


**ASSESSING ROLES AND CONTRIBUTION OF WOMEN IN THE
CONSTRUCTION INDUSTRY IN KUMASI**

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DECLARATION

I hereby declare that this submission is my own work towards the MSc. and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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ABSTRACT

The construction industry plays very significant role in the development of every country in terms of infrastructural development and promoting investment. The industry is however, seen as a preserve of men. It is against this backdrop that women's participation in the industry was assessed. This study investigated the specific roles of women, their representation in construction industry, whether women are adequately engaged in management position and their challenges in terms of different levels of motivations in the industry.

The cross sectional design was adopted to study ten (10) construction companies. As a result of the three (3) Construction Associations that were identified. Using the snowballing approach, three (3) companies were selected from the Association of Building and Civil Engineering contractors, three (3) companies from Progressive Road contractors Association and four companies from the Association of Road contractors. The ten managers of the companies were surveyed on the profile of their workers and companies in addition to thirty-two (32) women in the industry that were surveyed based on their availability.

The study revealed that the educational background of workers were low as well as that of women in the industry. However, men had certificates in construction related courses than women. Women were therefore engaged in marginal roles like labourers and secretaries. It was also noted that generally women were underrepresented in the construction industry and in management positions. Motivations like promotions, increased salaries and annual leave were also denied women which could influence their exit from the industry.

Based on these conditions, it was recommended that women should be enrolled on apprenticeship programmes and workshops to equip them with construction skills and engage them in construction specific roles. Women with degree and diploma certificate in construction course should be given equal opportunities in the industry and in management positions as their male counterparts. The women in the industry could also come together as a united front to address their welfare on motivations and enhance their representation as done in South Africa (SAWiC) and the United States (NAWIC).

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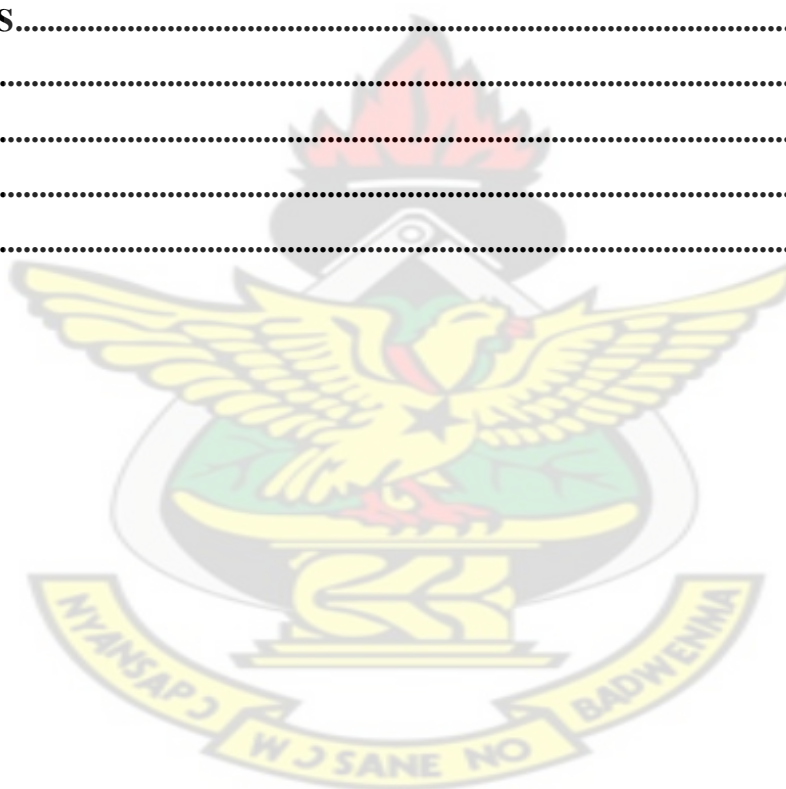
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LIST OF ACRONYMS

ACCA	Accredited Certified and Chattered Accountant
ATTC	Advance Technical Training Certificate
CPWR	Centre to Protect Workers Right
K.M.A	Kumasi Metropolitan Assembly
NAWiC	National Association of Women in Construction
NVTI	National Vocational Training Institute
RSA	Royal Society of Arts
SAWiC	South African Women in Construction
SET	Science, Engineering and Technology



CHAPTER ONE

OVERVIEW OF STUDY

1.0 Introduction

This chapter highlights what the study entails and the significance of the study. It analyses the major roles in the industry and how women are participating in these two roles. According to Fielden et al (2000), the construction industry employs workers in two main categories; the first includes managers and professionals in charge of expert functions such as forecasting, planning and advising on field activities and resources involved in construction operation. The second involves construction workers, who undertake specific activities on the field such as construct, install, finish, maintain and repair internal and external structures of domestic, commercial and industrial buildings and civil constructions. Architects, designers, administrative and clerical staff belong to the latter category of construction staff. There is also the supply of building materials and selling of food at the construction sites. Trades such as painting and decorations have rarely required muscles whereas others such as steel work and labour have involved substantial lifting.

Barnabas et al (2009) noted that women have much capability of undertaking the above tasks as their male counterparts. Therefore women should be encouraged to take active part at all levels within the construction industry to enhance contest for placement and consequently improve the requirement of entrant into the industry. Enhancing female participation in the industry is essential for the construction industry to have sustainable growth through regular supply of manpower.

Fielden et al (2000) noted that the construction industry has been described as a masculine occupation and it is characterized by long working hours with routine working on week – ends and has therefore been termed as a nontraditional occupation for women. As a result women are underrepresented at all levels of the construction industry. In view of the above, it is necessary that the roles women play in the construction industry and their contribution to the industry be examined to ascertain whether women should be encouraged to enter the construction industry or to maintain the status quo. The study therefore seeks to examine the various activities of women in the construction industry and investigate why women are found a lot more at the lower level of the construction industry than at the management level.

1.1 Problem Statement

There is low participation of women in the industry as noted by Bennett et al (1999). However, (Greed, 2000; Agapou, 2002; Gurjao, 2006; Khan, 2008) have also indicated that the construction industry is one of the sectors that employs a large number of people about five thousand and has easy entry because it gives employment to all kinds of people both skilled and unskilled. Dainty (1998) also noted that women occupy junior and supporting positions within high status professions. More than half of the 31 million construction workers in India are women and they are employed as labourers carrying head loads for their male counterparts (Barnabas et al, 2009). This implies women are more at the lower level than at the higher level where more strength is needed to work. Fielden et al (2000) and Sommerville et al (1992) have observed that females are fewer than males in construction training institutions and colleges because courses available at colleges which provide entry to construction discipline require background to Mathematics, Science and Technical drawing as qualification which girls and women are less likely to have. Sommerville et al (1992) further noted that in mechanical engineering, women constitute 16%, civil engineering 11% and in architecture 30%. This means, women's enrolment in construction discipline may be reduced and hence could have limited access in the construction industry as professionals. The craft section is basically male dominated and provide progressive career path to master craft, technician, supervisor and management occupation as well as into higher education (Fielden et al, 1997). Since women are under-represented in the craft section, very few get the privilege of progressive career path or rising through the ranks to the management level. Sex segregation is associated with differentiated pay levels. Throughout their working lives, women usually earn less than men, with women employed in full time positions earning lesser than their male counterparts (Fielden et al, 2000).

According to K.M.A (2011) the Kumasi metropolis is endowed with the Middle Precambrian rock which has attracted quarrying and sand winning industries such as Consar at Barekese, KAS at Buoho, Sonitral at Abuakwa and other small scale quarrying and sand winning activities. The activities of the quarrying and sand winning industries provide raw materials such as sand and gravels for construction activities and further provide productive employment to residents within Kumasi. However a visit to the construction sites reveals that far fewer women worked in these industries even though females outnumber males in the economically active group by a 50.1:49.9 (Ghana Statistical Service, 2005). Apart from that,

it appears that most of the women work as low level employees in the construction industry and are arduously involved in strength sapping activities by carrying head loads for the masons in the absence of mechanization. This implies that the job of a woman worker is more strenuous in the construction sector than in other manufacturing industries. More women are seen at construction sites undertaking activities at the lower level than at the higher level and it is therefore necessary that one investigates why women are more at that level where more strength is needed to work. The study therefore investigates the participation of women in the construction industry in order to address the challenges that militate against participation of women. This may help address the skill gap and ensure diversity in the construction industry. Guided by the problems above research objectives were thus formulated.

1.2 Research Objective

Generally, the research seeks to examine the activities and contribution of women in the construction industry in Kumasi to enhance women's participation in the industry. Specifically, the research seeks to:

1. Review the difference in enrolment of females and males in construction disciplines
2. Assess the level of representation of women in the construction industry.
3. Assess the level of representation of women in the management and non management positions
4. Examine the activities undertaken by women in the construction industry
5. Identify the differences in motivations for males and females in the construction industry.
6. Recommend measures to enhance women's participation in the construction industry

1.3 Research Questions

The study focuses on women in the construction industry, and seeks to address these research questions:

1. What are the levels of enrolment of females the same as males in the construction disciplines?
2. How are women represented along the levels of decision making?

3. How are the activities of women distinct from men?
4. What are the differences in motivations for women and men?

1.4 Scope of Study

Geographically, the study was conducted in Kumasi which is the Ashanti regional capital and the second largest Ghanaian city. The study also focused on the everyday activities of women in the construction industry. The level of representation of women from the management and professional level down to the junior level was examined. Kumasi has many institutions that train people in the construction disciplines. The institutions include Kumasi Technical Institute, Catholic Technical Institute, Kumasi Polytechnic, Kwame Nkrumah University of Science and a number of schools for training draughts men. The high number of training institutions could ensure flow of human resource from the training institutions to the construction industries both within and outside Kumasi.

1.5 Justification of Study

The construction industry has been chosen because the sector was considered to be one of the major sources of economic growth and development. Construction plays an important role in economic and social development of a country. It is a means for generating employment and offering job opportunities to the unskilled, semi skilled and the skilled. It also plays key role in generating revenue for the formal and informal sector. It complements foreign exchange earnings derived from trade in construction materials and engineering services.

Kumasi has a unique geological structure which is the Middle Precambrian rock suitable for construction and is the main resource used by contractors in the Metropolis for construction activities. This unique raw material has generated construction activities where the rock dominates.

Despite the significant amount of research carried out on women in construction across the globe by (Fielden et al, 2000; Bennet et al, 2000; Agapou, 2002; Adeyemi et al, 2006; Barnabas et al, 2009), the contribution from Ghana is very limited. Hence there is need for a study on women in construction in Ghana to add to the body of knowledge in that field.

The study will serve as a guide to Government, Nongovernmental organizations and stakeholders involved in the construction industry. This will further enhance favourable conditions for women's involvement in the construction industry which will lead to the overall development of the country and ensure diversity in the construction. Despite their demonstrated importance, to date there has been little systematic analysis of these matters, and thus the basis for policy, decision making and strategy is inadequate.

1.6 Organization of Research Report

The thesis is divided into six chapters. The first chapter highlights the relevance of the study to the construction industry, women and government as a whole. Chapter two provides information about factors that influence women's role in the construction industry, the role they play in the construction industry and the contribution of women in the construction. Chapter three outlines the methods used in collecting and analyzing data. It also contains the variables of the study and sources of data. Chapter four analyses the study area in the national and regional context and profile of the study area. The fifth chapter presents key issues involved in the study and the analysis of data. The chapter gives information about actual role that women play in construction and their contribution to the industry. The sixth chapter outlines the recommendation and concludes the study. In order to reinforce the relevance of the study, the participation of women in the construction work has been discussed in the chapter two. In addition, the overview of the problem was to be solved by first looking at the participation of women in the construction industry across the globe. Hence women participation in the construction industry at the international level was discussed in chapter two.

CHAPTER TWO

WOMEN'S POSITION AND PARTICIPATION IN THE CONSTRUCTION INDUSTRY

2.1 Introduction

The chapter reviews the literature on the major dimensions of construction industry, factors that influence women's participation and how women are contributing to the construction industry internationally. The major types of construction companies include residential housing construction, institutional and commercial building construction, specialized industrialized construction and infrastructural construction. The contributions of the construction activities to the economy were discussed and how women participate in construction was also reviewed. It also discusses the role of women in the industry and what determines their career choice in the industry. These included educational background, skills and positions of women. The contributions of women in Brazil and South Africa were discussed.

2.2 Definition of Construction Industry

Construction has been defined by Parry (1994:3) generally as, "the construction and structural maintenance of all forms of domestic, commercial, industrial and public infrastructure including occupational groups in manual, administrative, paraprofessional or professional who are directly involved with construction and maintenance". This means the construction industry has different scope of operation and also involves many activities that relates directly or indirectly to the industry. The industry therefore employs a lot of workers who undertake the various activities that support and complements construction.

McGrath - Champ et al, (2010: 4) defined construction, "as a process directed towards the creation of structures which incorporates a number of industries. These are grouped into two: those that are directly involved with the construction process and those that are supplementary to it". By this definition, construction industries may include companies that produce construction materials to those that are engaged in mortgage or control of facilities. This also means the industry may give employment to a wide range of workers as a result of its nature. For the purposes of the study, the construction industry has been defined as firms and companies that are involved in road construction works and building and civil

engineering work. This is limited to activities within the road and building sector. In view of the various definitions, the major dimensions of the construction industry were discussed subsequently.

2.2 Dimensions of the Construction Industry

The activities of the construction industry have been classified into Residential Housing Construction, Institutional and Commercial Building Construction, Specialized Industrialized Construction and Infrastructural and Heavy construction. Each of the construction type has its own characteristics. The characteristics are features of output, sizes, government as a main client, nature of demand for construction output, nature of construction work, variety of construction technology, and structure of industry. Gurjao (2006) has indicated that the construction industry is not all the same; it embraces a wide range of activities, products and skills. It involves the process of erecting a structure, civil engineering, oil and gas, heavy engineering, design and consultancy and companies manufacturing and fabricating components and products used by the construction industry. Diverse skills and trades make up the workforce in the construction industry. The major types of construction industries have been discussed subsequently.

2.2.1 Residential Housing Construction

According to Gurjao (2006), residential housing construction includes family apartments in various forms. Projects of this kind are undertaken by professionals who are expert in the construction activities and who serve in the interest of the owners, taking responsibility for their client. The builders also take charge of contract agreement for the entire building of the project. The Civil Engineer (2011) has indicated that expert in this category of construction are architects and engineers supported by builders. At certain times, builders are in charge of design of such project when it is a single family house. DiPasquale (1997) further noted that government policy can have severe impact on the activities of housing market. Through government subsidy on mortgage and interest deduction there is an increased demand for housing. Normally an increase in total demand will lead to a considerable investment in construction, since numerous housing projects can be started at different location by different individuals and developers at the same time. Because of relative ease of entry, at least at the lower end of the market, many new builders are attracted to the residential construction.

Hence this market is very competitive, with potentially high risk and high rewards. This is unlikely of the institutional and commercial building which has been discussed in the next section.

2.2.2 Institutional and Commercial building

According to the United States Census Bureau (2002), Institutional and Commercial building construction involves project such as academic facilities, health facilities, recreational facilities and sports stadiums, commercial facilities, warehouses and large industrialized plants and skyscrapers for offices and hotels. Professionals such as architects and engineers are engaged for the design of specific type of building, while builders or general contractors responsible for such projects may also be expert in that type of building. Civil Engineer (2011) has thus noted that as a result of the complex nature of institutional and commercial building in comparison with residential housing, demand and supply is shared by fewer market competitors. Since the construction of some of these buildings is a long process which once initiated will take a long time to be completed, the demand is less sensitive to general economic condition as compared to speculative housing. Consequently, the owners of Institutional and Commercial building may encounter an oligopoly of general contractors who compete in the same market. In an oligopoly situation, only a limited number of competitors exist, and a firm's price for services may be based in part on its competitive strategies in the local market

2.2.3 Specialized Industrialized Construction

Hendrickson (1998) noted that, specialized industrialized constructions are projects that are very big in nature with technological complexity, such as manufacturing and processing plants. Clients of such projects are attached to the development of the projects and prefer to work with those who design and build the project in order to reduce total time required for the completion of the project. The clients in addition prefer a team of designers and builders with whom they have developed good working relationship over the years. Civil Engineer (2011) indicated that although the initiation of such project is also affected by the state of the economy, long term demand forecast is a key factor since such projects require huge investment and considerable amount of planning and construction time. Government policies such as rulings of the Environmental Protection Agency and Nuclear Regulatory Commission in the United States have great control on decisions of these projects.

2.2.4 Infrastructural and Heavy Construction

Stevens et al (2006) noted that Infrastructural and Heavy Construction includes highways, mass transit system, tunnels, bridges, pipelines, drainage systems and sewage treatment plant and telecommunication networks. Projects belonging to this category of construction activities are usually publicly owned and therefore financed either through bonds or taxes and sometimes loans. This category of construction is characterized by high degree of mechanization, which has gradually replaced the labour intensive operations. The engineers and builders engaged in infrastructural construction are usually experts in their field since each segment of the market requires different types of skills

Civil Engineer (2011) added that, demands for different types of infrastructural and heavy construction may shift with saturation in some segment. For example as the available high way construction projects are declining, some heavy construction contractors quickly move their work force and equipment into the field of mining where jobs are available. The different types of construction activities in the industry make room for diverse human resource contribution including the skilled and unskilled of which women may be involved. Women may contribute to the construction industry in different capacities by engaging in the different types of construction industries. This will lead to an overall contribution to the economy.

2.3 The Contribution of the Construction Industry to the Economy

The construction industry contributes to the economy in diverse ways. They contribute to the economy by ensuring economic growth, increasing investment in construction work and building materials, improving Gross Domestic Product, providing infrastructure, creating employment and increasing capital formation.

Khan (2008) has noted that construction industry and its related activities are one of the main sectors of economic growth for most countries. The construction industry contributed about U.S\$4.5 trillion globally by providing employment to a large segment of the population and further providing infrastructure for the smooth operation of business enterprises. In developing countries the construction industry is seen as key agent of economic growth.

Anaman and Amponsah (2007) cited in Khan (200) also indicated that the industry can assemble and make use of domestic resources in the provision of social and economic infrastructure to enhance employment rate and increase economic development. They observed good infrastructure such as transportation network helps to lower the cost of production thus leading to economic growth. The construction of relevant infrastructure like roads in rural areas has a considerable impact on national wealth distribution. Thus in South Korea, extensive road networks in 1960s and 1970s led to rapid growth of vegetable production and other cash crops designed for the urban markets. Infrastructure is thus the foundation for all economic activities. Mutandwa et al (2008) also observed that globally construction contributes a third of capital formation and it drives economic growth through the provision of houses, roads, utility net work, schools and health facilities. Adeyemi et al (2006) have also indicated that in Nigeria construction contributes 70 percent of the country's fixed capital formation and 3 percent of the Gross Domestic Product. The industry employs over three million people in different capacities as workers within the industry.

Gurjao (2006) has also noted that in the U.K., construction is one of the key sectors that ensure Britain's wealth. It contributes 10% to the Gross Domestic Products and gives employment to over two million people. Barnabas et al (2009) have also observed that the industry employs the largest industrial workers of about 7 percent worldwide. In addition 16 percent of the workforce in India work in the construction Industry. The construction industry precedes every manufacturing industry which is the main partner of economic growth and development. By contributing to capital formation, Gross Domestic Product, creating employment and providing infrastructure, it is evident that the construction industry plays key role in developing countries. Hence women who play diverse roles in the construction industry are contributing indirectly to the economy. The roles of women in the construction industry across the globe were subsequently discussed in the next section.

2.4 Roles and Positions in the Construction Industry

Roles are the specific activities that are undertaken by staff in the construction industry. The specific activities that women undertake in the industry are secretarial work, engineering, managerial work, designing and trades.

Hussin and Omran (2009) have noted that construction entails transforming paper work or computer based work into reality. This may require engineers who are experts in the design and may plan the physical proceedings of the main structure. The design usually consist of drawings and specification prepared by design team including architect, surveying, quantity surveying, civil engineering, mechanical engineering, electrical and structural engineering that may be performed by professionals in various positions. Women participation in transforming paper based work into reality at the international level is reviewed in subsequent sections.

Bennett et al (1999) have classified the numerous activities into four general roles and these roles aid in the translation of paper work into reality. Women are capable of performing all the roles as discussed subsequently. They include roles that are performed at non management level such as designing, planning, quantity surveying, assisting engineering work, consulting, training and labour work. These positions are generally self-directed or are part of a team. The second role includes roles undertaken at the supervisory level such as those in charge of engineering, management consulting, site supervising and foremen. These roles serve as complementary role to middle management. The third role includes activities undertaken at the middle management level such as managing facilities, managing contracts, site agents, senior quantity surveyor and senior management consultant. These positions are mainly in charge of running the whole series of a project and leading a project team. The fourth role includes those in charge of senior management functions. People who belong to this category are company directors, partners of a company, project managers and directors. These positions are usually the ones with authority where major decisions are made.

McGrath-Champ et al (2010) indicated that women are more in administration and accounting functions, and are hardly found in positions of decision making. Thus, roles such as site administration, painting and finishing and on a limited level, project management are common with women. Kalabamu (2005) also noted that a large number of women in the construction industry are administrators, technicians and professionals rather than trades and only Denmark records the highest number of women in trades of 33 percent who are engaged in painting whereas less than 6% of women construction staff work as professionals and managers. In Canada, women are concentrated in non management positions as indicated in the Table 1.

Table 1: Role of Women in Canadian Construction Industry

	Position	Percentage
1	Trades	1
2	Sole traders	2
3	Small scale entrepreneurs	4
4	Design and Management	9
5	Secretarial	84

Source: Kalabamu (2005)

Table 1 show that more women are concentrated in secretarial jobs than trades where main stream construction jobs are done. Hence mainstream construction work is undertaken by men in the industry. This will lead to limited diversity in the industry in addition to women belonging to non management level in the industry.

Clarke et al (2005) have also noted women are increasing in the construction industry, however majority of women are concentrated in administrative, technical and professional occupations in Russia, Germany and the Czech Republic. They further noted that clerk is the prevailing role of women in the construction industry as the United Kingdom has 84 percent of women in secretarial role whilst craft work has low participation across Europe as low as 1.1%. The Construction Sector Council (2010) also noted that in Canada, women constitute 15.8% of land surveyors, 12.8% of construction inspector and 30.1% health and safety inspectors. Women representations in these occupations are higher than professional positions like Engineering and Architecture.

According to Jahn (2009), women are actively involved in mainstream construction work in South Africa. This is because about 3.4% of women in the construction industry work on preparatory process, 12.1% work in the construction of building, 8.6% work in the construction of civil engineering structures, 7.3% work on construction of other structures and 11.7% work on construction of other building installations. Clarke et al (2005) have observed that the proportion of women engaged in craft work is very low ranging from 1.1% to 4% across Europe. Bennett et al, (1999) also observed that women are interior designers, surveyors, engineers, developers and general contractors, accountants or other financial experts to monitor costs in the construction industry.

Bennett et al (1999) further noted that women that are employed in the construction industry with professional qualification have a tendency to fill technical and specialist positions rather than general managerial post. And they further noted that women after their initial climb towards management are pushed horizontally into specialist positions.

According to Dabke (2005) women are three times involved in housing business as men and this is as a result of changing trends in traditional roles in the United States. The increase in participation of women in the construction industry is partly due to activities of the National Association of Women in Construction (NAWIC) which is a professional Association composed of women working in construction and related industries. It has membership of about 5,500 and 170 chapters across the United States. Members of the Association are business owners and managers, executives, subcontractors, accountants and estimators. In addition, a number of organizations have designed and implemented programmes that will increase the participation of girls in the construction industry. She further noted women are no longer restricted by gender stereotypes as 50 percent of the women in the construction industry work in technical, sales and administrative support, 28 percent in managerial and professional field and the remainder as precision, craft operators and labourers. Women participation in the construction industry in the United States of America is very high and are represented in management, professional, trades and technical positions. This is due to the activities of the various associations for women in construction.

Construction Sector Council (2009) indicated that women represent 9% of engineers in the construction industry and 6.4% of residential homebuilders and renovators. Thayaparan et al (2010) have noted that more than 85 percent of women are in administrative positions which are not mainstream construction activity. Bennett et al (1995) have noted that, the proportion of males that worked as contractors were 54% while 46% of the females worked as contractors. In consulting, 26% of women worked in consultancy and 27% of men worked in that field. There were no self employed males compared to 6% of females who were self employed. The remaining include, sub contracting, retail and housing associates (Bennett et al, 1995). Dainty et al (2000) observed that women are in office based support position whereas men are allocated professional roles.

In managerial and administrative category, women are concentrated in specialist positions including personnel and public relation rather than main stream construction. In addition within the professional and technical category, women are significantly underrepresented in engineering and technical occupations compared to their male counterparts (Fielden et al, 2000). Adeyemi et al, (2006) have also noted that in Nigeria women are employed in management, clerical, labouring and craft position. Women with higher rank in the construction industry occupy specialist position rather than general managers position. Women in management positions in the construction industry are managers of their own companies as 6% of the women are self employed. The positions offered to women in the construction industry determine their status in the construction industry as belonging to management of the industry or not belonging to management.

2.5. Determinants of Careers in the Construction Industry

The family background variables and Individual or Psychological variable influences career choice in construction. Moore (2006) identified these two factors of career choice as determinants of career choice in construction.

Family background variable is gender role socialization which indicates how males and females behave towards their respective cultural roles. That is accepting occupation that will help them play their biological roles as mothers and fathers or as wives and husbands. This is also known as cultural values since culture assigns these roles which are upheld. The second factor which is individual or psychological variables involves mathematical and science ability and achievement. The ability of girls to handle the science and mathematics subjects influences them to choose career in science, computer science and Engineering. These courses may further lead women into the construction industry.

The determinants of career choices identified by Moore (2006) have been redefined to be cultural values for family background variable and educational background for individual psychological variable. These two factors have been discussed subsequently. They are the cultural values of women and their educational background. These factors are believed to influence girls and women in their career choice in the construction industry.

2.5.1. Family Background Variable

Family background variable which includes cultural values are the accepted norms that are upheld by a group of people identified by a common way of life. With regard to gender role socialization, Moore (2006) has indicated that the norms have strong effect on what boys and girls undertake as their career. The varied trends of women in economic activities reveal the varied cultural traditions. Hence what is considered an accepted norm in a society has influence on girls and boys to choose a career in the construction industry.

According to Lindsey (2000), in the traditional setting, early marriage was the norm of the day for women in the olden days. The most upheld value was her capacity to reproduce and produce for her family. Heinemann (1994) also observed that, traditionally the woman's first responsibility was as a wife, whose life was centered in her home and family. The woman was expected to bring forth and raise children. Boserup (1989) observed there were multiple demands and responsibilities of women as child bearers, working inside and outside the home as well as household managers.

According to Bennett et al (1999), traditional sex roles given to men and women by society if challenged is one of the factors that encourage women's participation in the construction industry. Evetts (1996) noted that many women were not keen in management positions in the construction industry because of their traditional sex roles. The nature of work in the construction industry is such that managers spend a lot of time at the work place and work at the weekends including travelling all the time which does not allow family women to play their cultural assigned roles. Bennett et al (1999) also indicated that many women leave the construction industry in order to start a family and hence resolve for occupations that will give them sufficient time for their families such as teaching and nursing. Fielden et al (2000) have observed that women lower their profession for their husbands to progress or to care for their children and husband.

Aslarn et al (2004) also noted that pregnancy, motherhood and childbirth influence the career progress of women particularly if the job assignment necessitates extensive energy to work and most women quit their profession after marriage or delivery of babies. (Chun, Arditi, Balci, 2005) observed, women's other roles as mothers and wives prevent them from walking as directly as men on their career path and at certain times women need career break to implement their cultural roles and also gender segregation in the industry is as a result of the

expected traditional roles. In view of the above, Bennett et al (1999) indicated women are faced with more complex career choices than men, their career patterns tend to move through phases where other aspects of life tend to take priority.

In conclusion the family background variable plays key role in career choice of women. Women with strong family values choose career in women traditional occupations like education and nursing. In addition women who choose non-traditional occupation may leave their career to take up traditional occupations to give them room to make their own family. This is due to cultural roles assigned to women as home makers. The second determinant of a career choice in construction is Individual or Psychological variable and it has been discussed in the next section.

2.5.2 Individual or Psychological Variable

Individual or psychological variable relate to the kind of educational background one has acquired. That is whether a person has a degree in engineering, science or mathematics. Moore (2006) has noted that the number of times a girl takes mathematics and science courses in high school is one of the major factors that will influence her to choose a career in construction.

Fielden (1999) also observed females are generally less than males in construction training institutions and colleges because courses available at colleges which provide entry to first degrees in construction disciplines requires background in Mathematics, Science and Technical Drawing as qualification which girls and women are less likely to have. This he observed will lead to a reduction in women's enrolment to education in the construction discipline, which may further reduce their chance for entry at the professional level. He further observed that female students make up 8 percent and 7 percent of the engineering and technology course and architecture course.

CPWR (2002) noted that the completion rate for women apprentice in the labour – management programmes recommended by the Bureau of Apprenticeship Training at the U.S. Department of Labor for all prospective construction workers was 30.4 percent in 1997. Gurjao (2006) has noted that in the U.K., women made up 3 per cent of all trainees entering craft and technical construction courses in September 2002. In addition between 2002 and

2003, a total of 2,291 women started construction related degrees, such as building and architecture, which was a 9 per cent increase on the 2001 and 2002 figure of 2,103 women. And it was further noted that on the average women make up only 11 percent of all application for higher education leading to professions in the construction discipline. Women also made up of 55% of postgraduate students in Science, Engineering and Technology and 56% doing Doctoral studies on Science, Engineering and Technology.

Gayana et al (2010) observed that the most segregated area of learning in higher education is construction and engineering where men make up of 90 percent of learners. They further noted that in the U.K women make up 18 percent of learners in construction discipline.

The Construction Sector Council (2010) noted that in 2006, 2.4 percent of Canadian females in the labour force aged 15 to 24 years had a certificate or diploma in construction and the women who were in management positions had degrees in engineering and architecture. In addition women represented 24% of students in engineering and applied Science.

Even though enrolment of women is significantly low compared to their male counterparts it has been increasing over the years. This will lead to an increase of women in trades, technical, professional and management positions addressing the issue of female underrepresentation in the construction industry. The kind of education acquired determines the skills of women and their status in the construction industry. For example a woman with a degree in quantity surveying has skill in billing building material in the same way that a woman with a degree in architecture has a skill in design and thus be part of management.

Taylor et al (1996) cited in (Thoung and Skitmore, 2003; Bennett et al 2000) noted that women seem to be dealing better with team work and have better communication skills than men. Interpersonal communication is an important skill for project management and women have that skill better than men. This explains why women are always concentrated in clerical and administrative positions in the industry. According to Chun et al (2005) women are more skilled in project management and they are eligible, competent and accessible. Gurjao, (2006) also indicated that women are skilled in construction management occupations. There are varied skills needed in the construction industry to support the numerous roles. However, it has been noted that women are well vexed in communication and management

occupation resulting in their concentration in secretarial and administrative positions. The skills of the women determine the status in companies.

Bennett et al (1999) observed that in Britain, although women comprise half of the workforce, and the number of women in construction education are increasing, overall they continue to be underrepresented in the construction industry and have little prospect past the middle management position. They noted that 47 percent of women are in non management role compared to 27% of men. A study conducted by Bennett et al, (1995) on “women in construction; comparative investigation in to the expectation and experience of male and female construction undergraduates and employees” revealed that almost half of the women working in the construction industry were in the supervisory role. Women who belong to the senior management role were about 14% and they were managers of small companies with fewer than five hundred employees compared to 15% of their male professional counterparts who belonged to the senior management roles, 96% of the male senior managers were in organizations with over five hundred employees. This according to Bennett et al (1999) reflects supremacy of the role, in comparison managers in bigger companies wield more power than managers in smaller companies. The Construction Sector Council (2010) indicated that in Canada the proportion of women who belong to construction management is 7.9% with 6.5% of the women being contractors and supervisors. In Australia women represent 7.9% of all managers and professionals (Dainty et al, 2006).

Women in management status in the construction industry are significantly low. Their underrepresentation in the management positions may lead to limited recruitment of girls into the construction industry since there will not be enough women to influence decisions at the management level. In addition women in management positions are expected to enjoy all the motivation and privileges which may increase participation in the industry.

The varied activities in the construction industry requires numerous roles to support each activity hence the diverse roles in the construction industry. However, Gale (1994) and Clarke et al (2005) have observed that women are concentrated in non management roles. Privileges of women were discussed subsequently.

2.6 Privileges within the construction Industry

Privileges are the motivations that workers enjoy in the industry to enhance productivity and compel them to stay. Privileges available to women in the construction industry have been examined to see how they can enhance their participation and stay in the industry.

Privileges that are enjoyed by women in the industry will motivate them to give off their best in terms of contribution to the industry. According to (Aiyetan and Olutuah, 2006) productivity measures how well resources are utilized, it is known as output to a measure of input per unit of labour. As the human capital which is the buildup of knowledge, skill and experience of the labour force improves productivity also improves and motivation is one way of improving the productivity of construction workers. In order to increase productivity of construction workers Aiyetan and Olutuah (2006) recommended increased salary, promotions, overtime allowance and allowance for staff who report to work on holidays Geertsema (2007) has identified promotion and government support as motivation to increase productivity. Cole (1997) indicated incentive scheme for managers include extra payment or increase in salaries, fringe benefits covering such items as car, sickness benefit, free education for managers children, free holidays. Others are free lunches, free travel abroad with wife and family, access to newspapers and journals, loan without interest and free medical scheme, promotion, provision of transportation facility (official car) and telephone services. Financial incentive to operatives include good holiday pay, extra pay for shift work, long service allowances, overtime allowance when operatives require it, pension fund contribution by the company, employee's liability insurance and medical facility to operative's family, promotion and provision with transportation.

Dabke (2005) noted that in the construction industry motivations that increase women's satisfaction are good pay, allowances and job security. In order to keep women in the industry, the privileges and motivations that are due women in the industry should be given them. Skitmore and Thoung (2003) observed that the number one reason for the underrepresentation of women in the industry is the low level of motivation they experience compared to their male counterparts. This may make the women feel discriminated against and hence may not belong to the construction industry. Dainty et al (2000) have observed lack of promotion for women in the industry leads to the underrepresentation of women in the industry. Barnabas et al (2009) also noted that in India women receive salaries 32 percent less

than men in the construction industry. This will lead to the dissatisfaction of women in the industry pushing them out of the industry eventually.

Making incentives available for women in the industry will boost their participation in the industry. However, since women are underrepresented in management and operative position women may not enjoy more of these incentives which will serve as a motivation for women. These privileges that are enjoyed within the construction industry are designed to boost productivity of workers. This will further increase the human resource contribution to the construction Industry.

2.7 Women's Contribution to the Construction Industry

The contributions of women in South Africa and Brazilian industry have been discussed below. In South Africa, the Affordable Housing projects were undertaken by women in the industry in addition to increasing membership of women in mainstream construction activities. Women in Brazil construction industry played key role in the construction of a major hydroelectric dam.

According to the Ministry of Works (2003) Tanzania, the construction industry is made up of organizations and personnel that include companies, firms and individuals working as consultants, main contractors and sub contractors, material and components producers, plant and equipment suppliers, builders and financiers. The development of adequate human resource is essential if the industry is to meet demands of the National development goal and for its development and competitiveness.

Poustie et al (2008) indicated that the commercial building and construction industry offers a vast array of jobs and career paths for both men and women. These jobs ranged from skilled craft and trade work to unskilled labour works which needs people to operate in these capacities. Gurjao (2006) have also noted that the construction industry cannot do away with key players which are the workforce. As a result of its key role in the economy the industry needs to access a wider range of workers which may contribute to the industry. The contribution of women in the construction industry in two (2) countries has been discussed subsequently.

2.7.1 Women in the Construction Industry in South Africa

Women in South African construction industry are contributing through various capacities to the construction industry and the economy. Government has put in mechanism to boost women's participation in the industry and this will lead to women acquiring construction specific skills to compete with their male counterparts.

Verwey (2007) noted that in recent past, women have changed from homemakers to builders and ultimate decision makers in hiring contractors. Women's roles have improved and are no longer just a small part of the decision-making process of any building. This have been demonstrated by South African Women in Construction (SAWiC) as there were seven large construction companies owned and managed by women in Gauteng province alone. In addition thirteen (13) medium-sized companies were owned and managed by women and 43 smaller companies being gender compliant.

The Department of Housing (2006) indicated that since 2004, the provincial government has awarded tenders worth over R359-million which is about 10 percent to women owned companies for the construction of thousands of affordable houses. This was a decision to empower women and encourage them contribute their quota to the industry.

The above achievements as noted by (Ndlevu, 2010) has been realised by South Africa as a result of efforts put in by South African Women in Construction Association (SAWiC). This Association was an initiative established in 1997 to empower women gain access to contracts, training, finance and networks in the construction industry. Membership has risen from 762,000 in 1995 to 975,000 in 2003. It is an association of women entrepreneurs, women employed in all areas of construction from skilled trades to business ownership.



Plate 1: Woman working in South Africa Industry

Source: SAWiC Annual Report, 2010

This picture reveals the progress made in the South African Construction industry. Women are involved in supervision work and are involved in mainstream construction in the industry.

2.7.2 Women in the Construction Industry in Brazil

According to Osava (2011) in Brazil 7 percent of the labour force constructing the Santo Antonio hydroelectric dam on the Madeira River were women. Women totaled 1,200 of the workforce working on that project. He further indicated that, apart from that project there were 186,000 women working in civil construction, 9,000 women who were self-employed in the construction industry, 16,000 were working without pay, helping family members build and 28,000 were building their own homes.

Frayssinet, 2010 also noted that since 2009, the initial policy on women has been carrying out the "Women Building Autonomy in Civil Construction" programme, with the goal of training 2,670 workers in the first two years in the states of Bahia, Rio de Janeiro, São Paulo and Rio Grande do Sul, with backing from state and municipal governments. The participants receive training in bricklaying, moulding, painting, tile-laying, plumbing and even stonecutting, in a 236-hour course that includes skills training as well as business administration and citizenship education classes.

The above discussions have revealed that South Africa and Brazil with the help of government have put in intervention on training and networking that protects women's interest in the construction industry. These interventions are enhancing women's role in the construction industry and their contribution. The policies that guide activities in construction and women participation in the industry were discussed in the subsequent section.

2.8 Policies on the Construction Industry in Ghana

This section outlines policies that guide the construction industry in its operations. The policies include the guidelines that are outlined by the Ministry of Roads and Highways and the Ministry of Water Resources, Works and Housing in classifying companies that fall under their jurisdiction into categories. The Ministry of Water Resources, Works and Housing classifies companies that are into general building, Civil Engineering work and Electrical works into categories D, K and E respectively while the Ministry of Roads and Highways Classifies companies that undertake roads, bridges, culverts and steel bridges into categories A, B, C and S respectively. Each category is further divided into four financial classes as discussed below.

The classification for any class is based on the contractor's Plant and Equipment Holding, Technical Expertise, Financial Standing and Previous Performances. The categories are thus:

General Building Works: D1, D2, D3 and D4

Civil engineering Works: K1, K2, K3 and K4

Electrical Works: E1, E2, E3 and E4

D1 companies undertake building structure over two storeys and can tender or undertake projects worth over US\$ 500,000.00 or its cedi equivalent. D2 companies can undertake building works including reinforced concrete structure up to six storey height only and not exceeding US\$ 200,000 to 500,000.00 total cost of refurbishment works. D3 companies constructs Building works including reinforced concrete structure not more than 4 storey height and not exceeding US\$ 75,000.00 to 200,000 total cost of refurbishment work to the same level. D4 companies are purposely for minor building works, light reinforced in nature and of a single storey height only not exceeding US\$ 75,000.00 total costs of maintenance and refurbishment works to same value.

The category 'K' undertake civil works of same value as general building projects for K1, K2, K3, and K4. The companies that fall under each of the classes use mechanization and skilled labour according to the class of the company. The bigger companies use mechanization to carry out task otherwise done by labourers. Currently the Ministry of Water Resources, Works and Housing does not have any policy that give women advantage over men. Rather the women are expected to compete with their men counterparts for placement of jobs in the construction industry as well as compete for contracts of construction projects.

The Ministry of Roads and Transport classification are based on Plant and Equipment, Holding, Technical Expertise, Financial Standing and Previous Performance as in the Ministry of Water Resources, Works and Housing.

Each category is subdivided into four classifications:

Road and Airport Work: A1, A2, A3 and A4

Drainage Structures: B1, B2, B3 and B4

Labour Based Road Work: C1

Structural Steel Works: S1, S2 and S3

A1 companies have capacity to construct major roads and airports and have no limit in total value of work that can be done. A2 companies construct minor construction work and can tender projects up to U.S \$1,250,000 or cedi equivalent. A3 companies undertake resealing works of up to 20 kilometres and resurfacing of up to 10 kilometres. Companies in this class can tender projects up to U.S. \$ 650,000 in cedi equivalent. A4 companies work on spot improvement and reshaping 80 kilometres in addition to regravelling of about up to 20 kilometres. Companies in category A undertake road work from maintenance to road construction.

The category B in the roads sector is basically about companies that construct bridges.

B1 companies work on major bridges and has no limit in tender amount. B2 companies work on major box culverts on bridges and reinforced bridges. Companies in this can tender projects up to US \$ 750,000 in cedi equivalent. B3 companies work on box culverts and other minor reinforced concrete. Companies within this class can tender contracts sum of US \$250,000. The last class for category B which is B4 companies undertake pipe culverts up to 1.2 metres non reinforced concrete structures. Companies that fall under category B undertake projects on bridges and culverts of different sizes and magnitude.

The category “C” in the roads sector of the construction industry represents the labour based road works. This category of companies uses labour to undertake construction work and it has no classes unlike category A and B. The Ministry of Roads and Highways policy to increase women participation in construction is embedded in category “C” companies. Managers are to employ women in their companies and should be at least 30 percent of the total work force. This is expected to boost the participation of women in the construction industry. Companies within this category undertake road construction maintenance and spot improvement using labour based method recommended by Department of Feeder Roads.

The last category in the construction sector which is “S” has got three financial classes. Companies in class S1 undertake major steel construction and have no limit in amount of contract they can tender. S2 companies undertake minor construction and can undertake a contract sum of US \$500,000 while S3 companies undertake quarrying activities and fixing equipment and machines for construction work.

The Ministry of Roads and Highways had indicated that under the Labour Based Construction projects women should make up 30 percent of construction staff that undertake the project. This policy is strictly pursued by the Department of Feeder roads of the Ministry of Roads and Highways. This policy will help women participation in the construction industry and empower them to contribute to the economy of Ghana.

The categories of construction activities have been classified to guide the public sector in the award of contract. This will help client to award contracts to companies that are capable of undertaking a project. In addition, companies that were in the higher financial class could tender for projects that are lower than their financial class. For the purposes of this work A1 and B1 companies were grouped as first class, A2 and B2 as second class whilst A3, A4, B3 and B4 as third class companies.

The above literature indicates that studies on roles of women in the construction industry are enormous however that of women in Ghana is lacking. In addition the contribution of women in the industry has not been studied extensively the concentration has been on the role of the women. The study therefore focuses on the roles and contribution of women in the construction industry in Kumasi. The factors that determine career choice in the construction industry as discussed above, the roles women play in the construction industry and the contribution in the construction industry have been discussed in the conceptual framework.

2.9 Conceptual Framework

Women marginalization has been an issue of concern to the world, the West African sub region and the country as a whole. Hence their participation in the key sector that contributes immensely to the development of countries was explored. Literature was therefore reviewed on factors that influence women to take occupation in the construction industry. The specific roles of women in the industry were reviewed in addition to the contribution of women to the industry. The factors of career choice in construction for women and their participation have been presented in figure 1 below.

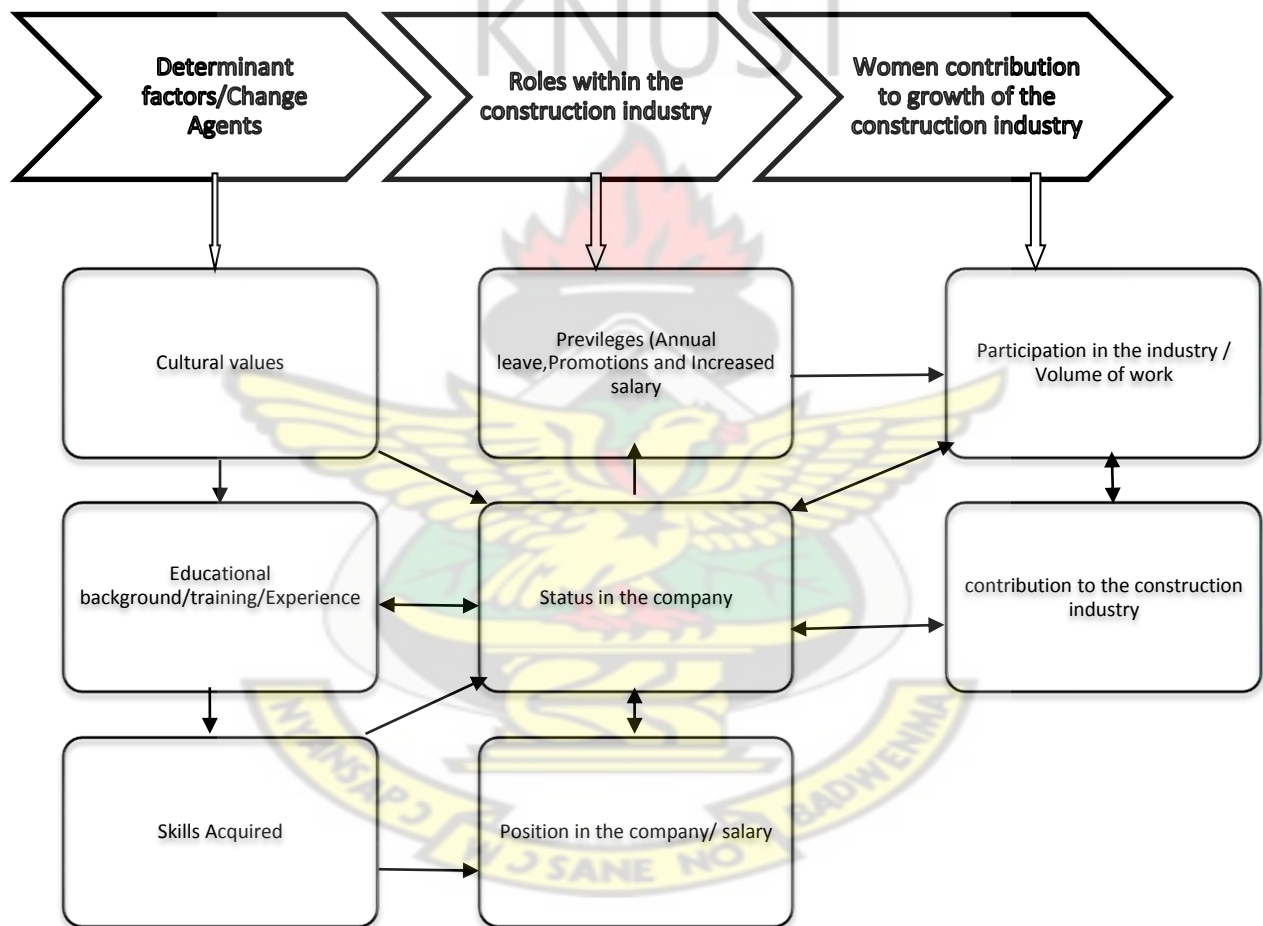


Figure 1: relationship between determinants of career choice and contribution of women

Source: Authors construct, June, 2011

Figure 1 reveals conceptual view of literature that has been reviewed in the study. The cultural values of women have influence on their educational background, training and experience. Women who value being a wife and a mother and having their own families are likely to choose a career in traditional occupations that will give them time to play their

cultural roles. This cultural value will influence the course they will opt for in colleges and universities and the level of education they are ready to obtain. Women's value for their cultural roles may also influence their readiness to accept training that could take them off their homes. The educational background and training of women also influence the skills women acquire. For example, a woman who pursues quantity surveying in the university will acquire skills in billing building materials and these skills will determine the position of women in the construction industry. The positions women occupy in the companies determine their status in the company as part of management or as part of junior staff. Their status in the industry also makes them enjoy privileges such as promotions, annual leave and increased salary. These motivations they enjoy in the construction industry influence them to participate fully in construction industry or as casual workers in the industry. The privileges and motivations women enjoy in the industry as well as their status in the industry will influence their contribution to the growth of the industry as indicated. The next section outlines the method that was use to gather information on companies and women in Kumasi.



CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter provides information on how the study was carried out. It presents information on the research design, sample size determination and the process by which information was collected and analyzed. In this research, the unit of analysis is the women in the construction industry who worked as managers of companies, secretaries, administrators, cooks and labourers. The research explores their experiences, challenges and contribution in the construction industry.

Data required for this research was derived from secondary and primary sources. The secondary source was from literature on concepts and best practices of the activities of the construction industry in developed and developing countries. Secondary data included the different categories and classes of construction companies, the roles played in the construction industry, cultural values of women that influence a career choice in construction industry. The educational background of women in the construction industry, the skills that women have in the construction, the positions and status of women in the construction industry and privileges that women enjoy generally in construction the industry were also reviewed. The primary source of data was gathered through administering semi structured questionnaire at construction sites, their respective offices and association of construction industries in the region. Data collected from the field includes educational background of women, recruitment procedures, qualification of women in the industry and their job assignment.

3.1 Research Design

The cross sectional design was adopted for this study because it is best suited for studies aimed at finding out the prevalence of a phenomenon, situation, problems, attitude or issues by taking a cross section of the population (Kumar, 1999). The study used a snap shot approach where a cross section of managers of the construction industry was interviewed at a point in time to give information on their recruitment procedures, the educational background of their staff, the number of male and female staff and the specific roles they undertake.

All construction firms in Ghana are under the control of the Ministry of Roads and Transport or the Ministry of Water Resources, Works and Housing. Each Ministry has its own classification for the various construction firms who undertake construction activities within the ministry's jurisdiction. According to Laryea (2000), the Ministry of Water Resources, Works and Housing is responsible for classification of contractors for building and civil engineering works and any other activity related to them such as plumbing, electrical and mechanical installation works. The Ministry of Roads and Transport on the other hand is solely responsible for the classification of construction firms for Road works, Drainage structure, Labour Based and Structural Steel works. Classifications of construction industries into the various categories are based on Plant and Equipment holding, Technical Expertise, Financial Standing and Previous performance. The sampled companies indicated the category of classes they belong as recommended by the Ministry of Water Resources, Works and Housing and the Ministry of Roads and Highways. Women's representation and participation in each of the classification was assessed.

3.2 Sampling Approach

Stratified sampling was used to ensure that the three different associations of the construction industries were adequately represented in the sample (Nachamias and Nachamias, 1992). The available information on the population was used to classify the construction industries into three strata using the activities they undertake. Eleven construction industries were selected from the three strata which are:

1. Association of Building and Civil Engineering contractors
2. Progressive Road Contractors Association
3. Association of Road Contractors

The lists of companies were obtained from these three associations of construction industries as shown in Table 3. In all there were 204 construction companies registered with these associations.

Table 2: Construction Associations and total number of Women Sampled

Category	Group/Association	Location	Total Number of contractors	Number of Contractors sampled	Total Number of Women	Total Number of Women sampled
Road Construction Industries	Progressive Road Contractors Association	Oduom – Anwomaso	65	3	25	10
	Association of Road Contractors	Santasi-Anyinam	71	4	37	15
Building and Civil Engineering Industries	Association of Building and Civil Engineering Contractors	Adum	61	3	17	7
Total			204	10	79	32

3.3 Sample Size Determination

Due to the unwillingness of companies of the various associations to participate in the survey, the conventional method was used to determine a sample size of three willing companies from the Progressive Road Construction industries out of the sixty-five (65) construction companies using the snowballing approach. Four companies were selected from the total of seventy-one (71) construction companies from the Association of Road Contractors and three companies from the Building and Civil Engineering Association using the snowballing approach. Ten (10) Managing Directors, eight men and two women from these companies were interviewed. The Managing Directors were interviewed on profile of their construction companies and the workers in their company. Thereafter, these directors facilitated the survey with the required number of their women employees. From the selected construction companies, 40% of the women were sampled for the study. A sample size of 40% was chosen as a result of time constraints and in addition 40% is representative enough for a sample size. In addition, the majority of the women were employed on part time and were not readily available for the sampling. All women working as permanent staff were interviewed. However women on contract basis were interviewed based on their presence at the construction site or office at the time of interview. Issues in the survey ranged from their background, experiences and their attitudes in the construction industry.

3.4 Study Variables

Asamoah (2009) has indicated that study variables contribute in translating research from conceptual form to empirical form and these empirical properties take on two or more values. The study variables that were considered for the study are specific roles undertaken by women in the construction industry such as engineer, quantity surveyor, mason, welder, and electrician. The number of hours spent at the construction site or office, their educational background, their status in the construction industry, their involvement in decision making, privileges they enjoy, skills acquired and their performance in the industry. The unit of enquiry is women in construction industry. The study of these variables will reveal the performance of women in the construction industry and the factors that hinder their performance.

Table 3: Data and requirement and collection method

Research Objective	Data Required	Source of Data	Mode of Collection
Assess the level of representation of women in the Construction Industry.	Number of women employed in the construction industry	Interview Directors to give number of women and men working in their company.	Questionnaire Administration
Examine the enrolment of females in the construction disciplines	Number of females that have graduated with degrees in construction disciplines	Interview academic registrars to give the number of male and female that has passed out of the construction disciplines in the past four years.	Questionnaire Administration
Assess the level of females at the professional and management level	Number of women assigned a role in construction disciplines like architect, civil engineer. Number of women who are part of management	Interview directors to give number of male and females occupying professional and managerial positions	Questionnaire Administration
Examine the roles of women in the construction industry	Nature of jobs undertaken by women in the construction industry	Interview women to provide their job description	Questionnaire administration and Direct observation
Examine challenges that militate against women in construction.	Factors that militate against women improvement in the construction industry	interview women to provide factors that militate against their participation in the construction industry	Questionnaire and direct observation
Make recommendation to enhance women's interest and participation in decision making in the construction industry.	Compare best practices from the developed countries and use them as recommendations. Findings from field survey.	Review literature on women in construction industry from developed countries	Reviewing literature

3.5 Data Collection Instruments

The main data collection instruments used was semi structured questionnaires for managing directors and women in the construction industry as well as observation at construction sites and offices. Data was collected on the specific task women undertake at the construction sites, their challenges and their motivation in the construction industry.

3.6 Data Processing and Analysis

Data was analyzed both quantitatively and qualitatively. The data was then edited for omissions and errors and making sure all interview schedules were completed as required. The data was further coded to group various activities in the construction industry and enhance easy quantitative analysis. Data was presented in tabulations, frequencies and percentages. The average number of hours that a woman spends at the construction site or office, the minimum number of women employed in a company against the minimum number of men. Descriptive analysis was used to examine qualitative data by describing and interpreting responses given by the respondents and drawing conclusions from them.

3.7 Limitation of the Study

The study encountered a number of limitations. The first limitation was identifying the population that the sample will be selected from. The Regional Coordinating Council has registered construction companies in the region, however, it was revealed that only a few of these companies really exist, the rest exist in names and could not be traced. The Associations of construction companies were unwilling to provide the list of members of their association. The lists were finally provided without the classification of the industries and their addresses. The addresses of a few companies were provided by one contractor that was identified.

The managing directors were also unwilling to cooperate however, depending on the benevolence of the few who cooperated, other members responded once their colleagues gave them a call. Women labourers and cooks were taken on contract basis and were hard to contact for interview for the study. The managing directors gave the profile of some of the women in their companies. Owing to time constraints they were chosen through availability

of persons and willingness to cooperate from the various offices and construction sites. In addition, Managing Directors were reluctant to take me to their construction sites and hence pictures in the study reflected women in building and civil engineering work. Getting policies on the operation of construction companies was very difficult as policies were not documented but was presented in slides and was not readily available. In the Department of Building Technology and Architecture administrators were unwilling to provide statistics of female and male enrolment figures. The study area was examined to see how it is vibrant for construction activities.



CHAPTER FOUR

PROFILE OF KUMASI

4.1. Introduction

This chapter discusses the profile of the study area and reveals how the area is a vibrant location for the construction activities. Issues explored in the profile include location and size of study area, demographic characteristics, the natural environment and the built environment.

4.1.1 Location and Size of Study Area

According to the Kumasi Metropolitan Assembly (2010), Kumasi the capital of the Ashanti region lies in the transitional zone 270 kilometres north of the national capital, Accra and it is located at the centre of Ashanti region and Ghana as shown in figure 2 below. Its central location makes it a passing through point from the north to the south and thus attracting people from all angles to the area. The size of area is about 24,389 km². The central location of Kumasi makes it an attractive location for many migrants, attracting many people to the area. This has resulted in the city growing very fast and displacing many crop farmers giving way to residential, industrial and commercial construction activities as observed.

The Regional Coordinating Council (2010) has thus noted that Kumasi alone contributes a third of the population in the Ashanti region which is the second most densely populated area after the Greater Accra region in Ghana. Consequently, it has been estimated that about 80% of the arable lands have been used for the construction of houses and other physical infrastructure at the expense of possible employment and revenue to be generated from agricultural activities. The displaced farmers may have an alternative livelihood in the construction industry of which women may actively play a role to earn source of income to support their families.

4.2.1 Population Size, Growth Rate and Density

According to the Ghana Statistical Service (2005), the population of Kumasi was 1,170,270 in the year 2000, reflecting an inter-censal growth of 5.4% between 1984 and 2000 as noted in table 5 and 6. This extraordinary growth of the population between 1984 and 2000 has made Kumasi the most densely inhabited district in the Ashanti Region and the second most densely populated city in Ghana with a population density of about 7,540 persons per sq. km.

Table 4: Total population and growth rates of Kumasi

Area/year	1948	1960	1970	1984	2000
Kumasi	81,870	218,172	346,336	487,504	1,170,270
Ashanti	1,109,130	1,481,698	2,090,100	2,948,161	3,612,950
Nation	-	9,726,320	9,632,000	12,296,081	18,912,079

Source: Ghana Statistical Service (2005)

From Table 5 the population of Kumasi is more than doubled from 1984 to 2000 requiring an equal infrastructure in the form of houses, buildings for commercial activities, roads to ease traffic congestion in the metropolis and to support the growing population. These entire infrastructures are provided through construction work and thus women's roles and contribution in construction activities should be studied. The population growth rate of the metropolis was thus compared with that of the region and the country to understand the level of rate of growth.

Table 5: Population growth rate from 1948 -2000

Area/year	1948 – 1960	1960 – 1970	1970 – 1984	1984 – 2000
Kumasi	7.9	4.5	2.5	5.4
Ashanti	2.0	3.8	3.8	3.4
Nation	-	2.4	2.6	2.7

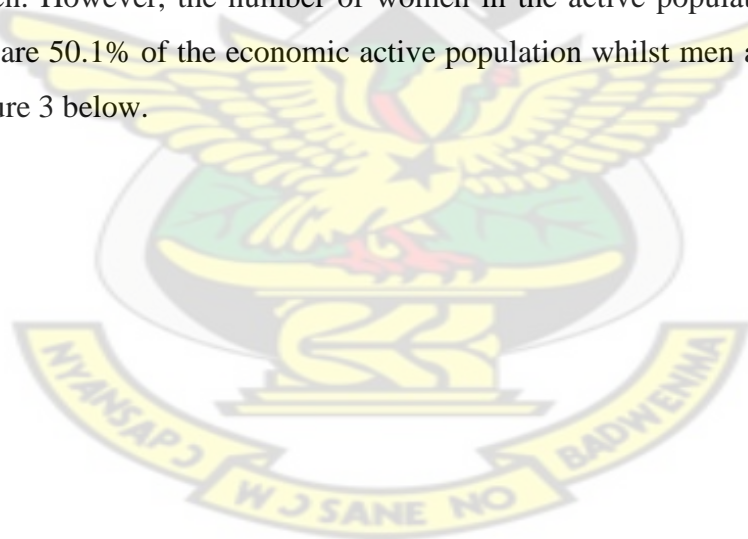
Source: Ghana Statistical Service (2005)

The high population growth rate confirms the need for increasing the housing stock and infrastructural facilities to support the growing population and reduce the congestion associated with rapid urbanisation experienced at the market centres, on roads and in the various utility services. These services and infrastructure can only be provided through construction activities of which women may actively be involved in diverse ways.

The Ghana Statistical Service (2005) has indicated in the 2000 population and housing census that 48 percent of the total land area is urban, 46 percent peri-urban and the remaining 6 percent of the total land surface being rural. The high rate of population growth coupled with the high migration rate to the area has outstripped the rate of infrastructural development and service provision. This is evident by heavy traffic, intermittent pipe-borne water delivery and low electricity current. These conditions can only be reversed through construction work such as road construction and dams.

4.2.2 Age and Sex Composition

According to the Ghana Statistical Service (2000) Kumasi's population structure is dominated by the economically active population as 57.9% of the population belongs to that group. Children constitute 37 percent of the population whereas the aged population constitutes 5.1 percent. The large economic active population will ensure adequate human resource in the construction industry to take up the various roles in the industry. In addition to the high population of the economically active, the city has unique sex structure of 1: 0.97 in favour of men. However, the number of women in the active population are more than men as women are 50.1% of the economic active population whilst men are 49.9 percent as indicated in figure 3 below.



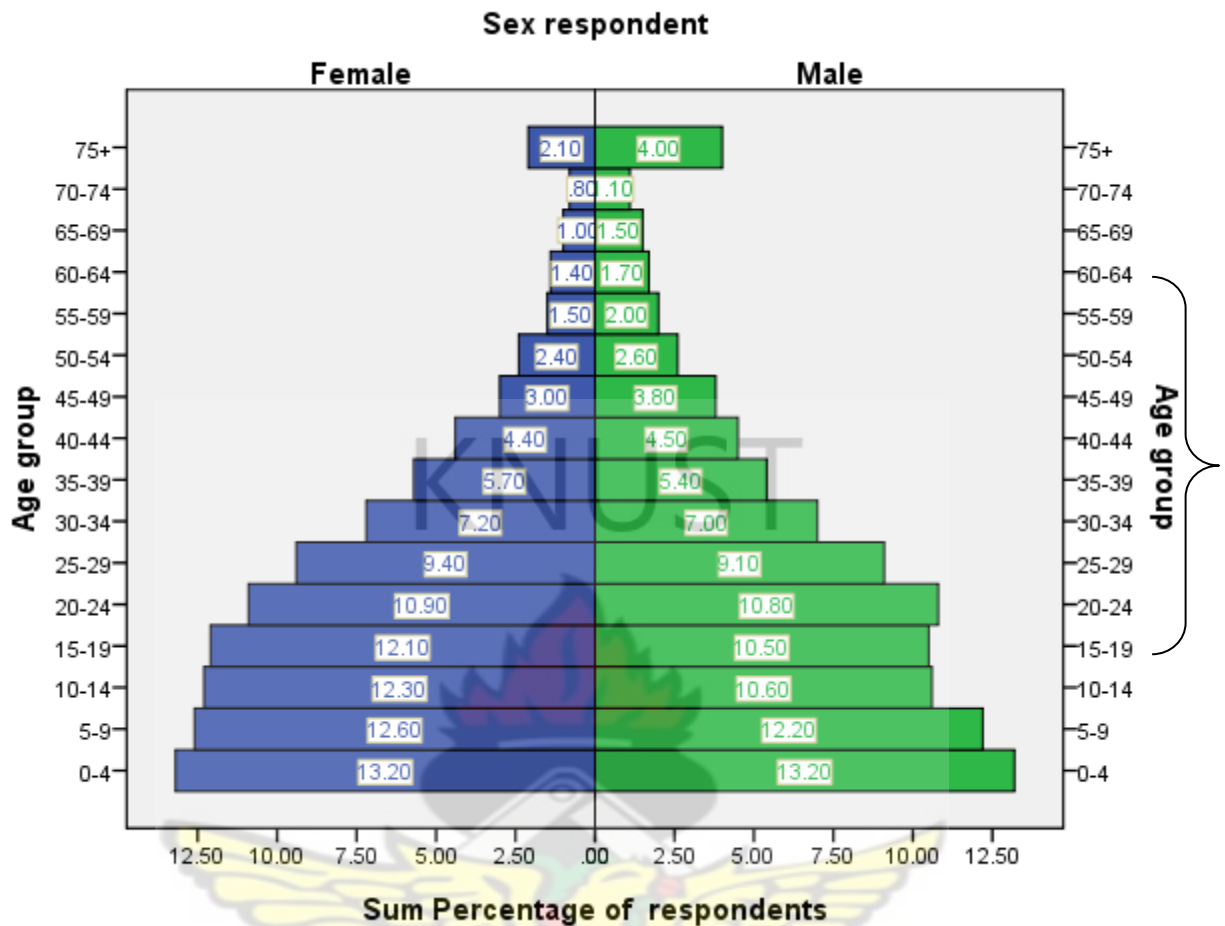


Figure 3: Population pyramid of Kumasi

The population pyramid of Kumasi shows a broad base and narrows to the top typical of population structure of Ghana and Developing countries. The economic active population constitutes the majority of the population as depicted by Figure 3. As a result of the high economically active population, there will be enough human resource to contribute to construction activities. In addition, women constitute the majority (50.1%) of the economically active population as indicated in Figure 3. Women who are more in the economically active group may be represented in all economic activities in the metropolis including the construction industry. The natural environment and its effect on construction activities were subsequently discussed.

4.3. The Natural Environment

The natural environment includes all living and non-living things that occur naturally on earth. The environment also includes natural resources that are of productive benefit to people in the metropolis. They include the rock formations that provide gravels for construction work, in addition to minerals and water bodies for industrial and domestic use. Rocks are very important to the economy since they provide materials for building social and economic infrastructure. The available natural resource was assessed to see how they influence construction activities.

According to the Kumasi Metropolitan Assembly (2010) the Middle Precambrian Rock of the Birimian and Tarkwaian formations can be found in Kumasi and the presence of this rock has reflected positively on the local economy by creating employment and generating revenue for some residents in the Metropolis. These economic activities come in the form of small scale stone quarrying and sand industries. In addition, the presence of these rock formations in the adjoining Districts to the metropolis further enhances construction activities in the Metropolis. The activities are Quarrying and Sand Winning industries such as KAS at Buohu in the Afigya Kwabre District, Sonitral at Abuakwa and Consar at Barekese both in Atwima Nwabiagya District. The spatial location of the industries is shown in figure 4 below. The gravels and sand they produce are major resources for construction activities.

These activities have further generated other economic activities including selling stones alongside roads, supplying sand and gravels and working as contractors of which women are actively involved. The construction activities have created productive employment opportunities and revenue for livelihood, especially by households for housing construction in the communities.

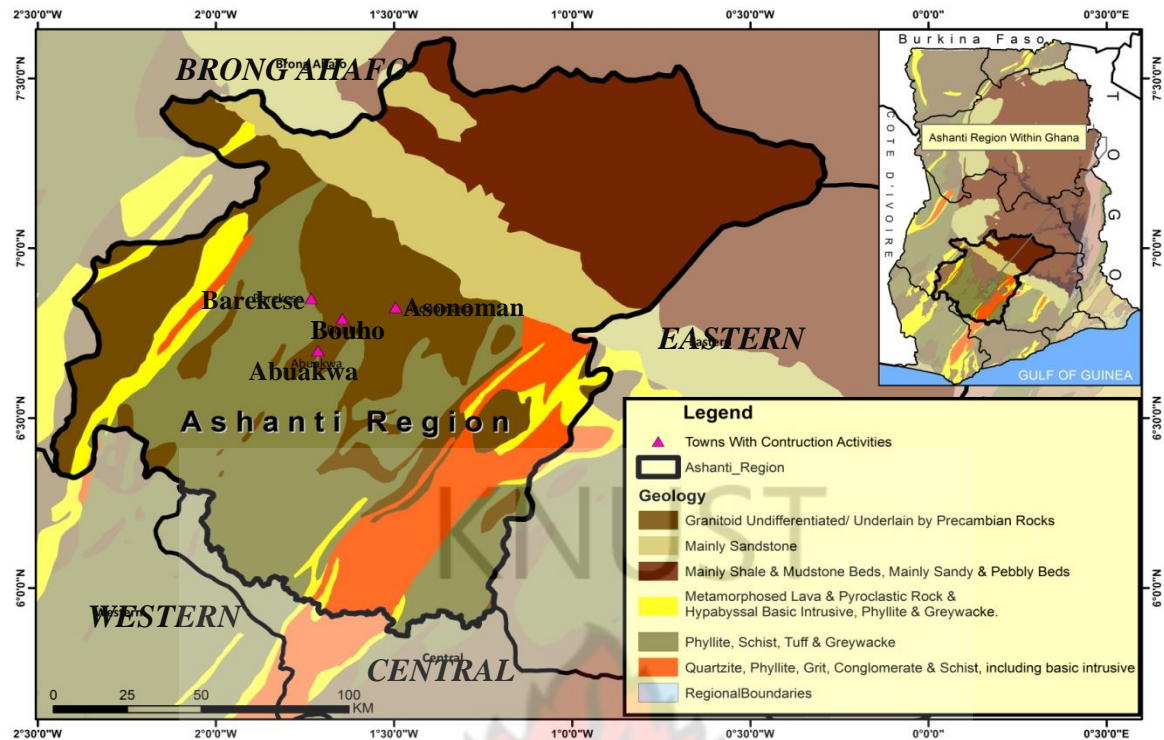


Figure 4: Map showing geology of the Ashanti Region and Construction Activity Towns

The nearby towns that provide construction materials like gravels sand chippings have been demonstrated in figure 4 above. The activities in these adjoining towns in addition to the growing population require more infrastructures to reduce congestion on roads and on the other infrastructure. Women who are more in the economically active group should be actively involved building the infrastructure to support the growing population. The built environment of the metropolis was assessed to show how construction is vibrant in the environment and women's role in the building and rehabilitation of these buildings.

4.4 The Built Environment

The built environment includes artificial surroundings that provide shelter and other infrastructure for the comfort of human beings. The Transportation Research Board (2005) has defined the built environment as "land use patterns, transportation system and design features that together generate needs and provides opportunity for travel and physical activities". This includes how land is allocated to the various functions to make life more easy and convenient for settlers. The conditions of the built environment were discussed as well as how construction can improve on these infrastructures.

The Ministry of Lands and Natural Resources (2010) have revealed that out of the total land area of 254 sq. km of Kumasi, 79.0% have been planned, accepted by the Town and Country

Department of K.M.A and developed. The major infrastructures in the city have been grouped into transportation, housing, water and sanitation, electricity supply and telecommunication and housing alone accounts for 43.9% of land use in the area. The rapid urbanisation of the Metropolis requires equal expansion of infrastructure to support the growing population. Forkuo (2010) has also noted that urbanization leads to demand for houses, commercial activities, industries, recreational activities and transportation facilities.

Gregory (2005) has also noted that people living in peri-urban areas have to live on off farms activities which include construction work as a source of livelihood. . Acheampong (2010) has indicated that the old houses in the metropolis are being pulled down to give room for new and more complex houses that will be provided through construction work.

Kumasi Metropolitan Assembly (2006) has indicated that there are three modes of transportation which are air, rail and road. The air and rail modes of transportation account for less than 1% while total road network is about 1,117km in length. However 52% of the roads remain unpaved. The road network that are paved consist of 24 % of total road network in addition to 9% asphalted road and 15% road with bitumen. As a result, the city has been experiencing both human and vehicular traffic congestion, particularly in the Central Business District (CBD). Construction of the unpaved roads can reduce human and vehicular traffic and women have diverse roles to play in these activities.

The Kumasi Metropolitan Assembly (2010) observed that, the erection of wooden and metal structures on any available space is a common phenomenon that has engulfed the Metropolis and has blurred the beauty of the city. The availability of facilities like airports, major and minor roads in the metropolis are provided through the activities of construction companies. In addition all settlement indicated in the city are built through construction work. Construction is the only means by which the bad conditions of the city can be reversed and since women are the majority of the economically active in the metropolis about 50.1% (K.M.A, 2010), the specific roles of women in the construction of these facilities in the city must be explored.

Characteristics of the Kumasi metropolis have demonstrated potential for employment in the construction industry and development through construction activities. Hence women's role in developing the city should be assessed.

CHAPTER FIVE

PARTICIPATION AND CONTRIBUTION OF WOMEN IN THE INDUSTRY

5.0 Introduction

The main objective of this chapter is to examine the roles and contribution of women in the construction industry. In connection with this the following issues were explored in the study: The activities undertaken by women in the industry, the enrolment levels of women in civil engineering programme, women representation in numbers and levels in the industry and finally what motivates them to stay in the industry or their challenges in the industry.

The activities of the construction companies were thus studied to understand how women's activities are significant to the industry. The specific roles of women were explored the number of women was compared with the number of men as well as comparing female enrolment with males in the civil engineering course. The features of the construction companies were first discussed before socio economic characteristic of women and their role was subsequently discussed.

5.1 Profile of Selected Companies

A survey was conducted in eleven construction companies in the Kumasi metropolis, ten questionnaires were received out of the eleven questionnaires sent to managing directors of the companies. The profile of the companies was examined based on classification of companies and activities they undertake as indicated in table 7. Table 7 shows the sampled construction companies and their financial classes and the dates the companies were registered. The table also indicates the type of work undertaken by the construction companies which are road work and building and civil engineering work.

Table 6: Construction companies and the Activity they undertake

No.	Name of construction Company	Date of Registration	Financial Class	Type of Construction Activity	Number of employees	Number of Women
1	Knatto Complex Limited	1983	First class	Road Construction	72	24
2	Gascon Limited	1993	First class	Building and Civil Engineering Construction	36	1
3	Jo –Mint Associates Limited	1980	Second class	Road Construction	38	1
4	Kinegyess Construction Limited	2001	Second class	Building and Civil Engineering Construction	17	0
9	Intercity Construction Limited	1990	Second class	Building and Civil Engineering Construction	40	1
5	BroadLine Engineering Limited	1987	Third class	Road Construction	41	13
6	K – Kyeremateng Limited	1996	Third class	Road Construction	36	11
7	Boron Services Limited	2001	Third class	Road Construction	22	2
8	M - Amponsah Company Limited	2002	Third class	Road construction	47	15
10	R – Larbi company Limited	2003	Third class	Road construction	32	5
11	Total				381	74

Source: Field Survey

The survey revealed all ten construction companies were registered with the Registrar General Department but were under different categories of classifications. The date of registration of the companies ranged from 1980 to 2003. This reveals road work and building and civil engineering activities dates back in the 1980's in the metropolis. The table indicates that the construction industry has all the different categories of classification, an indication that the construction industry in the metropolis is grown and has the propensity to contribute to employment generation and infrastructural development.

Table 7 shows that women representation in all construction companies is very low compared to the number of employees, however they are more in Road construction than in the Building and Civil Engineering works. The first and third class companies in the road sector have the highest representation of women in the industry and thus may gain the

advantage of the diverse skills from the contribution of different sex. The details of the representation of women along the financial classes have been discussed in the subsequent sections.

5.2. Enrolment of Women in Construction Disciplines

This section examines the difference in enrolment between male and female in construction training courses. According to Agapou (2002), women are under – represented in construction training programmes and this contributes to their under achievement in the construction industry. The enrolment of females and males in civil engineering programme was looked at from 2006 to 2010.

Table 7: Enrolment of females and males in Civil Engineering

	2006	%	2007	%	2008	%	2009	%	2010	%
Female	17	13.7	32	17.2	26	12.8	18	12.8	13	11.1
Male	107	86.3	154	82.8	177	87.2	123	87.2	104	88.8

Source: KNUST Civil Engineering Department (May 2011)

Table 7 reveals that female enrolment in construction course is significantly lower compared to their male counterparts and has been decreasing steadily. This explains the low participation of women in higher and managerial position and in addition to the under representation of women in the construction industry.

5.3 Characteristics of the Construction Industry

The characteristics of the construction companies were studied and they include: ages of workers, educational background of workers as well as recruitment practices of these companies. The age range of all workers in a company was discussed to show how it deviates from that of women. The educational background of all workers was also explored to see how women's educational background fell below the educational background of other construction workers. Finally how recruitment practices discriminate against women was also discussed.

5.3.1 Age Range of Construction Workers

The age range of the sampled are shown in Table 8. The age range of workers in the construction industries is from 20 – 70 years and the specific age ranges is as indicated in Table 8. The minimum age range is 20 – 40 years within the construction industry and the maximum age range is 20 – 70 years.

Table 8: Age range of workers by Class in the industry

Classification	Age Range	Frequency	Percentage
1st Class	20 -40	2	20
2nd Class	20 -45	1	10
	20- 60	1	10
3rd Class	20-45	4	40
	20-70	2	20

Source: Field survey (May, 2011)

The ages of workers in the construction industry ranges from 20 years to 70 years. Workers within the first class construction companies are youthful whereas workers in the second and third classes are ageing since their age range extends beyond 40 years. The construction companies in the second and third class have an ageing population which means the industry does stand the risk of losing human resource if the aged in the industry should retire from their respective companies. However, the aged are much experienced than the youth. The ages of all workers were examined to establish how those of women are different. The educational background of construction workers were subsequently explored.

5.3.2 Educational Background of Staff in the Construction Industry

According to the Canadian Construction Sector Council (2010), completion of post-secondary education is needed for entry into some construction management occupations. Hence the educational background of workers within the construction industry was examined.

Table 9: Educational Background of Construction workers

No.	QUALIFICATION	NUMBER OF PEOPLE	PERCENTAGE
1	No Certificate & Apprenticeship	297	78
2	BECE	4	1
3	NVTI	11	3
4	SSCE	3	1
4	ATTC1 & 11	26	7
5	ACCA & RSA	5	1
6	HND	14	4
7	Degree	21	5
8	Total	381	100

Source: Field Survey (May, 2011)

The educational background of workers in the construction industry is very low as indicated in Table 9. Workers who do not have certificates as well as apprenticeship constitute 78 percent of construction workers. The National Vocational Training Institute (NVTI) gives opportunities to construction workers to undertake examination in their area of profession. However, only 3 percent of the workers in the industry have the NVTI certificate. Artisans who undertake construction courses such as Advance Technical Training programme only constitute 7 percent. The low level of education of workers in the industry could lead to compromise in quality and lack of creativity and innovation in construction projects especially the institutionalized and infrastructural buildings. The skilled apprentices in the industry were subsequently discussed.

5.3.3 Skilled Apprentice

Apprenticeship is one of the means by which women can acquire skills in mainstream construction and gain an entry into the construction industry. However the study revealed that apprentice training among females is very low in the construction industry as indicated by the Table 10.

Table 10: Female and Male Skilled Apprentice

Class	Female Skilled Apprentice	Male Skilled Apprentice
First	12	33
Second	0	19
Third	1	56
Total	13	108

Source: Field Survey

Table 10 indicates that skilled apprentice are more in third class companies than in the first and second class companies, however female representation of skilled apprentice in third class companies are very low compared to male apprentice in third class companies. The lower number of female apprentice in the third class construction companies could result in lower number of women in the industry as apprenticeship is one of the major means of entering the industry as indicated by CPWR (2002). Thus the recruitment practices of the industry was also studied.

5.3.4 Recruitment Procedure of Company

The processes through which companies recruited employees were examined to ascertain whether the processes influence women's entry into the construction industry. They include how vacancies are made known to the public for employment, who is responsible for recruitment, methods used to select applicants and how applicants are expected to submit application for employment.

Table 11: Recruitment Advertisement

Class	Advertisement for recruitment		Total
	Media	Friends	
first	1	1	2
second	0	2	2
third	1	5	6
Total	2	8	10

Source: Field Survey

Table 11 reveals that all classes of companies advertised vacancies through friends and colleagues. Managers of the companies indicated that friends and colleagues can bring

qualified and better personnel rather than the media. The method of advertisement of the construction companies limits their scope of access to human resource that may enter the industry since friends and colleagues cannot advertise to a far extent. It also implies that people who have gained entry into the industry will continue to work in the industry whilst those outside may find it difficult entering the industry since they may not be known by friends and colleagues who recommend people for employment. In view of this persons in charge of recruitment were investigated.

Table 12: Persons in charge of recruitment

Class	In charge of recruitment			Total
	Management	Head of Department	Managing Director	
first	1	0	1	2
second	0	1	1	2
Third	2	0	4	6
Total	3	1	6	10

Source: Field Survey (May, 2011)

Table 12 reveals that recruitment of people for employment is mostly done by Managing directors of construction companies as 6 of directors interviewed indicated they were in charge of recruitment. In addition, heads of department like foremen were in charge of the selection of masons and labourers. Recruitment in the construction industry is mostly done by one person, the managing directors and heads of departments of the various companies. This has the possibility of employing people who may appeal to the expectations of that one person who is doing the recruitment and not the company as a whole. Since construction activities are deemed nontraditional for women, women may be at a more disadvantage.

Table 13: Mode of Selecting Applicants

Class	Mode of Selection		Total
	Interview	Recommendation	
first	2	0	2
second	2	0	2
third	4	2	6
Total	8	2	10

Source: Field Survey

Table 13 all classes of construction companies use interview to select applicants in the construction industry. The means by which companies select applicants to be employed is objective since all three construction companies use interview to select applicants. However, since one person is in charge of the interview the objectivity may sometimes be compromised which may further put women at a more disadvantage.

Table 14: Means of Accepting Application

Class	Means of accepting Application		Total
	Letter	Personal contact	
first	2	0	2
second	2	0	2
third	2	4	6
Total	6	4	10

Source: Field Survey

From Table 14, application is accepted by all classes of companies in a letter form. Accepting application for employment through personal contact may influence applicants' ability to impress their employers on their first encounter. Companies that do not prefer women workers may be put off by their appearance before they are given a chance to poof themselves in an interview. The roles of men and were thus considered in the subsequent section.

5.3.5 Roles of Men and Women in the Construction Industry

The work performed in the construction industry is mostly project based, which means a series of temporary organizations at different geographical locations. Work is seasonal in some sectors of the construction industry creating unemployment especially in the rainy season. With the above unfavourable conditions, there are people who act in the capacity of Managers and Administrators, Professional and Technical Personnel, Secretarial and Clerical work, supervisory, craft and operatives. The roles of men and women in the construction industry are demonstrated in the Table 15.

Table 15: Role Comparison of Women and Men role in the Industry

No.	Role	Men	Women
1	Managing Directors	8	2
2	Administrators	2	1
3	Engineer	9	2
4	Architects	1	0
5	Quantity surveyor	7	0
6	Secretary	0	8
6	Operators of heavy machine	5	0
7	Drivers	4	0
8	Masons	49	0
9	Carpenters	13	0
10	Labourers	41	32
11	Security	26	2
12	Cooks	0	7
13	Total	163	53

Source: Field Survey (February, 2011)

From Table 15 it is evident that women play marginal roles like secretaries and cooks and labourers. This is reflective of their low educational background and apprenticeship of women. Secretarial and cooking jobs in the construction activities are the preserve for women whereas mainstream construction jobs are basically for men. Women are adequately represented in the work of labourer which does not require any skill but demands that the women have the strength to carry head loads from a distance or nearby for their male counterparts. Table 15 reveals that the participation of the women in mainstream construction activities is very low thus making mainstream construction jobs a male preserve. This makes the construction industry a masculine environment further pushing women away. In addition activities undertaken by women in the industry require little or no skill thus allowing easy entry and exit to these positions and therefore the reason for women casual labourers and cooks in the industry. Having discussed the characteristic of all workers, the characteristics of women were discussed to examine how they deviate from that of men.

5.4 Characteristics of Women in the Industry

The profile of women in the construction industry includes the age of women in the construction industry, their educational background, the positions they occupy in the construction industry and the skills they have. The ageing of women in the industry, the level of education attained by the women in construction courses, the difference in enrolment between girls and boys in construction courses and skills acquired in mainstream construction was explored.

5.4.1 Age of Women in the Construction Industry

There were thirty – two women sampled from all the three construction associations and each of the class was represented. The age of women in the construction industry was studied to establish whether the women in the construction industry were ageing and the industry stood the risk of losing human resources through retirement of the ageing women. Table 16 thus gives the age range of women by financial class in the construction industry.

Table 16: Age range of Women by Class

Class	Age of respondent			Total
	20-30	31-40	41-50	
First	3	6	0	9
Second	1	0	0	1
Third	3	10	9	22
Total	7	16	9	32

Source: Field Survey (May, 2011)

Ages of women in the construction industry are not different from that of all construction workers. In the first and second class companies, women's ages range between twenty years and forty years and as a result the companies have the advantage of maintaining the diversified human resources in the future. Third class companies on the other hand have significant number of women in the over forty year group because women are used as cheap labour to carry head loads. Hence upon retirement there will be less representation of women in the industry. The ages of women in the construction industry also determine their experience in the industry since assuming post in the various construction companies. The educational background of women were studied to ascertain whether it is so different from the rest of the construction workers.

5.4.2 Educational Background of Women

Education is one of the factors that can influence women's entry into the construction industry. The educational background of women were explored to assess how they influence their role in the construction industry.

Table 17: Educational Background of Women

Classification	Educational Background				Total
	No Education	Secondary Education	ACCA,HND	First degree	
first	6	0	1	2	9
second	0	0	1	0	1
third	14	4	2	2	22
Total	20	4	4	4	32

Source: Field Survey (February, 2011)

From Table 17, the educational background of women in the construction industry is very low as only four (4) of the women had first degree in the industry as compared to twenty-one (21) of all construction workers which is similar to Table 10. However, in Table 10 there were workers with certificates in construction programmes such as ATTC I & II which women do not have. The lower educational level of women is seen in all classes of companies. The low educational background of women in the construction could lead to women taking up low position in the construction industry and few women taking up high positions in the industry since two (2) of the women with higher qualification have a degree in construction specific courses in the industry. Thus only three (3) of the four (4) women are occupying similar positions as their male counterparts. The skills of women were subsequently discussed.

5.4.3 Skills of Women in the Construction Industry

Skills in construction work can influence women's entry into the construction industry and the roles they play. The main skills identified in the construction industry are the administrative and construction skills. Administrative skills include clerical activities, accounting work and other administrative work while skills in the mainstream construction

include supervisory work, billing projects, engineering and masonry. Women in the construction industry have both skills but are less represented in the mainstream construction as indicated in Table 18.

Table 18: Skills of Women by Financial Class

Classification	Type of skill			Total
	No skill	administrative skill	construction skills	
first class	6	3	2	9
second class	0	1	0	1
third class	14	5	3	22
Total	20	9	3	32

Source: Field Survey

From Table 18, women without skills are more than women with skills in the construction industry. The women with no skills had no formal education as well as training in construction trades. In addition skilled women are concentrated in the third class construction companies whereas the first class and second class companies have the least representation of women that are skilled in the construction industry. In the first and second class companies women are skilled in administrative work rather than mainstream construction. This means women with construction skills are given little or no opportunity in the first and second class construction companies. The absence of women with construction skills in the first and second class construction companies explains why women are occupying junior positions in these classes of companies and cannot influence decisions to encourage more women in the industry. The means by which women acquired skills in the construction industry was therefore investigated to see how they influence women to be skilled in the industry.

Table 19: Means of Acquiring skills by Class

Class	Medium of acquisition		Total
	formal education	Other (workshop)	
first class	3	0	3
second class	1	0	1
third class	6	2	8
Total	10	2	12

Source: Field Survey (May, 2011)

Table 19 reveals that women in the first and second class construction companies only acquired skills through formal education while women in the third class companies acquired skills through formal education and series of workshops organized by the Department of Urban roads the for the construction companies. The means of acquiring skills in the construction industry is very restricted and as a result limiting the number of women with skills in the industry. This could influence the underrepresentation of women in the industry. Women representation in the construction industry was therefore explored in hereafter section.

5.5 Representation of Women in the Construction Companies

Table 20 shows the number of women represented in each class of Construction Companies. The table gives details of the number of women employed in each financial class of companies as indicated by the managing directors of the companies and this further shows how women are represented in the construction companies.

Table 20: Representation of women by class in the Industry

Class	Number of Females	Number of Males	Total
First	27	83	110
Second	2	93	95
Third	45	131	176
Total	74	307	381

Source: Field Survey (May, 2011)

Table 20 shows the number of women represented in the various classes of construction companies. It is evident from Table 20 that women are underrepresented in all three classes of construction companies and the second class construction companies have the lowest representation of women. This is due to the low level of education of women as revealed by Table 18 and the low level of skills in construction work of women as revealed in Table 19. The underrepresentation of women will result in limited diversity of human resource that contributes to the construction industry since the contribution of human resource is skewed towards men. The underrepresentation of women in the industry makes the working environment of the industry a masculine environment and deterring women from entering

the industry. Hence, the construction industry, the community and clients of the industry will suffer the consequence of utilizing the potentials of one gender.

5.5.1 Women in Management and Professional Positions

This section explores the levels of women representation in the construction industry. It studies women in management positions and women who are not in management positions. Table 21 compares women in management positions against women in non management positions. The participation of women in management position could influence women's entry into the construction industry. The status of women was thus investigated in all the construction companies.

Table 21: Status of women in by class in the industry

Class	status in company		Total
	non management	management	
first	7	2	9
second	1	0	1
third	18	4	22
Total	26	6	32

Source: Field Survey (May, 2011)

From Table 21, women are underrepresented in management position as noted by Bennett et al (1999) and Dainty et al (2006). Women underrepresentation in management positions in all classes of construction companies could result in limiting women entry into the industry. The under-representation of women in managerial positions in the construction industry can discourage new female entrants from entering the construction industry with the fore knowledge that they will never move past middle management positions as noted by Bennett et al (1999). In addition, the absence of role models to boost the morale of young girls to choose an occupation in the construction industry also discourages girls in choosing a career in the construction. Women being in managerial position are an indication that women can progress to top positions in the construction industry. Women's presence at the managerial positions is one of the surest means of ensuring the participation in the construction industry in decision making in the construction industry. From the above, women play their roles at

the lower level of the construction industry. Hence, the representation of women in the senior positions construction industry was explored.

5.5.2 Representation of Women and Men Senior Staff

The number of women along the levels of decision making was explored as given by Managing Directors of the respective companies. The number of women who belong to the senior staff in the construction industry could influence more women into the construction industry and ensure their welfare. Female senior staff in the industry was thus compared with the male senior staff.

Table 22: Women Senior staff and Men senior staff

Class	Senior staff		Total
	Female Senior Staff	Male Senior staff	
first	4	27	31
second	0	18	18
third	5	22	27
Total	9	67	76

Source: Field Survey (May, 2011)

Table 22 indicates that women in senior staff positions are very limited compared to their male counterparts. The low representation of women in the senior staff position is as a result of the low educational background of women in the construction industry as revealed in Table 18. The underrepresentation of women in the senior positions could continue to make the industry a male preserve, and further discourage women from entering the industry. Women in junior positions of the industry were therefore compared with their male counterpart.

Table 23: Women Junior Staff against Men Junior staff

Class	Junior Staff Construction		Total
	Female junior staff	Male Junior Staff	
First	14	59	73
Second	2	42	43
Third	24	109	156
Total	39	210	272

Source: Field Survey (May, 2011)

Table 23 indicates that women are underrepresented in the junior positions in the construction industry. The low participation of women even at the junior level further emphasize the under representation of females against males and the skewness of human resource towards one gender. The highest participation of women is in the third class category of the construction industry.

In conclusion, the representation of women in the construction industry is very distinct from the representation of men. The male enrolment is high in all categories of the construction industry, the first class category, the second class category and the third class category of both the Road Construction industries and the Building and Civil Engineering industries. The female enrolment is very low in the first and second class category of the construction company. This is because the big companies use heavy machinery to undertake tasks such as carrying all loads at the construction sites including mortar, concrete and blocks which is done by a greater number of women. However, the smaller construction companies continue to use the services of women for these tasks. Also the representation of women along the levels of decision making in the construction industry is very low. Women representation in management positions, senior staff positions and junior positions are very low compared to their male counterparts. Roles of women were by financial class was thus looked at to understand the large difference in the representation of men and women in the industry.

5.6 Role of Women in the Construction Industry

This section explores the roles of women in the construction industry by financial class from the women that were interviewed . There are various tasks in the construction industry that are needed to enhance construction work. These tasks determine the specific role undertaken by workers in the industry. The various roles undertaken by women in the industry are indicated in Table 24.

Table 24: Roles of Women by financial class

Class	Role of Women				Total
	Labourer	Secretary	Administrator	civil engineer	
first class	6	2	1	0	9
second class	0	1	0	0	1
third class	14	6	0	2	22
Total	20	9	1	2	32

Source: Field Survey (May, 2011)

Table 24 indicates that the major roles that are common with women in the construction industry are labourers and secretaries. Labourers are represented in the first and third class construction companies. The major roles of these labourers are to carry head loads for masons during construction activities. These activities are sometimes taken over by mechanizations which pump water to construction sites from water sources and carry mortar to masons at great heights. The mechanization explains why labourers are not found in the second class companies and are very few in first class companies. In addition, these major roles are not construction specific and require no skill to undertake thus making the participation of women in the mainstream construction jobs very low. Women with construction skills in construction work should therefore be encouraged in the construction industry to improve their participation in the industry. The roles of women were assessed on a four measurement scale using percentage.



Plate 2: Women labourers assisting a Mason (Author's Photo (March, 2012))

The low level of education and skills push women into the task of carrying head loads as evident in Plate 2 and Plate 3.



Plate 3: A woman labourer in the Industry (Author's Photo) (March, 2012)

5.6.1 Assessing Women's Involvement in construction works

This section of the chapter focuses on the assessment of women's participation in construction works. Using the following scale under the following themes, women participation in construction works were assessed.

- | | |
|-------------|---|
| Education - | 1-Tertiary education |
| | 2. Secondary/Technical/Vocational Education |
| | 3. Basic education |
| | 4. No certificate |
| Age- | 1. 10-20 |
| | 2. 21-30 |
| | 3. 31-40 |
| | 4. 40 + |
| Role- | 1. Administrative |
| | 2. Labourer |

3. Foreman/Civil Engineer (Construction work)
4. Others

- Skills-
1. No skills
 2. Apprentice
 3. With High skills
 4. Administrative skill

Table 25: Assessment of Women's Involvement in Percentage

Criterion	Scale			
	1	2	3	4
Education	25	12.5	0	62.5
Age	0	22	50	28
Role	31	63	6	0
Skills	52	11	6	31
Years of Experience	72	16	12	0

Source: Authors Construct (February, 2011)

Table 25 shows the percentage of women's involvement on a four unit scale. It reveals the percentage of women in construction who have acquired the levels of education, the dominant age group of women in construction, the percentage of women engaged in the various roles, the type of skill women have and their percentage and their years of experience.

In the construction industry, women with no education constitute the majority as about 62 percent of the women in the industry have no certificate. However, only about 12 percent of the women in the industry have acquired tertiary education.

The women in the industry are of the 31 to 40 years as 50 percent of the women belong to this year group. The common task among women in the construction industry is carrying head load as labourers for their male counterparts who are masons. Amongst the women in the construction industry the unskilled constitute more than 50% of women construction workers. In addition women who enter the construction industry also leave the industry since about 70% had not spent up to a year in the industry.

5.6.2 Contribution of Women in the Construction Industry

This section examines the input women add to the construction industry and these inputs include the number of hours they spend in the construction industry, how managing directors see the performance of women, and the number of days they are entitled to annual or casual leave. The extra duties that are added unto women were also examined.

5.6.2.1 Activities of Women in the Construction Industry

The contribution of women in the construction industry is very enormous. On the average, a woman in the construction industry spends close to nine hours at the work place in a day and she takes on extra responsibility. The managers doubles as engineer for their construction companies, supervises work on the construction sites and follow up certificate that have been prepared on projects undertaken by their company.

The women in charge of clerical jobs also doubles as purchasing officers, account officers and do public relation duties for the company. The secretaries are in charge of correspondence of letters and emails, keeping records, typing letters and reports and in addition running errands for the company. Women labourers fetch water for their counterpart male masons. On the average, one woman may be required to fill three barrels of water for the men to work in a day. Depending on the distance travelled to get the water, wages are determined accordingly. Women labourers carry mortar and concrete for masons to work and do so as many times as is deemed sufficient for the masons. However, on the average one woman may carry about thirteen head pans for the male counterpart in one day.

There are also cooks who prepare food for construction workers at site. Women in the construction industry spend about six to ten hours at construction site and offices. Women carry heavy loads throughout their working periods assisting their male counterparts with the loads within the six to ten hour period. The number of hours spent by women in the construction industry is discussed in the section that follows.

5.6.2.2 Hours Spent in Construction industry

The number of hours that are spent at the work place could influence women to stay in the construction industry or leave the industry. As there is a professed option between successful career and a satisfying family life Dainty and Lingard (2006) as a result, the number of hours being spent by women in the industry was assessed to see how it could influence women to stay in the industry.

Table 26: Hours spent at Work place

Class	Hours spent at the work place				Total
	6	7	8	10	
first class	1	0	5	3	9
second class	0	0	0	1	1
third class	0	6	8	8	22
Total	1	6	13	12	32

Source: Field Survey (May, 2011)

Table 26 shows that women in the construction industry spend six hours to ten hours of work in the construction industry even though they may not be involved mainstream construction activities. The highest number of hours spent is in the eight to ten hours which more than half of the women in the industry spend at the work site. The long working hours spent on working sites is a challenge for women with their own families could influence women to consider other job options in order to spend more time with their families.

5.6.3 Performance of Women Punctuality and Attitude

The opinion of Managing Directors on the performance of women in the industry was sought to establish how their representation in number could be an advantage or disadvantage to the construction industry, client and the country. Managers were to rate the performance of women in their companies according to their punctuality to work and their attitude towards work as indicated in the table 27 below.

Table 27: Performance in terms of Punctuality and Attitude

Class	Female Performance			Total
	Bad	Good	very good	
first	0	2	0	2
second	1	1	0	2
Third	0	4	2	6
Total	1	7	2	10

Source: Field Survey

Table 27 reveals that the performance of women in terms of their punctuality and attitude towards work in the construction industry is very appreciated by managers of the companies. In the first and third class companies managing directors are impressed with women's work in the industry. This is because nine (9) of the ten (10) managing directors rated the performance as good and very good. Managers were of the opinion that women were performing well. Thus more representation of women in the industry will ensure enhanced quality of work in the industry to boost clients' satisfaction.

Table 28: Response from Managers on Women's Absenteeism

Class	Absenteeism from females		Total
	No	once a while	
first class	0	2	2
second class	1	1	2
third class	6	0	6
Total	7	3	10

Source: Field Survey (May, 2011)

Women's attitude towards work in the construction industry was commended. However Absenteeism in the first and class companies were sometimes recorded even though not always. In spite of the long working hours and tight schedule of the construction industry, women in the third class companies were regular. However, the first and second class companies have incidents of absenteeism which could prevent more women from getting entry into these classes of companies. The women were punctual to work without unusually absenting themselves such that seven (7) of the managing directors indicated they were comfortable with women in the construction industry. This was an indication that women

were adjusting to the working culture of the construction industry and are ready to stay in the industry hence.

5.7 Differences in Motivation for Women in the Industry

Motivation as noted by Aiyetan and Olutuah (2006) increases productivity in the construction industry. Women motivation in the construction industry were thus explored and they include Annual Leave, promotions, wages and free transportation.

5.7.1. Annual Leave in the Construction Industry

Women who enjoy casual and annual leave in the construction industry will be motivated to stay in the construction industry. This is because these women will get a chance to play their socio-cultural role that are often times held priority over careers. The number of women that go on annual leave are discussed below.

Table 29: Annual leave women enjoy

Class	Leave entitlement		Total
	No	Yes	
first	9	0	9
second	1	0	1
third	21	1	22
Total	31	1	32

Source: Field Survey (May, 2011)

All women in the construction industry work throughout the year without an entitlement to leave. Only one woman enjoys casual leave as a result of the position she assumes and her status as a manager in the company. The tight schedule of women in the industry conflict their socio-cultural roles. Allowing women casual and annual leave will serve as career breaks for women to give birth and to spend time with their families

5.7.2 Promotion of Women in the Construction Industry

Promotion is one of the means of increasing productivity of women in the industry. However women in the construction industry do not receive any promotions. All the women indicated

that since their assumption of work they have not had any promotions. This implies women in the industry will remain in the same position until they retire unlike their male counterparts who are promoted with time and experience.

5.7.3 Wages of Women

Women are employed in positions where remuneration is very low. Managing Directors indicated their preparedness to pay women workers equal pay as their male counterparts, however women were employed in positions where pay was generally low. For example women with first degree and professional certificates were employed as secretaries instead of administrators and accountants. This trend may keep women away from the industry as a result of the open discrimination against them.

Table 30: Wages of women in Ghana cedi

Salary	Frequency	Percent
60-100	12	37.5
110-300	18	56.2
310	2	6.2
Total	32	100

Source: Field Survey (May, 2011)

More than half of the women about 56% received salaries between ₵110.00 and ₵300.00 which is not enough for the women considering the transportation cost of about at least ₵30.00 a month for about 70% of women as noted in Table 30. The wages and salaries that the women receive are low and it is a disincentive for them to stay in the industry. Their engagement in construction specific activities will give them higher salaries. Women should therefore be encouraged to undertake construction specific activities. The transportation cost of women in the industry was also examined.

Table 31: Transportation cost of Women in Ghana cedi

Transportation cost	Frequency	Percentage
1-2	23	72
2.1-3	8	25
3.1- 4	1	3
Total	32	100

Source: Field Survey (May, 2011)

Transportation cost of Women is generally low, however the women could be motivated by providing free transportation for them. From Table 31, it is evident that women stay closer to their place of work since 72 percent of the workers spend Gh ¢ 1to Gh¢2 on transportation. This could be heavy expenditure on their budge further making the industry unattractive for them.

5.8 Challenges of Women in the Construction Industry

Women in the construction industry face a number of challenges and these includes lack of promotions, leave entitlement, low remuneration, tight schedule of construction jobs and fierce competition from their male counterparts. Working hours are not flexible and become tighter as the project approaches the end as a result of tight contract deadlines

From the survey, the managers indicated they carry out promotions in their respective companies, however, all the women interviewed said they have never been promoted in the construction industry. This is a disincentive for women in the construction company because once a woman is employed as a labourer or secretary, she will retire as a labourer or secretary if she remains in the construction industry. However, male counterparts enter the industries as labourers and are promoted to the status of masons with time and experience.

The construction industry is characterized by tight working schedules and the situation becomes intense when projects are nearing completion or deadlines. As a result workers spend nine hours on the average at the work place and report to work every day of the week except on Sundays. This situation does not give women with families enough time to perform their household roles. In addition to the tight working schedule women in the construction industry are not entitled to any annual leave 96.6% indicated they have never

enjoyed an annual leave in the industry. This further conflicts women's family role as mothers and wives.

The study revealed that females in the industry were paid equally as their male counterparts in the construction industry, however, the female workers are engaged in positions where remuneration is very low such as labourers, cooks and secretaries unlike their male counterparts who are engaged as Directors, Administrators, Engineers, Masons, Plumbers.

Women contractors experienced discrimination in terms of award of contract and some of the male counterparts engaged them in unwholesome competition pushing them out of business for some period. They narrated instances where they had been awarded contracts by a tender committee and the contract had been re - awarded to their male counterpart based on a clause which was not a condition in the tendering procedure. All the above challenges militate against women's full participation in the construction industry and they should be addressed.

5.9 Summary of Findings

Ten construction companies were studied and were classified under the three main financial classes first class, second class and third class under road construction and Building and Civil Engineering construction. The study first revealed that the enrolment of females and males undertaking construction courses is very wide, seventeen (17) females against one hundred seven (107) males in 2006 and thirteen females against (13) against one hundred and four (104) males. In the industry, it was revealed that workers are ageing with a general age range of 20 years to 70 years whereas women are younger from 20 years to 50 years. The educational background of workers was low compared to the educational background of construction workers abroad who have doctorate degrees in construction work. However, the men had certificates in construction courses while women have certificates in administrative and clerical programmes which could have effect on men taking up construction specific jobs and women taking on clerical duties.

Women representation in the industry is very low seventy-four (74) against three hundred and seven (307) men including casual workers and part timers. The representation of women

in management and senior staff positions are low six (6) and nine (9) respectively of the total sampled. From the above, the roles of women are at the lower level of the industry.

The common activities undertaken by women are the work of labourers which includes carrying head loads in the industry as twenty of the women interviewed undertake this activity. Roles like clerical activities are the preserve of women whiles mainstream construction activity is the preserve of men. Only two (2) women are into mainstream construction activity.

The contributions of women in the industry are the input they add unto the industry. First and foremost, women work six (6) to ten hours in the industry and they do not enjoy leave the whole year. In addition, the motivation level of women is very low in terms of remuneration and promotions. The low level of motivations for the women could pose as a challenge to these women. The findings have been elaborated with its implication for development and recommendation. The details are presented in subsequent chapter and the section concludes the work. In the subsequent section how findings will affect the industry and the project construction in the country has been discussed.



CHAPTER SIX

KEY FINDINGS, IMPLICATION FOR DEVELOPMENT RECOMMENDATIONS AND CONCLUSIONS

6.0 Introduction

The findings were based on the objectives of the study. As a result differences in enrolment levels of females and males in construction programmes were examined. The level of women representation in the industry, their representation in management and professional position, the Activities women undertake were also examined. The differences in motivation for females and males were explored and based on each findings and implication for development, recommendations were made accordingly.

6.1 Difference in enrolment of Females and Males

The enrolment level of females in the construction industry is very low seventeen (17) females against one hundred and seven (107) males in 2006 and thirteen (13) females against one hundred and four (104) males in 2010. The low level of enrolment of females in civil engineering programmes could not enhance competition for entry into the industry and thus ensure competition within the industry. As a result of the low competition emanating from low female enrolment, innovation and creativity may be limited.

6.2 Characteristics of Construction companies

The recruitment procedures of the construction firms were very subjective and limited in scope and thus were bound to miss out on the diverse human resource skills. This could further hinder the growth of construction industry resulting in the industries being awarded only the institutional and commercial building projects whiles the industrial and heavy construction may be awarded to international construction companies. Unemployment may result as salaries paid to these contractors may leave the shores of Ghana creating employment and improving revenue for the countries concerned. Companies should be made to embark on best practices in terms of recruitment to involve all human resource that are capable of working in the construction industry.

6.3 Level of Women representation

Women are underrepresented in all three classes of construction companies. There are seventy – four women (74) against three hundred and eighty – one (381) men in all ten (10) construction companies. The least representation was in the second class construction companies and the highest representation was in the third class companies. Women underrepresentation in the industry makes the industry masculine environment and male preserve. As a result of the low representation of women in the industry, there will be little competition for entry into the industry and women contribution through the industry to the economy would be limited. According to the 2010 census provisional results, women make up more than half of Ghana's population about 51.8%. An underrepresentation of women in the construction sector which has the potential to employ large number of people, will lead to first and foremost human resource deficiency in the sector and secondly unemployment amongst women especially those who are trained in construction disciplines.

6.4. Women representation along the levels of decision making

The representation of women along the levels of decision making is very narrow at the management and senior staff level six (6) and nine (9) women respectively out of the thirty – two (32) women sampled. From the Managing directors, only thirty – nine (39) of the women belonged to junior positions in all classes of companies. Women underrepresentation in management and senior staff positions implies that the entry of more women into the industry would be restricted which may also lead to the continual underrepresentation of women.

6.5. Activities of Women

The common job assignment identified with women in the industry is the task of a labourer. Out of the women sampled, twenty (20) of the women undertake this activity. In addition the clerical duties are the preserve of women and mainstream construction roles among women are very minimal. The activities undertaken by women in the industry are important to the completion of projects and progress of construction companies. The engagement of women in marginal activities in construction only means there is no diversity in mainstream construction reducing innovation and creativity in the industry. Women's contribution in the construction industry are very enormous those within the management and administrative position take on extra jobs as directed by their superiors or as deemed fit for the company if they are owners. The secretarial and clerical staffs double as site supervisors, purchasing

officers, account officers. The labourers at the lower level undertake the back breaking task on the construction site. Discrimination against these women will force them out of the construction industry creating productive space in these companies. These could further reduce the contribution of GDP from these sectors since the women will leave with their skills and experience.

6.6 Differences in Motivation

Women are engaged in positions where remuneration is low like masons and secretaries. In addition only one of the women sampled had enjoyed leave in the industry. The women were also not privy to promotions thus once a woman is picked as a labourer or secretary she will retire in the same positions. These disincentives would prevent the few women in the industry from staying in the industry and from participating fully in the industry. The contribution of women in the industry would thus be limited.

Recommendations

6.1.1 Difference in Enrolment

In order to address the wide disparity of enrolment between females and males in construction courses in the short to medium term, Universities and the Associations of construction companies should hold joint educational and career fairs on the prospects of construction industry to the country and women for girls seeking entry into higher institution of learning. Also requirement for entry into construction courses should be lowered for girls who are seeking admissions into the construction programmes in the universities. These interventions could also address the issue of women underrepresentation in the industry.

6.2.1 Characteristics of Construction Companies

National Association of Women in Construction (NAWIC) is an Umbrella organization for women in the construction industry in the developed and developing countries. They have chapters in many countries Canada, United Kingdom, United State, Australia, Germany and South Africa. They serve as a common front for women in the industry and addresses issues and concern of women in the construction industry. They address challenges and barriers of

women's entry into the construction industry and have increased enrolment of women in the construction industry. Women in Ghana should come together and form an association to increase the number of women in the construction company and address their concerns.

The government should give women contractors quota in her development projects to boost the interest of women contractors in the construction industry and retain them in the industry as is being practiced in South Africa with their Affordable Housing Project.

Vacancies should be publicly advertised to be able to reach all kinds of skilled personnel who may not be known by friends and colleagues. This activity should be ensured by construction Associations in order to protect the image of the industry.

The workers in the industry are ageing with an age range of 20 to 70 years whereas those of women are youthful. This would result in the industry losing human resources while women in the industry could be maintained because they are youthful. Construction companies should give opportunity to new graduates from the universities to ensure availability of human resource if the aged should retire. Women should not be discriminated against in employing new graduates to ensure young skilled workers in the industry all the time.

It was observed that the general educational background of workers within the construction industry is low and this implies the quality of human resource is low. This could further have effects on quality of work in the construction company limiting the scope of work of contractors in the metropolis to residential, institutional and commercial building. Project in good quality will require less maintenance, renovation and reconstruction reducing government expenditure. In order to raise the quality of work by workers, apprenticeship training programmes aimed to give new entrants on the job training should be made compulsory as practiced in the United States of America and Canada. In addition each class of companies are required to use personnel with some level of educational qualification and work experience in order to be registered under the different classes. This requirement should be strictly enforced by the Ministry of Water Resources, Works and Houses and the Ministry of Roads and Highways.

In addition to formal education, apprenticeship is one sure way of entering the industry, women enrolment in apprenticeship is twelve (12) whereas those of men are one hundred

and eight (108) apprentices. This could lead to far fewer women entering the industry in relation to men and further ensuring the underrepresentation of women. The educational background of women in the construction industry is low resulting in women taking the low positions in the construction industry. The construction industry will only benefit from the skills of male gender reducing diversity in Human resource contribution. Girls should therefore be encouraged to take construction specific courses to increase their participation in the industry

In addition to lowering requirement for females seeking admission into construction programmes in higher institutions of learning, apprenticeship programmes should be increased for women. Periodic workshops organised for the workers should get more women to enroll to more women are enrolled unto skilled construction work. These recommendations will first and foremost address women underrepresentation in the industry and equip them with construction skills in order to ensure diversity in human resource contribution.

6.3.1 Level of Women Representation

The Ministry of Roads and Highways has a policy to engage 30 percent of women in labour based construction work and this policy is only enforced by the feeder roads. The Ministry of Roads should ensure that all categories of companies adhere to this policy since this policy could increase the representation of women. Ministry of Water Resources, Works and Housing should also include a policy which will ensure women inclusion in the building and civil engineering works.

National Association of Women in Construction (NAWIC) is an Umbrella organization for women in the construction industry in the developed and developing countries. They have chapters in many countries Canada, United Kingdom, United State, Australia, Germany and South Africa. They serve as a common front for women in the industry and addresses issues and concern of women in the construction industry. They address challenges and barriers of women's entry into the construction industry and have increased enrolment of women in the construction industry. Women in Ghana should come together and form an association to increase the number of women in the construction company and address their concerns. The government should give women contractors quota in her development projects to boost the

interest of women contractors in the construction industry and retain them in the industry as is being practiced in South Africa with their Affordable Housing Project.

6.4.1 Women's Representation along the Levels of Decision Making

Construction companies should ensure that women with higher certificates in construction are given a chance in their company in order to enhance the representation of women in these positions. Women with equal qualification should be given equal chance as their male counterparts in management positions.

6.5.1 Activities of Women

Workshops that are organized by the Associations of construction companies should be specifically organized for women to equip them with construction skills. This may influence them to get privileges in more specific construction position which may bring diversity in the industry in mainstream construction instead of making it a male preserve.

6.6.1 Differences in Motivations

Construction companies should ensure that women in the industry are given equal opportunities as men. As noted earlier, women in the industry should come together to form a united front to ensure that the privileges due them are given them.

It is expected that the findings and their implication for development will help all stake holders appreciate the role women could play and are now playing in the industry. The recommendations were based on some good practices in developed and developing countries to enhance good practices in the country.

6.7.0 Conclusion

In conclusion, the study established that women in the construction industry in Kumasi are generally engaged in marginal roles that are not construction specific. This is mainly due to their low level of education and the type of skill they have. Other factors like recruitment procedures that are very subjective also influence women's entry into the industry. In

addition low level of motivation for women in the industry could influence their retention in the industry.

There is therefore the need for all stakeholders, government, construction companies, construction association and the women in construction to come together to put up interventions that will help women in the construction industry participate fully in all levels of the industry to enhance the image of the construction industry. The implementation of policies that address gender equality plays a major role in enhancing rate of economic growth and their ability to sustain socio-economic development. Since women constitute majority of the population or are the same as the number of men. Allowing women equal opportunities in the construction industry as men has the potential to enhance effective socio-economic development.



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APPENDIX A

DEPARTMENT OF PLANNING

COLLEGE OF ARCHITECTURE AND PLANNING

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

Research topic: Assessing Roles and Contributions of Women in the Construction Industry in the Kumasi Metropolitan Area.

QUESTIONS TO THE MANAGING DIRECTOR

Dear Sir/Madam

I am a student of the Department of Planning of the Kwame Nkrumah University of Science and Technology (KNUST) pursuing the programme of study in Msc. Development Policy and Planning. My research is on women in the construction industry, and it is for the preparation of a thesis report which is a requirement for the award of Masters degree. This questionnaire is to enable me obtain data/information for preparing a thesis report for the examination purposes. I therefore seek your assistance by responding to the questions. The information that you will disclose will be used only for academic purposes and would be kept confidential. I would be grateful if you would give me the required information. I am counting on your cooperation. Thank you.

Adelaide Gyasi

Section A: Company Profile

1. What is the name and address of your company?.....
2. Has your company been registered?
a) Yes b) No
3. If yes when was your company registered?.....
4. Under which category of classification is your company registered?
5. What is the nature of work undertaken by your firm? (Please tick)

General building works

Civil engineering works.....

Plumbing /electrical works.....

Mechanical installation.....

Road works

Drainage structure.....

Structural steel works

Other (specify).....

6. What is the number of employees?

Number of males.....

Number of females.....

7. What is government policy on the construction industry?

.....
.....
.....

What is government policy on manpower of the construction industry?

.....
.....

Section B: Recruitment Procedure

1. What is the mode of advertisement for recruitment of staff into your company?

(Please tick)

- Media.....
- Posters.....
- Other (specify).....

2. Who recruits people for employment?

- Management of the company
- Head of Department
- Foreman
- Consultant
- Managing director

3. What is the mode of application?

- Internet
- Letter
- Personal contact

4. How are people selected

➤ Through interview.....

➤ Any other (specify).....

Section C: Academic Background of Staff

1. What is the educational background of the following people in your company?

S/N	Job title	Educational background	No. of staff
1	Works Manager		
1	Engineers		
2	Architects		
3	Quantity surveyor		
4	Administrator		
5	Accounts officer		
6	Secretary		
7	Foreman		
8	Works superintendent		
9	Site supervisor		
10	Capenter		
11	Mason		
12	Surveyor		
13	Mechanic		
14	Soil Technician		
15	Steel bender		
16	Masons headman		
17	Purchasing officer		
18	Laboureres		
19	Grounds men		
20	Security men		

2. Please indicate the job titles of your female staff.

a).....

b).....

c).....

d).....

e).....

3. How many of your staff acquired skills through apprenticeship?

a)Men..... b) Women.....

Questionnaire to Management

What is the age range of workers in your company Female staff?

Kindly indicate the job title of the women in your company?

- a).....
- b).....
- c).....
- d).....
- e).....
- f).....
- g).....
- h).....

2. What are the duties of the women listed above?

.....
.....
.....

3. Indicate by profession the volume of work done by the women.

.....
.....
.....

4. How many of the women belong to the following?

Senior staff..... b) Junior staff.....

5. How will you rate the performance of women?

Very good b) Good c) Bad

6. How comfortable are you with women in the construction company?

.....
.....
.....

7. Are women in your company paid equally as their male counterpart?

a) Yes..... b) No.....

8. If No, what are the disparities?

.....
.....

9. Why are there disparities in the salary structure

.....
.....

10. What are the requirements for promotion in your company?

.....
.....

11. How often do you conduct promotions in your company?

.....
.....

12. How often are women promoted?

.....
.....

13. What difficulty do you have in working with the women in your company?

.....
.....

14. How often do the women absent themselves from work?

.....
.....

Male staff

15. Kindly indicate the job title of the men in your company?

- a).....
- b).....
- c).....
- d).....
- e).....
- f).....
- g).....
- h).....

What are the duties of the men listed above?

.....
.....
.....

15. Indicate by profession the volume of work done by the men.

.....
.....
.....

16. How many of the men belong to the following?

Senior staff..... b) Junior staff.....

17. How will you rate the performance of men?

Very good b) Good c) Bad

18. How comfortable are you with men in the construction company?

.....
.....

19. Are men in your company paid equally as their female counterpart?

a) Yes..... b) No.....

If No, what are the disparities?

.....
.....

20. Why are there disparities in the salary structure?

.....
.....
.....

21. What are the requirements for promotion in your company?

.....
.....

22. How often do you conduct promotions in your company?

.....
.....

23. How often are men promoted?

.....
.....

24. What difficulty do you have in working with the men in your company?

.....
.....
.....

25. How often do the men absent themselves from work?

.....
.....
.....

APPENDIX B

DEPARTMENT OF PLANNING

COLLEGE OF ARCHITECTURE AND PLANNING

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

Research topic: Assessing Roles and Contributions of Women in the Construction Industry in the Kumasi of Ghana.

Questionnaires to women in the Construction Industry

Dear Madam

I am a student of the Department of Planning of the Kwame Nkrumah University of Science and Technology (KNUST) pursuing the programme of study in Msc. Development Policy and Planning. My research is on women in the construction industry, and it is for the preparation of a thesis report which is a requirement for the award of Masters degree. This questionnaire is to enable me obtain data/information for preparing a thesis report for the examination purposes, I therefore seek your assistance by responding to the questions. The information that you will disclose will be used only for academic purposes and would be kept confidential. I would be grateful if you would give me the required information. I am counting on your cooperation. Thank you.

Adelaide Gyasi

1. How old are you?.....
2. What is your educational background?
.....
3. What professional training (skill) do you have?
4. How did you acquire the skills
 - Formal education
 - Apprenticeship
 - Other please specify
5. What is your job title?
.....

6. What is your duty?

.....
.....
.....
.....

7. How many hours do you spent at the work place?

.....

8. How many staff do you control?

.....

9. What is your status in the company?

10. Do you participate in decision making in this company?

a) Yesb) No.....

11. Which committee(s) of the company are you a member?

.....
.....
.....

12. What is your position on the committee(s) that you are a member?

.....

13. What is your role on the committee(s) that you are a member?

.....

14. What is the cost of transportation to the work place?

.....

15. How much work do you do in a day?

.....
.....
.....

16. Are you entitled to a period of leave?

a) Yes..... b) No.....

If yes

Number of days.....

Number of times.....

17. What is your salary for the month?

.....

18. What are the requirements for promotion in this company?

.....

19. Have you ever been promoted?

a) Yes b) No

20. From which level to which level?

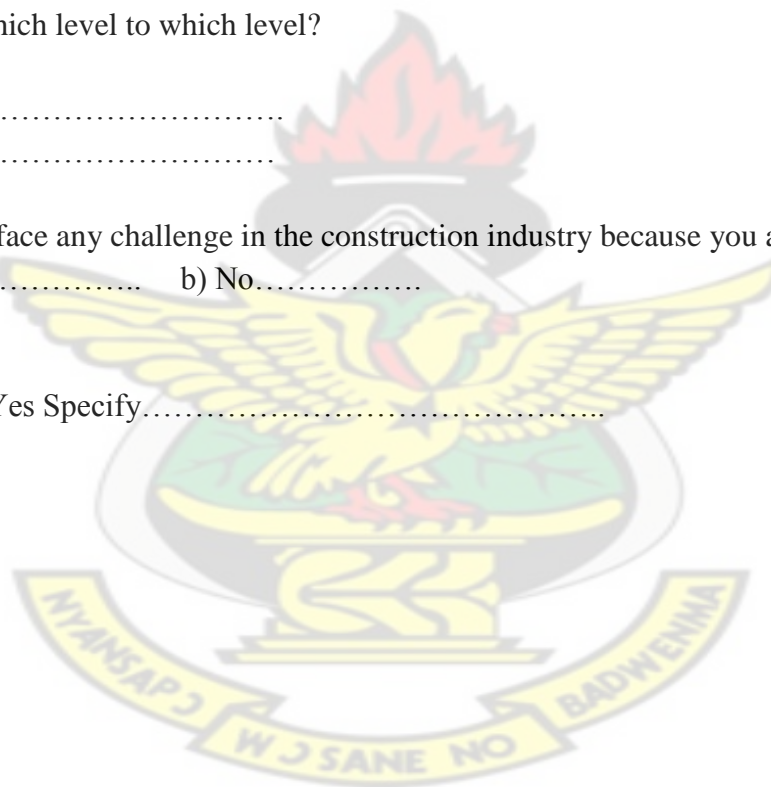
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.....

21. Do you face any challenge in the construction industry because you are a woman?

a) Yes b) No.....

21b. If Yes Specify.....



APPENDIX C
DEPARTMENT OF PLANNING
COLLEGE OF ARCHITECTURE AND PLANNING
KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

Research topic: Assessing Roles and Contributions of Women in the Construction Industry in the Kumasi of Ghana.

QUESTIONS TO ACADEMIC REGISTRARS

Dear Sir/Madam

I am a student of the Department of Planning of the Kwame Nkrumah University of Science and Technology (KNUST) pursuing the programme of study in Msc. Development Policy and Planning. My research is on women in the construction industry, and it is for the preparation of a thesis report which is a requirement for the award of Masters degree. This questionnaire is to enable me obtain data/information for preparing a thesis report for the examination purposes. I therefore seek your assistance by responding to the questions. The information that you will disclose will be used only for academic purposes and would be kept confidential. I would be grateful if you would give me the required information. I am counting on your cooperation. Thank you.

Adelaide Gyasi

1. Kindly indicate enrolment of males and female graduates in your department for the past five years

Sex	Academic Years					
	2005/6	2006/7	2007/8	2008/9	2009/10	2010/11
Females						
Males						

APPENDIX D

Table 4: Table showing Nature of work Undertaken by Construction companies

Name of Companies	Classification	Nature of Activities undertaken by Firms							
		General Building	Civil Engineering	Plumbing	Mechanical Installation	Road Work	Drainage structure	Structural Steel Works	Other Activities
Knatto Complex Limited	First Class		✓			✓		✓	
Gascon Limited	First Class	✓	✓				✓		
Jo –Mint Associates Ltd	Second Class					✓			✓
Kinegyess Construction Limitd	Second Class	✓	✓	✓			✓	✓	
Boron Services Limited	Third Class	✓				✓	✓	✓	
M-Amponsah Company Limited	Third Class					✓	✓		
K – Kyeremateng Company Limited	Third class					✓	✓		
BroadLine Engineering Services	Third Class	✓	✓			✓	✓		✓
Inter city construction Limited	Second Class	✓	✓			✓	✓		
R- Larbi Company Limited	Third Class	✓				✓	✓		

Source: Field survey, July 2011