in time would simply be absorbed into the dynamic modern and formal economy, and towards the now widely accepted view that the informal sector is itself dynamic, is growing and is unlikely to disappear in the foreseeable future.

The persistence and continued growth of informal work in new places in both developed and developing countries (Chen, Vanek, Lund, Heintz & Jhabvala, 2005) have largely discredited the perspectives of the three historically dominant schools of thought (the dualist, the structuralist and the legalist schools of thought) on the 'informal sector' beyond their usefulness as potential explanations for specific elements of the informal sector.

The dualist school, popularised by the ILO in the 1970s (Chen *et al.*, 2004), is now considered out-dated due to its assumption that the informal sector is marginal and disconnected to the formal sector and is likely to regress with the advancement of industrial development and the creation of more modern job opportunities. The structuralist school in contrast, conceives the informal sector as economic units and workers that are inextricably connected to and ultimately exploited by formal modes of production (Castells & Portes,

1989).The perspective remains useful in understanding the subordinate relationship of the increasing number of sub-contracted firms and workers to lead firms who sub-contract work to them (Chen *et al.,* 2004), but limited in terms of understanding the wider socio-economic and political context responsible for other forms of informal employment.

Finally, the legalist school, popularised and developed by de Soto in the 1980s and 1990s, differs remarkably in its perspective that the poor choose to operate informally to avoid the high costs of discriminatory state regulations and bureaucracy and that the informal sector, described as 'dynamic', 'enterprising' and 'efficient', represents a genuine alternative and non-interventionist path to development (Rakowski, 1994, p.42). While the legalist school also fails to account for the vastly differing circumstances, relations, and contexts faced by informal workers, it can still be of use to explain the behaviour of the entrepreneurial class among the informal workforce who seek to avoid the costs of formalisation (Chen *et al*., 2005). Further, Rakowski (1994) rightly credits this school of thought for highlighting the important role of institutions, power and politics in the circumstances and experiences of those operating in the informal sector.

In more recent years, the Women in Informal Employment Globalising and Organising (WIEGO) network, together with the ILO, has contributed to a fundamental shift in the conceptualisation of the informal sector by defining informal employment as employment without secure contracts, worker benefits, or social protection (Chen, 2002). This challenge to the ILO legacy of enterprise based definitions has enabled a more comprehensive understanding of the constituents of the informal sector, namely: micro-entrepreneurs who

employ others in their informal enterprises; own account workers who do not employ anyone; and paid workers in informal employment relations in both formal and informal businesses (Marriot, 2008).

While the recognition of the heterogeneity of the informal sector and its origins is not in itself particularly thorough, WIEGO's concept appears to have moved the informal sector debate forward for many researchers and practitioners by focusing on the experiences, views and needs of different types of informal workers, the different relationships they have with local, national and international institutions that impact on their working lives and, perhaps most importantly, identifying the varied stakeholders within the global economy that can work together to maximise growth opportunities for the working poor.

Since the discovery of the concept 'informal sector' by Hart in 1970 during his study on urban informal sector in Ghana, it has not lent itself to a comprehensive and a universally accepted definition. A number of attempts made by different researchers and national authorities to define the concept have resulted in diverse definitions. A report by the Economic and Social Commission for Asia and the Pacific [ESCAP] (2006) defined the term as all unregistered enterprises below a certain size, including microenterprises owned by informal employers who hire one or more employees on a continuing basis; and own-account operations owned by individuals who may employ family members.

Burton (2009) equally perceives the informal sector as the non-regulated labour market, which usually involve workers with unwritten arrangements with an employer, and who are not documented as workers in

government records. In many countries, entitlement for social benefits such as sick or maternity leave, paid retirement, or access to health care and applicability of legal rules such as limits on work hours and minimum wage require a formal job contract. Farrell, Matthew and Roman (2000) came out with two main approaches in explaining the informal economy namely the definitional approach and behavioural approach. Farrell, Matthew and Roman (2000) in their definitional approach view the informal sector as an economic activity, which is unrecorded in the official statistics such as the Gross Domestic Product (GDP) and National Income Accounts (NIA). On the other hand, the behavioural approach maintains that informal sector is based on whether or not activity complies with the established judicial, regulatory, and institutional framework.

However, the general consensus in most literature is that the informal sector is the part of the economy of the country that is not regulated by the state. According to Benton, Castells and Porte (1989), the informal economy is characterised by one central theme as an unregulated institution of the society in a legal and social environment in which similar activities are regulated. The International Labour Organisation describes the informal sector as an economic activity that takes place outside the formal norms of economic transaction established by the state; and admits the view that sustainable development occurs within a healthy environment. However, the fact that the informal sector does not have or follow any state approved standards on health and safety in their working environment is a major problem. It is worthy of note that underlying all of this is the crucial understanding that informal workers are

economic actors and like all other economic agents, play a key role in the economy of developing countries including Ghana.

Having explored core approaches underlying the concept of the informal sector, the next section focuses on the informal sector of Ghana.

The informal sector of Ghana. The origin of the informal sector in Ghana's economy can be traced back to the very beginnings of colonial capitalism although during the time, the term informal sector had not been invented. Generally, the informal sector in Ghana is made up of micro and small-scale enterprises. It consists of producers, wholesalers, retailers and consumers. There are also intermediary service providers along the value chain such as suppliers of raw materials to manufacturers on contractual basis. Informal sector workers are largely self-employed persons such as farmers, traders, manufacturers, food processors, artisans and craft-workers. This reflects the varied activities charaterised by the sector.

According to Adu-Amankwah (1999), the informal sector in Ghana can be categorised under two broad headings namely the rural informal and the urban informal sectors. The rural informal sector can further be categorised into agricultural activities, fishing and fish processing activities, rural agro-based processing activities and forest product workers. The urban informal sector in Ghana is remarkable for its heterogeneity and variety. Studies on the urban informal sector in Ghana reveal a wide range of operations that can be grouped into three, namely services, construction and manufacturing. The activities or jobs under the services category include urban food traders and processors, health and sanitation workers, domestic workers, garages, graphic

designers, audio-visual workers, hairdressers and barbers; whereas the construction group is characterised by masons, carpenters, steel benders and small-scale plumbers. The predominant activities under the manufacturing category which is the focus of this research include food processing, textile and garments, wood processing and metal works. Women dominate food processing while men dominate the metal works and wood processing category. Apprenticeship is the most common form of skill acquisition and employment in this category.

Although most people rely on income generated from these informal economic activities to survive, the sector is beset with a number health and safety risks, which poses a threat to the continuity of the workers on the job. The continuing growth of occupational injuries and illness in the informal sector is also regarded as a direct product of the economic development strategies pursued globally. In that, the widespread de-regulation of labour markets has facilitated a rapid increase in informal employment, and has been associated with employment in work environments that is unsafe and unhealthy.

Informal manufacturing in Ghana. While previous studies of informal workers in Ghana focused on sectors such as services and agriculture, and considerable attention has also been given to the situation of informal street traders, little if any research has focused on informal manufacturing workers. Although an under-developed sector in Ghana, manufacturing is nevertheless an important contributor to the country's GDP. In terms of its importance, the sector continues to play a vital role in the economy,

contributing about nine percent to GDP (Ghana Statistical Service, 2010). The sector is said to hold the key to Ghana's economic growth given that the national policy aims at diversifying from agriculture to other sectors. This is because productivity growth in the other sectors to a very large extent requires inputs from the manufacturing sector. The manufacturing sector is therefore said to retain the characteristics of an engine of growth.

With regard to the formal and informal employment in the manufacturing sector, available data suggests that informal manufacturing activities far outweigh formal employment in the sector in Ghana. Generally, there has been an increase in both informal and small scale manufacturing in Ghana due to existing strict regulations within formal work environments (Osei-Boateng & Apratwum, 2011). For instance, the wood products subsector of the manufacturing sector employs about 75,000 workers in the formal mills but the number rises to as many as 2.5 million if informal. (Osei-Boateng and Ampratwum, 2011). Despite the lack of rigorous data, the estimates given suggest that the scale of informal manufacturing is significant. Additionally, recent policy changes have also led to government programmes and strategies such as National Youth Employment Programme (NYEP) and NBSSI to support the sector as a potential source of rural employment and local economic development.

Although definitions of informal manufacturing remain unclear, its role in Ghana's economy in terms of its share of GDP and the proportion of informal manufacturing employment in particular cannot be overemphasised. There have been numerous studies conducted on manufacturing in Ghana and of these studies none of those identified paid specific or substantial attention to

OHS issues of informal manufacturing workers. One major study on manufacturing (Dinye & Nyaba, 2001) failed to address any issue in the informal sector and informal manufacturing activities in particular. It also did not cover OHS issues in the sector. A more recent paper (Anaman & Osei-Amponsah, 2009) covered general issues regarding manufacturing but it did not identify occupational injuries and illness as an output determinant of the sector.

Puplampu and Quartey (2012) looked at key issues of OHS in Ghana but gave little attention to the informal sectors. Ultimately, they concluded that critical observations from the literature available showed that the informal sectors are neglected in research pursuits. The small amount of research on OHS issues in Ghana as well as the informal sector provides very little information on the nature and conditions of work of informal manufacturing workers. Even with this limited data, the information available suggests that informal sector workers face hazardous conditions and that existing OHS mechanisms in Ghana does not provide adequate protection for the workers. The following section looks at the general OHS issues and health and safety conditions of informal sector workers. It goes on to pay particular attention to the hazardous health and safety conditions characterised by informal manufacturing work.

Occupational health and safety conditions of the informal sector

According to the World Health Organisation (1999), a healthy workplace is one in which workers and managers collaborate to use a continual improvement process to protect and promote the health, safety and well-being

of workers and the sustainability of the workplace by considering the following based on identified needs: 1) health and safety concerns in the physical work environment; 2) health, safety and well-being concerns in the psychosocial work environment including organisation of work and workplace culture; 3) personal health resources in the workplace; and 4) ways of participating in the community to improve the health of workers, their families and other members of the community. The World Health Organisation (2008) holds the position that the informal sector suffers particularly more from occupational injuries and diseases because the risk of exposure is higher and the sector does not have the relevant legislative, administrative and technological provisions for health and safety at the workplace. Informal workers are often exposed to poor working environments including inadequate working premises and appliances and unsatisfactory hygiene facilities, which go a long way to adversely affect their general wellbeing, health and their quality of life.

It is well established that occupational hazards and risks have adverse effects on the health of workers, work productivity and the nation at large. Consequently, the quantification of variety of impacts resulting from occupational health hazards is generally difficult. Some estimates have been based on the occupational injuries and diseases reported in official statistics, notably the ILO and the World Bank documents. Nevertheless, a large number of injuries and diseases caused by workplace hazards are not reported (Joubert, 2002). Due to the changes in occupational distribution with development, many countries have experienced a shift from the hazards that characterise work in agriculture, mining and other primary industries, to those of manufacturing industries.

In considering the unsafe work conditions in the informal sector, it is important to review the available research on the scale and nature of work injuries and illnesses, particularly for informal workers. Manning (1993) examined the performance of the various segments of the informal manufacturing sector but gave little or no attention to OHS issues. She however noted that the research findings showed that health and safety on the job was very poor. Karanja, Muchiri and Muraka (2003) also focused on health and safety in the informal sector of Kenya. They surveyed 100 workers from four towns namely Nairobi, Mombasa, Nakuru and Kisumu. The main hazards identified included physical hazards which included noise, burns, etc.; biological hazards which included malaria and parasitic infestations; mechanical hazards which included cuts and amputations; chemical hazards which included exposure to paints and psychological hazards which included long working hours and less sleep. The findings showed that 75 percent of the respondents were exposed to high noise levels, 72 percent were exposed to cuts, 60 percent were exposed psychological hazards and 90 percent were exposed to chemical hazards.

Additionally, the survey revealed that (1) many of the workers suffered multiple exposures to different hazards, especially in cluster zones, due to an excessive number of both people and products in the workplaces; (2) there was frequent lack of personal protective equipment and clothing; (3) the workers suffered strain from their working posture; (4) there were lots of noise far beyond the recommended maximum noise levels; (5) there was lack of welfare facilities and services in the workplaces; and (6) there was lack of fire-fighting appliances implying that the number of fire out-breaks was high.

Regoeng (2003) focused more specifically on OHS issues among informal sector workers in key industries in Botswana. He paid attention to the textiles, metal work and auto-repairs and panel beating industries. His research revealed that there is a high risk of fire among textile workers because the materials used are easily ignitable. Additionally, it noted that the activities of metal workers expose them to welding sparks, welding arc and fumes, extreme weather conditions and the handling of hot metal. He noted that the problem is further compounded by a lack of fire-fighting equipment and the unavailability of personal protective clothing and equipment.

Additionally, a research conducted by Ametepeh (2011) on occupational health and safety of the informal service sector of the Sekondi-Takoradi Metropolitan Assembly (STMA) area revealed the health and safety conditions of this sector. Specifically, the study focused on drivers, mechanics, porters and beauticians. Discussion of the major findings of the study follows.

The study showed that the informal service sector in STMA is dominated by males. In particular, all drivers were males, 96 percent of mechanics and 70 percent of porters were also males. Only five percent of beauticians were also males. The sector employed labour as young as 17 years and as old as 73 years. Most (43.3%) respondents however were between the ages of 30 – 49. It was realised that education was not a requirement in the sector though the majority of respondents had attained some level of education at least to the basic level and 13.5 percent of the respondents had never been to school.

Per the research, the key occupational health and safety issues associated with workers of the informal service sector of STMA differed from

the various work categories of the informal service sectors that were surveyed. The research revealed that beauticians were the most exposed to chemical hazards. In spite of the fact that nearly all raw material used by beauticians were chemicals, most of them (62%) do not read labels on chemicals before use due to their low level of education. Even though a high proportion of mechanics (86%) had knowledge of the fact that the chemicals they use for their activities are poisonous, 42 percent of them do not read the labels imprinted on them. Almost all the workers from all the categories of work were affected by their working postures. The working postures include standing, bending and sitting which results in waist, knee, feet and general body pains among all the workers.

The study also revealed that OHS institutions in the country are under resourced and are limited in their service delivery. For instance, there are only five offices of the Department of Factories Inspectorate (DFI) in only five regions. The national office has only one vehicle for its inspection whilst the Takoradi office has none. Inspections and supervision of institutions were limited to only formal sector institutions and other corporate private institutions.

The International Labour Organisation estimates that 270 million occupational accidents and two million work-related deaths occur each year (Takala, 2002). Sub-Saharan Africa appears to have the greatest rate per worker of occupational injuries followed by Asia. It is widely suggested that the high figures can in part be explained by the relatively recent transfer of hazardous sectors such as logging, mining and export- oriented agriculture from industrialised to developing countries where there are less resources to

protect workers (Barten, Fustukian & Haan, 1996) or where, in some cases employers may be exempted from labour legislation.

Unfortunately, the real scale of the work illness and injury problem in developing countries, and especially its relationship to informal work, remains unknown due to a number of limitations in the ways in which national OHS data is collected. The ILO publishes global accident rates but these are based on figures provided by member countries whose recording and notification systems vary widely or may not even exist, and which often explicitly exclude the informal sector. Under-reporting of injury is high amongst most developing countries but the under-reporting of occupational illnesses is even higher and is a universal problem (Takala, 2002). Loewenson (1999) suggests that reported disease rates in the Southern African Development Community (SADC) countries are likely to underestimate actual occupational disease rates. The severe lack of reliable and large-scale data on OHS risks in developing countries, and particularly for informal workers, is a likely significant contributor to the current wide scale low priority given to OHS in both development debates and in national government policies.

In thinking about the possibilities of extending 'decent work' to all workers, including informal manufacturing sector workers in Cape Coast, it is important to now move on to explore the more general and sectorial context in which such workers operate, including both the regulatory and supportive institutions that impact on their livelihoods and their access to both social and labour protection. In doing this, the next section focuses on the forms of occupational hazard faced by informal manufacturing sector workers.

Forms of occupational hazards faced by informal manufacturing workers. There are numerous hazards that can be found in most workplaces within informal work environments. Some of the obvious causes of these hazards are unsafe working conditions such as unguarded machinery, slippery floors and inadequate fire precautions. In addressing OHS issues in the informal manufacturing sector, four main forms of occupational hazards have been identified. They include physical, psychosocial, chemical and ergonomic related hazards. These hazards and their respective types are summarised in Table 1 and further discussed below.

Table 1: Occupational hazards and their types

Forms of occupational hazards	Types
Chemical hazard	Liquids, solids, dusts, fumes, vapours and gases
Physical hazard	Noise, vibration, fire, poor sanitation radiation and extreme temperatures
Psychosocial hazard	Stress and strain
Hazards associated with the non-application of ergonomic principles	Badly designed machinery, mechanical devices and tools used by workers, improper seating and workstation design, or poorly designed work practices.

Source: Mock, Adjei, Acheampong, Deroo and Simpson (2005)

In addressing physical hazards, the Canadian Centre for Occupational Health and Safety identified noise as one of the most common occupational

health hazards. In most manufacturing work environments, permanent hearing loss is the main health concern. Noise, vibration, ionising and non-ionising radiation can all affect health adversely. Between 10 and 30 percent of the workforce in developed countries, and up to 80 percent of the workforce in developing countries are exposed to noise (Amedofu, 2002). It is therefore necessary to control noise by the use of ear plugs and ensuring that workers are not exposed to noise for long hours. Additionally, problems with sanitation and its associated effects, visibly affect most informal manufacturing workers.

Secondly, working conditions do not only have physical effects on workers but there are psychosocial repercussions too, which usually result in social and mental problems. Psychosocial hazards usually cause fatigue, stress and general loss of interest in work. Monotonous work which requires constant concentration, irregular working hours and work carried out at risk of violence can also have adverse psychosocial effects. Psychosocial stress and work overload have been associated with sleep disturbances, burn-out syndromes and depression.

High exposure to chemical hazards is the third form of occupational hazard. Chemical hazards are most prevalent in industries that process chemicals and metals in the manufacture of certain consumer goods, in the production of textiles and artificial fibres, and in the construction industry. Chemicals are also increasingly used in virtually all types of work, including non-industrial activities such as hospital and office work, cleaning, and provision of cosmetic and beauty services. Some adverse health effects of chemicals include metal poisoning, damage to the central nervous system and

respiratory allergies, cancers and reproductive disorders (United States Environmental Protection Agency [USEPA] (2010).

Finally, ergonomic hazards are workplace conditions that pose the risk of injury to the musculoskeletal system of the worker. Repetitive tasks and static muscular load are also common among many informal manufacturing occupations and can lead to injuries and musculoskeletal disorders. In most developing countries, such disorders are the main cause of both short-term and permanent work disability and usually lead to adverse impact on their economic wellbeing (Margottini, 2007).

Interventions and theoretical OHS issues

A number of different systems for supervising and improving occupational health and safety at the work environment have been developed by different scholars. Prominent among them are those developed by Gustaven (1996) and Heinrich (1941).

Gustavsen (1996) identifies three categories of improving OHS conditions. The first of Gustavsen's category is the specification model, which refers to where laws and regulations are at the core and the main actors are various types of experts. For instance, the Ghanaian Labour Act (Act 651) provides for OHS legislations for all employers and employees in the country. Some of the legislations in the Labour Act include the duty of an employer to ensure that every worker employed by him or her works under satisfactory, safe and healthy conditions. It is the obligation of every worker to use the safety appliances, firefighting equipment and personal protective equipment provided by the employer in compliance with the employer's instructions. Also

an employer is required to report as soon as practicable and not later than seven days from the date of the occurrence to the appropriate government agency, all occupational accidents and diseases which occur in the workplace. The second is a procedure-based model, which refers to a system for monitoring the work environment and for defining remedial action, with a strong resemblance to modern quality control systems. The idea is to identify errors and rely on the ordinary line organisation to correct them. Essentially, the point is to bring health and safety into the orbit of ordinary managerial concerns and actions. The third approach is the continuous improvement approach, which presents a developmental model where the principle of continuous improvement is at the core of the organisation.

The other health and safety improvement system that has received much attention since its formulation is known as the 'domino theory' developed by Heinrich in 1941. Herbert William Heinrich's theory consists of a chain of events and circumstances that ultimately lead to injury. He likens this chain of events to a line of dominoes (a small rectangular box used in playing the game of dominoes) falling over. In that when one falls, it triggers the next domino to fall. Heinrich posits that these five 'metaphorical' dominoes are labelled with work related accident causes. The dominoes in order of sequence are social environment and ancestry, fault of person, unsafe act or physical hazard (unsafe condition), accident, and injury.

Heinrich defines each of these "dominoes" explicitly and gives advice on minimising or eliminating their presence in the sequence. He explains that the first and second domino deals with worker personality. Whereas the first domino includes undesirable personality traits such as stubbornness, greed, and

recklessness, the second one is characterised with inborn or obtained character flaws such as bad temper, inconsiderateness and ignorance.

The third domino, unsafe act and/or unsafe condition, has to do with Heinrich's direct cause of incidents. Heinrich defines these factors as things like starting machinery without warning and absence of rail guards. The fourth domino according to Heinrich is accident. Heinrich defines accident as the occurrence of a preventable injury. These include events such as falls of persons and striking of persons by flying objects, and usually result in injury, the fifth domino. The last of Heinrich's dominoes of safety at the workplace is injury. Some types of injuries that result from accidents as specified by Heinrich include cuts and broken bones. Heinrich insisted that in other to promote safety at the workplace, it is the responsibility of employers and managers to ensure that safety rules at the workplace are adhered to.

Among the five main events of the domino theory, Heinrich identified the third domino, unsafe condition or unsafe act, as a key factor that leads to injury at the workplace. Heinrich analysed a large number of industrial accidents and determined that 88 percent were due to unsafe acts, and only 10 percent due to unsafe conditions.

Subsequently, Heinrich's domino theory was revised by Bird and Germain in 1985 and then by Vincoli in1994. As noted by Sabet, Aadal, Jamshidi and Rad (2013), Bird and Germain updated the "Domino theory" in order to reflect the role of management in the sequence of accident causes defined by Heinrich. They recognised the need for management to prevent and control accidents at work sites. This model, known as the Loss Causation Model, was also represented by a line of five dominos, linked to each other in a

linear sequence similar to that of Heinrich's theory. They are as follows: (i) lack of control/management (inadequate program, inadequate program standard, inadequate compliance to standard); (ii) basic causes/origins (basic causes: 1-personal factors, 2-job factors); (iii) immediate causes/symptoms (sub-standard act and condition); (iv) incident (contact with energy and substance); and (v) loss (property, people, process).

Vincoli (1994) further reviewed and updated the domino theory. In 1994, he re-labelled the dominoes with much emphasis on management and incident unlike Heinrich who placed emphasis on unsafe acts and unsafe conditions at the work place. Vincoli however maintained the basic five-step structure of Heinrich's theory. The revised model re-labels the dominoes as management, origins/basic causes, symptoms/immediate causes, contact, and loss.

The first domino of Vincoli is management. Vincoli holds that the lack of control by management begins the process that eventually results in incidents. He stresses that if managements do their job, which he defines as planning, organising, leading, and controlling, they can prevent incidents from happening. The next domino is about the origins and the basic causes of incidents at the workplace. Vincoli classifies these basic causes as belonging to two different groups namely personnel factors and job factors. Personnel factors reveals why some people engage in substandard practices, which is in relation with the third domino of Heinrich called unsafe acts. On the other hand, job factors include inadequate work, bad design or maintenance, low-quality equipment and normal or abnormal wear and tear. All these reveal the

existence of substandard working conditions (what Heinrich called unsafe conditions) at the workplace.

The third domino of Vincoli is the symptoms/immediate causes. Vincoli, like Heinrich, introduces unsafe acts and conditions at the workplace in the third domino. Nevertheless, he argues that unsafe acts and conditions are symptoms of root causes that dominoes one and two represent contrary to Heinrich's theory. Vincoli then goes on to say that in an organisational environment where management allows these factors to continue without appropriate check measures in place, incidents are very likely to occur.

Vincoli defines incidents, the fourth domino, as any event which has the possibility of creating a loss at the work place, and further defines a loss event as an accident. Finally, Vincoli explains that losses cannot be predicted, either in how and where they will occur or at what time. Since his work is primarily on controlling losses, he provides several remedies for directly dealing with incidents. Occupational health and safety management, as emphasised by Vincoli (1994), is actually a system that tracks each incident that relates to employee health and safety.

Despite the potential of Heinrich's domino theory in managing OHS issues in the informal sector, the theory has been widely criticised by researchers such as Howe. Howe (2001) holds that Heinrich's main focus on unsafe acts as the main cause of workplace injury and illness has made companies do little to address the root causes of safety and health risks. Howe argues that accident reports, which Heinrich's used as the basis for his research, were primarily completed by supervisors at the workplace.

Although Heinrich's theory of injury causation had serious flaws, listed below are the methods he recommended for the control of occupational diseases: 1) elimination of the injurious substance or sources; 2) reduction of the original amounts or volumes or frequency of use of the injurious substances or sources; 3) removal of injurious substances or sources after use; 4) isolation, guarding, or enclosing of the injurious substances or sources; 5) control of unsafe personal acts; and 6) provision of personal protective devices.

One aspect of the subject of OHS that has been less explored is the economic costs imposed by occupational injuries and diseases on the life of the workers as well as their families and the national economy at large. When the costs associated to work injuries and diseases are well quantified, it clearly illustrates the need to minimise them at work environments.

While models do exist in some developed countries to measure and estimate the aggregate costs of occupational injury and illness to different stakeholders, no study has been identified that has attempted to extend such methodologies to directly measure the impact of the costs of occupational injury or illness on the income and living standards of workers and their dependents (Bacchetta, Ernst, & Bustamante, 2009). Despite this, the important relationship between economic cost of work-related injuries and diseases is clear from an analysis of other relevant research focusing on occupational health costs.

At the macroeconomic level, a widely praised and used model development by the UK Health and Safety Executive (HSE) estimates that the economic costs of occupational illnesses and injuries amount to four percent of GDP. Applying the same model to South Africa, Benjamin and Greef (1997 in

Hermanus 1992) estimated the cost to be 3.5 percent of GDP. Loewenson (1999) applied a more simplistic model focused solely on lost work time caused by injury and fatality and estimates a three percent GDP cost to Zimbabwe. Adei & Kunfaa (2007) estimated that OHS related accidents, diseases and hazards cost Ghana's economy about seven percent of the country's GDP.

At the firm level, computing the cost of work-related injuries and diseases can be based on a number of theoretical models. There is no definite model considered as the best among economists or policy analysts. Two approaches have however been reviewed by Biddle (2001), and are considered dominant among the methods used to calculate the economic cost of injuries and illness. They are cost-of-illness and willingness-to-pay methods. The cost-of-illness approach measures cost in terms of the value of lost output associated with reduced productivity of the injured worker. The willingness-to-pay approach also measures value by determining how much individuals are willing to pay for a safer and healthier work environment. Both methods have strengths and weaknesses.

The Cost-of-illness (COI) method estimates the value of an occupational injury, illness, or fatality by summing the value of two components: the direct and indirect costs. Direct costs consist of the actual monetary expenditures associated with the injury or illness and include the value of all goods, services, and other resources that are consumed. They are the value of those resources that could have been used elsewhere if the injury or illness had not occurred (Biddle, 2001). The most prominent direct costs are health care costs, which include physician's visits, prescription medicines,

physical therapy, ambulance service, and hospitalisation fees. Other direct costs include insurance administration costs, vocational rehabilitation, attendant care, and nursing home expenditures. These costs can be incurred in the present time or at some point in the future. Indirect costs on the other hand can be estimated using the human capital method or the friction cost method.

The human capital method values health according to the economic productivity of the worker. Calculating the full economic or productivity loss requires determining the sum of the discounted value of all lost present and future productivity of the worker, both market and non-market. The human capital approach often includes the value of household work, usually valued as the opportunity cost of hiring a replacement from the labour. The human capital method, according to Benichou (2001), is the most common approach used to calculate the indirect costs of an illness. Kirschstein (2000) however criticises the human capital method for overvaluing indirect costs, claiming that the productivity losses are often eliminated after a new employee is trained and can replace the former employee. Another criticism of this approach is that certain groups are assigned a higher value than others. This is because the human capital approach uses wage rates and employment rates often by age, sex, or race, so certain groups that earn less are consequently assigned a lower value.

A related method, the friction cost method, measures only the production losses during the time it takes to replace a worker. This approach assumes that short-term work losses can be made up by an employee and the loss of employee only results in costs in the time it takes a new employee to be hired and trained, known as the friction period (Benichou, 2001). Additionally,

the friction cost method is also rarely used because it requires extensive data to attempt to estimate only the losses in the friction period. Valuation of the productivity losses is complicated further by firms' use of internal reserves of labour during the friction period, which lowers the estimates of losses even more but can be difficult to calculate.

The ultimate goal of occupational health and safety management is for each individual, employer and employees alike, to do everything that can be done to prevent accidents and minimise illness at the workplace. OHS can also be improved at the work place if employers and employees identify their roles in promoting health and safety at the workplace.

Role of employers and employees in managing OHS risks

The occupational health and safety of employees at workplace is an important issue for both employees and employers. Employers have the obligation to ensure that all their employees are protected from health and safety risks arising out of their work activities. This implies they have to provide and maintain safe systems of work; make arrangements for ensuring the safe use, handling, storage and transport of equipment or substances; and provide necessary information, instruction, training and supervision concerning occupational health and safety.

In Ghana's context, Part XV of Ghana's Labour Act, 2003, outlines some responsibilities of employers. It states among others that an employer shall ensure the safety and absence of risks to health in connection with use, handling, storage and transport of articles and substances; and provide the necessary information, instructions, training and supervision having regard to

the age, literacy level and other circumstances of the worker. Section 118 of Part XV of the Act, sub-section (1) also states that it is the duty of an employer to ensure that every worker employed by him or her works under satisfactory, safe and healthy conditions. It is worth mentioning that an employer acknowledged and stated that "I think OHS issues can be managed well if we the employers enforce our employees and apprentices to use the PPE as well as changing our attitudes with respect to health and safety".

The role of employers however needs to be complemented by employees. Specifically, employees are supposed to work in a safe manner, be safety conscious on their jobs and co-operate with their employers in the health and safety measures they put in place. They must also work safely to protect themselves and others from injury. For example, they must not move or deface signs, tamper with machine guards or behave in a way that puts others at risk. All employees share equal responsibility and so must obey all health and safety procedures, including correctly wearing all personal protective equipment provided. Part XV, Section 118, sub-section (4) of Ghana's Labour Act, 2003, provides that, it is the obligation of every worker to use the safety appliances, fire fighting equipment and personal protective equipment provided by the employer in compliance with the employer's instructions. Subsequently, sub-section (4) states that an employer shall not be liable for injury suffered by a worker who contravenes subsection (3) where the injury is caused solely by noncompliance by the worker.

Legislations of occupational health and safety

There are several international treaties and conventions established by international agencies dedicated to improving occupational health and safety and Ghana is a signatory to some of these conventions. The most prominent of these conventions were enacted by the International Labour Organisation, and the World Health Organisation. The International Labour Organisation, which seeks to promote safe and decent work in all countries of the world, is a member of the specialised agencies working with the United Nations (UN). It is responsible for the formulation of international labour standards in the form of conventions and recommendations. Since 1919, ILO has approved and published nearly 190 conventions, which are statements of legally binding international treaties related to various issues regarding work and workers. The major objective of the ILO in relation to OHS is to enable countries extend social protection to all groups in society and to improve working conditions and safety and health at work.

The International Labour Organisation provides for the adoption of a national occupational health and safety policy and describes the actions needed at the national level and at the enterprise level to promote OHS and to improve the working environment. The International Labour Organisation's Occupational Health Services Convention and Recommendation 1985 (No.161) provides for the establishment of occupational health services, which will contribute to the implementation of the occupational health and safety policy.

The World Health Organisation has an occupational health programme with emphasis on data collection and analysis, research, formulation of

strategies and recommendations for hazard prevention and control, and human resource development with special emphasis on developing countries. It is responsible for offering technical advice and expertise on health and safety by setting hygienic standards, promoting medical services and medical examinations.

The World Health Organisation's way of solving health problems vary substantially with regard to the national and local needs, cultural influences, resources and other local factors of every country. Currently, there is a network of occupational health institutes assigned as WHO collaborating centers. The policy objective of this collaboration is a global strategy for occupational health for all with ten priority objectives. These objectives include; strengthening of national policies for health at work and development of policy tools; development of healthy work environment; development of healthy work practices and promotion of health at work; strengthening of occupational health services; establishment of support services for occupational health; development of occupational health standards based on scientific risk assessment; development of human resources for occupational health; establishment of information systems; and, development of collaboration in occupational health and with other activities.

OHS legislations in Ghana. In Ghana, the Ministry of Manpower and Employment is responsible for the administration of occupational health and safety of workers. This is done mainly through the Department of Factories Inspectorate and the Labour Department. Generally, Ghana's constitution guarantees every person the right to work under satisfactory, safe and healthy

conditions, and the right to receive equal pay for equal work without distinction of any kind. To a large extent, Ghana has domesticated some of the international laws and treaties discussed above to promote the rights of workers through the passage of legislative instruments and institutional arrangements. These legislations have charted the course for the provision of occupational health services in Ghana over the years. They include the Labour Act 651, 2003; Workmen's Compensation Law, 1987; the National Pensions Act 766, 2008; the Factories, Offices and Shops Act 328, 1970, the Environmental Protection Agency Act 490, 1994; and the Ghana Health Service and Teaching Hospitals Act 525, 1999

The Labour Act 651, 2003, was enacted to consolidate the laws relating to labour, employers, trade unions and industrial relations. Part XV of the Labour Act makes provisions for legislations on occupational health, safety and environment. Specifically, it outlines the role of the employee as well as the employer in ensuring health and safety at work environments. The extent to which this legislation is being adhered to still remains uncertain. The Workmen's Compensation Law 1987 (PNDCL 187) holds employers liable, subject to the provisions thereof, for personal injury sustained by a workman by accident arising out of and in the course of his employment.

The National Pensions Act 2008, Act 766, was established in recognition of the need for reforms to ensure a universal pension scheme for all workers in the country, and to further address concerns of Ghanaian workers, both formal and informal alike. The Factories, Offices and Shops Act of 1970 (Act 328) was promulgated in 1970 to reduce the risk of injury and safeguard the health conditions of all employees in Ghana. The Act makes provision for

the registration of all factories, health and safety of workplaces, accident notification and workplace sanction and clearly spells out what should be done when there is an accident.

Other legislations include the Environmental Protection Agency Act 490, 1994 and the Ghana Health Service and Teaching Hospitals Act 526, 1999. These are the few statutes which speak to OHS in Ghana. Nevertheless, as noted by Puplampu and Quartey (2012, p.153), "these few legal provisions require huge modification to meet international requirements and standards".

Problems of OHS legislations in Ghana. In spite of all these legislations, there are several shortcomings of the legal provisions on OHS especially with regard to the informal sector in Ghana. The Factories Act which has for years provided guidance for implementation for instance, is very limited in coverage. The vast majority of industries, including agriculture and most of the informal sector are therefore not specifically covered (Clarke, 2005). Secondly, the provisions are very limited in scope with regard to preventive measures. Preventive strategies like risk assessments, medical surveillance and control of hazards are not catered for. There is an overlap of some of the functions mandated by these pieces of legislation for different ministries. For example, both the Environmental Protection Agency (EPA) Act and Factories Act mandate entry into factory premises by inspectors from the EPA and Factories Inspectorate, respectively.

Additionally, there is a lack of specification of standards, which should form the yardstick against which services are to be evaluated. Although the Workmen's Compensation Law addresses compensation payable by an

employer to an employee, the definition bears with no relation to the level of risk to which workers are exposed. The laws do not define funding mechanisms for OHS that should be applied both by government and the private sector. OHS programmes are therefore grossly underfunded, a reflection of the low priority accorded to it by the government.

Although the government of Ghana has instituted measures to promote and guarantee workers' rights, dividends accrued have so far been limited to formal sector workers. Most workers operating in the informal sector remain far from enjoying their full rights. They are either ignorant about the law or are unable to secure the needed support to seek justice. They are largely unorganised and lack collective voice to make their concerns heard. For instance, Section 44 of the Labour Act exempt task workers and domestic workers in private homes from provisions of sections 33 and 34 on maximum working hours of eight per day or 40 per week and rest periods. Also, the mandatory obligation of employers to provide safety gadget to their employees at the workplace is usually overlooked. Employment relationship among wage workers in the informal sector is largely not documented making enforcement of wage-related policies difficult. This is because employment contracts are established verbally with family and friends witnessing agreements.

Outcomes of OHS interventions

Studies have shown that different institutions have adopted various strategies to improve the health and safety of workers in the formal sector, although those strategies could be argued as not being comprehensive. Aikins (1999) in his work revealed that when appropriate measures and interventions

such as safety training and enforcement of rules and procedures for ensuring safety at the work place are applied, they result in direct outcomes such as preventing incidents/accidents, increasing production and promoting good health and safe working habits among others.

Evidence also suggests that with the appropriate interventions and support, informal sector workers can move from a situation of mere survival to a stronger economic position enhancing their contribution to economic growth and social integration, as well as participating in the improvement of their own working and living conditions (Forastieri, 1999).

For instance, the ILO carried out projects aimed at improving safety, health and working conditions of informal sector workers in Bogotá (Colombia), Manila (Philippines) and Dares Salaam (Tanzania) between 1994 and 1996. Access to health care as well as the improvement of standards of safety and health were improved and achieved through measures instituted with the aim of improving working and living conditions for informal sector workers. The project also aimed at, among others, reducing accidents and diseases; increasing job satisfaction and capacity building.

The components of the project included raising awareness of occupational health hazards and the provision of occupational health and preventive services. There were also training program modules, which were made to show the effects of improved working conditions on productivity. The programme dealt with, among other things, physical, chemical and biological hazards in the working environment on informal sector workers. Other interventions included the application of measures meant to improve ergonomics, work practices and appropriate use of tools.

In 1988, the United Nations Development Programme (UNDP) initiated a programme whose objective was to develop an integrated approach to productivity, employment creation, health promotion and social protection for informal sector workers.

Lessons learnt from all the above-mentioned interventions indicate that occupational safety and health in the informal manufacturing sector can be improved and that sustainability of these interventions is possible if they are introduced through existing local structures. Specifically, productivity of informal sector workers could be raised by developing measures that provide services to assist them in protecting their health and improving their working conditions (Mamba, 2000).

In order to achieve this, it is necessary to develop measures which effectively combine services to enable informal manufacturing sector workers to improve their working conditions whiles contributing to less accidents and diseases, improved health status, increased job satisfaction, employee health promotion and higher productivity.

Conceptual framework of OHS in the informal manufacturing sector

All those who engage in informal activities are in business to be successful so as to make ends meet. All workplaces require workers in order to achieve their goals, and there is a strong business and success case to be made for ensuring that workers are mentally and physically healthy through health protection and promotion.

Occupational health and safety is important not only to individual workers and their families, but also to the productivity, competitiveness and

sustainability of enterprises or organisations, and thus to the national economy of countries and ultimately to the global economy at large. In line with the literature reviewed above, a conceptual framework was constructed to explain the needed measures that can be combined to improve OHS for workers in the informal manufacturing sector and their expected outcomes. The conceptual framework in Figure 1 presents the measures and possible outcomes of OHS interventions.

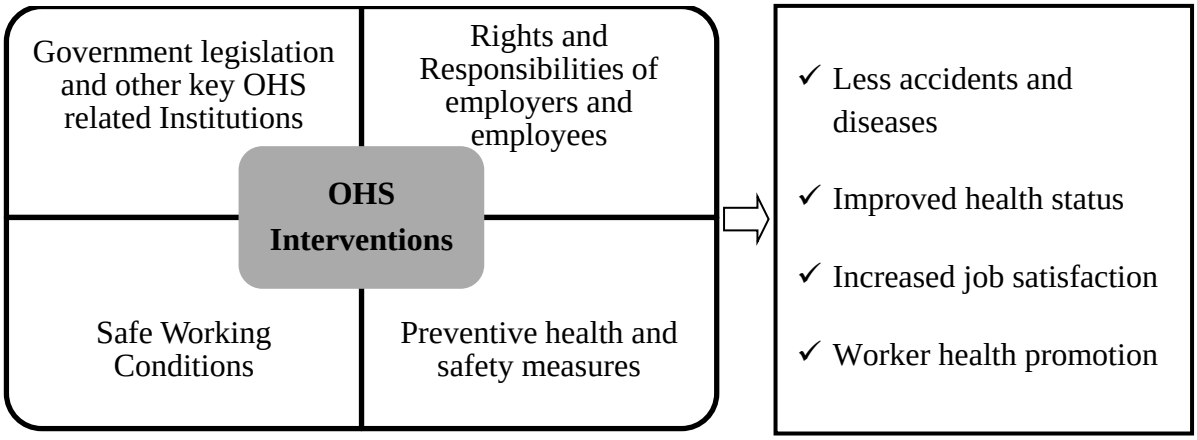

Figure 1: A conceptual framework for OHS in the informal manufacturing sector

Source: Adopted from Ametepeh (2011)

Improving the health and safety of informal manufacturing sector workers is a challenge, which should be faced with an integrated approach and therefore, has to be part of a strategy to improve the basic living conditions of the workers. This integrated approach aimed at achieving safe working conditions and preventive health and safety measures should comprise of inputs from government legislation & other key OHS related institutions as well as the informal workers themselves. Interventions aimed at raising the health and safety of workers in the informal sector should be developed

through the promotion of health and safety at work and the establishment of self-sustainable health insurance schemes (Forastieri, 1999).

While protective approaches cannot significantly change the social situation, they can dramatically reduce its harmful effects on informal sector workers allowing them to perform safer tasks under healthy and protected conditions. It is well depicted in Figure 1 that OHS interventions ultimately ensures the utmost health and safety of workers. This reduces health risks to individuals and the resulting effects on their families and the society at large. This is the underlying philosophy of the domino theory. A central belief in most of the occupational health promotion literature is that people perform better when they are physically and emotionally able to work and want to work, which in turn leads to higher productivity (Joubert, 2002).

Although OHS policy and regulation in many countries follow a similar pattern, there are significant differences in the way in which they are implemented, especially with regard to the informal sector. For the purpose of this research government legislation and other key OHS related institutions such as fair legal system, effective institutional environment, vibrant trade unionism and a vibrant civil society; the rights and responsibilities of informal sector employers and employees; safe working environments; and preventive OHS measures would be explored as the major factors affecting health and safety at work places as depicted in the conceptual framework above.

Summary

The literature established that the subject of occupational health and safety is a global issue linked to the general health of workers and

subsequently, to the performance of the national economy at large. It also revealed that occupational injuries and diseases are very prevalent in the informal sector relative to the formal sector with its associated adverse effects on the lives of informal sector workers, their families and society. These effects have implications for development and so there is the need to put in measures to mitigate them. Most of the measures, as revealed by the literature review, are skewed towards formal sector workers, and where they seek to address informal sector workers, it mostly focuses on curative rather than preventive measures and even the enforcement of these OHS measures is very poor.

CHAPTER THREE

METHODOLOGY

Introduction

This chapter focuses on the choice of the study area, research design, data sources, population, sampling and sample determination, data collection methods and also provides an introduction to the data analysis. The chapter further describes the research instrument and their application and concludes by giving considerations to some ethical issues.

Study area

The study area is the Cape Coast metropolis. The Cape Coast metropolis is bounded on the south by the Gulf of Guinea; on the west by the Komenda/Edina/Eguafo/Abrem municipality; on the east by the Abura/Asebu/Kwamankese district and bounded on the north by the Twifu/Hemang/Lower Denkyira district as shown in Figure 2. It covers a land area of 122 square kilometers and is the smallest metropolis in the country with a population of about 169,894 according to the 2010 Population and Housing Census.

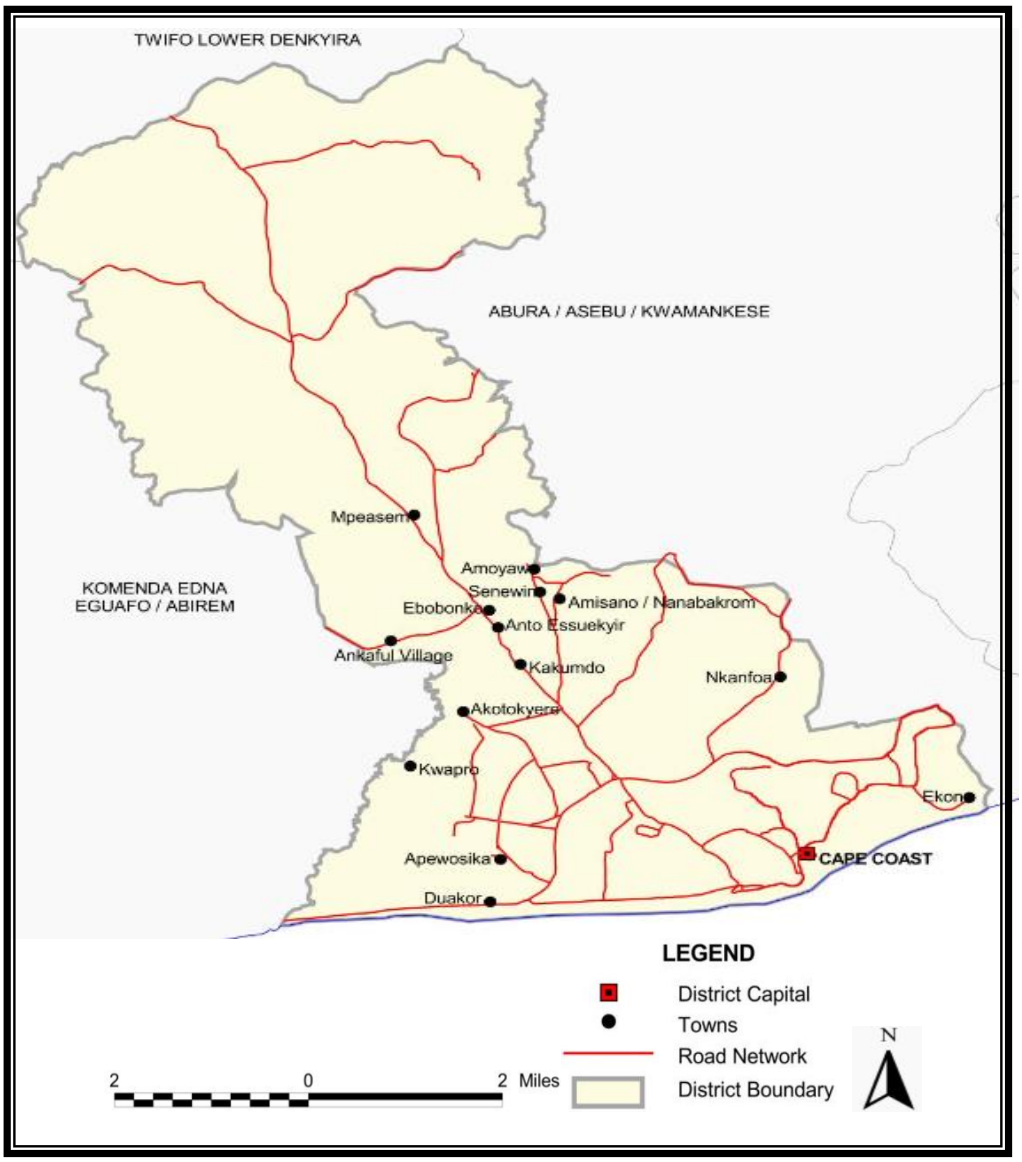

Figure 2: Map of the Central Region of Ghana showing the study area

Source: Ghana Statistical Service (2014)

The Cape Coast metropolis has 71 settlements. The main Cape Coast township was the only noticeable urban centre in the metropolis in 1984. Ekon, Nkanfoa, Kakomdo and Efutu are the other fairly large settlements but do not possess any urban status as yet.

According to the 2010 Population and Housing census, there were 82,810 males and 87,084 females in the metropolis. Although the larger female population reflects the national pattern, the phenomenon in this metropolis may

be attributed firstly to a higher male out-migration rate; and secondly, to the rapidly urbanising nature of the metropolis, which encourages economically active females to stay back and engage in small-scale economic activities.

The age distribution indicates that the metropolis is largely characterised by a youthful population with those less than 15 years accounting for 42.2 percent of the total population. Females fairly out-number males in each age category except that of the 0-14 age category. The ageing category (65 years and above) form the minority (GSS, 2014).

One major developmental problem faced by most inhabitants within the study area, like most other areas in Ghana, relates to low-income levels and its associated problems such as unemployment. For instance, the rising problem of environmental degradation is a result of small-scale agriculture in the rural areas due to the lack of adequate financial resources to engage in modern sustainable agriculture. Generally, the low-income level situation witnessed in this area results from the lack of diversified employment opportunities forcing many people into informal sector activities such as petty trading, small-scale manufacturing, fishing and agriculture (GSS, 2010).

Research design

The study employed the qualitative research design. Qualitative research was used because it provides the flexibility of collecting information on opinions, perceptions and knowledge of a particular individual. Burns and Grove (2003, p.19) describe a qualitative approach as "a systematic subjective approach used to describe life experiences and situations to give them meaning". Holloway and Wheeler (2002, p.30) refer to qualitative research as

"a form of social enquiry that focuses on the way people interpret and make sense of their experience and the world in which they live". The goal of qualitative studies is a comprehensive summarization, in everyday terms, of specific events experienced by individuals or groups of individuals. Researchers use the qualitative approach to explore the behaviour, perspectives, experiences and feelings of people and emphasise the understanding of these elements.

The rationale for using a qualitative approach in this research was to explore and describe the opinion of informal manufacturing sector workers on occupational health and safety practices. A qualitative approach was appropriate to capture the opinions of the informal manufacturing sector workers regarding OHS issues in their respective work environments.

Specifically, the study employed exploratory study design. This was identified as the most useful and appropriate research design for addressing a subject about which there is very little existing research on the subject matter. The main aim of the exploratory research was to identify the boundaries of the environment in which the OHS problems exist and to identify the salient factors or variables that might be found there and be of relevance to the research.

Study population

The study population was made up of workers from the food processing, textile and garments, wood processing and metal work categories within the Cape Coast metropolis. Data on the number of informal

manufacturing workers in Cape Coast were however not readily available, not even from the NBSSI or the Cape Coast Metropolitan Assembly.

Additionally, workers of the NBSSI and the Department of Factories Inspectorate (DFI) were also selected for the study. The NBSSI and DFI were selected for this study because whereas the NBSSI's scope of work covers the informal sector, that of the DFI focuses on occupational health and safety.

Sample and sampling procedure

The study adopted the convenience and purposive sampling procedures. Purposive sampling was used to obtain institutional data from the NBSSI in the Cape Coast metropolis and the Department of Factories Inspectorate (DFI). This was because the needed information could only be provided by these institutions that are knowledgeable about the subject under discussion. Subsequently, two workers from the regional office of the NBSSI and one from the district office in Cape Coast were selected. An employee of the DFI was also selected for the study. This is presented in Table 2.

Convenience sampling was used to select respondents from the food processing, textile and garment, wood processing and metal work industries. Being an exploratory study, a sample size of 40 respondents was selected; 10 respondents from each of the four categories. Subsequently, for each category, two different workplaces were selected and five respondents each (made up of employers, employees and apprentices) from each workplace were selected.

As shown in Table 2, the category with the highest number of apprentices was textile and garments. These were those learning the trade and providing almost free labour to their employers. The least number of

apprentices were recorded in the food category and were identified to be those who had almost finished learning the trade. Generally, most of the respondents (45%) were apprentices whiles employers constituted the least category (22.5%).

Table 2: Sample sizes for the work categories

Work category	Respondents			
	Employers	Employees	Apprentices	Total
Wood	2	3	5	10
Food	3	5	2	10
Textile and Garments	2	2	6	10
Metal	2	3	5	10
Total	9	13	18	40

Source: Field survey, May 2014

Sources of data

Relevant information from the study was obtained from both primary and secondary data because the use of these multiple data sources supports a more conclusive and accurate conclusions, unlike when a single source of evidence is used (Yin, 2003).

The secondary sources of data were obtained from both published and unpublished literature that relates to the research topic. Other sources such as articles, surveys and other studies conducted on the informal sector and informal sector workers in Ghana were also utilised.

Data collection methods and instrument

The data collection methods for the primary sources entailed interviewing and observation. The data collection instruments were interview guide, interview schedule and observation checklist. The interview schedule was designed to collect primary data on occupational health and safety issues from workers in the informal manufacturing sector of the Cape Coast metropolis. The interview guide was administered to NBSSI officials in the Cape Coast metropolis and DFI. Altogether, a total of 40 interview schedules were administered to the informal workers whereas four interview guides were administered to the NBSSI and DFI officials.

The use of the observation data collection method was also adopted. As part of the data collection process, workers were observed while doing their respective jobs in order to better understand the hazards as well as the unsafe and unhealthy working conditions they are mostly exposed to. The safe and healthy practices carried out by some workers were also observed. The instruments used in collecting data have been attached in the Appendices. As clearly outlined in the interview schedule, the main questions asked hinged on the following thematic areas: (a) institutional context of OHS; (b) health and safety working conditions; (c) exposure to workplace hazards; and (d) managing and promoting safety and health at the workplace.

Pilot study

A pilot study was conducted to ensure that the data collection instruments to be administered to workers in the various categories was consistent and follows a logical pattern such that responses do not contradict

with the objectives of the study. The pilot test enabled the researcher to identify the weaknesses pertaining to ambiguities in wording. It also enabled the researcher ascertain the length of time for responses to the interview schedule and observation checklist.

The pilot study was carried out in Elmina, a suburb of Central Region. Respondents were selected in the same manufacturing industries being studied under this survey. Prior to this survey, the research sought to examine and estimate the economic cost of occupational injury and disease borne by informal manufacturing sector workers, their families and the nation at large. This objective was based on the premise that when the costs associated with work injuries and diseases are well quantified, it will clearly demonstrate the need to minimise them at work environments.

During the pilot study, respondents were unable to provide information on their expenditure on occupational diseases and illness, their income levels and other cost-related parameters. Consequently, this objective was no more pursued in the main work.

Although theories were identified for estimating economic cost of injuries and diseases, to date, there is little evidence that economic cost and productivity cost measurements have been applied or are indeed applicable to the informal sector in developing economies. Given the difficulties associated with accurately measuring costs of OHS and the low level of resources available for such research especially in developing countries, it is important that in the future, data collection is strategically coordinated and directed for the purposes of both persuading and motivating appropriate stakeholders to

invest in providing accurate OHS information for the formulation of effective OHS intervention strategies.

All together, these methods aided in establishing rapport with respondents, provided clarification on some of the questions and translated it into local language for some respondents who did not have formal education.

Field work experience

A number of experiences were encountered during interactions with the respondents. One main observation made was that, respondents were not willing to be interviewed. They explained that they had granted similar interviews to previous researchers who promised to reward them with money and or gifts but failed to do so after gathering the information they needed. As a result, they demanded some form of remuneration before granting the interview. The researcher therefore had to provide snacks and sometimes lunch for most respondents. Secondly, some employees and apprentices were very uncomfortable with and intimidated by the presence of their employers when responding to questions especially regarding the availability of PPE. In such circumstance, the questions were explained to the extent possible, that respondents answered them objectively. To achieve this, the researcher had to ask some of the questions in respondents' local dialect.

Finally, for most workers especially that of metal and food workers whose work involved high exposure to fire, the researcher had to wait for several hours before a respondent could be available to be interviewed. Some of the respondents were also reluctant to grant the interview because they did

not see any improvement in their conditions of work after granting audience to similar researches.

Data analysis

The data were collated and edited in order to address all questions. After editing the data from the interview schedule, responses for closed-ended questions were coded. After editing and coding, the Statistical Product and Service Solutions (SPSS, version 20) software was used to generate descriptive statistics in the form of frequency distributions and graphs for further interpretation. Qualitative data obtained from interviews was transcribed and put into themes before analysing the content.

Ethical issues

To anticipate ethical issues and other considerations for this study, the protection of human subjects concerning interview confidentiality and respect for respondents were adhered to. No judgmental gestures or even further probing for answers when respondents were reluctant to provide information was made.

Additionally, all respondents' identity remained confidential and they were assured of their right to withdraw from the study at any time. The researcher ensured that no respondent was under any pressure or discomfort before, during, and/or after participating in the study.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

The results of the analysis are discussed to reflect the main objectives of the research in relation to the literature review and the conceptual framework. The chapter begins with the demographic characteristics of all respondents, followed by the institutional context of OHS and subsequently discusses the health and safety conditions of each identified work category and ends with some interventions being used by employers and employees. Apart from the fact that workers were highly exposed to work-related hazards, the research revealed that the level of horizontal co-ordination and information sharing between OHS institutions is fairly low. This lack of coordination prevents the performance of a more integrated health and safety function. Additionally, it was found out that almost five out of every 10 respondents did not belong to any association mainly because they did not derive any benefits from these associations.

Demographics

The principal demographic characteristics of respondents from the informal manufacturing sector workers considered were their age, gender, education, and employment status. Out of the 40 respondents that responded to the interview schedule, 13 respondents were between the ages of 18 – 24, representing 32.5 percent of the total respondents. Seven respondents

representing 17.5 percent were above 36 years whereas the remaining 20 (50%), being the largest group fell within the 25 and 35 years category.

Of the 40 respondents selected across the informal manufacturing sector, 30 (75%) had attained education from primary to senior high school. Only five respondents representing 12.5 percent had never attended school. Regarding marital status, 28 respondents (70%) were single followed by 11 respondents (27.5%) who were married. Only one respondent (2.5%) was divorced and none of them were widowed. To determine the demographic nature for each work category, an analysis was done to reflect the sex, education, marital status and age of each category. The results are presented below.

Sex distribution of informal manufacturing workers. Males, 27, dominated the sample of informal manufacturing workers (67.5%) particularly in the metal and wood work categories because the work required lots of physical strength with the exception of textile workers. Whereas all 10 wood workers were males, nine out of the 10 metal workers were males. It was however observed that 80 percent (8 respondents) of the 10 workers within the food industry were females. This is in line with Osei-Boateng and Ampratwum (2011) who identified that women dominate food processing category while men constitute a clear majority in metal works and wood processing.

When an enquiry was made into this matter through a personal interaction, respondents of the food processing industry explained that though their work involved lifting heavy objects and materials, society associated the work with women and hence, males who engage in such activities were

ridiculed. It was therefore not surprising to realise that the only two male food workers interviewed during the survey were relatives of the employers in the food category. One other interesting observation that was made was a female metal work apprentice who explained that she had no option than to learn the trade to make ends meet. An analysis of the sex distribution of the informal manufacturing workers is presented in Table 3.

Table 3: Sex distribution of informal manufacturing sector workers

Sex	Work category				
	Wood	Food	Textile and Garments	Metal	Total
Males	10	2	6	9	27
Females	0	8	4	1	13
Total	10	10	10	10	40

Source: Field survey, May 2014

Education distribution of informal manufacturing workers. The results of the analysis carried out to determine the educational level of informal manufacturing workers is presented in Table 4. Though the study revealed that respondents had attained one level of education or the other, only four respondents (10%) had attained secondary education. Those who had attained junior secondary education were 14 (35%) closely followed by 12 respondents (30%) who had attained only primary education. Those who had no form of education, five, constituted 2.5 percent of the respondents. In line with the claim made by Osei-Boateng & Ampratwum (2011), growing informality in

Ghana can be explained by the low educational attainment of workers within the sector.

Undoubtedly, the informal manufacturing sector requires the acquisition of skills, which is usually learnt in technical and vocational institutions. The analysis however showed that only five respondents (12.5%) had attended a vocational or technical school. The survey revealed that apprenticeship is the most common form of skill acquisition and ultimately, employment in informal manufacturing units. This key finding was also presented by Osei-Boateng and Ampratwum (2011).

Although it can be argued that education is not a requirement for employment within the sector under study, employers within the metal and wood work categories made it known that a primary education is a pre-requisite for employment or skills acquisition as an apprentice in their industries. This was confirmed when the analysis showed that respondents who had no form of education were registered in the food and textile and garments work categories only. Additionally, of the four respondents with technical education, two were employers, one an employee and the other an apprentice; interestingly, all the other employers (7) had primary education.

Table 4: Education level of informal manufacturing workers

Education	Work category				
	Wood	Food	Textile and Garments	Metal	Total
None	0	3	2	0	5
Primary	3	3	4	2	12
JHS	5	4	2	3	14
SHS	1	0	1	2	4
Technical	1	0	0	3	4
Vocational	0	0	1	0	1
Total	10	10	10	10	40

Source: Field survey, May 2014

Marital status distribution. The study showed that seven out of every 10 respondents were single; 11 of them (27.5%) were married and only one respondent representing 2.5 percent had divorced. One observation made was that for each category, over 50 percent of the respondents were single.

Interestingly, the study showed that seven out of the nine employers were married whiles the remaining two were single. In particular, all work categories with the exception of the metal work category registered married employers. Ultimately it was found out that the majority of the marital status with the highest respondents (i.e. single respondents) was either employees or apprentices. Specifically, of the 28 single respondents, 15 and 11 respondents were apprentices and employees respectively.

When employers of the various categories were probed further on this trend, they explained that employing married people or accepting married people as apprentices usually jeopardised their work productivity due to their seemingly numerous marital responsibilities. As a result, they preferred to employ singles who had fewer responsibilities relative to married people so as to focus on the job. The only divorce incident was recorded in the textile and garments work category. Below is the distribution of marital status of the respondents.

Table 5: Marriage distribution of informal manufacturing sector workers

Marital Status	Work category				
	Wood	Food	Textile and Garments	Metal	Total
Married	2	4	2	3	11
Single	8	6	7	7	28
Divorced	0	0	1	0	1
Total	10	10	10	10	40

Source: Field survey, May 2014

Age distribution of informal manufacturing workers. The result of the analysis showed that 50 percent of the respondents (20) were within the 25 – 34 age category whiles the remaining 50 percent were either 35 years and above or within the 18 – 24 age category. Of all the 20 respondents within the 25 – 34 age group, only three respondents were within the food category. Altogether, the age bracket of 18 – 34 years formed about 82.5 percent of all respondents (33 respondents). With the wood category in particular, which

recorded the highest number of singles (8), the research showed that five out of the 10 respondents (50%) were within the 18 – 24 age group and the remaining 50 percent were within the 25 – 34 age group. The large share of the youth in the informal manufacturing sector not only reflects the youthful nature of the informal sector in general, but also the fact that the informal manufacturing sector comprises young and energetic youth whose skills need to be developed and enhanced to ensure the development of the sector. This scenario was also depicted by Ametepeh (2011).

With regard to employment status relative to age distribution, the study revealed that four out of the nine employers (44.4%) were in the 36 – 50 age bracket whereas the remaining two employers were in the 18 – 24 and were metal workers. Considering this as a unique situation, a further probing revealed that they are brothers whose parents owned the equipment at the workshop. Additionally, the majority (9 out of 13 respondents) of the 18 – 24 age bracket were apprentices and about one-half (10 out of 20 respondents) of the 25 – 35 age group were employees. The age distribution of respondents of the four work categories is shown below.

Table 6: Age distribution of informal manufacturing sector workers

Age group	Work category				
	Wood	Food	Textile and Garments	Metal	Total
18 – 24	5	3	2	3	13
25 – 34	5	3	7	5	20
35 and above	0	4	1	2	7
Total	10	10	10	10	40

Source: Field survey, May 2014

Institutional context of occupational health and safety

The first specific objective of this research was to explore the institutional context of OHS of informal manufacturing sector workers in Cape Coast metropolis. This also plays a key role in the conceptual framework governing the survey given that it contributes to the overall health and safety of informal workers. In evaluating this objective, employers of the various industries were asked to indicate if they belonged to an association and or had registered their work place with any organisation. Additionally, policies that exist in Ghana and at the work place to ensure improved OHS as well as periodic visits from OHS institutions were also assessed.

The institutional analysis carried out revealed that OHS institutions, which operate largely at the national level are limited in their span of work and are also under resourced. It was also realized that OHS institutions, as they exist now, may not be able to implement the provisions made for informal sector workers in Ghana's latest labour legislation. The two key officials of the

NBSSI revealed that their institution had no clearly defined mandate concerning OHS. In fact, it was during interactions with the officials that they realised the need to incorporate OHS policies in their overall strategy of improving productivity. They were also oblivious of any OHS policy for informal workers and noted that they had no OHS programmes tailored for informal sector workers. One official mentioned that "we do not have any policy concerning OHS in the informal sector".

Although the Department of Factories Inspectorate (DFI) official acknowledged the institutions mandate concerning OHS and more especially for informal sector workers, he was not able to explain vividly their strategy in ensuring health and safety for informal manufacturing workers. He admitted that they hardly went on inspection in the informal manufacturing sector and had no budget allocation for informal workers. He stated categorically that "we hardly go for inspection in informal work places". It is worthy of note that the DFI is the lead OHS agency in the country, and still operates under the out-dated Factories, Offices and Shops Act of 1970, which limits its mandate to covering workers in those workplaces.

The DFI also has limited financial and human resource capacity. It has offices in only five of the 10 regions of Ghana, which means that each office has to cover approximately two regions. Inspectors are limited in their ability to inspect work premises by a lack of transport. Under the current circumstances it is clear that the DFI would only be able to incorporate informal workers into its mandate when they are well resourced and changes made to legislation. Furthermore, the results of the interaction with officials of both the NBSSI and the DFI show that there are institutions at the level of local government, which

have the mandate and ability to improve the working conditions of informal manufacturing workers.

Informal manufacturing sector workers with registered work places. Concerning registration and recognition by the Cape Coast Metropolitan Assembly (CCMA) of the activities of the informal manufacturing sector, 14 respondents representing 35 percent of respondents did not know if they had registered their work place or not and of these, the apprentices formed the majority (11 respondents). This was not surprising since apprentices may not know about the registration of the workplace. The remaining 26 respondents (65%) were equally distributed among those who responded "yes" and those who responded "no". As shown in Table 7, 80 percent of the wood workers (8 respondents) noted that they had registered their workplace whereas only 30 percent (3 respondents) and 20 percent (2 respondents) of textile and garments and metal workers respectively, had registered. As one metal worker clearly stated "yes, I have registered my workplace with the CCMA". Interestingly, no food worker responded "yes" to this question. The survey recorded most employers (6 out of the 9 employers) noting that they had registered their work place. This was largely attributed to the fact that employers were primarily responsible for registering the workplace.

The results partly confirms the definition of informal sector by the Economic and Social Commission for Asia and the Pacific as all unregistered enterprises below a certain size who hire one or more employees on a continuing basis. Considering the diversity of issues within the institutional

context of the informal manufacturing sector as discussed above, it clearly demonstrates the heterogeneous nature of this sector. This, to a large extent, confirms the literature of Adu - Amankwah (1999) who sustains in his findings that informal sector is heterogeneous. An analysis of informal manufacturing workers with registered work premises is presented in Table 7.

Table 7: Registered informal work places

Response	Work category				
	Wood	Food	Textile and Garments	Metal	Total
Yes	8	0	3	2	13
No	1	5	4	3	13
Don't Know	1	5	3	5	14
Total	10	10	10	10	40

Source: Field survey, May 2014

The Cape Coast Metropolitan Assembly (CCMA), with which informal workers register, has the responsibility of overseeing the activities of the informal workers. Given the above results where a relatively small percentage of workers had not registered with the CCMA, the general consensus in most literature that the informal sector is the part of the economy of the country that is not regulated by the state could be contested. Additionally, Benton, Castells and Porte's (1989) view that the "informal sector is characterised by one central theme as an unregulated institution of the society in a legal and social environment in which similar activities are regulated" contradicts this study.

Affiliation to associations by informal manufacturing workers. The research revealed that about 45 percent (18) of the respondents did not belong to any association whiles 30 percent (12) had registered with one association or the other. The remaining 25 percent (10) responded "don't know". According to respondents who had joined an association, their associations sought to help members by advocating for improved services from government, marketing of their products and providing opportunities for expanding their jobs. A respondent clearly mentioned that "we join associations mainly because it enables us to access to loan and creates a platform for members to assist each other".

Table 8 clearly shows the differences in the four categories of industries that were either affiliated to an association or otherwise. Of all the respondents, the textile industry recorded the highest number of people who had joined an association (6 respondents) whereas the metal industry recorded the least (1 respondent). The research further revealed that six out of the 10 metal workers responded "don't know".

Although the interview schedule did not request respondents to explain why they had not joined any association, a further probing was done to understand their reasons for not being affiliated especially for the food category, which had the highest turn out (6 out of 10). It turned out that they do not derive any benefit from joining these associations even after paying mandatory periodic dues and contributions. For the respondents who did not know if they belonged to an association or not, the explanation was that their respective employers were responsible for their affiliation to associations and they sometimes do that without their knowledge. As a result, they cannot tell if

they have been included or not. This ultimately confirms what Burton (2009) perceived that the informal sector is the non-regulated labour market, which usually involve workers with unwritten arrangements with an employer and who are not documented as workers in government records.

One other observation made was that, the majority (6 out of 10) of those who noted that they did not know if they belonged to an association or not, were apprentices. For instance, the metal category which recorded only one person being affiliated to an association had 50% (10) of its respondents being apprentices. These workers (i.e. apprentices) also constituted the majority of those who do not belong to an association (10 out of 18).

It can therefore be inferred from these results that apprentices within the informal manufacturing sector in the Cape Coast metropolis have minimal affiliation with an association. Meanwhile, six out of the nine employers belonged to an association. The main associations observed were the Garages Association for metal workers, Wood Workers Association for wood workers, and the Dress Makers and Tailors Association for the textile and garment workers. Table 8 presents the results of the analysis on the level of affiliation of informal manufacturing workers to various associations.

Table 8: Informal manufacturing workers' affiliation to an association

Response	Work category				
	Wood	Food	Textile and Garments	Metal	Total
Yes	2	3	6	1	12
No	5	6	4	3	18
Don't Know	3	1	0	6	10
Total	10	10	10	10	40

Source: Field survey, May 2014

Visits from OHS related institutions to work places of informal manufacturing sector workers. The results of the analysis performed to assess respondents who had been visited by OHS related institutions are presented in Table 9. In all, only 14 respondents (35%) of the total responses affirmed that they had received a visit from an institution or organisation while 15 respondents representing 37.5 percent had not received any visit. The remaining 11 respondents (27.5%) had no idea of any form of visitation from any OHS related institution. Of all those who received visits from OHS related institutions, it was observed that wood workers received most (6 out of the 14 responses) of the visits followed by the textile and garment industry where 4 of the respondents (28.6%) affirmed receiving a visit. This outcome was not surprising as 80 percent of workers within the wood category noted that their work place had been registered. Further, 14.3 percent of equal responses (2 respondents each) were received from both the metal and food industry.

Table 9: Visits received by workers from OHS related institutions

Response	Work category				
	Wood	Food	Textile and Garments	Metal	Total
Yes	6	2	4	2	14
No	3	5	4	3	15
Don't Know	1	3	2	5	11
Total	10	10	10	10	40

Source: Field survey, May 2014

An analysis carried out to distinguish between the responses from employers, employees and apprentices among the four categories revealed that whereas most (8) of those who noted that they received visits from institutions were employers, the majority of those who responded "no" (9 out of 15 representing 60%) and "don't know" (8 out of 11 representing 72.7%) were apprentices. As a matter of fact, no employer responded "don't know". These results clearly portray that the interest of institutions that visit these informal workers were usually with the employers.

As a result, the workers viewed the institutions to be interested in money collection and not their welfare. As one respondent noted, "if it is not for money, officials of CCMA will never come to my workshop". When workers were asked to indicate if they received any visits from any institution and the reason for the visit, they noted most institutions were not interested in their health and safety. However, contrary to Ametepeh (2011) who, in her study of informal service workers, noted that there was not a single institution which was interested in the health and safety of workers, metal workers

indicated that they receive visits from the National Fire Service for training on procedures for combating fire outbreaks. This is illustrated in Table 10.

Table 10: Reasons for visits by institutions

Institution	Reason for visit
Internal Revenue Service	Collection of revenue
Cape Coast Metropolitan Assembly	Collection of ground rent
National Fire Service	Training on fire combating

Source: Field survey, May 2014

As noted earlier, although the various labour laws in Ghana do not seem to distinguish between formal and informal sector workers in coming out with conventions to protect their health and safety, the national constitution gives every citizen the right to work under satisfactory, safe and healthy conditions. Therefore, government institutions not being interested in the health and safety of informal manufacturing sector workers and yet burdening them with revenue collection is a very disturbing scenario.

As viewed by the structuralist school of thought, which is one of the three dominant schools of thought on the 'informal sector', this study also "conceives the informal sector as economic units and workers that are inextricably connected to and ultimately exploited by formal modes of production" (Castells & Portes, 1989, p.18). Given that revenues from these informal activities are recorded by the Internal Revenue Service and ultimately, included in national income accounting, it goes to contradict with the definitional approach by Farrell, Matthew and Roman (2000) who views the informal sector as an economic activity, which is unrecorded in the official

statistics such as the Gross Domestic Product (GDP) and National Income Accounts (NIA).

OHS conditions of informal manufacturing sector workers

The second objective of the research sought to describe the existing working conditions faced by the informal manufacturing sector workers in Cape Coast. Having examined the state of their health and safety, an assessment could be conducted after the interventions modelled in the conceptual framework have been implemented. In assessing the health and safety conditions of informal manufacturing workers, the researcher examined some specific occupational hazards to which respondents are easily exposed. They include physical, chemical, ergonomic and psychosocial hazards. Subsequently, the availability and use of some essential Personal Protective Equipment and safety equipment is discussed.

Physical hazards. As depicted in Figure 3, the only physical hazard which recorded less than half of the respondents, 19 out of 40, (47.5%) agreeing to its exposure was dust. It is also worthy of note that 28 of the respondents (70%) recognise their exposure to burns, closely followed by fumes/smoke, which saw 26 respondents representing 65 percent answering 'yes'. Results of the analysis conducted on informal manufacturing workers exposure to physical hazards is presented below.

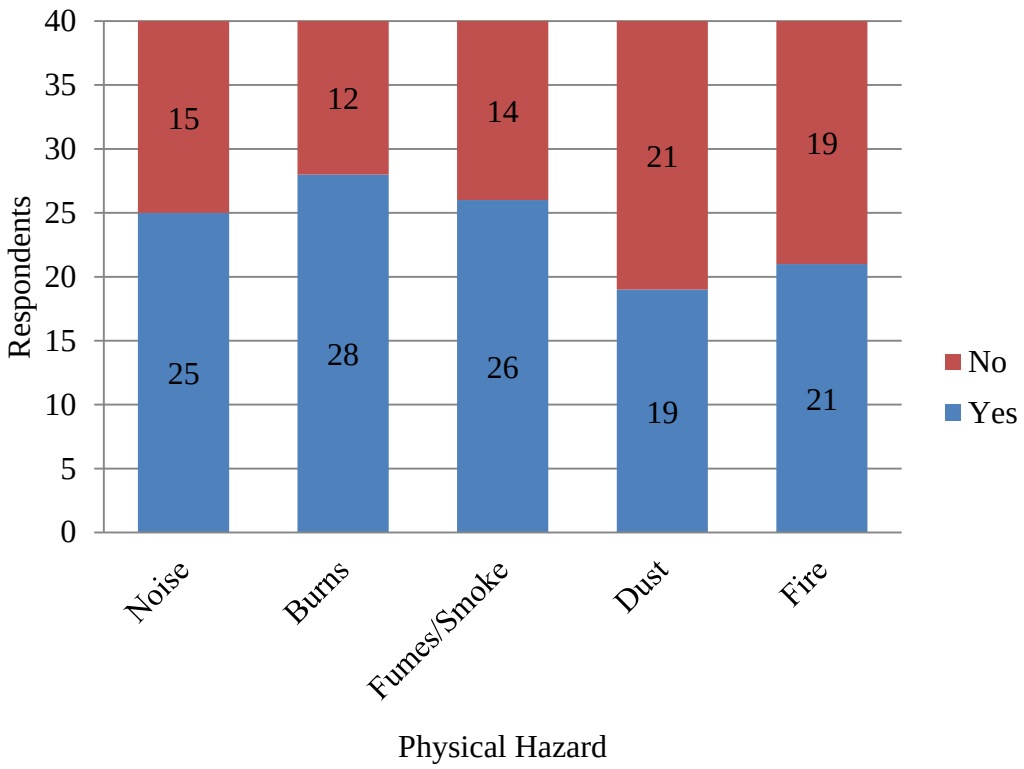

Figure 3: Exposure to physical hazards

Source: Field survey, May 2014

Most informal manufacturing workers are victims of physical hazards. The level of exposure to the forms of hazard as well as the effect of the hazards on workers' health however varies across the four work categories. The survey revealed that more than 50 percent of all respondents agreed that they were exposed to noise, burns, fumes/smoke and fire. A detailed analysis of respondents who indicated that they are exposed to various physical hazards is presented in Table 11.

Table 11: Informal manufacturing workers' exposure to physical hazards

Physical Hazard	Work category				
	Wood	Food	Textile and Garments	Metal	Total
Noise	10	2	3	10	25
Burns	3	9	6	10	28
Fumes/Smoke	5	10	1	10	26
Dust	8	4	0	7	19
Fire	1	9	1	10	21

Source: Field survey, May 2014

Noise. The analysis depicted in Table 11 shows that 25 out of the 40 informal manufacturing workers were exposed to noise. It can be inferred from Table 12 that apprentices were exposed to noise the most (10 respondents out of 25 representing 40%) followed by employers (8 out of 25 respondents representing 32%) and employees (7 out of 25 respondents representing 28%). Unlike wood and metal workers, food and textiles and garment workers did not consider noise as a major physical hazard. They mentioned that the main source of noise was from cars moving on the street and the majority of them (7 food workers and 6 textile and garment workers) perceived it to be moderate. It is interesting to note that 7 respondents (70%) and 8 respondents (80%) of wood workers and metal workers respectively perceive their exposure to noise has very high and recognise the effects of the noise on their hearing ability. It is also worth mentioning that all (100%) the metal workers acknowledged that they were exposed to noise during work hours. Those whose sense of hearing was affected claimed they had pains in their ears and others had an impaired hearing. The researcher attests to this fact since some respondents had difficulties in hearing the researcher during the administration of interview schedule. In fact, one respondent kept repeating that "we are exposed to so

much noise that it has even affected the way I talk. I am unable to talk undertone even when I'm not at work". This clearly confirms what Amedofu (2002) noted in his study that in most manufacturing work environments, permanent hearing loss is the main health concern.

This also falls in line with the Canadian Centre for Occupational Health and Safety that identified noise as one of the most common occupational health hazards. Metal and wood workers are the major sufferers when it comes to noise. The analysis revealed that of all workers within the wood and metal work categories were exposed to noise. This was followed by textiles & garments (3) and food (2) workers. This affirms a study on occupational safety in Gaborone, Botswana (Buhlebenkosi *et. al*, 2013) that identified welders (metal workers) and carpenters (wood workers) to be exposed to noise due to their nature of work. During data collection, it was observed that workers spent long hours on different machines. The main source of noise exposure is from the machines being used. For instance, the metal workers mentioned that, they could spend several hours grinding and cutting metals. Due to the noise level in the wood and metal shops, the researcher had to talk louder than usual during the administration of the interview schedule and likewise the respondents. Table 12 presents respondents who indicated that they were exposed to noise.

Table 12: Informal manufacturing workers' exposure to noise

Respondent	Work category				
	Wood	Food	Textile & Garments	Metals	Total
Employer	2	2	2	2	8
Employee	3	0	1	3	7
Apprentice	5	0	0	5	10
Total	10	2	3	10	25

Source: Field survey, May 2014

Burns. With regard to burns, the findings of the research revealed that informal manufacturing sector workers are highly exposed to this physical hazard. The majority of the respondents, 28 (70%) agreed to their exposure to burns as indicated in Table 13. It can be deduced from Table 13 that of all those who acknowledged their exposure to burns, metal workers were the highest (all 10 respondents). This was observed to be a result of the nature of their work, which involved the use of welding and metal-grinding machines. Food workers followed in this regard (9) where one respondent stated that "we are highly exposed to heat and burns from boiling oil for very long hours". This scenario was quite disturbing given that only three (30%) of metal workers and five (50%) of food workers had first aid tool kit at their workplace. The researcher observed that most of the respondents had sustained injuries and scares caused by burns on their skin.

When respondents were asked to rate their level of exposure to burns at their respective workplaces, the result of the analysis showed that nine out of

the 10 (90%) metal workers rated their exposure as very high whereas seven (70%) of the textile and garment workers had a low exposure rate. The latter attributed their burns to mishandling of an iron, which seldom happens.

An observation was made from the analysis in Table 13 that apprentices were most (11 out of 28) exposed to burns. For instance, the only responses from the wood category were given by apprentices. The question therefore arises if jobs that pose the risk of burns are largely reserved for apprentices. A further research would be required to ascertain this.

Table 13: Informal manufacturing workers' exposure to burns

Respondent	Work category				
	Wood	Food	Textile & Garments	Metals	Total
Employer	0	3	2	2	7
Employee	0	5	2	3	10
Apprentice	3	1	2	5	11
Total	3	9	6	10	28

Source: Field survey, May 2014

Fumes/Smoke. Closely related to burns is the exposure to fumes/smoke. Close to 70 percent (26 out of 40) of informal manufacturing sector workers were exposed to fumes/smoke. From Table 14, it can be deduced that all food and metal workers (being the highest exposure) are exposed to fumes/smoke at their work place. Whereas the metal workers noted fumes/smoke are generated in their normal course of work when welding and grinding metals, food workers on the other hand attributed it to fires made to process their end products. Palm kernel oil producers for instance, made fires

using the palm nut shells, which produce huge quantities of smoke. This situation is disheartening considering the fact that none of the food workers used nose mask.

Table 14: Informal manufacturing workers' exposure to fumes/smoke

Respondent	Work category				
	Wood	Food	Textile & Garments	Metals	Total
Employer	2	3	0	2	7
Employee	3	5	1	3	12
Apprentice	0	2	0	5	7
Total	5	10	1	10	26

Source: Field survey, May 2014

Dust. In all, 19 out of the 40 respondents representing 47.5 percent, were found to be exposed to dust, the largest being experienced by wood workers (8 respondents). Wood workers were highly exposed wood dust. These dusts are usually generated through cutting or machining of wood materials during operation and when inhaled, can cause respiratory tract infections. Indeed, wood dust poses a risk to the health and safety of employees within the wood products manufacturing industry. Food workers on the other hand experienced the least exposure (4 respondents). This notwithstanding, the food workers complained bitterly of their exposure to particles from the shells of the palm kernel and its subsequent effect on their visual ability. They added that they however have no measures to remedy the situation. In addition to dust from working environment, wood workers also noted that saw dust was another major physical hazard they face. Textile and garment workers were however

not exposed to dust given that they work in enclosed shops. Metal workers were also exposed to dust since they worked in open, dusty environments.

Table 15: Informal manufacturing workers' exposure to dust

Respondent	Work category				
	Wood	Food	Textile & Garments	Metals	Total
Employer	2	3	0	0	5
Employee	3	1	0	2	6
Apprentice	3	0	0	5	8
Total	8	4	0	7	19

Source: Field survey, May 2014

Fire. With regard to the exposure of informal manufacturing workers to fire, Table 11 shows that a little over half (21) of the respondents were exposed to fire at their workplaces. In analysing the individual exposures of the various work categories, metal workers were found to be most exposed. Interestingly, 10 respondents out of all those who agreed to their exposure to fire were metal workers as illustrated in Table 16. This clearly shows that of all informal manufacturing sector workers, metal workers are exposed to fire the most. The main source of fire, as explained by metal workers, is from welding machines. To the surprise of the researcher, the situation was made more critical when flammable chemicals were observed at the work place. This is further discussed below.

The next category of workers with much exposure to fire was food workers (9) mainly for the same reasons as that for their exposure to

fumes/smoke. It is however unfortunate that whereas only two out of the10 metal workers had fire extinguishers, no food worker had a fire extinguisher at their work place.

The mode of waste disposal is very crucial in determining the cleanliness of a particular place. When asked to indicate the mode of waste disposal – either by dumping them in running water, open surface, drainage, refuse dump or dump sites – the findings of the research showed that four out of every 10 respondents (40%) of informal manufacturing workers dispose their waste mainly by burning them. This, they noted, had been the practice for a very long and largely contributed to their exposure to fire.

As part of the possible causes for their exposure to fire, the researcher also observed the following: overloading of electrical appliances, cooking with naked fire especially in the case of food workers and defective electrical equipment being used by some metal workers. Additionally, although the majority of the textile & garment workers noted that they were not exposed to fire, there is a high risk of fire, because the materials used are easily ignitable as noted by Regoeng (2003). The problem is further compounded by a lack of fire fighting equipment.

Table 16: Informal manufacturing workers' exposure to fire

Respondent	Work category				
	Wood	Food	Textile & Garments	Metals	Total
Employer	1	3	0	2	6
Employee	0	5	1	3	9
Apprentice	0	1	0	5	6
Total	1	9	1	10	21

Source: Field survey, 2014

Chemical hazards. The work of informal manufacturing workers to some extent, involve the use of very harmful chemicals. An analysis of their exposure to chemical hazards is presented in Table 17. In assessing their exposure to chemical hazards, one out of every two respondents (50%) noted that their work involved the use of a chemical. Of all those who acknowledged their exposure to chemical hazards, metal (9 out of 20) and wood workers (8 out of 20) were exposed the most as shown in Table 17. Undoubtedly, workers' health is at risk because they are constantly exposed to various types of chemicals in their workplaces. Similarly, a survey of 100 informal sector workers in Kenya also noted that about 90 percent of the workers are exposed to chemical hazards (Karanja *et. al.,* 2003).

Table 17: Informal manufacturing workers' exposure to chemical hazards

Respondent	Work category				
	Wood	Food	Textile & Garments	Metals	Total
Employer	0	1	1	2	4
Employee	3	0	1	3	7
Apprentice	5	0	0	4	9
Total	8	1	2	9	20

Source: Field survey, May 2014

As explained by the National Institute of Occupational Saftey and Health (2012) the toxicants as well as the radiations of light resulting from the use of these chemicals for welding, abrasive cleaning, fusing vehicle parts together and spraying activities pose significant health risks to these workers.

It is encouraging to know that informal manufacturing workers are cognisant of the poisonous nature of the chemicals they use. This is because, of the 20 respondents (50%) whose work involved the use of chemicals, eight (40%) and 11 (55%) of respondents perceive their chemicals as highly poisonous and moderately poisonous respectively. Only one respondent viewed chemicals as slightly poisonous and no respondent considered chemicals as unlikely poisonous. Although one could say that the likelihood of these workers in getting seriously injured by chemicals is very low due to their knowledge on the poisonous nature of these chemicals, the reverse was observed.

Some of the common poisonous chemicals used by informal manufacturing workers, particularly, wood and metal workers include: paint additives, thinner, turpentine, vanish, petrol, gasoline and other volatile organic

compounds. These chemicals are used in abrasive cleaning, fusing metal parts together and spraying. Below is the chemical composition of some of the chemical products and their corresponding health risks:

Table 18: Chemical composition and health risks of some chemical products

Product	Chemical composition	Health risk
Paint additives	Binder, Solvent, Pigment and Additives	When inhaled excessively causes difficulty in breathing and over a long period of time gives asthma symptoms.
Isocynates	Compounds classified as potential human carcinogens	Irritation of skin and difficult breathing.
Gasoline	Benzene, toluene, ethyl benzene, xylene Hydrocarbons, alkane cyclic and aromatic compounds	Most exposure causes serious respiratory problems or even death.

Source: Field survey, May 2014

Due to the nature of these chemicals and in addition to other factors, as much as 28 (70%) and 21 (52.5%) were exposed to burns and fire respectively as discussed above. Unfortunately, most of them, 32 respondents representing 80 percent, do not read labels on chemicals before using them primarily due to their level of education.

Ergonomic hazards. The research revealed that informal manufacturing workers are exposed to a number of health problems as a direct result of the posture adopted at their various work places. Table 19 shows that neck pain is most prevalent among informal manufacturing workers where 38 (95%) of the respondents admitted that they experienced neck pains in the course of their work. This is closely followed by general body pains and backache, which saw 35 (87.5%) respondents each responding yes. It is however observed that just a little over half the respondents, 22 (55%), experience muscle related problems.

The researcher observed that the commonest posture used by most workers was either standing, bending, sitting or squatting or a combination of any of them depending on what they were doing at any given time. This was evident when 35 (87.5%) respondents acknowledged that their usual posture at work was not comfortable and also caused pains in their bodies. Nearly all the respondents complained of pains associated with their posture. These pains included waist, knee, feet and general body pains. The results of the analysis are presented below.

Table 19: Exposure to ergonomic hazard in the four work categories

Ergonomic Hazard	Work category				
	Wood	Food	Textile & Garments	Metal	Total
General body pains	10	9	6	10	35
Backaches	10	9	6	10	35
Neck problems	10	10	8	10	38
Waist pains	9	9	7	9	34
Muscle related problems	5	6	5	6	22

Source: Field survey, May 2014

As identified by Ametepeh *et. al.* (2013), poor workplace design, awkward body mechanics or postures, repetitive movements, and other ergonomic hazards induce or contribute to a staggering number of cumulative and musculoskeletal trauma disorders. It is worthy of note that the remaining five (12.5%) respondents did not acknowledge any body pain claiming that their bodies had become used to their respective postures at work. This partially reflects what Ametepeh (2011) identified in the study of occupational health hazards and safety of the informal sector in the Sekondi-Takoradi Metropolitan Area. Their study revealed that 54 percent of the mechanics interviewed were of the view that with passage of time, their posture becomes comfortable as they become used to the work.

To ascertain the proportionate ergonomic hazard being faced by employers, employees and apprentices, an analysis was carried out and the result is provided in Table 20. It can be inferred from Table 20 that with the exception of the food category, apprentices experience general body pains the

most in all the other work categories. It was observed during data collection that most of the very tedious jobs are left for the apprentices. The employers explained that reserving the very tiring jobs for apprentices was part of their requirements prior to skill acquisition. Clearly, employers suffered general body pains the least as revealed in Table 20.

Table 20: General Body Pains

Respondent	Work category				
	Wood	Food	Textile & Garments	Metals	Total
Employer	2	2	1	2	7
Employee	3	5	0	3	11
Apprentice	5	2	5	5	17
Total	10	9	6	10	35

Source: Field survey, May 2014

The scenario for workers who experienced backaches was not so different from that of the general body pains. Again, apprentices suffered backaches the most and employers the least. Unlike general body pains where no employee in the textile and garment category answered "yes", two employees indicated that they experienced backaches.

Table 21: Backaches

Respondent	Work category				
	Wood	Food	Textile & Garments	Metals	Total
Employer	2	2	1	2	7
Employee	3	5	2	3	13
Apprentice	5	2	3	5	15
Total	10	9	6	10	35

Source: Field survey, May 2014

With regard to neck problems, it was observed all the categories suffered it in one way or the other. Notably among them were apprentices in the textile and garments followed the wood and metal work categories. One interesting observation made was that more employees (5) in the food category experienced neck problems than apprentices in the same category (2).

Table 22: Neck Problems

Respondent	Work category				
	Wood	Food	Textile & Garments	Metals	Total
Employer	2	3	1	2	8
Employee	3	5	1	3	12
Apprentice	5	2	6	5	18
Total	10	10	8	10	38

Source: Field survey, May 2014

In the case of waist pains, no employer in the textile and garment category experienced it. They explained that they played a supervisory role hence, hardly sit for long hours. This, together with the majority of apprentices

suffering waist pains, goes to affirm the assertion that employers reserve most of the very tedious jobs for apprentices to do.

Table 23: Waist Pains

Respondent	Work category				
	Wood	Food	Textile & Garments	Metals	Total
Employer	2	2	0	2	6
Employee	2	5	1	3	11
Apprentice	5	2	6	4	17
Total	9	9	7	9	34

Source: Field survey, May 2014

With regard to muscle related hazards, the analysis revealed that apprentices in the metal work category are exposed the most.

Table 24: Muscle related problems

Respondents	Work category				
	Wood	Food	Textile & Garments	Metals	Total
Employer	2	1	2	2	7
Employee	1	3	1	1	6
Apprentice	2	2	2	3	9
Total	5	6	5	6	22

Source: Field survey, May 2014

The major cause of these ergonomic hazards revealed by the survey is the long working hours of informal manufacturing workers coupled with the infrequent breaks and poor eating habits they practice. As noted by one respondent, "wee only go for break when we feel hungry. There is no specific

time to go for a break. Moreover, we usually buy food from food vendors passing by". The majority, 25 (62.5%), of the respondents mentioned that they work between nine to 15 hours per day while the rest (15 representing 37.5%) work between the standard one to eight hours daily. A graphical presentation of the respective work categories and their work hours is presented below.

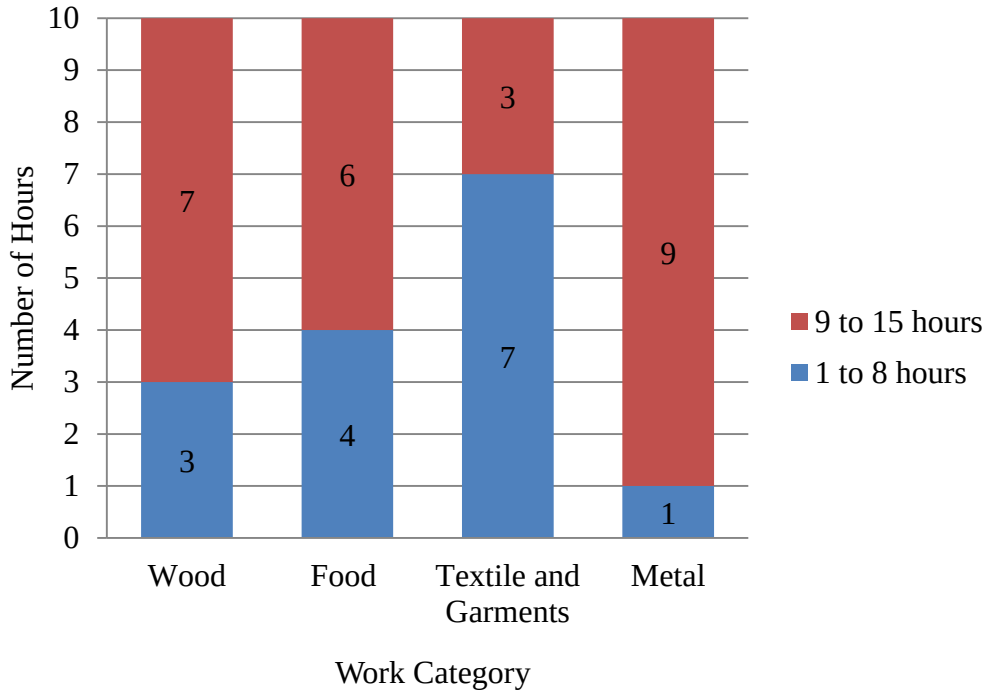

Figure 4: Number of working hours

Source: Field survey, May 2014

The study further revealed that although 30 (75%) of the respondents observe break periods, they only use the break periods to buy food and eat. They had no time for any scheduled rest breaks. The study revealed that 37 (92.5%) respondents do not observe public holidays as well as weekend breaks except for Sundays. As a result, their uncomfortable posture which causes pain is kept for six continuous days without any rest except for a few hours of sleep they observe. This agrees with Burton (2009) who noted that entitlement for

social benefits such as sick or maternity leave, paid retirement, or access to health care and applicability of legal rules such as limits on work hours and minimum wage require a formal job contract. Given the informal nature of these workers, the benefits identified by Burton (2009) are ignored.

Psychosocial hazards. Psychosocial hazards cause fatigue, stress and general loss of interest in work. According to Filiatrault,Vavrik, Kuzeljevic, and Cooper (2002) to be able to work efficiently one must sleep for not less than eight hours. Although, workers were observed to work long hours on their jobs, findings of the survey showed that more than half of them (23 representing 57.5%) sleep six to eight hours each day. About three (7.5%) of the respondents mentioned that they sleep between nine to 10 hours and the remaining 14 (35%) had about three to five hours of sleep. This increases their stress levels. Stress can cause fatigue and have a negative influence on personal health and safety (Jill, 1997).

When respondents were asked to rate the safety of their work environment, 16 (40%) said their work environment was very safe, 21 (52.5%) said it was safe. Only about three (7.5%) respondents mentioned that their work environment was unsafe. This was however in sharp contrast with the level of exposure of various health hazards as discussed earlier. In view of these parameters, 32 (80%) respondents were satisfied with their jobs. Those who were not satisfied, eight (20%), gave reasons such as having no option than to stay on their current jobs, low income, general lack of interest, maltreatment from supervisors and the tediousness of work.

Concerning employer – employee relationship, two (5%) respondents and one (2.5%) respondent had very poor and poor relationships with their employers respectively. About 35 percent (14 respondents) however enjoy very good relationship with their employers. The details are shown below.

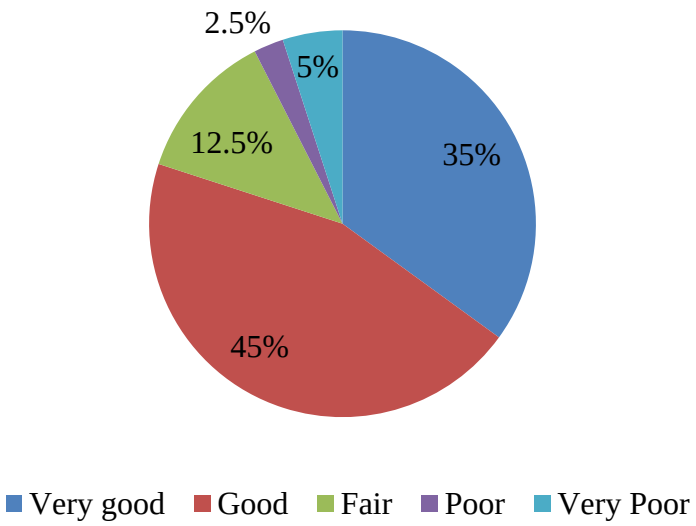

Figure 5: Employer-employee relationship

Source: Field survey, May 2014

Given the above discussed factors, it was not surprising to find more than half (26 respondents representing 65%) of the respondents acknowledging that their environment with respect to health and safety was poor. Only one out of every 10 respondents (10%) mentioned that they had a very good environment in terms of health and safety as shown below.

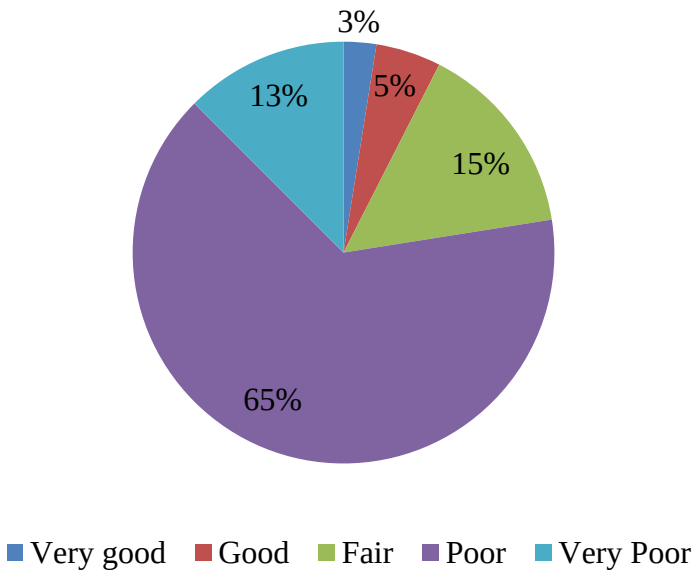

Figure 6: Health and safety status of respondents

Source: Field survey, May 2014

It has clearly been demonstrated that the health and safety conditions of the workers is poor and therefore, there is the need to employ interventions depicted in the conceptual frame work to aid in addressing the situation. They include interventions by government such as the introduction of the National Health Insurance Scheme (NHIS); interventions by employers and employees such as the provision and use of Personal Protective Equipment (PPE), existence of preventive health and safety measures such as rules and regulations among others. Details of these interventions are presented below.

Interventions by government, employers and employees

The research also sought to examine interventions being made by the government (through its agencies responsible for OHS) as well as employers and employees within the informal manufacturing sector. This is necessitated by the fact that the government, employers and employees play critical roles in addressing the hazards informal manufacturing sector workers are exposed to.

Interventions being made by the government. Interventions being made by government institutions to curb the exposure of occupational risks and hazards were also explored. The two main institutions identified to be playing key roles in this direction are the Department of Factories Inspectorate (DFI) and the National Board for Small Scale Industries (NBSSI). The major roles and functions noted include promoting health and safety of factories and offices, public education and regular inspection among others.

An official from the DFI and the district and regional offices of the NBSSI in Cape Coast were interviewed. Following the interviews, it can undoubtedly be said that the non-existence of the Department of Factories Inspectorate in the Central Region is, to a very large extent, to the detriment of workers in the Central Region and more particularly, for informal workers within the region. The official mentioned that "there is no office in the Central Region. The office in the Western Region is supposed to serve Cape Coast as well". This is in spite of the fact that the Offices and Shops Act of 1970 (Act 328) was promulgated to reduce the risk of injury and safeguard the health conditions of all employees in Ghana.

Additionally, the findings of the research revealed that NBSSI had no established OHS policies but instead as mentioned by the official, "we collaborate with Ghana Standard Authority and the Food and Drugs Board to ensure that health and safety measures are adhered to". Their main mandate is to manage and give technical assistance to small scale industries. Issues regarding OHS is however part of their technical mandate.

One other intervention identified was the introduction of the National Health Insurance Scheme (NHIS), which covers some of the occupational

injuries and incidents that informal sector workers are exposed to. The research revealed that whereas 22 respondents (55%) had registered with the NHIS, the remaining 18 (45%) had not done so. This was encouraging because the majority of the respondents could access the NHIS in case of any unforeseen eventuality.

Interventions being made by employers and employees. The nature of work of informal manufacturing sector workers requires that prudent measures are put in place to ensure utmost health and safety at the work place. As discussed in the literature review, employers have the obligation to ensure that all their employees are protected from health and safety risks arising out of their work activities in line with Part XV of Ghana's Labour Act, 2003. This falls in line with Gustavsen's (1996) first category that is, the specification model of improving OHS conditions. The model refers to where laws and regulations are at the core. To determine the extent to which employers take responsibility for the health and safety of their employees, respondents were asked to indicate who provided for their Personal Protective Equipment (PPE). Figure 7 presents the findings.

Generally, employers are required to protect their employees from workplace hazards that can cause injury by providing them with Personal Protective Equipment. These are equipment worn to minimise exposure to variety of hazards. PPE included in this study are goggles, safety boots, safety overcoat, nose mask, ear protector, face shield and gloves. Once employers provide the equipment, it then becomes the responsibility of employees to use them appropriately to minimise exposure to hazards.

An interesting scenario depicted in Figure 7 was observed. Whereas all the nine employers noted that they provided for the PPE at the workplace, over 80 percent (11 out of 13) of the employees however indicated that they provided for the PPE themselves. It must however be noted, as stipulated in Section 25 of the Factories Offices and Shops Act, that if a person is employed in a process which involves excessive exposure to wet or any injurious or offensive substance he must be provided with suitable protective clothing. In ensuring the use of the PPE and safety equipment at the work place, employers noted that they had to constantly prompt and enforce their employees and employers to use the protective equipment.

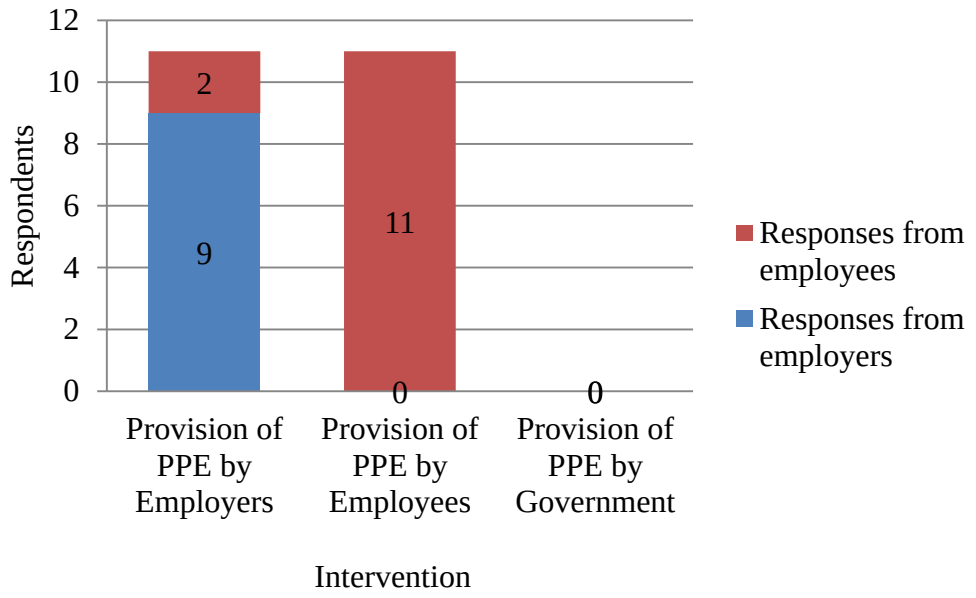

Figure 7: Provision of personal protective equipment

Source: Field survey, May 2014

In assessing the availability of PPE among informal manufacturing workers, the research showed that with each PPE (be it gloves, safety boots, safety overcoat, nose mask, ear protector, face shield or gloves, as may be needed by the different work categories), over 80 percent of the respondents did not have one. In the case of ear protectors, no respondent was in possession

of one. This was a critical observation made due to the level of noise hazard that metal and wood workers in particular were exposed to.

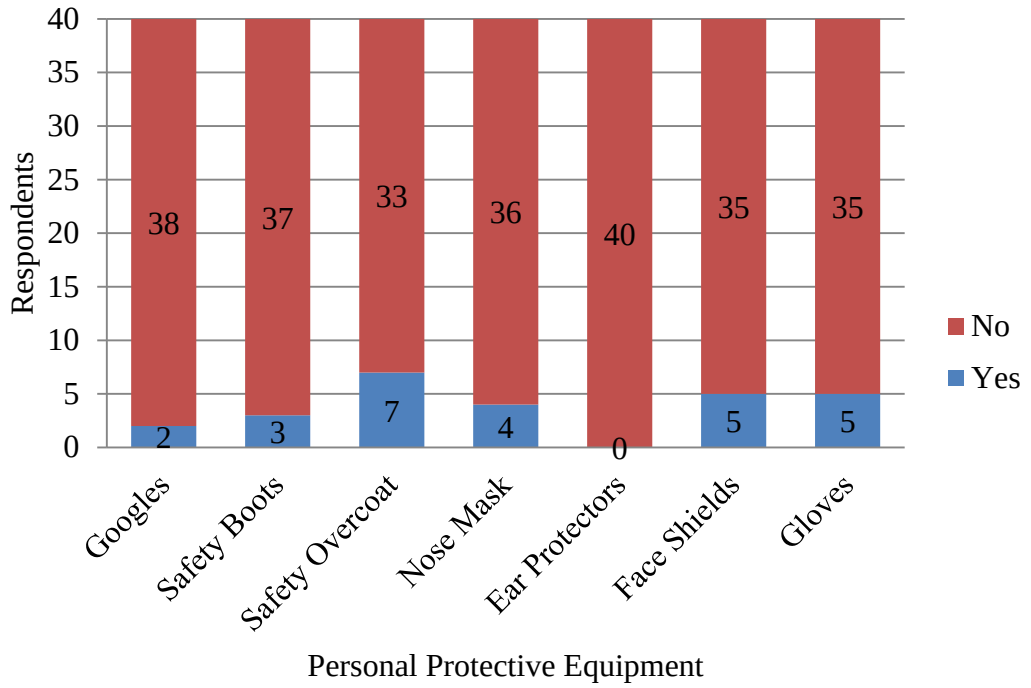

Figure 8: Availability of personal protective equipment

Source: Field survey, May 2014

More detailed information regarding the respective work groups and their possession of each PPE is shown in Table 25. From Table 25, it is clearly shown that most workers did not have any form of PPE in their possession. For instance, all food and textile and garment workers had no PPE at all.

Table 25: Respondents in possession of personal protective equipment

Personal Protective Equipment	Work Category				
	Wood	Food	Textile & Garments	Metal	Total
Goggles	0	0	0	2	2
Safety boots	0	0	0	3	3
Safety overcoat	3	0	0	4	7
Nose mask	3	0	0	1	4
Ear protectors	0	0	0	0	0
Face shields	2	0	0	3	5
Gloves	1	0	0	4	5

Source: Field survey, May 2014

Considering the large number of respondents who responded "no", the researcher conducted an analysis to determine the proportion of employers, employees and apprentices who do not possess the requisite PPE among the four categories. The results are presented in Table 26. The results presented in Table 26 depicted the same scenario for each PPE. It was realised that for each PPE, employers possessed more than the employees and apprentices and the employees likewise possessed more than the apprentices. In effect, apprentices were most disadvantaged when it comes to the possession of PPE. This is very discouraging because earlier discussion showed that apprentices, followed by employees were most exposed to various workplace hazards. On the other hand, employers who are least exposed in most cases, are those who possess the PPE.

Table 26: Informal manufacturing workers without PPE

PPE	Employer	Employee	Apprentice	Total
Goggles	7	13	18	38
Safety Boots	7	12	18	37
Safety Overcoat	5	10	18	33
Nose Mask	7	12	18	37
Ear Protectors	9	13	18	40
Face Shields	5	12	18	35
Gloves	6	11	18	35

Source: Field survey, May 2014

OHS rules being employed by informal manufacturing workers. It was observed that, the majority of the respondents, 28 (70%) had no rules and regulations governing their operations whereas the remaining 12 (30%) had some form of rules and regulations, which existed mainly in verbal form. As one employer in the work category noted, "I don't have any written rules and regulation, but my workers know all the rules and regulations of this place through verbal instructions. For instance, I keep reminding them use goggles before using the grinding machine". This observation is of key interest given that Burton (2009) was also of the view that, rules and regulations exist in formal sector only. Figure 9 presents the details of findings. It can be deduced from Figure 9 that nine out of the 10 wood workers interviewed noted that they do not have rules and regulations governing their operations. This was closely followed by metal workers where eight respondents also indicated the non-existence of rules and regulations at their workplace. In the food category

however, six (60%) of the food workers stated that they had rules and regulations.

As discussed under the literature review, Vincoli (1994) who reviewed and updated Heinrich's (1941) domino theory re-labelled the dominoes and placed much emphasis on management. Vincoli holds that the lack of control by management begins the process that eventually results in incidents, which can hitherto be prevented. The evidence of the majority of the respondents indicating the non-existence of rules and regulations therefore explains the high rates of hazards in the informal manufacturing sector in the Cape Coast metropolis discussed above.

One other intervention which was explored as part of the research was emergency response strategies employed by informal manufacturing workers. This was necessitated by the fact that the working conditions of the workers could result in serious injuries at any given time. The findings show that the majority, 32 (80%) of the informal manufacturing sector workers indicated that they do have emergency response strategies while the minority, eight (20%) agreed not have some. When a further inquiry was made regarding the kinds of emergency strategies being adopted, it was realised that the workers employed traditional means of addressing such emergencies. For instance, workers in the wood and metal industries applied a chemical (thinner) to cuts on their skin to prevent blood from flowing profusely. Additionally, food workers (palm kernel oil manufactures) noted that they applied water mixed with clay to their skin when they experience burns. Interestingly, other management strategies among the four industries was relying on God for protection and being extra vigilant.

These emergency response measures mostly end up being the ultimate cure for such incidents. Considering the situation, there is the need for more proactive first aid measures to safeguard these workers from much serious accidents. This point was confirmed when almost all the respondents noted that they had no conventional first aid tool kit at their workplaces.

The interventions being put in place by employers however need to be complemented by employees. As noted earlier in Part XL of Ghana's labour Act, 2003, it is the obligation of every worker, and employee for that matter, to use the safety appliances, fire fighting equipment and personal protective equipment provided by the employer in compliance with the employer's instructions.

Although almost all the employers in the metal industry admitted that they provide protective equipment for their employees, they mentioned that they had to enforce their employees to use them. The employees on the other hand, said they are not provided with the most of the personal protective equipment. For instance, an employee revealed that although they need goggles for grinding metals, they are provided with sunglasses instead. In fact, one metal employer mentioned that "it is more comfortable to use the sunglasses because it gives a clearer view when during welding. Moreover, with the goggle, you need to occasionally remove the mask to have a clearer view of the work." The employees said they do their best to provide most of the protective equipment on their own. They also admitted that they depend on God solely for protection.

Employers of the wood processing industry mentioned that the employees and apprentices felt very reluctant to use them because they do not

feel comfortable using them while working. This was confirmed when eight (61.5%) out of the 13 employees noted that they were not comfortable using the PPE, regardless of who provided it. In managing this problem to ensure better OHS in the industry, the employers had to constantly prompt and enforce their employees and employers to use the protective equipment.

Both employers and employees of the textiles and garments industry had problems with their working postures. Their usual working postures were sitting and bending which was for long hours. Workers of this industry manage pains as a result of their working postures by occasionally stretching when working and also having frequent massage with ointments.

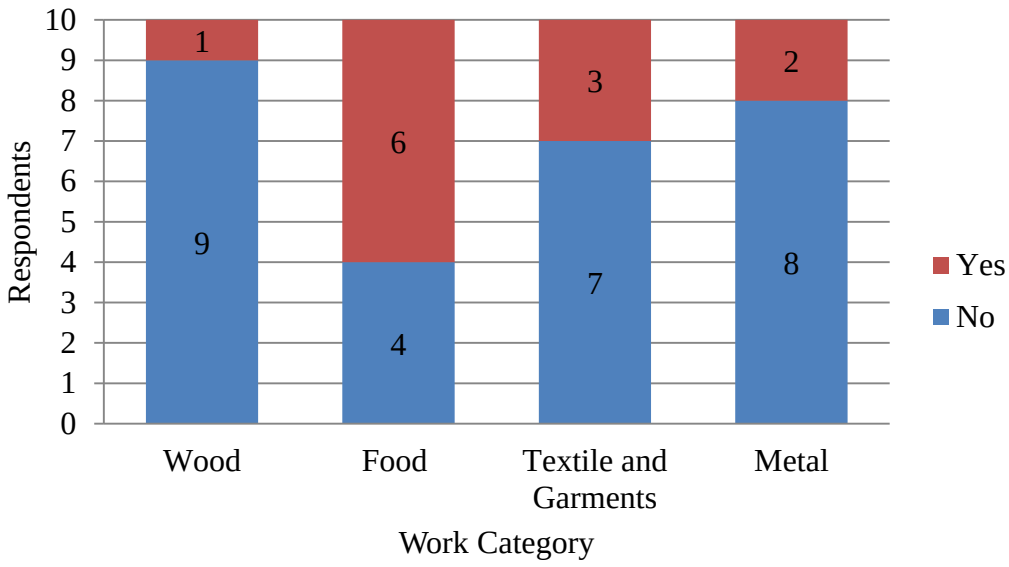

Figure 9: OHS rules and regulations

Source: Field survey, May 2014

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

Introduction

In light of the fact that little attention has been given to occupational health and safety (OHS) of informal sector workers, this study sought to explore OHS practices and working conditions of workers in Cape Coast's informal manufacturing sector in order to suggest preventive and control measures. An interview schedule, interview guide and observation checklist was developed to gather information, including information from OHS related institutions that serve the sector. A blind survey was conducted to observe methods and culture of work and also, gather information needed for the development of the observation checklist

Convenience sampling was adopted to select 10 workers each from four selected informal work categories and purposive sampling was used to select officials of the Department of Factories Inspectorate (DFI) and the National Board for Small Scale Industries (NBSSI). Exploratory study design was used for the purpose of this study. This chapter presents a summary of the key findings, conclusion and recommendations based on the findings.

Summary of key findings

The major findings presented below have been outlined in line with the objectives of the study. On institutional context of occupational health and safety in the informal sector of Cape Coast, it was found out that close to one-

half (45%) of the informal workers did not belong to an association mainly because they do not derive any benefits from these associations. Findings revealed that just a few of the respondents (12 out of 40 representing) had registered with an association. Additionally, although some respondents (14) affirmed, that they had received a visit from an OHS related institution or organisation, they noted that two out of the three institutions that visited them were only interested in collecting monies due them. The two institutions are Internal Revenue Service and the Cape Coast Metropolitan Assembly.

This study revealed that the level of horizontal co-ordination and information sharing between OHS institutions is fairly low. This lack of coordination prevents the performance of a more integrated health and safety function. Additionally, there were no easily accessible and institutionalised platforms for establishing constructive communication between informal manufacturing sector workers and the local government. As a consequence of this communication is very poor.

Poor dissemination of public information such as laws, policies, regulations and bye-laws, which should be available in the public domain and accessible to informal manufacturing sector workers is often extremely difficult to obtain. Poor dissemination of information has real implications for the various associations in their attempts to advocate for improved working conditions. It became clear during the survey that most of the respondents had little idea about what regulations governed their places of work, and what their rights were in relation to OHS policies. Without this information there is little chance to launch well-informed, well targeted and sustained advocacy programmes.

OHS conditions of informal manufacturing sector workers.

The hazards examined under this survey included physical, chemical, ergonomic and psychological. With regard to physical hazards, the study revealed that the majority of informal manufacturing workers were victims of physical hazards included in this study namely noise, burns, fumes/smoke, dust and fire. Each form of hazard however presented different levels of effect on workers' health depending on their respective level of exposures. The analysis showed that more than one-half (25) of informal manufacturing workers were exposed to noise. Of these, metal and wood workers suffered the most. Unlike wood and metal workers, food and textiles and garment workers did not consider noise as a major physical hazard. Of all the workers, it was realised that apprentices were exposed to noise the most.

The research also revealed that the majority of informal manufacturing sector workers (28 representing 70%) were highly exposed to burns; and metal workers were exposed the most. This was observed to be a result of the nature of their work, which involved the use of welding and metal-grinding machines. It was therefore not surprising that almost all the metal workers (9) rated their exposure to burns as very high. Again, apprentices were observed to be exposed to burns the most. Similarly, it was observed that 65 percent (26 respondents) of informal manufacturing sector workers were exposed to fumes/smoke with metal and food workers being at risk the most.

Concerning workers' exposure to dust, 19 respondents were found to be exposed, the largest being experienced by eight wood workers. They were highly exposed to wood dust. Textile and garment workers on the other hand, had no exposure to dust. Finally, 21 out of the 40 respondents indicated that

they were exposed to fire at their workplaces with metal workers being most exposed (10).

For chemical hazards, the study showed that 50 percent (20) of the respondents' work involved the use of a chemical substance. Consequently, it was revealed that metal and wood workers were exposed to chemical hazards the most. Some of the identified common poisonous chemicals used by informal manufacturing workers included paint additives, thinner, turpentine, vanish, petrol, gasoline and other volatile organic compounds.

The ergonomic hazards examined under this study included general body pains, backaches, neck problems, waist pains and muscle-related problems. The study revealed that the posture used by most workers had the potential of resulting in pains in their bodies. This was evident when close to 90 percent (35) of the respondents acknowledged that their usual posture at work was not comfortable. The remaining 5 respondents explained that their bodies had become used to their hitherto, uncomfortable postures at work.

Of all the ergonomic hazards examined, the survey showed that 'neck pains' was most prevalent among informal manufacturing workers as noted by 38 respondents. It was also revealed that workers were exposed to some form of psychosocial hazards, which caused fatigue, stress and general loss of interest in work. This could be explained by the fact that workers worked for long hours with no time for any scheduled rest breaks. Additionally, the majority (37) of the respondents do not observe public holidays as well as weekend breaks except for Sundays.

Finally, the findings of the research revealed that the National Board for Small Scale Industries (NBSSI) had no established OHS policies but instead

collaborate with Ghana Standard Authority and the Food and Drugs Board to ensure health and safety in industries that are registered with them. The other government intervention identified was the National Health Insurance Scheme (NHIS), which covers some of the occupational injuries and incidents that informal sector workers are exposed to.

The availability and use of Personal Protective Equipment (PPE) among informal manufacturing sector workers was not encouraging. The research showed that with each PPE (gloves, safety boots, safety overcoat, nose mask, ear protector, face shield or gloves) over 80 percent of the respondents did not have one. In the case of ear protectors for instance, no respondent had one. Additionally, it was realised that apprentices were most disadvantaged when it comes to the possession of PPE. This is because for each PPE, apprentices possessed the least.

A collaborative effort was observed between employers and employees in the provision of PPE at the work place. However, whereas all the nine employers noted that they provided for the PPE at the workplace, 11 out of the thirteen employees indicated that they provided for the PPE themselves. It was also observed that, the majority of the respondents (28) had no rules and regulations governing their operations whereas the remaining 12 had some rules and regulations, which existed mainly in verbal form.

Conclusion

Based on the findings of the study, the following conclusions have been drawn. Firstly, by exploring the theoretical and practical relationship between informal manufacturing sector workers in Cape Coast and OHS stakeholders

that impact on the context and nature of their work, this study has revealed a significant institutional gap in the provision of health and safety to informal manufacturing workers. For instance, there is poor coordination of the activities among OHS institutions within the metropolis and the nation at large because of the absence of a national policy to prescribe appropriate guidelines to these institutions. Additionally, the OHS institutions are under resourced and are limited in their service delivery.

Secondly, the conditions under which most of the informal manufacturing sector workers operate are precarious and unsafe. The hazards vary according to their respective field of work. Some of the most prevalent ones include lack of protective equipment, exposure to hazardous chemicals and dusts and long hours of work. The most prevalent health impairments are musculoskeletal disorders and low back pain; allergic reactions and other respiratory disorders; physical strain, fatigue and stress. Injuries with tools are also frequent.

Finally, although some interventions by the government, employers and employees are being made to improve on the health and safety of informal workers, informal manufacturing sector workers do not have the necessary awareness, technical means and resources to implement health and safety measures. Also, awareness of both the adverse long-term effects of poor and hazardous working conditions is very low.

Recommendations

In line with the above-mentioned conclusions drawn from the findings of the study, the following recommendations are suggested:

Given that there is no short term solution to the institutional problems inherent in the provision of OHS for informal sector workers, the government of Ghana through established OHS institutions such as Department of Factories Inspectorate (DFI), the National Health Insurance Authority (NHIA) and the National Board for Small Scale Industries (NBSSI) should endeavour to develop a long-term strategy to address the issue of occupational health and safety in the informal sector as a whole and in the informal manufacturing sector in particular. The strategy should include measures aimed at improving the structures under which workers in this sector work. The workers of the sector also need to be empowered through education and training to perform their tasks safely and under healthy working conditions. Occupational health and safety training modules should be developed and used to equip the informal sector.

Informal sector workers should be encouraged to participate in the formulation of measures or interventions aimed at assisting them. These measures should include improvement of standards of safety and occupational health, development of management skills and capacity building. It is important to ensure that the members of this sector are made to drive the improvements of occupational health and safety. There must be a sense of ownership on their part and that would lead to sustainability of the improvements that would have been made.

Additionally, existing structures in the form of associations and unions should be strengthened as entry points for provision of occupational health and safety improvements in the informal manufacturing sector. The DFIs should

spearhead the formation of these organisations and use them to mobilise assistance to the informal manufacturing sector in Cape Coast.

To add to, training modules should be organised by OHS related institutions to include information on the use of Personal Protective Equipment (PPE) and in particular the reasons for using it. This is to address the fact that most workers did not wear PPE even in cases where these were available. Environmental Health Officers responsible for occupational health and safety should be dispatched to carryout periodic walk through surveys of informal manufacturing industries and provide advice accordingly.

Considerations should also be made by the local government of providing occupational health services to the informal sector in the form of primary health care as part of the NHIS scheme. The workers' health should be periodically assessed and treatment provided for those who have affected with any form of disease.

Finally, concerning the role of employers and employees, employers should provide PPE's for their employees. They should also train employees on the use of PPEs. Employers should punish employees who do not use the PPEs and provide incentive packages for those who use them. They should also insist that employees register under the National Health Insurance Scheme to safeguard their health in cases of accidents. Employees on the other hand should place their safety above their work and insist their employers provide them with PPE. Employees should co-operate with their employers in the health and safety measures they put in place and also work safely to protect themselves and others from injury. All employees must endeavour to register under the National Health Insurance Scheme.

REFERENCES

Adei, D., & Kunfaa, E.Y. (2007). *Occupational health and safety policy in the operations of the wood processing industry in Kumasi, Ghana*. Occupational health and safety policy, Journal of Science and Technology, 27 no. 2, p. 161-173.

Adu-Amankwah, K. (1999). *The rapid expansion of informal employment in Ghana.* Geneva: ILO.

Aikins, K.S. (1999). *An evaluation of safety training programmes in three ghanaian industries*.Unpublished thesis, University of Cape Coast.

Alfers, L. (2002). *Occupational health & safety for informal workers in Ghana: A case study of market and street traders in Accra.* Durban: University of KwaZulu-Natal.

Alli, B. O. (2008). *Fundamental principles of occupational health and safety.* (2nd ed.). Geneva: International Labour Office.

Amedofu, G.K. (2002). *Hearing impairment among workers in gold mining in Ghana*. African newsletter on occupational health and safety.

Ametepeh, R.S. (2011). *Occupational health and safety of the informal services sector in the Sekondi-Takoradi Metropolis.* College of architecture and planning, KNUST, Ghana.

Ametepeh, R.S., Adei, D., & Arhin, A.A. (2013). *Occupational health harzards and safety of the informal sector in the Sekondi-Takoradi metropolitan area of Ghana.* Research on Humanities and Social Sciences: Vol. 3, No. 20, 2013.

Anaman, K.A., & Osei-Amponsah, C. (2009). *Determinants of the output of the manufacturing industry in Ghana from 1974 – 2006*. Ghana Policy Journal, 3, 69-89.

Atim, C., Fleisher, L., Hatt, L., Masau, S., & Arur, G. (2009). *Universal access to quality health service:Improve maternal,neonatal and child health.* Addis Ababa, Ethopia: Africa Union Press.

Bacchetta, M., Ernst, E., & Bustamante, J.P. (2009). *Globalisation and informal jobs in developing countries.* Switzerland: World Trade Organisation.

Barten, F., Fustukian, S. & de Haan, S., (1996). *The Occupational Health Needs of Workers: The Need for a New International Approach*. Social Justice 23, 153-163.

Benichou, J. (2001). *Review of adjusted estimators of attributable risk.* Statistical methods in medical research. Journal of Investigative Dermatology, 10(3), 195-216.

Benjamin, P. & Greef, J. (1997). *Report of the commission of inquiry into a national health and safety council in South Africa.* In Hermanus, M. (1992). *Testing the limits of the compensation system.* Industrial Law Journal, 1364.

Biddle, E. A. (2001). *Economic cost of fatal occupational injuries in the United States.* WV, Morgantown.

Bourguignon, F. (2005). *Development strategies for more and better jobs: More and better jobs in a globalised economy*. Carnegie Endowment for International Peace. Washington, DC.

Buhlebenkosi, F., Sibanda, N., Chaurura, P., & Chiwira, O. (2013). *Occupational health and safety in the urban informal sector of Gaborone, Botswana: A situational analysis.* International Journal of Scientific & Technology Research 2 (295).

Burns, S.N. & Grove, S.K. (2003). *Understanding nursing research*. 3rd edition. Philadelphia: Saunders.

Burton, J. (2009). *Healthy workplace framework and model: Background and supporting literature and practices*. Canada: Joan Burton & Associates.

Castells, M. & Portes, A. (1989). *World Underneath: The origins, dynamics and effects of the informal economy*. In Portes, A., Castells, M. & Benton, L. (Eds.). *The informal economy: Studies in advanced and less developed countries*. Baltimore: John Hopkins University Press.

Chen, M. (2002). *Work and working poor: The missing link in the globalisation debate.* Buston: Harvard Kennedy School Press.

Chen, M., Jhabvala, R., & Lund, F. (2001). *Supporting Workers in the informal economy: A policy framework.* Paper prepared for the ILO task force on the Informal Economy.

Chen, M., Vanek, J., & Carr, M. (2004). *Mainstreaming informal employment and gender in poverty reduction*. London: Commonwealth Secretariat.

Chen, M., Vanek, J., Lund, F., Heintz, J., Jhabvala, R. & Bonner, C. (2005). *Progress of the World's Women 2005*: *Women, Work and Poverty*. New York (NY): United Nations Development Fund for Women (UNDFEM).

Clarke, E. (2005). *Do occupational health services really exist in Ghana? A special focus on the agricultural and informal sectors*. Challenges to

occupational health services in the regions, the national and international response. Helsinki, Finland: Finnish Institute of Occupational Health.

Dinye R.D., & Nyaba F.A. (2001). *Trade policy and domestic manufacturing in Ghana*. Structural Adjustment Participatory Review Initiative. Accra

Economic and Social Commission for Asia and the Pacific. (2006). *Role of the informal service sector in urban poverty alleviation*. Bangkok: The Secretariat.

Factories, Offices and Shops Act 1970, Act 328, Ghana.

Farrell, G., Roman, J., & Matthew, F. (2000). *Conceptualising shadow economy*. Journal of International Affairs, 52, 393.

Filiatrault, D.,Vavrik, J., Kuzeljevic, B., & Cooper, P. J. (2002). *The Effect of rest-schedule orientation on sleep quality of commercial drivers*, Columbia.

Forastieri, V. (1999). *Improvement of working conditions and environment in the informal sector through safety and health measures*. Geneva: International Labour Office.

Ghana Health Service. (1999). *Ghana health service and teaching hospitals Act 525.* Government Printer, Assembly Press, Accra.

Ghana Labour Act 2003, Act 651, National Labour Commission.

Ghana Statistical Service. (2008). *Ghana living standards survey five (GLSS5).* Accra: Ghana Statistical Service Press.

Ghana Statistical Service. (2010). *Ghana living standards survey five (GLSS5).* Accra: Ghana Statistical Service Press.

Ghana Statistical Service. (2014). *2010 Population and housing census: District analytical report*. Cape Coast Munipality.

Gustavsen, B. (1996), *Health and safety as a development resource.* Stockholm: National Institute for Working Life.

Heinrich, H.W. (1941). *A scientific approach: Industrial accident prevention.* (2nd ed.). United States of America, USA: McGraw-Hill Book Company, Inc.

Holloway, I. & Wheeler, S. (2002). *Qualitative Research in Nursing.* 2nd ed. Oxford: Blackwell.

Howe, J. (2001). *A union critique on behavior-based safety*. United Automobile Workers, Michigan.

International Labour Organisation. (1996). *Your health and safety at work.* Retrieved from http://www.ilo.org/safework/info.

International Labour Organisation. (2000). *Employment and social protection in the informal sector*. Geneva: International Labour Office.

International Labour Organisation. (2001). *Guidelines on occupational safety and health management systems*. Geneva: International Labour Office.

International Labour Organisation. (2004). *Economic security for a better world: ILO Socio-Economic Security Programme.* Geneva: International Labour Office.

International Labour Organisation. (2012). *Statistical update on employment in the informal economy*. Department of Statistics, ILO, Geneva.

Jill, B. (1997). *Positional faithfulness, positional neutralization, and Shona vowel harmony.* Phonology 14:1-46

Joubert, D. M. (2002). *Occupational health challenges and success in developing countries: A South African perspective*. International Journal of Occupational and Environmental Health, South Africa.

Karanja, I.W.M., Muchiri, F.K., & Muruka, A. (2003). *Safety and health in the informal economy of Kenya.* African newsletter on occupational health and safety, 13 (4).

Kirschstein, R. (2000). *Disease-specific estimates of direct and indirect costs of illness and NIH support.* Bethesda: National Institutes of Health.

Loewenson, R. (1998). *Health impact of occupational risks in the informal sector in Zimbabwe*. International Journal of Occupational and Environmental Health, 4, p. 264-274.

Loewenson, R. (1999). *Occupational health and safety in Southern Africa*: *Trends and policy issues*. ILO/SAMAT policy paper No. 8. Geneva: International Labour Office.

Lund, F., & Nicholson, J. (2003). *Chains of production, ladders of protection: Social protection for workers in the informal economy.* Durban: School of Development Studies, University of Natal.

Mamba, R. M. (2000). *An assessment of occupational health and safety in the informal car maintenance, welding and spray painting industry in Mbabane.* African Newsletter on Occupational Health and Safety, 13 (4).

Manning, C. (1993). *The informal manufacturing in the South African Economy*. Centre for Social and Development Studies, Working Paper No. 11, University of Natal, Durban.

Margottini C. (2007). *Engineering geology and cultural heritages: The conservation of remaining Bamiyan Buddhas (Central Afghanistan).* Berlin Heidelberg, BH: Springer Verlag.

Marriott, A. (2008), *Extending health and safety protection to informal workers: An analysis of small scale mining in KwaZulu-Natal.* Research Report No. 76.

Mock, C., Adjei, S., Acheampong, F., Deroo, L., & Simpson, K. (2005). *Occupational injuries in Ghana.* International Journal of Environmental Health, 11, 238-245.

National Institute of Occupational Safety and Health. (2012). *Registry of toxic effects of chemical substances.* Retrieved from http://www.cdc.gov/niosh/docs.

National Pensions Act 2008, Act 766. Ghana.

Osei-Boateng, O. C., & Ampratwum, A. (2011). *The informal economy of Ghana.* Accra: Friedrich Ebert Stiftung.

Porte, A., Castells, L., & Benton, L. A. (1989). *World underneath: The origns,dynamics and the effects of the informal economy.* Baltimore: John Hopkins University Press.

Puplampu, B.B., & Quartey, S.H. (2012). *Key issues on occupational health and safety practices in Ghana: A Review.* Accra: Ghana.

Rakowski, C. (1994). *The informal sector debate, Part 2: 1984-1993*. In C. Rakowski (ed.), *Contrapunto the informal sector debate in Latin America Albany*. State University Press of New York.

Regoeng, K.G. (2003). *Safety and health in the informal sector and small-scale industries: the experience of Botswana*. African newsletter on occupational health and safety, 13 (10).

Sabet, P.G.P, Aadal, H., Jamshidi, M.H.M, & Rad, K.G. (2013). *Application of domino theory to justify and prevent accident occurrence in construction sites.* IOSR journal of mechanical and civil engineering (IOSR-JMCE), 6, Issue 2, p. 72-76.

Takala, J. (2002). *Life and health are fundamental rights for workers*. (Interview) Labour Education 1:1-7.

United States Environmental Protection Agency. (2010). *Health Impact.* United States of America: Environmental Protection Agency Press.

Vincoli, J.W. (1994). *Basic guide to accident investigation and loss control*. John Wiley & Sons.

Workmen's Compensation Law 1987. PNDC Law 187. Ghana.

World Bank. (2013). *Ghana at a glance.* Washington DC: World Bank Country Office.

World Health Orgaisation. (2008). *World Health Statistics.* Geneva: World Health Organisation.

World Health Organisation. (1999). *Occupational health: Ethically correct, economically sound.* Geneva, Switzerland: World Health Organisation.

World Health Organisation. (2008). *World health statistics 2008.* Geneva: World Health Organisation.

Yin, K. (2003). *Case study research design and methods* (3rd ed.). London: Sage Publications.

APPENDICES

APPENDIX I: INTERVIEW SCHEDULE FOR EMPLOYERS

UNIVERSITY OF CAPE COAST

INSTITUTE FOR DEVELOPMENT STUDIES

TOPIC: OCCUPATIONAL HEALTH AND SAFETY ISSUES IN THE INFORMAL MANUFACTURING SECTOR OF CAPE COAST

The researcher is a student of the University of Cape Coast, and is undertaking a study on the topic "Occupational Health and Safety issues in the informal manufacturing sector of Cape Coast". The research is a requirement for the award of Master of Philosophy degree in Development Studies. Your responses to the questions below are very important to the outcome of the study, which is purely for academic use. Your responses will be treated with absolute confidentiality.

Thank you for your time and co-operation.

A. BACKGROUND INFORMATION

1. Sex [ ] Male [ ] Female

2. Age……

3. Marital Status: [ ] Married [ ] Single [ ] Divorced [ ] Widowed

Others *(Please Specify)* …….

4. Educational level: [ ] Primary [ ] JHS [ ] SHS [ ] Technical [ ] Vocational

Others *(Please Specify)* ……...

B. INSTITUTIONAL CONTEXT OF OHS

5. Do you belong to any association? [ ] Yes [ ] No [ ] Don't Know

6. If yes, what is the name of the Association?

……

7. What are the benefits you derive from this association?

……

……

8. Is your shop/workplace registered? [ ] Yes [ ] No

9. If yes, which organisation are you registered with?

……

10. Do you have any rules and regulations pertaining to your workplace health and safety?

[ ] Yes [ ] No

11. If yes, what are they?

……

……

……

12. Do you receive visits from any institution? [ ] Yes [ ] No

13. If yes, which institutions visit your premises and for what reasons do they come there?

No.	Institution	Reason(s) for Visit
A		
B		
C		
D		
E		

C. HEALTH AND SAFETY WORKING CONDITIONS

14. How many hours do you work each day?

[ ] Min. of 4 hours [ ] Min. of 6 hours [ ] Min. of 8 hours [ ] Min. of 12 hours

15. Do you have break periods for lunch? [ ] Yes [ ] No

16. If yes, how many minutes do you observe? [ ] Below 15 mins [ ] Between 15 and 30 mins

[ ] Between 30 and 45 mins. [] Between 45 mins. and 1 hour

17. Where do you have your lunch?

……

……

18. How do you dispose off your waste? [ ] Running water [ ] Open surface [ ] drainage

[ ] Refuse [ ] drainage [ ] dump sites [ ] Others *(Please specify)*……..

19. Do you have off-days? [ ] Yes [ ] No

20. If yes, how long is your off-days per week or month? …….

21. Do you observe public holidays? [ ] Yes [ ] No

22. Do you experience injuries/diseases at your workplace? [ ] Yes [ ] No

23. How often do you experience accidents/diseases at your workplace?

[ ] Frequently [ ] Occasionally [ ] Seldom [ ] Never

24. What kind of hazards are you exposed to?

……

……

25. What type of accidents/diseases do your workers usually experience?

……

……

26. How many accidents occurred in your workplace within the last 12 months?

[ ] None [ ] 1-4 [ ] 5-9 [ ] 10-14

[ ] 15-19 [ ] 20-24 [ ] 25 and above [ ] Don't know

27. How do you rate the health and safety conditions of your work environment?

[ ] Very Good [ ] Good [ ] Fair [ ] Poor [ ] Very Poor

D. PHYSICAL HAZARDS	Noise	Burns	Fumes/Smoke	Dust	Fire
28. Which of the physical hazards are you exposed to?					
29. What is the source of exposure?					
30. How would you rate your level of exposure? [1] Very Low [2] Low [3] Moderate [4] High [5] Very High					
31. How many hours are you exposed to this physical hazard each week?					
32. Does the exposure affect your health? (e.g. hearing, skin, sight, etc.) [1] Yes [2] No					

33. Are there any other physical hazards you are exposed to at your workplace?

[ ] Yes [ ] No

34. If Yes, please specify……

E. CHEMICAL HAZARDS

35. i. Does your work involve the use of chemicals? [ ] Yes [ ] No

ii. If Yes, what type of chemicals do you use? ……

iii. How poisonous are the chemicals you work with?

[ ] Highly Poisonous [ ] Moderately Poisonous [ ] Slightly Poisonous

[ ] Not Poisonous

iv. Do you read labels on chemicals before use? [ ] Yes [ ] No

F. ERGONOMIC HAZARDS

36. i. What is your usual posture at work? [ ] Standing [ ] Bending [ ] Sitting

[ ] Squatting

ii. Is your posture comfortable? [ ] Yes [ ] No

iii. Does your posture cause any pain in the body? [ ] Yes [ ] No

iv. If yes, which of the following do you suffer? *(multiple responses)*

[ ] General body pains [ ] Backaches

[ ] Neck problems [ ] Muscle related problems

[ ] Others *(Please specify)*……

37. How many hours of sleep do you observe daily?

G. AVAILABILITY OF SAFETY EQUIPMENT AND PERSONAL PROTECTIVE EQUIPMENT

38. Which of the following safety equipment do you have at your workplace? *(multiple responses)*

[ ] Fire Extinguisher [ ] First Aid Box

[ ] Others *(Please specify)*……

39. Which of the following Personal Protective Equipment do you have at your workplace?

[ ] Goggles [ ] Nose mask [ ] Gloves

[ ] Safety Boots [ ] Ear Protectors [ ] Machine Guards

[ ] Safety over coat [ ] Masks [ ] Others *(Please specify)*

40. Who provides the Personal Protective Equipment?

[ ] Employer [ ] Employee [ ] Government [ ] Others (Please specify) ……

41. How do you ensure the use of the protective equipment?

……

……

42. Do the employees use the Personal Protective Equipment? [ ] Yes [ ] No

43. Are the employees comfortable using these equipment? [ ] Yes [ ] No

44. Are your workers trained on the use of the Personal Protective Equipment?

[ ] Yes [ ] No

45. In case of an accident, do you have any emergency response strategies? [ ]

Yes [ ] No

46. If yes, what are some of the emergency response strategies?

……

……

47. If No, why?

……

……

H. PSYCHO SOCIAL HAZARDS

48. i. Are you satisfied with your work? [ ] Yes [ ] No

ii. If No, please give reasons?

…….....

……

iii. How safe is your work environment? [ ] Very safe [ ] Safe [ ] Unsafe [ ] Very unsafe

49. What is the relationship between you and your employees?

[ ] Very Good [ ] Good [ ] Fair [ ] Poor [ ] Very Poor

I. MEASURES TO MANAGE OHS

50. Have you registered with the National Health Insurance Scheme [ ] Yes

[ ] No

51. What are some of the key problems/challenges you face with your workplace health and safety conditions?.....

……

……

52. How do you think the problems can be solved?

……

……

53. What other problems are you faced with as far your occupation is concern?

……

……

54. What would you say is the way forward for the improvement of OHS in your occupation?.....

……

……

APPENDIX II: INTERVIEW SHEDULE FOR EMPLOYEES

UNIVERSITY OF CAPE COAST

INSTITUTE FOR DEVELOPMENT STUDIES

TOPIC: OCCUPATIONAL HEALTH AND SAFETY ISSUES IN THE INFORMAL MANUFACTURING SECTOR OF CAPE COAST

The researcher is a student of the University of Cape Coast, and is undertaking a study on the topic "Occupational Health and Safety issues in the informal manufacturing sector of Cape Coast". The research is a requirement for the award of Master of Philosophy degree in Development Studies. Your responses to the questions below are very important to the outcome of the study, which is purely for academic use. Your responses will be treated with absolute confidentiality.

Thank you for your time and co-operation.

A. BACKGROUND DATA

1. Sex: [ ] Male [ ] Female

2. Age:……...

3. Marital Status: [ ] Married [ ] Single [ ] Divorced [ ] Widowed

Others *(Please Specify)* …….

4. Educational level: [ ] Primary [ ] JHS [ ] SHS

[ ] Technical [ ] Vocational [ ]Others *(Please Specify)* ……

B. INSTITUTIONAL CONTEXT OF OHS

5. Do you belong to any association? [ ] Yes [ ] No [ ] Don't Know

6. If yes, what is the name of the Association?.....

……

7. What are the benefits you derive from this association?

……

……

8. Is your shop/workplace registered? [ ] Yes [ ] No

9. If yes, which organisation are you registered with?.....

……

10. Do you have any rules and regulations pertaining to your workplace health and safety? [ ] Yes [ ] No

11. If yes, what are they?

……

……

……

12. Do you receive visits from any institution? [ ] Yes [ ] No

13. If yes, which institutions visit your premises and for what reasons do they come there?

No.	Institution	Reason(s) for Visit
A		
B		
C		
D		
E		

C. HEALTH AND SAFETY WORKING CONDITIONS

14. How many hours do you work each day?

[ ] Min. of 4 hours [ ] Min. of 6 hours [ ] Min. of 8 hours [ ] Min. of 12 hours

15. Do you have break periods for lunch? [ ] Yes [ ] No

16. If yes, how many hours do you observe per day? [ ] Below 15 mins

[ ] Between 15 and 30 mins [ ] Between 30 and 45 mins [] Between 45 and 1hr

17. Where do you have your lunch?

……

……

18. How do you dispose off your waste? [ ] Running water [ ] Open surface

[ ] drainage [ ] Refuse [ ] drainage [ ] dump sites [ ] Others *(Please specify)*…

19. Do you have off-days? [ ] Yes [ ] No

20. If yes, how long is your off-days per week or month? …….

21. Do you observe public holidays? [ ] Yes [ ] No

22. Do you experience injuries/diseases at your workplace? [ ] Yes [ ] No

23. How often do you experience accidents/diseases at your workplace?

[ ] Frequently [ ] Occasionally [ ] Seldom [ ] Never

24. What kind of hazards are you exposed to?

……

……

25. What type of accidents/diseases do your workers usually experience?

……

……

26. How many accidents occurred in your workplace within the last 12 months?

[ ] None [ ] 1-4 [ ] 5-9 [ ] 10-14

[ ] 15-19 [ ] 20-24 [ ] 25 and above [ ] Don't know

27. How do you rate the health and safety conditions of your work environment? [ ] Very Good [ ] Good [ ] Fair [ ] Poor [ ] Very Poor

D. PHYSICAL HAZARDS	Noise	Burns	Fumes/Smoke	Dust	Fire
28. Which of the physical hazards are you exposed to?					
29. What is the source of exposure?					
30. How would you rate your level of exposure? [1] Very Low [2] Low [3] Moderate [4] High [5] Very High					
31. How many hours are you exposed to this physical hazard each week?					
32. Does the exposure affect your health? (e.g. hearing, skin, sight, etc.) [1] Yes [2] No					

33. Are there any other physical hazards you are exposed to at your workplace?

[ ] Yes [ ] No

34. If Yes, please specify…….

35. Have you been involved in any accident in the past year? [ ] Yes [ ] No

36. How many times were you involved in an accident last year? [ ] Once

[ ] Twice [ ] Thrice

[ ] 4 times [ ] 5 times [ ] More than 5 times

37. Did you sustain any injuries as a result of the accidents? [ ] Yes [ ] No

38. If yes, what type of injury did you sustain?

……

E. CHEMICAL HAZARDS

39. i. Does your work involve the use of chemicals? [ ] Yes [ ] No

ii. If Yes, what type of chemicals do you use? ……

iii. How poisonous are the chemicals you work with?

[ ] Highly Poisonous [ ] Moderately Poisonous [ ] Slightly Poisonous

[ ] Not Poisonous

iv. Do you read labels on chemicals before use? [ ] Yes [ ] No

F. ERGONOMIC HAZARDS

40. i. What is your usual posture at work? [ ] Standing [ ] Bending [ ] Sitting

[ ] Squatting

ii. Is your posture comfortable? [ ] Yes [ ] No

iii. Does your posture cause any pain in the body? [ ] Yes [ ] No

iv. If yes, which of the following do you suffer? *(multiple responses)*

[ ] General body pains [ ] Backaches

[ ] Neck problems [ ] Muscle related problems

[ ] Others *(Please specify)*……

41. How many hours of sleep do you observe daily?

G. AVAILABILITY OF SAFETY EQUIPMENT AND PERSONAL PROTECTIVE EQUIPMENT

42. Which of the following safety equipment do you have at your workplace?

[ ] Fire Extinguisher [ ] First Aid Box

[ ] Others *(Please specify)*……

43. Which of the following Personal Protective Equipment do you have at your workplace?

[ ] Goggles [ ] Nose mask [ ] Gloves

[ ] Safety Boots [ ] Ear Protectors [ ] Machine Guards

[ ] Safety over coat [ ] Masks [ ] Others *(Please specify)*

44. Who provides the Personal Protective Equipment? [ ] Employer [ ] Employee [ ] Government [ ] Others *(Please specify)*……

45. Are you trained on the use of the Personal Protective Equipment? [ ] Yes [ ] No

46. Do you use the Personal Protective Equipment? [ ] Yes [ ] No

47. Do you think the protective devices are enough? [ ] Yes [ ] No

48. If No, what other protective devices do you require?.....

49. Are the protective devices comfortable? [ ] Yes [ ] No

H. PSYCHO SOCIAL HAZARDS

50. i. Are you satisfied with your work? [ ] Yes [ ] No

ii. If No, please give reasons?

…….....

……

iii. How safe is your work environment? [ ] Very safe [ ] Safe [ ] Unsafe

[ ] Very unsafe

iv. What is the relationship between you and your employer?

[ ] Very Good [ ] Good [ ] Fair [ ] Poor [ ] Very poor

v. Whom do you report occupational injuries to? [ ] Supervisor [ ] Employer

[ ] Nobody

[ ] Others *(Please specify)* …….....

I. PROMOTION OF OHS AT THE WORKPLACE

51. Have you registered with the National Health Insurance Scheme [ ] Yes

[ ] No

52. How can injuries and diseases be prevented at your workplace?

……

……

……

53. Who do you think must be responsible for preventing OHS injuries at the workplace?

……

……

APPENDIX III: INTERVIEW GUIDE FOR NBSSI

UNIVERSITY OF CAPE COAST

INSTITUTE FOR DEVELOPMENT STUDIES

TOPIC: OCCUPATIONAL HEALTH AND SAFETY ISSUES IN THE INFORMAL MANUFACTURING SECTOR OF CAPE COAST

The researcher is a student of the University of Cape Coast, and is undertaking a study on the topic "Occupational Health and Safety issues in the informal manufacturing sector of Cape Coast". The research is a requirement for the award of Master of Philosophy degree in Development Studies. Your responses to the questions below are very important to the outcome of the study, which is purely for academic use. Your responses will be treated with absolute confidentiality.

Thank you for your time and co-operation.

Name of Department:

……..

1. What is your department's mandate concerning OHS?

……

……

2. How does your organisation ensure health and safety in the informal manufacturing sector?

……

……

……

3. Is there any OHS policy for informal workers in Ghana? Yes [ ] No [ ]

4. What does the policy state?

……

……

……

5. Do you have adequate staff and logistics to ensure the implementation of your policies?

Yes [ ] No [ ]

6. Are your staff adequately trained to perform their tasks? Yes [ ] No [ ]

7. How often do you meet to train workers of the informal manufacturing sector? Monthly [ ] Quarterly[ ] Bi-Annually [ ] Annually [ ] Others, Specify…….....

8. How often do you go on inspection in the informal manufacturing sector? Monthly [ ] Quarterly[ ] Bi-Annually [ ] Annually [ ] Others, Specify…….....

9. What are the things you usually check when you go for the inspection?

……

……

10. What is your annual budget for ensuring health and safety in Ghana? GH¢……...

11. What percentage of the budget goes for the informal manufacturing sector?

……

12. Apart from government subvention, does your department receive funds from donors?

Yes [ ] No [ ]

13. Does your department collaborate with other departments? Yes [ ] No [ ]

14. What procedures are to be followed in reporting occupational accidents, injuries and diseases in the informal sector?……..

……

……

15. What are some of the challenges and constraints of ensuring occupational health and safety in the informal manufacturing sector?

……

……

……

16. What is the way forward in maintaining occupational health and safety in the informal manufacturing sector?

.....

APPENDIX IV: INTERVIEW GUIDE FOR DFI

UNIVERSITY OF CAPE COAST

INSTITUTE FOR DEVELOPMENT STUDIES

TOPIC: OCCUPATIONAL HEALTH AND SAFETY ISSUES IN THE INFORMAL MANUFACTURING SECTOR OF CAPE COAST

The researcher is a student of the University of Cape Coast, and is undertaking a study on the topic "Occupational Health and Safety issues in the informal manufacturing sector of Cape Coast". The research is a requirement for the award of Master of Philosophy degree in Development Studies. Your responses to the questions below are very important to the outcome of the study, which is purely for academic use. Your responses will be treated with absolute confidentiality.

Thank you for your time and co-operation.

Name of Department:

……..

1. What is your department's mandate concerning OHS?

……

……

2. How does your organisation ensure health and safety in the informal manufacturing sector?

……

……

……

3. Is there any OHS policy for informal workers in Ghana? Yes [ ] No [ ]

4. What does the policy state?

……

……

5. Do you have adequate staff and logistics to ensure the implementation of your policies? Yes [ ] No [ ]

6. Are your staff adequately trained to perform their tasks? Yes [ ] No [ ]

7. How often do you meet to train workers of the informal manufacturing sector? Monthly [ ] Quarterly[ ] Bi-Annually [ ] Annually [ ]Others, Specify…….....

8. How often do you go on inspection in the informal manufacturing sector? Monthly [ ] Quarterly[ ] Bi-Annually [ ] Annually [ ] Others, Specify…….....

9. What are the things you usually check when you go for the inspection?

……

……

……

10. What is your annual budget for ensuring health and safety in Ghana? GH¢……...

11. What percentage of the budget goes for the informal manufacturing sector?

……

12. Apart from government subvention, does your department receive funds from donors? Yes [ ] No [ ]

13. Does your department collaborate with other departments? Yes [ ] No [ ]

14. What procedures are to be followed in reporting occupational accidents, injuries and diseases in the informal sector?……..

……

……

15. What are some of the challenges and constraints of ensuring occupational health and safety in the informal manufacturing sector?

……

……

16. What is the way forward in maintaining occupational health and safety in the informal manufacturing sector?

.....

.....

.....

APPENDIX V: COST OF OCCUPATIONAL INJURIES

UNIVERSITY OF CAPE COAST

INSTITUTE FOR DEVELOPMENT STUDIES

TOPIC: OCCUPATIONAL HEALTH AND SAFETY ISSUES IN THE INFORMAL MANUFACTURING SECTOR OF CAPE COAST

The researcher is a student of the University of Cape Coast, and is undertaking a study on the topic "Occupational Health and Safety issues in the informal manufacturing sector of Cape Coast". The research is a requirement for the award of Master of Philosophy degree in Development Studies. Your responses to the questions below are very important to the outcome of the study, which is purely for academic use. Your responses will be treated with absolute confidentiality.

Thank you for your time and co-operation.

1. Did you suffer any work related injury or diseases in the past year?

Yes [ ] No [ ]

2. What type of disease or injury did you suffer?

……

……

3. Did the disease or sickness keep you away from work? Yes [ ] No [ ]

4. If yes, how long did you stay away from work?

[ ] 1 week [ ] 2 weeks [ ] 1 month [ ] 2 months [ ] 3 months [ ] 4 months [ ] 5 months [ ] 6 months [ ] Above 6 months [ ] Others (please specify) ……

5. What was the medical cost of the injury and disease? GH¢……..

6. Are you registered under the National Health Insurance Scheme?

[ ] Yes [ ] No

7. If No, why? [ ] It is expensive [ ] Long queues at the hospitals

[ ] Low coverage for drugs [ ] Others (Please Specify)…….

8. Who paid the medical bills? [ ] Self [ ] Employer [ ] Health Insurance

[ ] A combination of the above (Please Specify)……..

……...

[ ] Others (Please Specify)…….

9. Were you compensated when you got injured? [ ] Yes [ ]No

10. If yes, in what form did the compensation take? [ ] Cash [ ] Sick leave

[ ] Others (specify)……

11. Please complete the table below

No.	Date	Injury/ Disease	Medical Costs (GH¢)	Non-Medical Costs/Transportation (GH¢)	Effects of Injury/Disease		
					Number of Days Lost	Cost of damage to property (GH¢)	Fatalities (Disability, Death, etc.)

12. Who bears the cost of rehabilitation of injured workers?

[ ] Employee [ ] Employer [ ] Government [ ] Others (Please specify) ……...

APPENDIX VI: OBSERVATION CHECKLIST

UNIVERSITY OF CAPE COAST

INSTITUTE FOR DEVELOPMENT STUDIES

TOPIC: OCCUPATIONAL HEALTH AND SAFETY ISSUES IN THE INFORMAL MANUFACTURING SECTOR OF CAPE COAST

OBSERVATION CHECKLIST

Work Category: ……

Physical Hazards	**YES**	**NO**
Are the workers exposed to noise?		
Are the workers exposed to burns?		
Are the workers exposed to fumes/smoke?		
Are the workers exposed to dust?		
Are the workers exposed to fire?		
Is the working environment clean?		
Has any worker sustained injuries as a result of work place hazard?		
Are electrical appliances overloaded?		
Are the workers cooking with naked fire?		
Are equipment being used by workers defective?		

Chemical Hazards	**YES**	**NO**
Do the workers use chemicals?		
Are the chemicals harmful?		
Do the workers read labels of chemicals before using them?		

Ergonomic Hazards	**YES**	**NO**
Do workers stand often at their workplace?		
Do workers bend often at their workplace?		
Do workers sit often at their workplace?		
Do workers often squat at their workplace?		

Availability of safety equipment	**YES**	**NO**
Does the industry have a first aid box?		
Is the first aid box well stocked?		
Does the industry have fire extinguisher?		
Is the fire extinguisher valid?		

Availability of Personal Protective Equipment	**YES**	**NO**
Is nose mask available at the workplace?		
Are goggles available at the workplace?		
Are gloves available at the workplace?		
Are safety boots available at the workplace?		
Are machine guards available at the workplace?		
Is safety over coat available at the workplace?		
Are ear protectors available at the workplace?		

Do workers use the following personal protective equipment if they are available at their workplace:	**YES**	**NO**
Nose masks		
Goggles		
Gloves		
Safety boots		
Machine guards		
Safety over coats		
Ear protectors		