UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION, KUMASI

MANAGING DISCORDS, DISPUTES AND CONFLICTS (DDC) IN THE GHANAIAN CONSTRUCTION INDUSTRY: AN EMPIRICAL EXAMINATION OF TRADITIONAL PROCUREMENT OF ASSEMBLY PROJECTS

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A Dissertation in the Department of CONSTRUCTION AND WOOD TECHNOLOGY EDUCATION, Faculty of TECHNICAL EDUCATION, submitted to the School of Graduate Studies, University of Education, Winneba, in partial fulfilment of the requirements for award of the Master of Philosophy (Construction Technology) degree.

DECEMBER, 2016

DECLARATION

STUDENT'S DECLARATION

I, **ERNEST SAKYIAMA**, declare that this Dissertation, with the exception of quotations and references contained in published works which have been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

Signature: ……..

Date: ……..…….

SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines for Supervision of Dissertation as laid down by the University of Education, Winneba.

Name of Supervisor: **DR. NONGIBA A. KHENI**

Signature: ……..

Date: …….

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DEDICATION

I wholeheartedly dedicate this research work to the Lord Almighty through whose guidance and protection I have been able to reach this far in my education. Also, to my late wife, Mrs. Priscilla Sakyiama for her support, encouragement and guidance. May her soul rest in peace.

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LIST OF ABBREVIATIONS

ADR	–	Alternative Dispute Resolution
DDC	–	Discords, Disputes and Conflicts
GCI	–	Ghanaian Construction Industry
FIDIC	–	International Federation of Consulting Engineers
DAR	–	Dispute Avoidance and Resolutions
AE	–	Architects/Engineers
AAA	–	American Arbitration Association
KMA	–	Kumasi Metropolitan Assembly
MMDA	–	Metropolitan, Municipal and District Assemblies
CIAR	–	Construction Industry Arbitration Rules
HND	–	Higher National Diploma
SPSS	–	Statically Package for Service Solutions
ABCECG	–	Association of Building and Civil Engineering Contractors of Ghana
USA	–	United States of America

ABSTRACT

The complexity of construction projects, as well as the diversity of stakeholders and their interests in any particular project make disputes, discords and sometimes conflicts (DDCs) in construction projects a regular occurrence in the construction industry. The study seeks to explore DDCs in the construction industry in Ashanti Region with a view to developing a framework of recommendations for minimising DDCs associated with assembly project to improve project performance. The study adopted a quantitative research approach involving the administration of survey questionnaires to a simple random sample of 119 consultants and 201 contractors working with fifteen Metropolitan, Municipal and District Assemblies (MMDAs) in Ashanti region. The findings revealed seven critical factors influencing DDCs in relation to assembly projects in the Ashanti Region namely; poor communication between the parties, type of procurement method adopted, differences in views among stakeholders, adversarial nature of contracts among others. Further findings of the study revealed six key challenges to minimising DDCs associated with assembly projects in the study setting were; irregular payments, conflicting instructions, incompetent contractors, lack of proper communication channels and others. Also, the findings revealed that there can be effective management of DDCs to improve project performance through certain factors such as, employment of qualified personnel with specialized knowledge to handle key positions, appropriate procurement methods, and effective teamwork/teambuilding. Finally, the study recommends that, there should be carefully planned and regular schedule of payments of the total sum of the project, the design team should maintain as much as possible project drawings, specifications and construction methods that are adequate and free from deficiencies.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Workplace disputes, according to Bingham, Hallberlin, Walker and Chung (2009), refer to any form of controversy that may arise between employees or staff, within the same or different departments, pay-grades, or organisational positions. Workplace disputes may also cover disagreements between the client or customer and the service provider (Boselie, Dietz, & Boon, 2005). Gyamfi, et al. (2013) opine that, workplace disputes arise due to personality clashes or differences of opinion about tasks, but workplace disputes may also be shaped by the unique aspects of the working environment, the hierarchical structure of the organisation, and the difficulties that may be involved in performing a task.

Theories, such as the equity theory (Adams, 1965) and expectancy theory (Vroom, 1964) indicate that workplace conflicts result in the absence of distributive justice and when employees' expectations about co-workers and working conditions are not met. However, the attribution theory (Weiner, 2001) further explains that workplace conflicts/disputes at the workplace result from incorrect assumptions about the behaviour of co-workers that may lead to inappropriate actions towards employees. On the other hand, the transformational theory (Shoemaker, Brown, & Barbour, 2011) suggests that workplace disputes can be propagated by a change in the regular practices at the workplace.

The complexity of jobs, in terms of the scale of operation, the number of stakeholders and participants, as well as the number and diversity of the sub-units of operations can also be a fundamental cause of disputes at the workplace. This is typical of the construction projects which involve a large number of activities, interfaces,

entities, work units and protocols (Hadikusumo & Tobgay, 2015). According to Kamara (2013) the interfaces, which may include material interface, organisational interface, professional interface, stage interface, as well as work package interface, provide a link between two or more entities, with defined set of protocols.

Construction disputes can, therefore, vary in their nature, size, and complexity (Jaffar, Tharim, & Shuib, 2011). Levy (2007) found that the principal reasons for misunderstandings leading to disputes on construction projects included, but not limited to, errors, omissions and ambiguities in plans and specifications, poor coordination, incomplete or inaccurate responses or non-responses to questions or resolutions of problems presented by one party in the contract to another party in the contract, the inadequate administration of responsibilities by the client, architect/ engineer, contractor, subcontractors, or suppliers, and the unwillingness or inability to comply with the intent of the contract or to adhere to industry standards in the performance of work.

Assah-Kissiedu, Fugar and Badu (2010) on the other hand, reported that construction disputes, in order of significance, were incomplete/unsubstantiated claims, failure to understand or comply with contractual obligations, improper contract administration, failure to make interim awards on extensions of time and compensation, as well as errors and/or omissions in the contract document. Dewi (2011), however, grouped the diverse construction disputes into those related to external conditions, change of drawings document, conditions of the field, change of technical specification, cost estimates, professional ethics and licensing. Younis, Wood and Malak (2008), on the other hand, categorised, construction disputes broadly, under disputes underscored by uncertainties, contractual relations/problems, and behaviour of stakeholders.

Several studies also indicate that construction claims are considered to be one of the most disruptive and unpleasant events of a project which contributes to delaying a project and/or increasing its costs (Farooqui, & Azhar, 2014; Yusuwan, & Adnan, 2013; Ujene, Achuenu, & Abakadang, 2011; Hinchey & Schor. 2002). Younis, Wood, & Malak (2008), also noted that construction disputes, when not resolved in a timely manner, become very expensive, in terms of finances, personnel, time, and opportunity costs. Fatima, Sekhar & Hussain (2014) add that the visible expenses, such as attorneys, expert witnesses, and the dispute resolution process itself are significant, just as the less visible costs, including company resources assigned to the dispute, lost business opportunities, and the intangible costs, such as damage to business relationships, potential value lost due to inefficient dispute resolution, are also considerable, although difficult or impossible to quantify.

In general, Taş and Firtina (2015) indicate that the most common methods of dispute resolution in construction include negotiation, mediation and arbitration. According to Fatima et al (2014) also confirmed that party to party negotiation has been the most preferred method of dispute resolution for construction firms, followed by mediation and arbitration. However, they noted construction disputes are taking longer to resolve and are becoming more costly to the construction industry. The length of construction disputes in the UK, for example, increased from 6-8 months, in 2010 to 12.9 months in the year 2012, and was respectively associated with an average cost of $7.5 million, 2010 to $27 million, in the year 2012. Similar trends were reported for Asia, Middle East, the U.S.A and Mainland Europe. The facts suggest that the current methods are not as effective as they should be, and there is, therefore, the need for alternative forms of dispute resolution in the construction industry.

In South Africa, Maiketso and Maritz (2012) report that, an alternative method of dispute resolution, which has been introduced in the construction industry, is adjudication. In several other African countries similar approaches to dispute resolution in construction are implemented (Mante, 2015). Ghana's construction industry is as complex and multi-phased as any other construction industry in other countries and thus, disputes, along with the negative effects, are also common within the industry (Asah-Kissiedu, 2009). Asah-Kissiedu (2009) found several causes of disputes on the construction industry from the clients', consultants' and contractors' perspectives, some of which were deviation from initial programme of work, incompetence of contractors, unconfirmed oral instructions, failure of client to honour payments, unclear item of bills, and government policies that encourage poor evaluation of tenders.

Sarkodie (2011) maintains that the efforts by the Ghanaian government and other groups to promote alternatives to the courts for the resolution of disputes, including arbitration culminated in the comprehensive updating and revision of the law governing domestic and international arbitration in Ghana, with the coming into force of the Alternative Dispute Resolution Act, 2010. Other forms of dispute resolution, such as mediation, customary arbitration and negotiation also exist as forms of dispute resolution for construction firms in Ghana. This study therefore studies construction firms in Ashanti Region to evaluate the effectiveness of the general and other peculiar dispute resolutions that may be adopted by the construction firms.

1.2 Statement of the Problem

The complexity of construction projects, as well as the diversity of stakeholders and their interests in any particular project make disputes in construction projects a regular occurrence in the industry (Heravi-Torbati, 2014). The length of the dispute

resolution process, as well as the degree of polarisation of opinions can however determine how destructive the dispute can be to the project. Thus, quick and less expensive dispute resolutions are often sought, considering the fact that construction projects are time-bound and costly (Maiketso & Maritz, 2012). Owing to this fact, contractual methods as an alternative dispute resolution (ADR) tool have become necessary in dealing with disputes in the construction industry. However, specific data on the topic of construction disputes and alternative dispute resolution mechanisms such as contractual methods in Ghana are scarce. According to Ohene-Addae (2013) there is rising rate of conflict in assembly construction projects in Ashanti Region hence, there is an ever increasing need for effective measures to deal with discords, disputes and conflicts relating to construction projects in the Ashanti Region of Ghana.

The initial survey conducted by the researcher, suggested that discords and disputes relating to construction projects exist across the various Metropolitan, Municipal and District Assemblies (MMDAs) in Ashanti Region (Author's field study 2016). Most of the discords and disputes were between Contractors and Consultants, Contractors and Sub-contractors, Sub- contractors and Artisans etc. Additionally, other studies conducted on the topic in Ghana focus on the identification of the causes of disputes in the construction industry. For instance, Asah-Kissiedu (2009) delve primarily into the causes of disputes without an attempt at finding solutions to the problem of disputes, discords and conflicts in the construction industry. Secondly, projects are unique and the causes and solution to disputes relating to them are likely to vary from one industrial sector to another. This implies the need to adopt a sectorial approach at finding solutions to disputes, discords and conflict in the construction industry. Thirdly, challenges are bound to be encountered in implementing any strategies for mitigating the discords, disputes and conflicts in the construction industry.

The aforementioned challenges to the implementation of strategies is either lacking or under-discussed in the related past literature.

Arguably, it is imperative to focus on particular industrial sectors or agencies in researching into the phenomenon of discords, disputes and conflicts in the construction industry as well as identify effective strategies and the challenges likely to be encountered in the implementation of such strategies. Considering these aforementioned gaps, the dissertation focused on assembly projects and the views of consultants and contractors that provide related services for district, municipal and metropolitan assembly projects in the Ashanti Region.

1.3 Aim and Specific Objectives of the Study

The aim of the study is to explore disputes, discords and conflicts in the construction industry in Ashanti Region with a view to developing a framework of recommendation for minimising discords, disputes and conflicts associated with assembly projects. The following are the specific objectives of the study:

- identify factors influencing discords, disputes and conflicts (DDCs) in the procurement of assembly projects in the Ghanaian construction industry (GCI);
- determine key challenges to minimising DDCs associated with assembly projects in Ghana;
- identify measures for improving project performance through effective management of DDCs.

1.4 Research Questions

The study will seek to address the following research questions in line with the research objectives:

- What are the factors influencing discords, disputes and conflicts (DDCs) in the procurement of assembly projects in the Ashanti Region?
- What are the key challenges to minimising DDCs associated with assembly projects in Ghana?
- What are the measures for improving project performance through effective management of DDCs?

1.5 Significance of the Study

The objective of this study to explore disputes, discords and conflicts in the construction industry could be a major step towards making a distinction between appropriate and inappropriate dispute resolution methods in the construction industry in Ghana. This could help construction firms to focus on the methods that actually work in terms of time and cost of the dispute resolution process and the recurrence of the same dispute. Similarly, identifying and understanding the causes of construction disputes could influence the process of establishing strategic dispute resolution to any particular cause of disputes in the construction industry.

The most prominent justification for studying the causes of disputes in the construction and finding alternative resolutions can also be said in terms of the possible time and costs that effective dispute resolution in the construction industry can save. The results of the study will also evaluate the applicability of the theories of the study in the particular context of Ghana's construction industry. Thus, the theoretical and literary contribution of the study also serves as justification.

1.6 Scope of the Study

The study was limited to construction firms in Ashanti Region. Within the firms, consultants, including architects, engineers, quantity surveyors, estimators and designers were included in the survey. The conceptual scope of the study included construction management, dispute resolution and avoidance, as well as effectiveness measures.

1.7 Limitations of the Study

The time constraints for conducting the study were the most significant limitation. Secondly, accessing the respondents and getting them to answer the instruments for data collection, appropriately also presented some limitations. The study involved travelling to different construction firms and the use of research assistants in that respect. This created some financial constraints.

1.8 Organisation of the Study

The dissertation is sectioned as follows: Chapter one deals with the introduction which includes the background of the study, statement of the problem, purpose of the study, research questions, significance of the study, scope of the study and limitations of the study. Chapter Two reviews theories and concepts, which are related to construction disputes and resolution methods. It presents a conceptual framework that guides the study and the analysis of the study variables. Chapter Three focuses on the research methodology, and describes the study organisations, study population and sampling, as well as the data collection and analysis. Chapter Four presents the findings

of the study. Chapter Five discusses the findings of the study and Chapter Six highlights the summary of the major findings, conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter primarily seeks to review literature related to the topic under study. Essentially, it would help the reader to know the extent of work carried out by other researchers on the methods of dispute avoidance adopted by construction firms in Ghana and other parts of the world. The chapter deals with information read and

gathered from various sources, books, articles and websites that are relating to the study. This review is captioned under the following sub-headings: the construction industry, overview of disputes, contractual methods, methods for dispute avoidance and resolution etc.

2.2 Overview of the Construction Industry

According to Levy (2007) construction is considered a high stakes endeavour that produces long-term, unique, and complex building projects and infrastructure. Taking a building project from planning through design, construction, and occupancy involves a diverse array of stakeholders such as the project clients, which may be individuals, corporations, or government entities; architects; engineers; general contractors; subcontractors; suppliers; financing institutions; legal representatives; and others. These stakeholders bring varying and sometimes conflicting expectations to a project. They operate in an environment in which their control over a project shifts as the project progresses, and in which there are continual demands to deliver projects in less time and at lower cost. The construction industry is a project - based industry with each project being unique hence notorious for its high levels of conflict and disputes (Chin, 2003). Failure by one party involved in this industry can affect all those engaged in a project and as work often takes substantial periods during which national economic circumstances can alter, it is therefore inevitable that dispute will arise. Also, Yates and Duran (2006) opine that the industry has become known as one of the most adversarial and a problem-prone industry, with claims and disputes on construction projects frequently the rule rather than the exception. Cost overruns and schedule delays can be the subject of expensive and protracted claims and litigation, and pose serious risks for all parties to a construction project. The construction industry in Ghana covers a

complex and comprehensive field of activities involving many operative skills and conditions, which vary considerably from one project to another and as such dispute might arise at any point during the construction process. Generally, there is a low standard of contract formation and of contract administration in the construction industry, which lead frequently to unnecessary problems and disputes. The parties usually enter into a dispute as a result of differing expectations or misinterpretations of the contract documents.

Historical records hold that the industry was considered less adversarial in the 1960's as compared to recent times (McGuinn, 1989 cited in Asah-Kissiedu, 2009). In those days, the design and construction environment was such that amiable relationships generally existed between all the project participants. Construction projects and processes were deemed not to be complicated. The construction players were few and developed long-term relationships. Clients accepted the fact that undertaking construction projects contained inherent risks and, therefore, accepted a certain amount of errors. Claims were not prevalent and, amazingly, design and construction firms worked together to maximize project performance (Nyarko, 2014). The focus of the construction industry was on teamwork and the overall success of the project. According to Cho, Ballard, Azari, and Kim (2010) the construction industry today is different, in that, strong relationships and trust between clients, contractors, and subcontractors have been replaced with growing distrust and conflict. They also noted that, the construction industry has continually fragmented into narrow speciality areas that have resulted in an ever-growing number of potential participants. This environment is difficult enough for the contractors and subcontractors, but when combined with the fact that clients now also expect perfection in the contractor's performance, it is not surprising that contract disputes and claims have become

commonplace (Cho et al., 2010). Other studies established that, given the infinite complexities of delivering a building or infrastructure project, the multiplicity of organizations and individuals involved, and the magnitude of the money at risk, it is perhaps not surprising that the construction industry has been characterized by an adversarial operating environment that generates disputes and claims. In effect, disputes are estimated to arise in 10 to 30 percent of all construction projects, and that one in four construction projects do have a claim (Harmon, 2003). From the preceding paragraphs, it is quite obvious that the industry is indeed fragmented and therefore has brought about the conflicts and disputes that have plagued the industry like a chronic disease. The industry is fragmented in terms of the nature of work undertaken (building or civil engineering), the technologies used, its clients (private and public sector) and the large firms/companies (professional and contracting) involved. This fragmentation has resulted in a lack of coordination and integration between the different disciplines involved in various stages of the project procurement process and the construction process (Mohd-Nawi et al., 2014). As a result, failure of one or more of these individuals in the construction process, to fulfil their contractual obligation, results in claims, counter claims and disputes which has become inevitable in the industry.

2.3 The Nature of Construction Disputes

Over the years, construction projects have continually become much more dynamic in nature over the last four decades (Cho et al., 2010). Often the environment in which construction projects are accomplished today involves completing complex, uncertain projects within tight budget and time constraints. The industry as a whole has become much more dynamic as illustrated by its continual fragmentation which contributes specifically to increased complexity in more interfaces (Nyarko, 2014). In this dynamic environment, clients often attempt to reduce costs and reduce

design/construction time while still demanding high quality finished products. Clients, also use contracts in an attempt to shed unbearable risk to contractors through the form of harsh exculpatory contract clauses (Cho et al., 2010).

Subsequently, it leads to large contractors passing the same risk onto the shoulders of smaller subcontractors who are the least able to financially bear the risk. This attempt by project participants to protect themselves by shedding risk ultimately backfires and leads to adversarial relationships and costly litigious battles. Given all these factors, it is not surprising that project performance is negatively affected and that conflicts often arise between the parties involved in construction projects. More often than not, these conflicts lead to heated disputes and, ultimately, litigious claims that are not only economically detrimental to project participants, but are disastrous for building trust and maintaining critical relationships. Even worse, as project performance decreases, risk in future projects is increased due to growing mistrust. This feeds a continuous vicious cycle where parties in the position of power attempt to shed more risk, teamwork continues to decrease, and project performance steadily declines (Cho et al., 2010). Construction disputes however, have existed as long as the recorded history of man's building structures and other projects. They have increased dramatically in number, complexity and cost - particularly in the most developed countries especially United States of America (USA) and the United Kingdom (UK), as projects become complex with ever increasing competing interest involved in project delivery (McGeorge, et al., 2007).

In an ideal environment, construction projects would be team endeavours where the unique skills of each member are used to maximize project performance. Unfortunately, today, parties enter most projects guarded and suspicious of each other's motives before design and construction even begins. This is due to the fact that, instead

of focusing on creating a good framework for developing good relations between the parties involved, contracts are generally legal shields, written in a biased manner to try to protect the one who drafts them. For the most part, this is due to an overall lack of trust of one another and as such, causes increased antagonistic relations between the client and contractor that are clearly not in the best interest of the project (Akintan & Morledge, 2013). Mitkus and Mitkus (2014) indicated that construction projects are amongst the most complicated of human enterprises and as such, not free from problems such as disputes and that, so long as human nature is what it is, there will always be disputes and those disputes whatever their characters are, must be prevented, managed and resolved as early as practicable. According to Davey and Dix (2011), prevention of disputes is considered as a sound business practice and a very important management process which enables project objectives in terms of time, cost and quality to be achieved. They also noted that, disputes prevention encompasses a shared, cooperative effort between potential disputants in pursuit of a common goal namely – success of the project so that potential disputes could be prevented as early as possible before they start. Thus, the time has come for professionals to come up with ideas on how to handle the situation to normal by ensuring that more attention is given to understanding why and how problems become differences of opinion, then disagreements, and finally escalate into disputes.

2.4 The Meaning of Dispute

A review of the literature reveals confused usage of the basic terms: “conflict”, “claim” and “dispute”. These terms are sometimes used separately or in pairs and frequently without clear indication of the precise meaning of each. There is often a lack of clarity as to whether the researcher is referring to a claim or conflict or a dispute. In

order to fully unearth the sources of construction disputes, these three terms need to be understood properly.

Gorse (2003) defined conflict as any divergence of interest, objectives or priorities between individuals, groups or organizations. A claim is defined by Yates (2003) as an assertion of a right to money, property or a remedy and can be made under the contract itself for breach of the contract, for breach of a duty in common law; or on a quasi–contractual basis. A dispute is defined by Aberra (2005) as a class or kind of conflict, which manifests itself in distinct justifiable issues. It involves disagreement over issues capable of resolution by negotiation, mediation or third party adjudication. The oxford dictionary also defines dispute as a misunderstanding between two parties, either contractual or non-contractual. Mante (2014) refers to the United Kingdom Institution of Civil Engineer's arbitration procedure which states: "a dispute can be said to exist when a claim or assertion made by one party is rejected by the other party and that rejection is not accepted. Poh (2005) also cites the definition given by D. Foskett QC in the Law and Practice of Compromise: An "actual" dispute will not exist until a claim is asserted by one party which is 'disputed' by the other. In a similar vein, Taş and Firtina (2015) suggest that "Conflict exists where there is an incompatibility of interest. When a conflict becomes irreconcilable and the mechanisms for avoiding it are exhausted or inadequate, techniques for resolving the disputes are required". It is seen to be unavoidable fact of organizational life and can be managed possibly to the extent of preventing a dispute.

Combining the aforementioned definitions with relevant terminology in standard forms of contract and recognized construction industry practice, it could be said that a conflict occurs at the same point in time as when a notice of claim is given and exist until the claim is resolved. It is, of course, theoretically possible that a claim

submitted by the contractor and immediately accepted and agreed to, without amendment, by the Architect/Engineer would not necessarily give rise to conflict. Equally, it could be argued that a conflict comes into existence in the mind of the contractor at the point in time when he becomes aware that the relevant event has occurred and the potential claims situation exists, even though the Architect/Engineer may be unaware of it (Yates, 2003). However, for all practical purposes and certainly of the purposes of this research work the definition of a dispute by Mante (2014) which states that a dispute can be said to exist when a claim or assertion made by one party is rejected by the other party and that rejection is not accepted, is adopted. It is assumed that the genesis of claim and a conflict are synonymous. The alternatives to solve disputes in the industry are becoming more and more expensive in terms of time, finances, personnel and opportunity costs. The visible expenses (e.g. attorneys, expert witnesses and the dispute resolution process itself) alone are significant. The less visible costs (e.g. company resources assigned to the dispute, lost business opportunities) and the intangible cost (e.g., damage to business relationships, potential value lost due to inefficient dispute resolution) are also considerable, although difficult or impossible to quantify (Farooqui & Azhar, 2014; Mitkus & Mitkus, 2014). Consequently, it is appropriate to identify the generating sources or the potential triggers of construction disputes, especially from the view point of the stakeholders (namely the client, consultant and contractor) to a construction project. This will help resolve conflicts as early as possible, reduce the risk of disputes occurring and also prevent/avoid disputes escalating into formal and informal costly resolution procedures.

2.5 Disputes in Construction Contracts

A combination of environmental and behavioural factors can lead to construction disputes. Projects are usually long-term transactions with high uncertainty and complexity, and it is impossible to resolve every detail and foresee every contingency at the outset. As a result, situations often arise that are not clearly addressed by the contract. The basic factors that drive the development of construction disputes are uncertainty, contractual problems, and behaviour (Jelodar, Yiu & Wilkinson, 2013).

2.5.1 Uncertainty

Uncertainty is the difference between the amount of information required to do the task and the amount of information available (Mathiassen & Sørensen, 2008). The amount of information required depends on the task complexity and the performance requirements, usually measured in time or to a budget. The amount of information available depends on the effectiveness of planning and requires the collection and interpretation of that information for the task. Uncertainty means that not every detail of a project can be planned before work begins (Hamzeh, Ballard & Tommelein, 2008). When uncertainty is high, initial drawings and specification will almost certainly change and the project members will have to work hard to solve problems as work proceeds if disputes are to be avoided.

2.5.2 Contractual problems

Standard forms of contract clearly prescribe the risks and obligations each party has agreed to take. Such rigid agreements may not be appropriate for long-term transactions carried out under conditions of uncertainty. It is not uncommon to find amended terms or bespoke contracts that shift the risk and obligations of the parties,

often to the party least capable of carrying that risk. Where amended terms or bespoke contracts are used, they may be unclear and ambiguous. As a consequence, differences may arise in the parties' perception of the risk allocation under the contract. Where the parties have agreed to amend or bespoke terms, those conditions take effect in addition to the applicable law of the contract, which is continually evolving and being refined to address new issues (Carnell, 2005).

2.5.3 Behaviour

Since contracts cannot cater for every eventuality, wherever problems arise either party may have an interest in gaining as much as they can from the other. Equally, the parties may have a different perception of the facts. At least one of the parties may have unrealistic expectations, affecting their ability to reach agreement. Alternatively, one party may simply deny responsibility in an attempt to avoid liability. Conflict can also be minimized through enhancing the understanding of the other party's perception, stimulating openness, reducing relational uncertainty, and analyzing problematic issues before they escalate (Fenn, 2006).

2.6 Causes of Construction Disputes

Disputes are a reality on every construction project (Elziny, Mohamadien, Ibrahim & Fattah, 2016). They may arise on a construction project for a number of reasons. They even arise on projects that have the best intentions. Even when every possibility of disagreement has been potentially eliminated, problems can still occur - such is human nature. Understanding how disputes arise on construction projects can be very helpful for anticipating situations that may become turbulent. While it may seem, at times, that anything can start a conflict and when not eliminated can result into a dispute, construction disputes will typically revolve around time and cost overruns,

quality of workmanship, payment contract documentation, construction information and site supervision (Chua, 2012). Undoubtedly many construction disputes have their origin in the seeds sown by or in, the client's error. This often happens when the client expects something unrealistic to be done such as the build ability of a complex design or the client taking possession of his building within a very short time not taking account unexpected delays and unforeseen setbacks. Hall (2002) indicated that, disputes do occur during the design and the construction phases of any project. Jaffar, Tharim, and Shuib (2011), also suggested that, there are four sets of contractual relationships which are common in the construction program and thus when any of this relationship get strained, minor issues can fester and grow into disputes with crippling consequences for the projects participants. These relationships are as follows:

- The relationship of the client to the designer.
- The relationship of the designer to another design specialist(s).
- The relationship of the client to the prime contractor.
- The relationship of the prime contractor to suppliers.

These four basic relationships have been studied over the years by interested individuals as well as professional committees of varied membership from all corners of the industry, along with private and public attorneys. The result of these studies has been the publication and wide usage of standard form contract documents which are published all over the world in different construction industries.

In a study by Levy (2007), it was shown that, the principal reasons for misunderstandings leading to disputes on construction projects in the United States of America were as follows:

- Plans and specifications containing errors, omissions and ambiguities or which lack proper degree of coordination.

- Incomplete or inaccurate responses or non-responses to questions or resolutions of problems presented by one party in the contract to another party in the contract.
- The inadequate administration of responsibilities by the client, architect/ engineer, contractor, subcontractors or suppliers.
- An unwillingness or inability to comply with the intent of the contract or to adhere to industry standards in the performance of work.
- Site conditions which differ materially from those described in the contract documents.
- Unforeseen subsurface conditions.
- The uncovering of existing building conditions which differ materially from those indicated in the contract drawings situations that occur primarily during rehabilitation or renovation work.
- Extra work or change order work.
- Breaches of contract by either party in the contract.
- Disruptions, delays or acceleration to the work that create any deviation from the initial baseline schedule.
- Inadequate financial strength on the part of the client, contractor or subcontractor.

In a similar vein, Bishop et al. (2009) also revealed that in the United Kingdom, construction disputes generally occur due to the following:

- Adversarial nature of contracts.
- Poor communication between the parties.
- Ineffective communication on site.
- The inability to understand terms of contract and expectations of the parties.

- Proliferation of subsidiary contracts and warranties including those with consultants. Fragmented nature of the industry.
- Improper contractual documentation.
- Tender systems and government policy on tendering encouraging low tenders followed by claims.
- The inability or reluctance to pay.

In another study by Lesser and Wallach (2008) in the Unites States of America, the following were found to be the most deadly sources of construction disputes.

- The lack of focus up front, failure to choose the most appropriate delivery method.
- Failure to assemble the right project team.
- Failure to coordinate the project team and scope of works.
- Lack of workable change order process.
- Failure to understand local conditions.
- Inaccurate or too elaborate schedules.
- No periodic job meeting minutes or failure to keep minutes.
- No vision on dispute resolution.
- The failure to recognize that quality wins.

Going further, Yates (2003) revealed that contractual incompleteness and consequent "post–contract" adjustments, asset specificity in terms of client's investment in respect of purchase of land for the project and opportunistic behaviour in particular on the part of the contractor are the root causes of conflicts, claims and disputes in Hong Kong. Farooqui and Azhar (2014) indicated that the two leading causes of construction disputes that drive the litigation process in the industry were uncertainty and imperfect contracts. Hall (2002) in his practice as a lawyer in the United

Kingdom found out that, the common cause of construction disputes is ineffective communication which often happens because someone "drops the ball" by failing to communicate effectively with another concerning design issues, compensation and payment issues , scope of changes and the like, leading to legal disputes. According to Singh and Sakamoto (2001), the complex set of dependencies and interrelationships within a construction project, brings about delays and payment schedule problems which in their view are the two main sources of construction disputes. Tsai and Chi (2009) also indicated that most disputes have their root causes in one of the following: A clash of expectations, usually entrenched during the tender process, and not assisted by one party being overly opportunistic in contract negotiations, with the other being overly aggressive or perhaps optimistic, in pricing; Poor allocation of risk; Poor communication and contract administration; and The parties failing to identify and deal with issues properly as they arise.

Another study by Abeynayake and Weddikkara (2013) revealed that disputes in the construction industry in Sri Lanka are normally those that arise under contracts for the procurement of supplies and services and the installation of equipment, breaches of contract by any party to the contract, inadequate administration of responsibilities by the client or contractor or sub-contractors, plans and specifications that contain errors, omissions and ambiguities and sudden tax and cost increases due to sudden economic changes.

2.6 Global Perspective on Causes of Construction Disputes

Construction is a unique process which can give rise to some unusual and unique disputes. However, research in Australia, Canada, Kuwait, the United Kingdom and the

United States suggests that a number of common themes occur quite frequently (Al-Sabah, Fereig & Hoare, 2002). These themes are presented in the sections that follow.

2.6.1 Acceleration

It is not uncommon for commercial property owners to insist upon acceleration of a construction project. Such examples might include the completion of a major retail scheme, and the need to meet key opening dates or tenant occupation in an office development. The construction costs associated with acceleration are likely to be less than the commercial risk the developer may face if key dates are missed. The circumstances surrounding acceleration are often not properly analysed at the time the decision is made, and that inevitably leads to disputes once the contractor has carried out accelerative measures and incurred additional costs only to find that the developer refuses to pay. The construction of facilities in Athens for the Olympic Games 2004 were subject to acceleration, and a wealth of disputes were expected once the facilities were completed and the euphoria of the Games over (Fenn, Lowe & Speck, 1997).

2.6.2 Co-ordination

In complex projects involving many specialist trades, particularly mechanical and electrical installations, co-ordination is key, yet conflict often arises because work is not properly co-ordinated. This inevitably leads to conflict during installation which is often costly and time-consuming to resolve, with each party blaming the other for the problems that have arisen. Ineffective management control may result in a reactive defence to problems that arise, rather than a proactive approach to resolve the problems once they become apparent (Fenn, 2006).

2.6.3 Culture

The personnel required to visualise, initiate, plan, design, supply materials and plant, construct, administer, manage, supervise, commission and correct defects throughout the span of a large construction contract is substantial. Such personnel may come from different social classes or ethnic backgrounds. In the United Kingdom skill shortages have led to an influx of personnel from central and Eastern Europe, a trend likely to continue with the growth of pre-accession states seeking access to the labour market in the European Union. Major international construction projects may employ or engage people from different nationalities and cultures. For example, on a major pipeline contract in Kazakhstan the owner was a joint venture comprising Kazakh, Canadian and British companies, and the owner's representatives on the project for day-to-day matters were of Canadian, French, Russian and British nationalities. The contractor was a Greek–Italian joint venture that employed labour from no fewer than 24 different countries throughout central and Eastern Europe, the Middle East and the Indian sub-continent. Forming a teamwork approach across cultures can be very difficult where each culture has its own values (Carnell, 2005).

2.6.4 Differing goals

Personnel engaged on a large construction contract are likely to be employed by one of many subcontracted firms, including those engaged as suppliers and manufacturers. Each of these firms may have their own commitments and goals, which may not be compatible with each other and could result in disputes (Mante, 2014).

2.6.5 Delays

Disputes frequently arise in respect of delays and who should bear the responsibility for them. Most construction contracts make provision for extending the time for completion. The sole reason for this is that the owner can keep alive any rights to delay damages recoverable from the contractor. On international construction projects the question of any rights the contractor might have to extend the time for completion was a matter often addressed towards the end of the contract, when an overrun looked likely. From the owner's point of view, this made the examination of the true causes of delay problematical and inevitably led to disputes between the contractor and the owner as to the contractor's proper entitlement. Under the FIDIC contracts the contractor is now required to give prompt notice of any circumstances that may cause a delay. If the contractor fails to do so, then any rights to extend the time for completion will be lost, both under the contract and at law. This may seem a harsh measure, but a better view is that this approach brings claims to the surface at a very early stage and gives the recipient an opportunity to examine the cause and effect of any delay properly as and when it arises, so that the owner has some say in what can be done to overcome the delay (Carnell, 2005).

2.6.6 Design

Errors in design can lead to delays and additional costs that become the subject of disputes. Often no planning or sequencing is given to the release of design information, which then impacts on construction. Equally, the design team sometimes abrogate their responsibilities for the design, leaving the contractor to be drawn into solving any design deficiencies by carrying out that part of the work itself to try to avoid delays, and, in doing so, innocently assuming the risk for any subsequent design failures (Carnell, 2005).

2.6.7 Engineer and Employer's Representative

The personality of the Engineer or the Employer's Representative and their approach to the proper and fair administration of the contract on behalf of the Employer is crucial to avoiding disputes, yet a substantial proportion of disputes have been driven by the Engineer or the Employer's Representative exercising an uneven hand in deciding differences in favour of the Employer. In domestic and international contracts, the Engineer traditionally had an independent and impartial role. This independence or impartiality was often not properly exercised, and in some cases there was clear evidence of bias by the Engineer towards the Employer. This practice was not limited to third world countries but also existed in developed countries (Ntiyakunze, 2011).

It is a complete fiction to say that the Engineer under government contracts in the United Kingdom could possibly act independently of the Employer on every issue. Some contracts are open as to the constraints imposed on the Engineer: in Hong Kong Engineers are subject to financial constraints in respect of variations and in the extensions of time that can be given. While this may be understandable from a public policy point of view, it is unacceptable for it to be done behind a veil so that the fiction of independence is preserved (Nyarko, 2014).

Under the FIDIC contracts the Engineer no longer has an impartial role but expressly acts for the Employer. This does not prevent the Engineer from taking a professional view on the merits of any difference that may be at issue, but in the event of a dispute the mechanism to resolve such matters quickly by independent means has been achieved by the introduction of a dispute adjudication board (Murdoch & Hughes, 2008).

2.6.8 Project complexity

In complex construction projects the need to carry out a proper risk assessment before a contract is entered into is paramount: yet this is often not done. There are numerous examples of projects taking much longer than planned and contracted for because there was insufficient appreciation of the risks associated with the project's complexity. Inevitably the delay and additional costs the contractor incurs, and the owner's right to claim damages for delay, often develop into bitter disputes (Murdoch & Hughes, 2008).

2.6.9 Quality and workmanship

In traditional construction contracts, disputes often arise as to whether or not the completed work is in accordance with the specifications. The specification may be vague on the subject of the dispute in question, and each party to the contract may have a different view on whether the quality and workmanship is acceptable. This is even more so in international contracts. Although great care may have been taken to prescribe the quality of the materials and their compliance with European standards, these standards may contradict the local laws and regulations in the country where the project is being constructed, and any dispute will be governed by the law of that country. In design and build contracts, perhaps the greatest deficiency is in the contract documentation, particularly the Employer's requirements. This inadequacy inevitably leads to claims by the contractor for additional costs, which, if not resolved, can lead in turn to costly disputes (Nyarko, 2014).

2.6.10 Site conditions

If the contract inadequately describes which party is to take the risk for the site conditions, disputes are inevitable when adverse site or ground conditions impede the progress of work or require more expensive engineering solutions. Even if the Employer, in good faith, provides detailed information on the site conditions to the contractor, if that information is discovered to be incorrect and the contractor has relied on it and acted upon it to their detriment, the Employer may be liable to the contractor for the consequences (Nyarko, 2014).

2.6.11 Tender

The time allowed scrutinising the tender documents, preparing an outline programme and methodology, carrying out a risk assessment, calculating the price, and concluding the whole process with a commercial review is often impossibly short. Mistakes in this process may have an adverse effect on the successful commercial outcome of the project. A culture may be engendered in the contractor of pursuing every claim that has a prospect of redressing any ultimate financial shortfall. This approach does nothing to foster close and co-operative working relationships between the owner and the contractor during the progress of the work, and inevitably leads to disputes (Ntiyakunze, 2011).

2.6.12 Variations

Variations are a prime cause of construction disputes, particularly where there are a substantial number or the variations impact on partially completed work or are

issued as work is nearing completion. The nature and number of variations can transform a relatively straightforward project into one of unmanageable complexity. The new Parliament building in Edinburgh is such an example. The building was planned to house 329 people, but through variations the building increased in size and complexity to house 1200 people. It was perhaps not surprising that the total cost of construction exceeded £500 million, almost ten times more than the original budget (Sambasivan & Soon, 2007).

2.6.13 Value engineering

This term often lacks definition in construction contracts and can lead to disputes, particularly where the saving is to be shared between the contractor and the owner. Savings in respect of the supply and installation of the material or product in question might be relatively easy to determine and agree, but these are not the only benchmarks, and a proper value engineering approach needs to take full account of the life cycle costs of any proposed change (Sambasivan & Soon, 2007).

2.7 Construction Methods for Contractual Dispute Resolution

During the past two decades, serious disputes concerning construction contracts have become increasingly common on construction projects in Ghana particularly the Ashanti Region. It is common practice for designers, contractors and owners to negotiate small and uncomplicated disputes, but larger and more complex ones frequently hinder the project through involvement with lengthy legal issues. Typically, if the parties cannot reach a resolution themselves, expensive, time-consuming legal procedures begin, which severely affect all the participants. Disputes are a reality in every construction project. Without the means to address them, minor issues can fester

and grow, with crippling consequences for project participants. The rising cost, delay and risk of litigation in construction disputes have prompted the construction industry to look for new and more efficient ways to resolve these disputes outside the courts. Within the past decade, the Construction industry in the US has taken steps to avoid litigation and to control disputes by developing and employing various mechanisms for alternative dispute resolution that can be implemented during almost any stage of a construction project (Sayed-Gharib, Price, & Lord, 2010). These mechanisms range from simple negotiation to binding arbitration. Experience has shown that when resolution occurs sooner rather than later and when this resolution is relatively un-confrontational, there is a much better chance that litigation can be avoided. Waiting until the end of a project to address a dispute inevitably makes it harder and more expensive to resolve.

Parties involved in a construction dispute, or indeed any commercial dispute, generally prefer to retain control over the outcome and maintain a working business relationship. One objective of this study is to identify the methods of dispute avoidance adopted by construction firms in Ashanti Region.

As the number of claims and resulting disputes on construction projects has exploded, the sheer cost and delay of resorting to court systems in any country has led to the emergence of various Alternative Dispute Resolution (ADR) approaches (Jannadia, Assaf, Bubshait & Naji, 2000). The construction industry has shown a marked preference towards ADR instead of Litigation for five principal reasons: Speed, Cost, Expertise, Privacy and Practicality (Cheung, Suen & Lam, 2002). ADR approaches normally take place outside the legal system. There are many techniques that can be incorporated in preparing construction contracts so as to avoid disputes and, of course, costly and time-consuming litigation. The contractual methods covered in

this study for dispute avoidance and resolutions (DAR) are presented as follows (Akintan & Morledge, 2013).

2.7.1 Allocating fair contract risk

It is common local practice for architects/engineers (A/E) to prepare construction contract documents simply by adding to or deleting from a set of previously employed contract documents, and while this cut-and-paste method may save time in preparing the construction contract, it often leads to problems, since documents are not read and prepared as a whole for the specific project. Such practices increase the unforeseen risks for the contractor. It comes as no surprise that parties to a contract often include contract language designed to shift risk to the other party to eliminate the bases for claims and disputes. For example, making a contractor responsible for the impact of unanticipated site conditions may effectively preclude recovery of additional costs caused by such conditions. Similarly, contract dispute clauses can be drafted so that even the submission of a valid claim is made nearly impossible, a practice which actually encourages litigation (Murdoch & Hughes, 2008). Such contract provisions, however, do not prevent disputes from occurring. Often, they only create fractious relationships among the parties involved in the project. Construction-project owners generally have two concerns when they shift unanticipated risks to a contractor. As a result of this risk transfer, the following may occur:

- The contractor will build a contingency into the price to cover the risk.
- He will not have a contingency and will face financial problems.

Unfair shifting of risk, transferring of all responsibility on a party that is not generally expected to control that risk, can result in that party having to spend time and effort looking for ways to stay alive in the project, usually to the detriment of the project

itself. As the costs and risks of construction continue to rise, more construction-industry professionals are turning to a system that fairly distributes risk among all the parties involved, the architect/engineer, the owner, the contractor and the sub-contractor(s). Fairness is an elusive concept, but the objective as defined here is to allocate the risk to the party best able to control it. An equitable contract serves as the first step in building co-operation and close coordination among the project participants, and providing a strong foundation for working out the inevitable disputes before they lead to divisive claims that can negatively affect the schedule and cost of construction (Akintan & Morledge, 2013).

2.7.2 Drafting dispute resolution clauses

In addition to identifying responsibilities and allocating risks, a contract should contain language for addressing disputes and claims at the relevant stage in a project (Akintan & Morledge, 2013). This includes clauses containing explicit provisions and instructions for parties to resolve disputes as they arise, during the course of the project. For example, provision for a binding resolution can include dispute resolution arbitration under the American Arbitration Association (AAA) Construction Arbitration Rules. Contractual provisions should always require that parties first try to settle all disputes by some non-binding techniques, such as mediation. The American Institute of Architects, the Associated General Contractors of America and the American Arbitration Association have each published suggested guidelines and model contract terms for each provision. The guidelines can be helpful in tailoring the dispute-resolution provisions of a contract to each specific need. The contract language can also be drafted in such a way as to emphasize the notice provisions, which are of paramount importance. The essential elements contained in most notice provisions are: the form of communication, the individual or organization to which the notice should be

directed, the time limits, and other procedures to be followed (Aziz & Hafez, 2013). Less frequently the contract may require an assertion that additional compensation or time is expected. Often, the contract will contain references to the change clause for additional guidance.

2.7.3 Team building

Team building is another dispute-resolution technique that can be instituted at the beginning of a construction project to help allow for better cooperation and coordination among the parties (Akintan & Morledge, 2013). One such process, partnering, has gained increasing popularity in recent years. It involves an extra contractual understanding among all parties to form a partnership of sorts to achieve mutually determined goals and objectives as well as to minimize disputes and claims. This agreement is often reached through a partnering workshop; wherein all parties agree to take specific steps to work together, fairly allocate risk and responsibilities and recognize their common goal - a successful project. Although partnering may initially require more manpower and effort, its benefits can be invaluable, creating a more harmonious, less confrontational process and, on completion, a successful project free of litigation and claims.

Partnering allows the parties to move from an adversarial relationship to cooperative team work, from a win-lose strategy to a win-win plan, from a stressful project to a satisfying one, from a litigation focus to solutions and accomplishments, and from finger-pointing to a hand-shake mind-set; it also allows bureaucratic inertia to dissolve and risk-taking to be endorsed (Cheung, Rowlinson & Jefferies, 2005). In the past few years, a process called partnering realignment has evolved to help

stakeholders deal with problems arising during the project, rather than resolving them in court after the project is completed (Park & Chang, 2013).

This process, when embraced and carried through, has helped turn around troubled projects. Partnering realignment is a corrective process implemented during the project, to help organizations resolve issues, set a new course and maximize the remaining potential for success. It is an attempt to regain and retain control of the project and to plan ways of avoiding future problems.

2.7.4 Provision of a neutral arbitrator

The most careful planning cannot always prevent disputes and this step is the last chance to resolve a dispute before resorting to a binding settlement (Akintan & Morledge, 2013). Providing for a neutral party to analyse issues and providing dispute resolution, if negotiations come to an impasse, is an important step towards minimizing the problems caused by disputes. This technique involves a pre-selected independent `neutral' to serve the parties as an observer, fact finder and dispute resolver throughout the construction process. Ideally, a neutral is selected at the inception of the construction phase of the project to act immediately in resolving disputes that cannot be otherwise settled. Although procedures for establishing a neutral vary and can be tailored to meet the specific needs of a project, they involve a few basic elements, including the following. The neutral must be acceptable to and compensated by both parties and must be both independent and impartial.

The neutral is initially given an introduction to the nature, scope and purpose of the project and is furnished with the contract documents. The neutral is then required to regularly visit the project site, meet with key project personnel, and attend project meetings thus being kept informed of project progress. Whenever the parties are unable

to resolve a dispute, it may be immediately referred to the neutral for a prompt non-binding decision. If the neutral is empowered to make only non-binding recommendations and his recommendation is challenged by either party, the recommendations can be admissible as evidence in a subsequent Alternative Dispute Resolution (ADR) proceeding or in a court of law. Because the neutral is readily available and knowledgeable about the project, he can often help to mediate or encourage the prompt resolution of disputes. In addition, the time and cost saved by immediately addressing disputes can help to preserve the relationships among the parties and keep the project focused on mutual goals.

2.7.5 Binding arbitration

The construction industry, more than perhaps any other, has experience with using arbitration for resolving disputes (Akintan & Morledge, 2013). Serious contract disputes involving huge cost overruns, long schedule delays and complicated technical specification requirements are, in many cases, best decided by experienced arbitrators. The construction industry's success in moving away from litigation is a valuable lesson to those who today are considering Alternative Dispute Resolution as a substitute for facing litigation, given the current `crisis' in the civil courts. Even having taken the four preceding steps, some disputes will not be resolved. Turning the decision over to an arbitration panel comprising of knowledgeable and experienced industry professionals has many advantages over a judge and jury. Although once seen as the only option, binding arbitration is now considered a last resort, after equitable contracting, on-going dispute resolution and non-binding Alternative Dispute Resolution techniques have failed.

As in litigation, the parties give up control over the decision and have to proceed in an adversarial forum, endangering future relationships. The perception, if not the reality in every case, is that arbitration has advantages over litigation, including lower cost, more prompt resolution and time saving (Park & Chang, 2013). Procedurally, a number of approaches to arbitration have been developed.

Perhaps one of the widely publicized forms is the model defined by the American Arbitration Association (AAA), the construction industry arbitration rules (CIAR), but special procedures have been established by other professional associations and individual owners and designers (Darbi, 2012). To date, most published studies of arbitration have focused on the underlying legal principles and not on its organization or performance. With expanded use of arbitration, there is also a rapid evolution in its form and greater interest in its performance. The following are key issues determining its form of application.

Scope of disputes: In practice, arbitration is frequently limited to specific topics and/or size of claims. The most common rationale for limiting the scope is that it permits the user to capitalize on the benefits of arbitration, such as a quick settlement, without risking large settlements or adverse interpretations of the contract provisions (Park & Chang, 2013).

Selection of arbitrators: With binding arbitration, the arbitrators are the final interpreters of the dispute, and hence their selection is taken seriously by all the parties. There are basically three approaches to their selection. Arbitrators may be selected from a prepared list, from permanent board members, or they may be selected prior to the start of the construction project. Perhaps the simplest and most expedient arrangement is for a permanent established arbitration board to hear all disputes of a specified type coming before the owner (Park & Chang, 2013).

Settlement of disputes: In principle, with an arbitrated dispute, the judge or arbitrator reviews facts and orders a fair settlement, which is all that is of interest to the parties. Arbitrators are relatively free to base their decisions upon legal or technical considerations, and may even set aside more formal legal precedents for a decision (Park & Chang, 2013).

2.8 Prevention/Avoidance of Construction Disputes

The only good construction dispute is one that is prevented or avoided (McGeorge, Davis, Jefferies, Ward & Chesworth, 2007). Some disputes will require the dispute resolution provisions of the contract including arbitration or litigation. However, this should not deter the participants in a construction project from examining the means and methods to prevent or avoid or minimize disputes before or during the course of the project. This presupposes that the parties to the dispute have a collective and genuine interest in resolving, in good faith, the matter in a fair and cost effective way. It also presupposes that the nature of the dispute is not one that requires a legal interpretation or decision before it can be resolved which in many cases will require litigation therefore disputes can be prevented. Researchers through literature have described ways in their opinion that will prevent the differences between the parties from arising or becoming a dispute. Their main reason was the need to prevent or avoid disputes as early as possible before resorting to the formal dispute resolution mechanisms in the contract or otherwise.

2.8.1 Construction Disputes Prevention Techniques

Given the expense and disruption caused to any contract when a dispute arises and the damage it has on various stakeholders' relationships, the importance of

following disputes prevention techniques cannot be over emphasised (Ogaji, 2013). As a result Kirk, Borchert and Fuglsang (2002) pointed out that, there is a need for putting appropriate mechanisms in place to identify conflict as early as possible to help prevent it from turning into a costly dispute. Therefore an ounce of prevention is better than cure.

Davey and Dix (2011), revealed that nearly one-third of in-house counsel in United Kingdom businesses plan on increasing their spending on dispute prevention over the next three years. The survey identified that in-house legal departments are making dispute prevention a top priority and are now developing systems and processes to reflect this new attitude. Most construction firms already carry out some form of dispute prevention activity under the general label of 'risk management'. According to Davey and Dix (2011), dispute prevention can be split into two types; Management methods aimed at achieving better risk control and non-escalation mechanisms. Management methods aimed at reducing risk include better planning, for example by ensuring that contract documents are clear and precise; utilising project and business structures which lessen the risk of disputes – partnering or integrated project teams are examples; using appropriate procurement methods; and generally emphasising the value of good management. Non escalation mechanisms aimed at resolving disputes before they escalate; for example – structured negotiation including tiered dispute resolution mechanisms within contracts, the use of dispute boards and project mediation. Some commentators have suggested that the selection of the construction contract itself will bring about the success of a project and reduce conflict. Davey and Dix (2011) also mentioned that, the most obvious method used to prevent disputes arising is through negotiation. It may be arguable whether negotiation is an example of dispute prevention or is a form of dispute resolution. Whatever label is put on it,

negotiation is certainly aimed at a preventing the full-scale conflict which is involved in both litigation and arbitration. Regrettably, the whole environment of the construction process often works against establishing the frameworks necessary for effective negotiation. Better training is therefore needed to make effective negotiators out of the typical project.

Dettman and Kerness (2009) made known that dispute review boards, are increasingly being accepted on large scale projects as an important weapon in the dispute prevention armoury. They recommended that dispute review board members should be appointed at the outset of a project by the stakeholders as individuals whose views and decisions will be respected. This way, the dispute board will be available to the stakeholders at short notice to prevent disagreements from escalating into disputes and to give either recommendations or decisions, depending on the defined role of the board, should disputes arise. Hence it may create an atmosphere in which the stakeholders are obliged to be more realistic and factual in any representations that they make in the knowledge that sooner or later the board members may be asked to intervene. This process has in fact enjoyed great success in both preventing disputes and achieving early consensual resolution of disputes on virtually every project in which it has been used (Yih, 2010). Other researchers including Yates and Duran (2006), Mensah and Ameyaw (2012) and Yates (2003) also indicated that adequate contract documentation, early consideration and allocation of project risks, team building including the introduction of partnering approaches to establish common objectives, communication of potential problems or claims at the earliest opportunity, realistic assessment of the value and impact of a claim, education and early negotiations to be some of the other ways construction disputes can be prevented.

2.8.1.1 Adequate Contract Documentation

During the design phase of a construction project, an owner's ideas, concepts and project requirements are transformed into detailed plans and specifications that will be used by the contractor to construct the project (Alnaas, Khalil & Nassar, 2014). It is therefore important that a client, in conjunction with the architect/ engineer, exercise the utmost care and consideration when making decisions early in the design phase to minimize the impact of any disputes on project progress. Proper planning and careful review of project plans and specifications can substantially minimize the likelihood of disputes and provide a basis for timely resolution of any problem that may occur. In reality, however, in view of the complexity of the construction process and time necessary for overall delivery, all but the smallest of projects are inevitably incomplete (Yates, 2003). As a result, there is the need for clients and their consultants to effectively reduce contractual incompleteness by complying with accepted construction industry "good practices" conventions and making sure that construction projects are tendered on the basis of a fully completed design, having no errors or omissions in tender documentation, and requiring no changes or variations during the construction phase. The Latham Report (Latham, 1994) contains the most comprehensive "good practices" recommendations made in recent years. Whilst this report is directed at the United Kingdom construction industry, many of its findings are applicable to the construction industries of other countries such as Ghana.

2.8.1.2 Early Consideration, Allocation of Project Risks and Risk Assessment

The success of the project and the prevention of disputes depend heavily on the proper assessment and allocation of risk (Bremer, 2015). Errors in risk assessment can lead to significant changes and rework, resulting in added costs and delays. Detailed

project scope definition is a major component of risk assessment, in that scope changes pose a threat to the success of the project. Changes frequently lead to contractor claims, and while a certain number of changes are inevitable on a complex project, research experience indicate that thorough project scope definition prior to the start of detailed design avoids a large percentage of changes and their related impacts. A well-defined project scope allows the owner to effectively communicate his/her desires to the designer, who then has the information needed to design the project to meet the client's needs, goals, and expectations (Gibson & Pappas, 2003). As the costs and risks of construction continue to rise, more construction industry professionals are turning to a system that fairly distributes risk among all the parties involved, the architect/engineer, the client, the contractor and the sub-contractor(s). Fairness is an elusive concept, but the objective as defined here is to allocate the risk to the party best able to control it (Jannadia et al, 2000). Many disputes on a construction project can be prevented if the risks and responsibilities of the parties are clearly defined, in unambiguous terms, so as to avoid any misunderstandings. In fact, ambiguities in contracts and unreasonable allocation of risks between project participants are among the leading causes of disputes in construction projects (Chinyere, 2011). Factors that should be considered when allocating risk are:

- Identify the risks.
- Determine which risks can be insured.
- Determine which party can most easily and economically obtain cover for insurance risks.
- Determine which party is best able to control and minimize the risks which cannot be insured.

Let the employer accept as his own responsibility, and allow his budget for, all risks which are not insurable and which the contractor cannot influence (Creedy, 2006). In order to prevent disputes, it is necessary to have some appreciation for the reasons that disputes may arise on a construction project and to consider the steps that can be taken to minimize the likelihood of such disputes. The careful consideration of potential disputes in the context of the terms and conditions of the contract can assist to identify potential problem areas that require attention. It will assist to prevent/avoid disputes if at the outset of the project the parties consider the potential reasons for dispute to ensure that the risks are properly allocated in the contract and to give attention to the means and methods to prevent/avoid the occurrence of the matter.

2.8.1.3 Communication of Potential Problems or Claims at the Earliest Opportunity

The longer a potential problem or claim is allowed to go on the more likely it is to escalate and the less likely it is that the matter will be resolved without a dispute. The advance warning of a potential problem or claim has the advantage of preventing/avoiding a surprise by the other side and it enables the parties at the earliest opportunity to consider solutions to prevent/avoid or minimize the impact of any potential claim. One approach expressly provided for in the Engineering and Construction Contract, standard form, prepared by the Institute of Civil Engineers (1995) in the United Kingdom is a procedure called the "early warning" meeting (Bishop, et al., 2009). This process requires the owner or the contractor to give the other "an early warning as soon as they become aware of any matter that can give rise to an increase in price, delay completion or impair performance of the work" and to demand the attendance of the other party at an "early warning meeting". Any party may invite

other interested parties such as the consultant or subcontractors to the early warning meeting subject to other party's right to veto their attendance. The "early warning" meeting does not change the basic responsibility of the parties for the problem under the contract. Rather, it provides a contractual duty to raise and consider potential problems at the earliest opportunity.

2.8.1.4 Realistic Assessment of the Value and Impact of the Claim

Although a realistic assessment of the claim may not guarantee its resolution, an unrealistic assessment is almost certain to result in a dispute. In fact, it is not unusual to incur a significant amount of time, effort and expense to deal with unsubstantiated or inflated claims during the examination for discovery processing construction litigation or arbitration. In any event, a realistic claim presented with the necessary supporting documentation and information to satisfy the consultant or other party may prevent a dispute. Most construction contracts provides the Consultant (project architect or engineer) with the first opportunity to resolve disputes by making findings in respect of matters in which the Consultant has authority under the contract. Disputes presented to the Consultant do not happen in a vacuum (Yates & Duran, 2006). Careful attention to collecting the information (including the observations of those directly involved and documents necessary to prove to the Consultant the validity of the claim may provide the Consultant with sufficient information to recommend to the other party that the matter be resolved by agreement. This may prevent the necessity to formally refer the dispute to the Consultant under the contract for a finding. In order to properly assess the entitlement and quantum of the claim, legal or technical assistance may be required. This advice should be sought early to assist in the presentation and negotiation of the claim. When the client is made aware of or receives notice of a potential claim by a contractor, the client immediately should make an initial review of all of the

circumstances and related events involving the potential claim. Often, a contractor's problem can be resolved quickly by objectively evaluating the contractor's concern and applying "the rule of reason" before the problem escalates into a full-blown dispute. In this way, early evaluation of the facts involving the potential claim can focus the issues and increase the likelihood of a prompt, good faith, negotiated settlement. Consideration of a net position to resolve the matter will enable the appropriate compromises to be made early in the process (Park & Chang, 2013).

2.8.1.5 Education

Disputes may be prevented by an upfront investment to educate those responsible for the administration of the contract on the rights and obligations of the parties involved in the project (McGeorge et al., 2007). A thorough understanding of the contractual relationship extends beyond the client and the contractor. It should include other stakeholders such as the consultant, subcontractors, surety and insurer. Chan (2014) during his annual meeting with the invited attorneys in the United States of America, suggested that, individuals with the authority to market a company's services should be educated about the importance of realistically representing the firm's abilities, so as not to encourage unrealistic client expectations or promise unrealistic results. Similarly, individuals with the authority to contract on behalf of the firm should be educated about the importance of appropriate project specific and general condition terms in the client-design professional agreement and the exclusion of certain provisions, such as express warranties and broad form indemnification. In addition, these individuals should be educated about the nature and scope of the firm's respective insurance coverage and the specific types of services or projects that may pose a risk of uninsurability, thereby exposing corporate or personal assets to professional or other

liabilities. Firm employees involved in the actual performance of services should be trained on the continuing importance of educating the client about realistic expectations of the design professionals' performance and the fair allocation of risk between the owner and contractor in the preparation of the construction general conditions. In addition, these employees should be trained in the prompt identification and response to problems that may arise in the field during construction or in other client contacts. Because field personnel are likely to learn of such problems first, they are in the best and most effective position, after consultation with management or supervisors, to address the problems in a timely and low-key manner. Design professionals should consider requesting experienced outside advisors, insurance or legal, who are knowledgeable about professional liability matters to participate in regularly scheduled educational seminars addressing early intervention and response. A firm's personnel may change, roles may be altered, and new developments in successful risk management may emerge that require periodic refreshers. The educational process is iterative, evolving, and continuous. Disputes can be prevented if the persons administering the contract know the types of claims that may be covered by an insurer under a surety under a Performance Bond. In addition, an understanding of the duties of an insured to an insurer or the obliged to the surety can prevent/avoid disputes that may provide a financial solution to the claim. For example, it is important that any material variation of the contract or underlying risk assumed by the surety or insurer is communicated and their consent obtained in order to prevent/avoid subsequent dispute (Park & Chang, 2013).

Many construction disputes begin with the onsite personnel of the parties. It will assist in preventing or avoiding disputes if the initial on-site decision makers have been educated on how to address a potential problem. For example, a potential dispute can

result from an inflexible or intransigent attitude towards resolution. The following approach should be considered: a) Any action which results in an entrenched position must be discouraged. When a problem starts to develop into a claim the contract procedures should encourage people to listen to the other person and answer the points which have been raised. b) Many disputes arise because both sides are concentrating on developing their own cases, rather than trying to understand the reasons for the other person taking particular attitude. Proper understanding requires discussion, rather than an exchange of written statements (Bishop, et al., 2009). In addition, providing basic training on negotiating techniques may assist the negotiators to take an approach which favours an amicable resolution.

2.8.1.6 Negotiations

The Tenth Edition of Webster's Collegiate Dictionary defines negotiation as the process of "conferring with another so as to arrive at the conclusion of some matter." Most construction industry disputes are prevented and settled, sooner or later, through negotiation. However, because construction industry disputes are often dynamic and involve the interests of many stakeholders, and negotiation not a purely standardized process, it is often hard to know when and how to get started. Negotiation is a consensual process (Chan, 2014). Success is dependent on voluntary, good faith efforts by all stakeholders to reach negotiated conclusion. The stakeholders, including the consultant should make every reasonable effort to anticipate problems that could develop into a claim and to raise such matters for consideration by the parties before it becomes a dispute under the contract. The involvement of an experienced, knowledgeable, impartial and credible consultant can be invaluable in anticipating and preventing potential disputes. In addition, the stakeholders may wish to consider the

use of a "step negotiating "process as an express term of the contract. The step negotiation process is one that will require the parties to refer the dispute to a higher level of authority that may not personally be responsible for the problem. The step negotiation approach can serve to get the dispute in the hands of the person with the real decision making authority or perhaps the person that will suffer the financial consequence if the dispute escalates. It also tends to alleviate any personality conflicts that may exist between on-site personnel directly involved in the matters giving rise to the problem. In any event, it is important to have the right personalities with the appropriate level of authority negotiating the resolution of the dispute at the earliest opportunity. It is also important to appreciate that there is an art to conducting successful negotiations which requires the representatives negotiating to have an appropriate level of negotiating skills.

2.8.1.7 Thinking outside the box / Thinking ahead

There is no dispute prevention strategy that can be scripted for every dispute on a construction project (Yates & Duran, 2006). They indicated that, disputes vary and not all may be suited for the dispute resolution mechanism that may be provided for in the contract. They therefore recommended that, parties should be prepared to consider potential solutions or options that may not be referred to in the contract such as the use of a reservation of rights or mitigation agreement. Such arrangements allow the parties to agree, to an interim solution, on a without prejudice basis, and to defer the resolution of the dispute to a later time. By deferring the claim to a later time when the actual expense or costs associated with the claim is known, the parties may be more amenable to prevent the dispute. On some projects, there are early indications of potential problems, such as on a publicly tendered project when the tenderer to whom the contract

is awarded has a reputation for low tenders and claims (Chan, 2014). In such a situation, it is important that the consultants not adopt a laid-back attitude. Recognizing the enhanced potential for disputes, the consultants should assign an experienced, skilled project manager to educate and prepare the client for the possibility of contractor claims. The consultants including the architect should also clearly articulate project requirements at the pre-construction conference. The pre-construction meeting, like the pre-tender meeting, represents an important opportunity to influence and refine client and contractor expectations. Chan (2014) also suggested that during project execution, the consultants should be proactive in checking the contractor's compliance with all general condition requirements and should completely document all pertinent developments and communications with the contractor in a timely manner. He also recommended that, timely responses to the contractor's inquiries or other communications often prevent/avoid or reduce the potential for disputes and that the key to prevent conflicts from turning into costly disputes, is to be pro-active in anticipating and addressing potential or actual problems.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the study area, research design, study population, sample size, and sampling procedures. The methods and instruments for data collection, pre-test, and data analysis techniques are discussed in this chapter.

3.2 Study area

According to the Ministry of Local Government and Rural Development (2011), the Ashanti Region is the smallest of Ghana's administrative regions in terms of area, occupying a total land surface of 24,389 square kilometres or 10.2 percent of the total land area of Ghana. In terms of population, however, it is the most populated region. Kumasi, which is the capital city of the region, is developed in terms of public infrastructure, and also harbours several construction projects, private and public, as well as commercial and non-commercial.

It is estimated that there are 150 registered construction companies in the Ashanti Region (ABCECG, 2014). For the purpose of this study, the researcher targeted construction firms with assembly projects in the region. The Ashanti Region is composed of 30 districts comprising a metropolitan assembly, 7 municipal assemblies and 22 district assemblies.

3.3 Research Design

This study adopts descriptive research designed which seeks to obtain views from Consultants and contractors who are currently working on assembly projects in Ashanti Region during 2014/2016 period, about the role of different contractual

methods in dispute resolution in the Ghanaian construction industry. According to Creswell (2009) a descriptive study design provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. It includes cross-sectional and longitudinal studies using questionnaires or structured interviews for data collection, with the intent of generalizing from a sample to a population. It involves describing, recording, analysing and interpreting conditions that exist. It involves compromise or contrast and attempts to discover relationships between existing variables. The study therefore used quantitative techniques to describe issues concerning the role of different contractual methods in dispute resolution in the Ghanaian construction industry, which have enabled the researcher to obtain data about practices, situations or views at one point in time through questionnaires.

The use of descriptive survey permits the researcher to study more variables at one time than is typically possible in laboratory or field experiments, whilst data can be collected about real world environments. Its key weakness is that, it is very difficult to realise insights relating to the causes of or processes involved in the phenomena measured. There are in addition, several sources of bias such as the possibly self-selecting nature of respondents, the point in time when the survey is conducted and in the researcher him/herself through the design of the survey itself. This bias is minimised through using objective instruments such as standardised questionnaires, observation schedules, and interview guides to collect data (Castellan, 2010; Maree, 2007). The descriptive survey study is deemed appropriate for this research for these reasons:

- Survey research involved data collection from contractors and consultants who are currently working on assembly projects in Ashanti Region during

2014/2016 year, and generalizing the result of study to predict the attitude of the population of interest;

- The survey questionnaire was structured to elicit information from the population of interest in a systematic and unbiased manner;
- They permitted statistical analysis of data and generalisation to a larger population, which made them suitable to construction management research (Amoako, 2011).

3.4 Study population

The study targeted contractors and consultants who were working on assembly projects in Ashanti Region during 2014/2016 period. In the first stage, fifteen assemblies were randomly selected and the contractors and consultants who were working with the assemblies during the period were included in the study. This is because the study was purposively geared towards exploring the role of different contractual methods in dispute resolution in the Ghanaian construction industry with the aim of finding measures to minimising discords, disputes and conflicts associated with assembly project to improve project performance. The details are follows

Table 3.1: Contractors and Consultants on Assembly Projects

SN	Name of District	No of Contractors	No of Consultants
1	Kumasi Metropolitan Assembly	85	18
2	Asante Akim South	20	10
3	Sekyere East	6	7
4	Asante Akim Central	42	9
5	Ejisu Juaben Municipal	19	12
6	Sekyere South	22	7
7	Atwima Nwabiagya	10	8
8	Kwabre East	22	10
9	Offinso North	18	9
10	Sekyere Central	8	8
11	Mampong Municipal	6	7
12	Offinso South Municipal	17	7
13	Afigya Kwabre	23	10
14	Sekyere Afram Plains	18	7
15	Amansie Central	20	7
Total		336	136

Source: MMDA, 2016

3.5 Sampling Technique and Sample Size

Fifteen districts were randomly selected for the study area. In all, 336 contractors and 136 consultants working on assembly projects during the year 2014/2016 were obtained. From the target population, 183 contractors and 108 consultants on assembly projects were selected using Cohen, Manion & Morrison (2007) sample size determination table. This helps in selecting workable sample size for the study. However, in order to cater for non-response rate associated with the use of questionnaires, 10% of the population was added to obtain a total sample size of 320. After this, respondents were selected using simple random sampling technique, where the various assemblies selected were contacted to select participants to be included in the research (Cohen et al (2007). This is because, the assemblies can better locate the contractors and consultants they were working with during 2014/2016 year.

Table 3.2: Details of Sample Population and Sample Size

Population	Membership	Sample size	Non-response Rate 10%
Contractors	336	183	18
Consultants	136	108	11
Total	472	291	29
Non-response rate 10%		29	
Total sample size		**320**	

Source: Field Survey, 2016

3.7 Instruments for data collection

The questionnaire was designed with closed ended Likert scale and open ended items to elicit relevant primary data for the study. The closed ended questions were geared towards achieving the set objectives while the open ended questions aided in attaining relevant information that could not be captured by the researcher (Creswell, 2012). Various constructs were developed using flow chart technique to aid sequencing of questions under the objectives of the study (Cohen et al., 2007). The questionnaire was divided into five sections; from A to E. Section A covered the company profile of

the respondent. Section B focuses on the factors influencing discords, disputes and conflicts, Section C looks at the association between DDCS and project performance, Section D deals with the key challenges to minimising DDCS in assembly projects and finally, Section E effective management of DDCS in assembly projects

3.7.1 Validity and Reliability

The questionnaires were pre-validated 18 contractors and 11 consultants selected from the study area. This helped to assess the contents and items included in the questionnaire so that it would be able to measure the expected outcome accurately (Creswell, 2012). The questionnaires were pre-tested on the subjects of this research (18 contractors and 11 consultants) who were selected conveniently from the study area suggested by Dillman (2005). This was done to serve as the preliminary testing of the research questions to provide insights into ideas not yet considered and problems unanticipated, which could challenge the data analysis. This is because, effective and efficient questionnaires may not emerge fully-fledged. They are normally created or adapted, fashioned and developed to maturity after many trials (Dillman, 2005). Furthermore, it helped to check and try the planned statistical tests of association between variables. Besides these, the pre-test enabled the researcher to revise the contents of the questionnaire, thereby revising the instruments to achieve the reliability and validity standards required in scientific research. Cronbach's Coefficient (α) was calculated to estimate the internal consistency reliability of the measurement scale. Cronbach's alpha is widely used in social science research to estimate the internal consistency of reliability of a measurement scale. The values were 0.922 for factors influencing discords, disputes and conflicts and 0.924 for key challenges to minimising

DDCs in assembly projects which were above the recommended minimum threshold of Cronbach's alpha value of 0.7 (Hinton et al., 2004; Creswell, 2012).

3.8 Data Collection Procedure

Quantitative data were collected for the study. This data consisted of administration of closed ended likert scale questions answered by the respondents. This helped to collect relevant data towards the set objectives (Carifio & Perla, 2007). Collection of data took about four months. This included the collection of data for the sample frame and conducting of a survey.

3.8.1 Questionnaire Administration

Closed ended and open ended likert scale questions were administered to 320 participants, consisting of contractors and consultants from the selected study area. Consultants and contractors working on assembly projects were randomly selected from fifteen district assemblies and structured questionnaires related to the study were administered to solicit information relevant to the study. This is because they suppose to have the needed information required for this study (Creswell, 2012). In all, 230 questionnaires were retrieved giving a response rate of 72%.

The questionnaires were distributed to the various assemblies and construction firms in the study area by the researcher and other trained assistants. The respondents were therefore in a position to provide the necessary information required based on their practical experiences in their respective areas. Respondents were informed about the confidentiality of the responses. The respondents were given some time interval to complete the questionnaires. The researcher as well as other trained assistants went back to retrieve the answered questionnaires.

3.9 Methods of Data Analysis

The completed questionnaires from the field were edited and coded appropriately to make effective meaning out of the data. Editing was done to correct errors, check for non responses, accuracy and correct answers. Coding was done to facilitate comprehensive quantitative analysis of the data. The data was analyzed and interpreted by using Statistical Package for Social Science (SPSS) version 20. In addition to descriptive statistics such as tables and charts, the following inferential statistical tools; Factor Analysis and Multiple Regression technique were employed (Cresswell, 2012).

3.9.1 Factor Analysis

Factor analysis is a method of quantitative multivariate analysis with the main aim of representing the interrelationships between a set of continuously measured variables (usually represented by their interrelationships) by a number of underlying linearly independent reference variables called factors (Yong & Pearce, 2013; Lingard & Rowlinson, 2005; Hardcastle et al, 2002). The method seeks to collapse various variables into a few dimensions of interrelated attributes called principal components. The Eigenvalue determines the principal components, which are orthogonally varimax, and are rotated to obtain more evenly distributed factor loadings within the components. The factor analytical approach was adopted to assess the most significant factors that influence discords, disputes and conflicts of the 29 discords, disputes and conflicts factors identified from literature; as well as the key challenges associated to minimizing DDCs of assembly projects of the 20 challenges associated to minimizing DDCs of assembly projects in Ghana.

3.10 Ethical Issues

Cresswell (2012), states that, observing ethics in research is a complex matter that involves much more than merely following a set of static guidelines. It is rather of a more pervasive idea stretching from the origins of a research study to its final completion and distribution. However, some researchers have discussed and summarized the ethical dilemmas that confront the educational researcher, notably the issue of gaining access, informed consent, confidentiality, and usage of sensitive data (Kaiser, 2009). These ethical considerations, aimed at reducing risk to participants and enhancing the trustworthiness as well as credibility of the research, have been observed in this study.

In this research therefore, respondents willingly took part in the study though they also had the right to withdraw from the research. Protection of confidential data given by identifiable respondents and their anonymity and reactions of respondents were also observed. A comprehensible account of the rationale of the study and type of access required was therefore provided to the respondents.

CHAPTER FOUR

ANALYSIS AND PRESENTATION OF RESULTS

4.1 Introduction

This chapter presents the views from respondents which were elicited to explore disputes, discords and conflicts in the construction industry in Ashanti Region with a view to developing a framework for minimising discords, disputes and conflicts associated with assembly project to improve project performance. The data was analyzed with the Statistical Package for Social Science (SPSS) and Microsoft Excel software and results presented in tables. In addition, the data was analysed using descriptive statistics and factor analysis to test association and influential factors. The data is categorized under four constructs: the demographic characteristics of respondents, factors influencing discords, disputes and conflicts (DDCs) in the procurement of assembly projects, key challenges to minimising DDCs associated with assembly projects and effective management of DDCs for improving project performance.

4.2 Response Rate

A total of 320 questionnaires were sent out to consultants and contractors working in 15 assemblies in Ashanti region. Participants were obtained by means of simple random sampling. Participants were asked a total of 72 questions covering demographic characteristics of respondents, factors influencing discords, disputes and conflicts (DDCs) in the procurement of assembly projects, key challenges to minimising DDCs associated with assembly projects and effective management of DDCs for improving project performance. After follow-up reminders, a total of 230 responses were received giving a response rate of 72%. This response rate is considered

adequate, as according to Fincham (2008) response rates approximating 60% for most research should be the goal of researchers

4.3 Demographic Characteristics

This section presents the demographics of respondents. It includes age of respondents, gender, highest educational level, current job title, and working experience. The demographics of the respondents were essential to the study since they play significant roles in the development of people's perceptions about a particular issue as well as how they respond to issues.

4.3.1 Age of Respondents

Table 4.1 depicts the age distribution of respondents who participated in the study. The purpose was to find out the average age of the respondents who are actively involved in the operations within the organisation. A close look at the Table 4.1 shows that 20 respondents representing 8.7% fall within the age brackets 21-30 years; 91 representing 39.6% fall within the age brackets 31-40 years, 73 respondents representing 31.7% fall within 41-50 years, 46 respondents which constitute 20% fall within the age group of above 50 years. The data shows that majority of the respondents fall within 31-40 years. This implies that the respondents were matured enough to give answers which are accurate.

Table 4.1: Age of Respondents

		Frequency	Percent
Valid	Between 21 – 30 years	20	8.7
	Between 31 – 40 years	91	39.6
	Between 41 – 50 years	73	31.7
	Above 50 years	46	20.0
	Total	**230**	**100.0**

Source: Field Survey, 2016

4.3.2 Gender of Respondents

The respondents were asked to indicate their gender by ticking the appropriate column they belonged. The purpose was to find out the number of males and females who actually participated in the study. Table 4.2 shows that out of the 230 respondents who participated in the study, majority 176 of the respondents representing 76.5% were males, while the remaining 54 respondents representing 23.5% being females. This agrees with Chaluvadi (2015), that, women have few leaders at the top in the work force.

Table 4.2: Gender of Respondents

		Frequency	Percent
Valid	Male	176	76.5
	Female	54	23.5
	Total	**230**	**100.0**

Source: Field Survey, 2016

4.3.3 Highest Academic Qualification of Respondents

The respondents were asked to indicate their educational background. The purpose was to find out the educational qualifications of respondents who participated in the study. Table 4.3 shows responses elicited, 2 respondents representing 0.9% have basic educational level, 3 respondents representing 1.3% have secondary educational level, 37 respondents representing 16.1% have diploma/HND certificate; 123 respondents representing 53.5% have obtained first degree and 65 respondents which constitute 28.3% have masters degree. The data shows that majority of the respondents have attained some level of education whose opinions and views are guided and well informed.

Table 4.3: Highest Academic Qualification of Respondents

		Frequency	Percent
Valid	Basic	2	.9
	Secondary	3	1.3
	Diploma / HND	37	16.1
	First Degree	123	53.5
	Masters Degree	65	28.3
	Total	**230**	**100.0**

Source: Field Survey, 2016

4.3.4 Job Title of Respondents

The respondents were asked to indicate their job title by ticking the appropriate column they belonged. The purpose was to find out the number of consultants and contractors who actually participated in the study. Table 4.4 shows that out of the 230 respondents who participated in the study, majority 167 of the respondents representing 72.6% were contractors, while the remaining 63 respondents representing 27.4% being consultants.

Table 4.4: Job Title of Respondents

		Frequency	Percent
Valid	Consultant	63	27.4
	Contractor	167	72.6
	Total	**230**	**100.0**

Source: Field Survey, 2016

4.3.5 Working Experience of Respondent

Table 4.5 depicts the working experience of employees who participated in the study. The objective was to determine how long and consistently respondents have worked in the construction industry. The data gathered shows that 60 respondents representing 26.1% have worked about 5 years, majority 86 representing 37.4% have worked between 6-10 years, 67 respondents representing 29.1% have worked about 11 to 15 years and 17 respondents which constitute 7.4% have worked about 16 years and above. The available data shows that majority (37.4%) of the respondents have been

working for between 6-10 years and therefore have acquired the necessary competencies and consistency in their work.

Table 4.5: Working Experience of Respondent

		Frequency	Percent
Valid	0 – 5 years	60	26.1
	6 – 10 years	86	37.4
	11 – 15 years	67	29.1
	16 years and above	17	7.4
	Total	**230**	**100.0**

Source: Field Survey, 2016

4.4 Factors Influencing Discords, Disputes and Conflicts

The following tests are required for the appropriateness of the factor analysis for the factor extraction, including the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, anti-image correlation, and Bartlett test of sphericity. The results of these tests are shown in Table 4.6. The 29 factors were subjected to factor analysis, with principal component analysis (PCA) and varimax rotation. The first stage of the analysis was to determine the strength of the relationship among the variables, based on correlation coefficients of the variables. Bartlett's test of sphericity, which tests the hypothesis that the variables are collinear, was significant at the $p < 0.01$ level (see Table 4.6). The Kaiser-Meyer-Olkin (KMO) test of sampling adequacy which measures the degree to which variables are measuring a common concept, achieved a high of 0.723. Furthermore, the communalities achieved were also 0.60 or higher (see Table 4.7). Hence, PCA was found to be a suitable data reduction technique. PCA was conducted and seven (7) components were extracted using Kaiser's criterion, which retains only those components whose variance is greater than 1.0.

A Varimax rotation was applied to the components to ensure the components were uncorrelated. Observation of the correlation matrix of the factors influencing discords, disputes and conflicts indicate that they all have significant correlation at the

5% level, indicating that there would be no need to eliminate any of the variables for the principal component analysis. These seven (7) components explained 73.656% of the variation in the data (see Table. 4.8 and Appendix B). Table 4.9 shows the extracted components and the variables most strongly correlated to each one. With respect to component 1, poor communication between the parties emerged highest with a factor loading of (0.879). This is followed by lack of team spirit among project team members (0.770); failure to coordinate the project team and scope of works (0.766) and ineffective communication on site (0.750). Type of procurement method adopted emerged highest in component 2 with a factor loading of (0.825). This is followed by failure to choose the most appropriate delivery method (0.700) and government policy on tendering encouraging low tenders (0.687). Differences in views among stakeholders emerged highest in component 3 with a factor loading of (0.869), uncomplimentary behaviour of clients followed with (0.769), ineffectiveness on the part of contractors (0.691) and behaviour of sub-contractors (0.633). Adversarial nature of contracts emerged highest in component 4 with a factor loading of (0.794); this is followed by inability to understand terms of contract (0.765) and no vision on dispute resolution (0.731). Dissatisfaction of work progress of main contractor by consultant emerged highest in component 5 with a factor loading of (0.833); this was followed by lack of workable change order process (0.714) and inaccurate or too elaborate schedules (0.642). Deficiencies in designs emerged highest in component 6 with a factor loading of (0.885)); this was followed by plans and specifications containing errors, omissions and ambiguities (0.874) and errors, defects or omission in contract document (0.604). Unforeseen site problems emerged highest in component 7 with a factor loading of (0.835); this was followed by failure to understand local conditions (0.640).

The initial eigenvalues (see Table 4.8) indicate that, if all the factors are ranked, factor 1 accounts for 33.275% of the variance, factor 2 accounts for 13.648% of the variance, factor 3 accounts for 8.744% of the variance, factor 4 accounts for 5.555% of the variance, factor 5 accounts for 4.838% of the variance, factor 6 accounts for 4.409% of the variance while factor 7 accounts for 3.453% of the variance. Together, the seven identified critical factors for influencing discords, disputes and conflicts account for 73.656% of the variance.

Given that most of the variables in factor 1 are directly linked to communication between the parties, hence, this factor is interpreted as Communication-related. A critical observation at factor 2 are directly linked to type of procurement method adopted, hence, this factor is interpreted as Procurement method-related. A brief look at factor 3 shows that the variables are linked to stakeholders in a project, hence, the researcher named it Stakeholder-related. Also, the variables in factor 4 are directly linked to adversarial nature of contracts, the researcher labelled this Nature of contract-related. The variables in factor 5 are directly linked to dissatisfaction of work progress, the researcher labelled this Work progress-related. Similarly, the variables in factor 6 are directly linked to designs and contract documents; therefore, this factor is labelled Designs and Contract Documents-related. Finally, the variables in factor 7 are directly linked to unforeseen site problems, the researcher labelled this Site problem-related. This output suggests that the factors influencing discords, disputes and conflicts in Ashanti region in the perspective of highlighting the measures to minimising discords, disputes and conflicts associated with assembly project to improve project performance unlock separately unto Communication-related, Procurement method-related, Stakeholder-related, Nature of contract-related, Work progress-related, Designs and Contract document-related, and Site problems-related. From the factor analysis the factors for influencing discords, disputes

and conflicts in Ashanti (the variables that emerged highest in each component) are poor communication between the parties, type of procurement method adopted, differences in views among stakeholders, adversarial nature of contracts, dissatisfaction of work progress of main contractor by consultant, deficiencies in designs and unforeseen site problems.

Table 4.6: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.723
Bartlett's Test of Sphericity	Approx. Chi-Square	5621.534
	df	406
	Sig.	.000

Source: Field Survey, 2016

Table 4.7: Communalities

Factors	Initial	Extraction
Deficiencies in designs	1.000	.724
Failure to assemble the right project team	1.000	.753
Failure to coordinate the project team and scope of works	1.000	.860
Lack of workable change order process	1.000	.645
Failure to understand local conditions	1.000	.711
Inaccurate or too elaborate schedules	1.000	.653
No vision on dispute resolution	1.000	.815
Plans and specifications containing errors, omissions and ambiguities	1.000	.824
Failure to choose the most appropriate delivery method	1.000	.682
Unclear and incomplete description of items in the Bills of Quantities	1.000	.826
Failure of clients to honour payments	1.000	.818
Errors, defects or omission in contract document	1.000	.762
Type of procurement method adopted	1.000	.752
Differences in views among stakeholders	1.000	.781
Poor communication between the parties	1.000	.722
The inability to understand terms of contract	1.000	.662
Government policy on tendering encouraging low tenders	1.000	.732
Adversarial nature of contracts	1.000	.700
Conflicting commitment of project managers	1.000	.650
Delays in time for project completion	1.000	.697
Absence of qualified personnel in key positions	1.000	.815
Ineffectiveness on the part of contractors	1.000	.662
Uncomplimentary behaviour of clients	1.000	.753
Unrealistic expectations from clients	1.000	.675
Behaviour of sub-contractors	1.000	.789
Unforeseen site problems	1.000	.686
Dissatisfaction of work progress of main contractor by consultant	1.000	.771
Ineffective communication on site	1.000	.778
Lack of team spirit among project team members	1.000	.762

Extraction Method: Principal Component Analysis.

Source: Field Survey, 2016

Table 4.8: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.650	33.275	33.275	9.650	33.275	33.275	5.074	17.495	17.495
2	3.958	13.648	46.923	3.958	13.648	46.923	4.493	15.494	32.989
3	2.458	8.477	55.400	2.458	8.477	55.400	3.564	12.291	45.280
4	1.611	5.555	60.956	1.611	5.555	60.956	2.516	8.675	53.955
5	1.403	4.838	65.794	1.403	4.838	65.794	1.954	6.736	60.691
6	1.279	4.409	70.202	1.279	4.409	70.202	1.951	6.728	67.419
7	1.001	3.453	73.656	1.001	3.453	73.656	1.809	6.237	73.656
8	.967	3.335	76.991						
9	.830	2.861	79.852						
10	.712	2.455	82.307						
11	.685	2.361	84.668						
12	.623	2.149	86.817						
13	.471	1.626	88.443						
14	.464	1.599	90.042						
15	.436	1.505	91.547						
16	.376	1.297	92.845						
17	.336	1.160	94.005						
18	.292	1.006	95.011						
19	.263	.906	95.917						
20	.232	.799	96.716						
21	.189	.651	97.367						
22	.178	.614	97.981						
23	.145	.501	98.482						
24	.124	.429	98.911						
25	.086	.298	99.208						
26	.079	.273	99.482						
27	.068	.235	99.716						
28	.046	.159	99.875						
29	.036	.125	100.000						

Extraction Method: Principal Component Analysis.

Source: Field Survey, 2016

Table 4.9: Rotated Component Matrix[a]

Factor	Component						
	1	2	3	4	5	6	7
Poor communication between the parties	**.879**	.161	.078	.226	.075	.001	.163
Lack of team spirit among project team members	**.770**	.215	.228	-.010	-.170	.109	.173
Failure to coordinate the project team and scope of works	**.766**	.193	.063	.227	.247	.345	.008
Ineffective communication on site	**.750**	.168	.170	.289	.110	.238	.079
Failure to assemble the right project team	.586	-.111	.283	.128	.207	.279	.102
Delays in time for project completion	.567	.250	-.215	.164	-.012	-.082	.563
Type of procurement method adopted	.062	**.825**	.051	-.132	-.105	.186	-.050
Failure to choose the most appropriate delivery method	.257	**.700**	.121	.209	.135	-.151	.162
Government policy on tendering encouraging low tenders	-.020	**.687**	-.101	.133	.269	-.299	.010
Differences in views among stakeholders	.413	-.376	**.869**	.056	.165	-.104	.118
Uncomplimentary behaviour of clients	.046	.052	**.769**	.466	-.058	-.010	.283
Ineffectiveness on the part of contractors	-.204	.396	**.691**	.170	.055	.189	.163
Behaviour of sub-contractors	.348	.278	**.633**	.268	-.175	.273	.017
Unrealistic expectations from clients	.303	.128	-.306	.325	.199	.187	.134
Adversarial nature of contracts	.350	.101	-.046	**.794**	.020	-.056	-.047
The inability to understand terms of contract	.011	-.086	.239	**.765**	.059	.175	.123
No vision on dispute resolution	.494	-.014	.047	**.731**	.146	-.047	-.100
Unclear and incomplete description of items in the Bills of Quantities	.113	-.050	.521	.151	.134	.382	.254
Dissatisfaction of work progress of main contractor by consultant	.155	.378	.342	.259	**.833**	.023	-.089
Lack of workable change order process	.439	.073	.160	-.116	**.714**	.137	.106
Inaccurate or too elaborate schedules	.398	.165	.276	-.048	**.642**	.222	.261
Failure of clients to honour payments	.409	.504	-.149	.526	.239	.178	-.095
Deficiencies in designs	.426	.351	-.337	.458	.020	**.885**	.027
Plans and specifications containing errors, omissions and ambiguities	.082	-.047	.181	-.039	.006	**.874**	.123
Errors, defects or omission in contract document	.127	.372	.102	.182	-.048	**.604**	-.018
Conflicting commitment of project managers	.190	.137	.111	.172	-.009	.450	.226
Absence of qualified personnel in key positions	.422	-.129	.138	.018	.208	.279	-.080
Unforeseen site problems	.229	.073	.106	.061	.041	.134	**.835**
Failure to understand local conditions	-.009	.151	.496	-.053	.325	.129	**.640**

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 17 iterations.
Source: Field Survey, 2016

4.5 Key Challenges to Minimising DDCs in Assembly Projects

The following tests are required for the appropriateness of the factor analysis for the factor extraction, including the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, anti-image correlation, and Bartlett test of sphericity. The results of these tests are shown in Table 4.10. The 20 factors were subjected to factor analysis, with principal component analysis (PCA) and varimax rotation. The first stage of the analysis is to determine the strength of the relationship among the variables, based on

correlation coefficients of the variables. Bartlett's test of sphericity, which tests the hypothesis that the variables are collinear, was significant at the $p < 0.01$ level (see Table 4.10). The Kaiser-Meyer-Olkin (KMO) test of sampling adequacy which measures the degree to which variables are measuring a common concept, achieved a high of 0.838. Furthermore, the communalities achieved were also 0.60 or higher (see Table 4.11). Hence, PCA was found to be a suitable data reduction technique. PCA was conducted and six (6) components were extracted using Kaiser's criterion, which retains only those components whose variance is greater than 1.0.

A Varimax rotation was applied to the components to ensure the components were uncorrelated. Observation of the correlation matrix of the key challenges to minimising DDCs in assembly projects indicate that they all have significant correlation at the 5% level, indicating that there would be no need to eliminate any of the variables for the principal component analysis. These six (6) components explained 78.501% of the variation in the data (see Table. 4.12 and Appendix C). Table 4.13 shows the extracted components and the variables most strongly correlated to each one. With respect to component 1, irregular payments emerged highest with a factor loading of (0.894). This is followed by failure of clients to honour payments (0.788), unrealistic assessment of the value of project (0.779) and inaccurate valuation of variations and works in progress (0.707). Conflicting instructions emerged highest in component 2 with a factor loading of (0.844). This is followed by unconfirmed oral instructions (0.790) and frequent interference of client to making major changes in the design during the execution of the project (0.760). Incompetent contractors emerged highest in component 3 with a factor loading of (0.929); this is followed by unnecessary delays by the contractor (0.601). Lack of proper communication channels emerged highest in component 4 with a factor loading of (0.874); this was followed by inadequate

monitoring procedures (0.633). Dissatisfaction of work progress of main contractor by consultant emerged highest in component 5 with a factor loading of (0.725) while lack of proper schedule of work followed with (0.707). Inadequate contract documentation emerged highest in component 6 with a factor loading of (0.889); this was followed by inadequate descriptions of the preliminary items in the bills of quantities (0.700).

The initial eigenvalues (see Table 4.12) indicate that, if all the factors are ranked, factor 1 accounts for 44.345% of the variance, factor 2 accounts for 10.089% of the variance, factor 3 accounts for 7.416% of the variance, factor 4 accounts for 6.040% of the variance, factor 5 accounts for 5.361% of the variance while factor 6 accounts for 5.251% of the variance. Together, the seven identified critical factors for key challenges to minimising DDCs in assembly projects account for 78.501% of the variance.

Given that most of the variables in factor 1 are directly linked to contract payment, hence, this factor is interpreted as Payment-related. A cursory look at factor 2 shows that the variables are linked to site instructions, hence, the researcher named it Site instructions-related. The variables in factor 3 are directly linked to incompetent contractors, the researcher labelled this Contractor-related. The variables in factor 4 are directly linked to communication channels, the researcher labelled this Communication-related. Similarly, the variables in factor 5 are directly linked to work progress; therefore, this factor is labelled Work progress-related. Finally, the variables in factor 6 are directly linked to inadequate contract documentation, the researcher labelled this Contract document-related. This output suggests that the factors for key challenges to minimising DDCs in assembly projects in Ashanti region in the perspective of highlight the measures to minimising discords, disputes and conflicts associated with assembly project to improve project performance unlock separately unto Payment-related, Site instructions-related, Contractor-related, Communication-

related, Work progress-related and Contract document-related. From the factor analysis the factors for factors for key challenges to minimising DDCs in assembly projects in Ashanti (the variables that emerged highest in each component) are irregular payments, conflicting instructions, incompetent contractors, lack of proper communication channels, dissatisfaction of work progress of main contractor by consultant and inadequate contract documentation.

Table 4.10: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.838
Bartlett's Test of Sphericity	Approx. Chi-Square	3534.986
	df	190
	Sig.	.000

Source: Field Survey, 2016

Table 4.11: Communalities

Factor	Initial	Extraction
Inadequate contract documentation	1.000	.829
Unfair contract conditions to parties (allocating projects risks to one party in the contract)	1.000	.788
Lack of proper communication channels	1.000	.768
Unrealistic assessment of the value of project	1.000	.762
Ignorance on the rights and obligations of parties under the contract	1.000	.814
Failure to set up dispute review boards prior to the start of construction	1.000	.663
Frequent interfere of client to making major changes in the design during the execution of the project	1.000	.818
Lack of proper tendering procedures	1.000	.644
Irregular payments	1.000	.844
Inadequate monitoring procedures	1.000	.824
Incompetent contractors	1.000	.893
Lack of proper schedule of work	1.000	.767
Failure of clients to honour payments	1.000	.820
Dissatisfaction of work progress of main contractor by consultant	1.000	.838
Inaccurate valuation of variations and works in progress	1.000	.760
Poor interpretation of specifications	1.000	.735
Unnecessary delays by the contractor	1.000	.772
Inadequate descriptions of the Preliminary Items in the Bills of Quantities	1.000	.804
Unconfirmed oral instructions	1.000	.795
Conflicting instructions	1.000	.862

Extraction Method: Principal Component Analysis.

Source: Field Survey, 2016

Table 4.12: Total Variance Explained

Compo nent	Initial Eigenvalues	Extraction Sums of Squared Loadings	Rotation Sums of Squared Loadings

	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.869	44.345	44.345	8.869	44.345	44.345	4.562	22.812	22.812
2	2.018	10.089	54.434	2.018	10.089	54.434	3.236	16.180	38.991
3	1.483	7.416	61.850	1.483	7.416	61.850	2.244	11.218	50.209
4	1.208	6.040	67.890	1.208	6.040	67.890	2.075	10.375	60.585
5	1.072	5.361	73.251	1.072	5.361	73.251	2.061	10.305	70.890
6	1.050	5.251	78.501	1.050	5.251	78.501	1.522	7.612	78.501
7	.827	4.135	82.637						
8	.552	2.758	85.395						
9	.500	2.498	87.893						
10	.456	2.281	90.174						
11	.391	1.955	92.129						
12	.287	1.433	93.563						
13	.262	1.309	94.872						
14	.236	1.180	96.052						
15	.175	.874	96.926						
16	.161	.806	97.731						
17	.128	.639	98.370						
18	.120	.602	98.972						
19	.115	.577	99.549						
20	.090	.451	100.000						

Extraction Method: Principal Component Analysis.

Source: Field Survey, 2016

Table 4.13: Rotated Component Matrix[a]

Factor	Component					
	1	2	3	4	5	6

Irregular payments	**.894**	.352	.006	.165	.079	.200
Failure of clients to honour payments	**.788**	.316	-.018	.162	.128	.087
Unrealistic assessment of the value of project	**.779**	.044	.279	.144	-.184	.145
Inaccurate valuation of variations and works in progress	**.707**	-.019	.319	-.218	.335	.073
Ignorance on the rights and obligations of parties under the contract	.594	.555	.052	.021	.179	-.012
Poor interpretation of specifications	.439	.349	.265	.302	.207	.016
Failure to set up dispute review boards prior to the start of construction	.167	.385	.142	-.094	.507	.060
Conflicting instructions	.354	**.844**	.053	.066	.109	-.075
Unconfirmed oral instructions	.238	**.790**	.155	.166	.373	.268
Frequent interfere of client to making major changes in the design during the execution of the project	.220	**.764**	.418	.462	.009	.156
Unfair contract conditions to parties (allocating projects risks to one party in the contract)	.203	.574	.281	.264	.083	.513
Incompetent contractors	.089	.129	**.929**	-.025	.069	.027
Unnecessary delays by the contractor	.189	.346	**.601**	.325	.176	.096
Lack of proper tendering procedures	.394	-.081	.444	.285	.112	-.302
Lack of proper communication channels	.048	.081	.005	**.874**	.207	.049
Inadequate monitoring procedures	.219	.433	.346	**.633**	.057	.086
Dissatisfaction of work progress of main contractor by consultant	.492	-.006	.009	.232	**.725**	.127
Lack of proper schedule of work	-.189	.442	.156	.212	**.707**	.060
Inadequate contract documentation	.396	.169	.351	.292	.516	**.889**
Inadequate descriptions of the Preliminary Items in the Bills of Quantities	.141	.041	-.022	.036	.127	**.700**

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 21 iterations.
Source: Field Survey, 2016

4.6 Effective Management of DDC's in Assembly Projects

Table 4.14 presents ways of improving project performance through effective management of DDCs. With a mean of 3 from the 5 point likert scale, Table 4.14 shows that, respondents strongly agreed that, employment of qualified personnel with specialized knowledge to handle key positions (mean=4.50, SD=0.67), appropriate procurement methods (mean=4.48, SD=0.70), effective teamwork/ teambuilding (mean=4.45, SD=0.77), improvement in communication channels (mean=4.44, SD=0.73), collaboration between the parties to reach a solution (mean=4.33, SD=0.77) and adequate funding for projects (mean=4.29, SD=0.70). Also, education of stakeholders on their rights and obligations (mean=4.25, SD=0.61), decisions at design stage should ensure proper planning and review of project plans & specifications

(mean=4.23, SD=0.63), positive attitude of project managers to all issues (mean=4.17, SD=0.83), establishment of appropriate mechanisms for early identification of potential conflict issues (mean=4.16, SD=0.60), setting up conflict mediators at the design stage (mean=4.12, SD=0.90) and adequate contract documentation devoid of errors and omissions (mean=4.10, SD=0.86). In addition, training of project managers to acquire essential skills in developing strategies and operating styles (mean=4.09, SD=0.86), accommodating the concerns of the other party (mean=4.08, SD=0.72), sharing where by both parties give up something to make a mutually acceptable decision (mean=4.02, SD=0.67), prompt negotiations (mean=4.00, SD=0.79, competing for high concern (mean=3.27, SD=0.87) and suppression the concern for both parties (mean=3.12, SD=1.01).

Table 4.14: Descriptive Statistics Effective Management of DDC's in Assembly Projects

Factor	N	Mean	Std. Deviation	Ranking
Employment of qualified personnel with specialized knowledge to handle key positions	230	4.5043	.67227	1st
Appropriate procurement methods	230	4.4826	.70380	2nd
Effective teamwork/ teambuilding	230	4.4565	.77365	3rd
Improvement in communication channels	230	4.4435	.73218	4th
Collaboration between the parties to reach a solution	230	4.3348	.77409	5th
Adequate funding for projects	230	4.2957	.70524	6th
Education of stakeholders on their rights and obligations	230	4.2522	.61058	7th
Decisions at design stage should ensure proper planning and review of project plans & specifications	230	4.2304	.66341	8th
Positive attitude of project managers to all issues	230	4.1783	.83507	9th
Establishment of appropriate mechanisms for early identification of potential conflict issues	230	4.1696	.60704	10th
Setting up conflict mediators at the design stage	230	4.1261	.90930	11th
Adequate contract documentation devoid of errors and omissions	230	4.1087	.86232	12th
Accommodating the concerns of the other party	230	4.0913	.72715	13th
Training of project managers to acquire essential skills in developing strategies and operating styles	230	4.0913	.86938	14th
Sharing where by both parties give up something to make a mutually acceptable decision	230	4.0217	.67030	15th
Prompt negotiations	230	4.0087	.79293	16th
Competing for high concern	230	3.2739	.87604	17th
Suppression the concern for both parties	230	3.1261	1.01805	18th

Source: Field Survey, 2016

CHAPTER FIVE

DISCUSSION OF RESULTS

5.1 Introduction

This chapter presents detailed discussion of the results of the study. The results are discussed in accordance with the research questions and specific objectives, and attempts are also made to relate findings to alternative or supportive views as stated in the literature review. This discussion is based on the three objectives of the study namely; identify factors influencing discords, disputes and conflicts (DDCs) in the procurement of assembly projects in the Ghanaian construction industry (GCI), determine key challenges to minimising DDCs associated with assembly projects in Ghana and make recommendations for improving project performance through effective management of DDCs.

5.2 Critical Factors Influencing Discords, Disputes and Conflicts

In order to identify critical factors influencing discords, disputes and conflicts, questionnaire was designed to ask a number of questions from respondents who were Consultants and Contractors to determine the critical factors that influence discords, disputes and conflicts in assembly projects in Ghana. On this objective, the study shows that, 22 extractions were made out of 29 factors. The factor extraction was under 7 components, therefore resulting in 7 major variables themes.

The result of the study revealed that in the opinion of the respondents, communication-related issues are the most critical factor that influence discords, disputes and conflicts in assembly projects in Ghana. The various stages of construction rely on professionals transferring appropriate and relevant information to develop a buildable design that meets the client's requirements (Emmitt & Gorse,

2007). In the process of a project, information in the form of drawings, specifications and construction methods are communicated from one expert to another. This information may be complex but must be transferred and understood so that the various aspects of the project can be assembled to realise the design. According to Singh and Sakamoto (2001), the complex set of dependencies and interrelationships within a construction project, makes it difficult to coordinate the project team. This may bring about delays and schedule of work problems which are some of the main sources of construction disputes. Affare (2012) established that, poor communication had resulted in project delays, project cost overrun and project abandonment. It was concluded in her report that, lack of proper communication channels among the project participants strongly affects the performance of professionals within the construction industry.

The result of the study also showed that, procurement method-related issues are the second most critical factor influencing discords, disputes and conflicts in assembly projects in Ghana. It was clear that how projects are procured in most of the assemblies influences discords, disputes and conflicts (Yates, 2003). Normally, the construction project brings together individuals or organizations that are separate and disparate to form what has been termed a temporary multi-organization or a temporary project coalition, hence conflicts remain a challenge in the construction industry (Kassab et al, 2010). If proper and effective procurement methods are not employed by the assemblies, it may influence discords, disputes and conflicts. This situation may hasten potential causes leading to project failure in Ghana. In contrast, Dada (2013) reports that, there is weak and non-significant correlation between the frequency of conflicts and the type of procurement method used on projects. He further adds that, when conflicts arise on projects, team members are able to handle and

manage the conflicts, so that they do not grow in seriousness or intensity to be dysfunctional.

The result reveals that stakeholder-related is the next critical factor influencing discords, disputes and conflicts in assembly projects in Ghana. Stakeholders in a project management is a continuous and developing process that runs throughout the procurement process. It addresses methodically how to identify and manage their interests and influence in all stages of the procurement process if they are to exert positive effect on project delivery and successful performance of public projects. According to Bourne and Walker (2005), project success and failure is directly related to its stakeholders' perceptions of the value created by the project and the nature of their relationship with the project team. As a result, negative perceptions and behaviours of stakeholders' management strategies can ultimately impact on project delivery (Kusedzi, 2013).

The nature of construction contracts is continually dynamic which involves completing complex, uncertain projects within tight budgets and time constraints. Consequently, conflicts remain a challenge in the construction industry with the potential causes leading to project failures, litigation and sometimes project abandonment (Tazelaar & Snijders, 2010). Normally, the environment of construction contracts are team involved where the unique skills of each member are used to maximize project performance. Unfortunately, today, parties enter most projects guarded and suspicious of each other's motives before design and construction even begin. This attitude creates an adversarial and unhealthy environment in the construction project endeavours which can influence discords, disputes and conflicts in assembly projects (Asah-Kissiedu, 2009).

The construction industry within which projects are executed involves a lot of coordinated activities. The dissatisfaction of work progress by the various parties in a contract may influence discords, disputes and conflicts in assembly projects. Most construction contracts make provision for extending the time for completion but when this is not done, disputes may arise and the consequences may be devastating (Chapman et al, 2014). Delayed payment to contractors can have serious effect on early completion of assembly projects in the construction industry in Ghana. According to Sambasivan and Soon (2007), delays in construction projects may result in time overrun, cost overrun, disputes, litigation, and complete abandonment of projects.

The various stages of construction rely on professionals transferring appropriate and relevant information to develop a buildable design that meets the client's requirements. The design related issues include project drawings, specifications and construction methods which must be adequate and free from deficiencies. Errors in design can lead to delays and additional costs that become the subject of disputes. Equally, the design team sometimes abrogates their responsibilities for the design, leaving the contractor to be drawn into solving any design deficiencies. Li et al. (2005) emphasized that, deficiencies in the design may affect initial estimate and project cost upon which initial appropriation, economic feasibility studies and decision were made. In effect, this situation can influence discords, disputes and conflicts in assembly projects.

Construction project throughout its life time requires a variety of contract documents such as detailed plans and specifications that will be used by the contractor to construct the project (Alnaas et al., 2014). It is therefore important that client or assemblies, in conjunction with their engineers, exercise the utmost care and consideration when making decisions early in the design phase to minimize the impact

of any disputes on project progress. Proper planning and careful review of project plans and specifications can substantially minimize the likelihood of disputes and provide a basis for timely resolution of any problem that may occur. The complexity of the construction process and time necessary for overall delivery, require adequate documents (Yates, 2003). As a result, there is the need for clients and their consultants to effectively reduce contractual document incompleteness by complying with accepted construction industry good practices and conventions. Construction projects must be tendered on the basis of a fully completed design, having no errors or omissions in tender documentation, and requiring no changes or variations during the construction phase. This will help to reduce discords, disputes and conflicts in assembly projects.

Every project is unique in terms of the problems that arise, the priorities and resources assigned it, the environment in which it operates, and the project manager's attitude and style used to guide and control project activities (Schimmoller, 2001). The construction project requires an amount of information for the effective planning and execution of the project. The information must be collected, interpreted, measured and captured in the budget before the actual construction begins. Unfortunately, not all the conditions and problems at the site may be ascertained during the design and planning stage of the project. These unforeseen site problems may influence discords, disputes and conflicts in assembly projects (Ismail et al., 2014).

5.3 Key Challenges to Minimising DDCs in Assembly Projects

In order to identify key challenges to minimising discords, disputes and conflicts, questionnaire was designed to ask a number of questions from respondents who were Consultants and Contractors to determine the key challenges to minimising discords, disputes and conflicts in assembly projects in Ghana. On this objective, the

study shows that, 15 extractions were made out of 20 factors. The factor extraction was under 8 components, therefore resulting in 6 major variables themes.

It was discovered from the study that, payment-related issues is the highest key challenge to minimising discords, disputes and conflicts in assembly projects. Payment-related issues are one of the principal problems facing the economic conditions of the construction industry in Ghana (Amoako, 2011). The success of every project largely depends on well-organized and timely payments of the cost involved in the project. It is important to note that, payments in the construction industry relatively involve large amounts of money to spend in a long duration to complete projects (Ameer, 2005). This means that, delayed payment in the construction project would cause severe cash flow problems especially to the contractor and this could have a devastating effect on the contractual payment chain. As a result, discords, disputes and conflicts may arise, hasten and escalate in assembly construction projects.

Deficiencies in construction drawings, unexpected site conditions and client requests may permit the consultant to sometimes make modifications during the construction process through site instructions (Masahudu, 2015). However, this existing practice of delivering instructions to contractors appears to often fall short of effectively communicating the information necessary to get works executed. In this eventuality discords, disputes and conflicts may arise in assembly construction projects. Site instructions may be a written order given by the consultant or his appointed representative delegated to the contractor which is intended to amplify, correct, effect minor changes to the details of the work within the consultant's delegated authority and also to order the use of provisional items (Chappell, 2006). Most of these instructions may be cost effective to be incurred by the client which may sometimes

cause discords, disputes and conflicts in assembly construction projects if it is not in line with the client's provisions.

The incompetence of the contractor is one of the key challenges to key challenges to minimising discords, disputes and conflicts in assembly construction projects. Contractors are the players who transform the idea of the client or the consultant into reality. According to Hatmoko and Scott (2010), the contractor is the person who undertakes various forms of construction and ensures that all necessary steps are taken to realize the completed building product. They must possess certain competencies in order to realize this mandate given by the consultant (Murdoch & Hughes, 2008). Inability of the contractor to exhibit the needed competencies toward the smooth execution of the project may cause discords, disputes and conflicts in assembly construction projects.

The various stages of the construction project rely on professionals transferring appropriate and relevant information to develop a buildable design that meets the client's requirements (Emmitt & Gorse, 2007). As the project unfolds and the design is realized, information in the form of drawings, specifications and construction methods must be communicated from one expert to another. Communication among the various stakeholders and product deliverers should be explicit for proper understanding and subsequent prompt response. According to Affare (2012), poor communication structures can result in project delays, project cost overrun and project abandonment. This means that, poor and distorted information in the construction process may affect the level of work done on site which can consequently cause discords, disputes and conflicts in assembly construction projects. Also, inexperience interpretation of the information that was communicated may cause failures in project

delivery and its subsequent arousal of discords, disputes and conflicts in assembly construction projects.

The construction industry continues to operate in a complex environment due to the unique nature of projects. Construction companies inability to adapt and respond to the complexity of the new environment tend to experience survival problems which can affect the progress of work at the construction site (Lee et al. 2001). The progress of work can also be affected by shortage of skills of manpower, poor supervision and poor site management, shortage and breakdown of equipment (Faridi & El-Sayegh, 2006). Hanson et al. (2003) examined causes of client dissatisfaction in the progress of work in South African building industry and found that poor workmanship and incompetence of contractors are among the factors that negatively impact on project performance. The dissatisfaction in the progress of work can cause and hasten discords, disputes and conflicts in assembly construction projects. Mbachu and Nkando (2007) established that quality and attitude to work is one of the key factors constraining successful project delivery. When the delivery of work is affected discords, disputes and conflicts may arise in assembly construction projects.

Every construction project requires a variety of contract documents such as detailed plans and specifications that will be used by the contractor to construct the project (Alnaas et al., 2014). These documents must be adequate, properly coordinated and communicated throughout the contract process. According to Yates (2003), the complexity of the construction process and time necessary for overall delivery, require adequate documents. Omissions and errors in the contract documents may create lapses and subsequent failure of the project and abandonment. This situation may cause or hasten discords, disputes and conflicts in assembly construction projects.

5.4 Effective Management of DDC's in Assembly Projects

In order to develop recommendations for improving project performance through effective management of DDCs, the respondents were asked to score their objective on the likert scale of 1-5. The objective was ranked using the overall mean and standard deviations as shown in table 4.14. The results show that all the factors put before the respondents had their mean value above 3.0 threshold based on the theoretical mean for 5-pont likert scale.

First of all, employment of qualified personnel with specialized knowledge to handle key positions emerged the highest with mean value of 4.50. Qualified personnel are very essential in every viable organisation. According to Usman et al. (2012), many construction projects have failed as a result of unethical professional practices on the part of the construction professionals in whom management responsibilities are vested. When qualified personnel with specialized knowledge to handle key positions are employed, the construction process will move on smoothly and successfully and this can help to minimise discords, disputes and conflicts in assembly construction projects. Narh et al. (2015), recommend that, in order to reduce conflicts at project sites, there should be employment of qualified personnel with specialized and adequate knowledge for projects.

Besides, every construction project requires appropriate procurement methods for effective and efficient execution of the aim of the project. Idoro (2012) opines that, the effectiveness and the efficiency of the procurement methods have considerable impact on the success or failure of projects. The complexity and uniqueness of construction project makes it a challenging adventure to undertake which can influence discords, disputes and conflicts. In effect, the contractual agreement must be

appropriate and adequate to be able to guide the process of the project successfully (Usman et al., 2012).

Furthermore, effective teamwork and collaboration between the parties to reach a solution are essential factors to consider for improving project performance through effective management of DDCs. According to Izam et al. (2013), effective teamwork can enhance value creation and the flow of construction projects for improving project performance. To be able to accomplish any successful construction project involves a number of parties. These stakeholders in a project need the effective collaborative teamwork for realisation of a successful project. The duties of the various stakeholders in a project are distinct and unique which can be harmonised by the effort of collaborative teamwork. This will help the smooth running of the project for a successful outcome.

Also, improvement in communication channels is worth considering for improving project performance through effective management of DDCs. Communication among the various stakeholders and product deliverers is inevitable since every project involves a number of participants to be able to accomplish a project goal. The required information and other related issues concerning the project must be properly and adequately communicated. The various stages of the construction project rely on professionals transferring appropriate and relevant information to develop a buildable design that meets the client's requirements (Emmitt & Gorse, 2007).

Again, adequate funding for projects is a contributing factor for improving project performance through effective management of DDCs. The success of every project largely depends on well-organized and timely payments of the cost involved in the project. Adequate funding for projects is very necessary for the smooth running of the project. Chen et al. (2005) reported that, regular disbursement of payment is a

critical point for successful projects. This means that, late payment or unpaid certified amounts may literally cause devastating problems for the progress of the project.

In addition, education of stakeholders on their rights and obligations can be considered for improving project performance through effective management of DDCs. Educating the various stakeholders in a project on their rights and obligations will help every member of the project to be aware of what is expected of them. This will guard them not to do anything contrary to what they are expected to do and as a result help to minimise discords, disputes and conflicts in assembly construction projects. Bourne (2010) emphasized that, the success or failure of projects is heavily influenced by the effectiveness of the communications, and relationships, with its stakeholder community, particularly those in management or decision-making roles. This cannot be possible without properly educating the various stakeholders in the project.

Finally, decisions at design stage should ensure proper planning and review of project plans & specifications. The design stage of every project is very important as far as the success of the project is concerned. Decision making at the early stages of a construction project is very vital for the project success (Li et al., 2005). Ensuring proper planning and review of project plans & specifications early enough at the design stage will facilitate proper mechanisms of dealing with problems that may arise in the course of the project. In the absence of proper decision making at the design stage in respect to design plans, specifications, preliminary estimates may prove detrimental to the project financing and the whole project success.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter provides a summary of the major findings, conclusions and recommendations of this research. The area for further research is also discussed at the end of this chapter. It begins with how it was carried out and then touches on the summary of the main findings of the work

6.2 Summary of Findings

This section outlines the main findings and outputs of the study. The research objectives are revisited to highlight the extent to which they were accomplished through the various phases of the research. It is divided into three sub-sections to facilitate an appropriate correspondence of the outcomes with the specific objectives enumerated in chapter one.

6.2.1 Objective 1: Factors Influencing Discords, Disputes and Conflicts in the Procurement of Assembly Projects in the Ghanaian Construction Industry

An extensive literature review was carried out to explore disputes, discords and conflicts in the construction industry in Ghana with a view to developing a framework for minimising discords, disputes and conflicts associated with assembly project to improve project performance in the construction industry in Ghana. The first objective to the study was identifying the factors influencing discords, disputes and conflicts in the procurement of assembly projects in the construction industry in Ghana. This objective has been fulfilled in that 29 factors influencing discords, disputes and conflicts in the procurement of assembly projects in the construction industry in Ghana

were empirically identified from literature. The findings indicated that, the seven most highly ranked influential factors are:

- Poor communication between the parties
- Type of procurement method adopted
- Differences in views among stakeholders
- Dissatisfaction of work progress of main contractor by consultant
- Adversarial nature of contracts
- Deficiencies in designs
- Unforeseen site problems.

6.2.2 Objective 2: Key Challenges to Minimising DDCs Associated with Assembly Projects in Ghana.

The second objective to the study was determining key challenges to minimising DDCs associated with assembly projects in Ashanti Region of Ghana. This objective has been fulfilled in that 20 key challenges to minimising DDCs associated with assembly projects in Ghana were empirically identified from literature. The findings indicated that, the six most highly ranked key challenges are:

- Irregular payments
- Conflicting instructions
- Incompetent contractors
- Lack of proper communication channels
- Dissatisfaction of work progress of main contractor by consultant,
- Inadequate contract documentation

6.2.3 Objective 3: Measures of Improving Project Performance through Effective Management of DDCs

The third objective of the study was to identify measures for improving project performance through effective management of DDCs in the procurement of assembly projects in the construction industry in Ghana. This objective has been fulfilled in that 18 factors for improving project performance through effective management of DDCs were empirically identified from literature. The findings indicated that, the eight most highly ranked influential factors to be considered for improving project performance through effective management of DDCs are:

- Employment of qualified personnel with specialized knowledge to handle key positions
- Appropriate procurement methods
- Effective teamwork/ teambuilding
- Improvement in communication channels
- Collaboration between the parties to reach a solution
- Adequate funding for projects
- Education of stakeholders on their rights and obligations
- Decisions at design stage should ensure proper planning and review of project plans & specifications.

6.3 Conclusions

Based on the findings of the study, the following conclusions are drawn:

The analysed results proved that seven critical factors influencing discords, disputes and conflicts in the procurement of assembly projects in the construction industry in Ashanti Region are, type of procurement method adopted, differences in views among

stakeholders, deficiencies in designs, lack of workable change order process, dissatisfaction of work progress of main contractor by consultant, plans and specifications containing errors, omissions and ambiguities, adversarial nature of contracts and unforeseen site problems. This means that, if the construction industry wants to minimise discords, disputes and conflicts in the procurement of assembly projects, these factors must be taken into consideration.

Again, from the analysed results, six key challenges to minimising DDCs associated with assembly projects in Ghana are: unrealistic assessment of the value of project, conflicting instructions, dissatisfaction of work progress of main contractor by consultant, incompetent contractors, frequent interference by client to make major changes in the design during the execution of the project and inadequate contract documentation. As a result, measures must be taken to reduce the impact of these factors on minimising discords, disputes and conflicts in the procurement of assembly projects.

Finally, the results proved that, there can be effective management of DDCs to improve project performance through certain factors such as, employment of qualified personnel with specialized knowledge to handle key positions, appropriate procurement methods, effective teamwork/teambuilding, improvement in communication channels, adequate funding for projects, collaboration between the parties to reach a solution, education of stakeholders on their rights and obligations, and decisions at design stage should ensure proper planning and review of project plans & specifications. As a result, the construction industry should find ways of improving project performance through effective management of DDCs.

6.4 Recommendations

Based on the findings the following recommendations are drawn:

The assemblies should adopt appropriate procurement methods for their construction projects.

- There should be carefully planned and regular schedule of payments of the sum of the project.
- The design team should maintain as much as possible project drawings, specifications and construction methods that are adequate and free from deficiencies.
- The design team should make adequate and realistic assessment of the value of project.
- Site instructions should be adequate and effectively communicate the information necessary to execute the project.
- Contractor should maintain maximum satisfaction of work progress in the process of a project.
- The various stakeholders in a project should employ qualified personnel with specialized knowledge to handle the project.
- There should be effective collaborative and teamwork to improve communication channels of a project.
- The assemblies should secure adequate funding for all their projects which is very vital for successful projects.

6.5 Suggestions for Future Research

Further studies are recommended to be conducted in other regions in the country on the topic. Also the current research study was limited to the perception of consultants

and contractors in the construction industry in Ashanti Region. Future study could be done to include client's perspective towards the measures to minimising discords, disputes and conflicts associated with assembly project to improve project performance since they incur most financial implications of failed projects. Further research should be made into assessing the association between DDCs and project performance for assembly projects in GCI.

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APPENDICES

APPENDIX A

UNIVERSITY OF EDUCATION, WINNEBA-KUMASI CAMPUS
SCHOOL OF GRADUATE STUDIES

QUESTIONNAIRES FOR RESPONDENTS

The researcher Ernest Sakyiama is a Master of Philosophy in Construction Technology student of the University of Education, Winneba - Kumasi Campus. He is conducting an academic research on the topic: **THE IMPACT OF DISCORDS, DISPUTES AND CONFLICTS (DDC) ON PROJECT PERFORMANCE IN THE**

GHANAIAN CONSTRUCTION INDUSTRY: AN EMPIRICAL EXAMINATION OF TRADITIONAL PROCUREMENT OF ASSEMBLY PROJECTS. The work is purely for academic purpose and all data gathered would be treated as such. Therefore, your cooperation and assistance would be much appreciated to make the study a success. All information furnished will therefore be treated with utmost confidentiality and anonymity. For the purpose of the study, Dispute may be defined as disagreements or differences of opinion over how a contractual term or condition should be interpreted or implemented.

Section A: Demographic Characteristics

Please answer the following questions by ticking (√) where necessary.

1) What is the age category you belong?

(a) Between 20 – 25 years [ ] (b) Between 26 – 35 years [ ]

(c) Between 36 – 45 years [ ] (d) Above 45 years [ ]

2) What is your gender?

(a) Female [ ] (b) Male [ ]

3) What is your highest educational level?

(a) No Formal education [ ] (b) Basic [ ] (c) Secondary [ ]

(d) Diploma / HND [ ] (e) First Degree [ ] (f) Others [ ]

4) What is your current job title? a) Consultant [ ] b) Contractor [ ]

5) How long have you been in the construction industry? (a) 0 – 5 years [ ]

(b) 6 – 10 years [ ] (c) 11 – 15 years [ ] (d) 16 years and above [ ]

Section B: Factors Influencing Discords, Disputes and Conflicts

What factors influence discords, disputes and conflicts (DDCs) in the procurement of assembly projects in the Ghanaian construction industry (GCI)?

Please rate by ticking (√) on a scale of 1-5 where 1-Strongly Disagree; 2-Disagree; 3-Neutral; 4-Agreeand 5-Strongly Agree).

No	Statement	Rating				
		1	2	3	4	5
B6	Deficiencies in designs					
B7	Failure to assemble the right project team					
B8	Failure to coordinate the project team and scope of works					
B9	Lack of workable change order process					
B10	Failure to understand local conditions					

B11	Inaccurate or too elaborate schedules					
B12	No vision on dispute resolution					
B13	Plans and specifications containing errors, omissions and ambiguities					
B14	Failure to choose the most appropriate delivery method					
B15	Unclear and incomplete description of items in the Bills of Quantities					
B16	Failure of clients to honour payments					
B17	Errors, defects or omission in contract document					
B18	Type of procurement method adopted					
B19	Differences in views among stakeholders					
B20	Poor communication between the parties					
B21	The inability to understand terms of contract					
B22	Government policy on tendering encouraging low tenders					
B23	Adversarial nature of contracts					
B24	Conflicting commitment of project managers					
B25	Delays in time for project completion					
B26	Absence of qualified personnel in key positions					
B27	Ineffectiveness on the part of contractors					
B28	Uncomplimentary behaviour of clients					
B29	Unrealistic expectations from clients					
B30	Behaviour of sub-contractors					
B31	Unforeseen site problems					
B32	Dissatisfaction of work progress of main contractor by consultant					
B33	Ineffective communication on site					
B34	Lack of team spirit among project team members					
	Please indicate other factors that have not been captured above and rank them accordingly. Any feedback is greatly appreciated					
a						
b						
c						
d						
e						

Sec C: Key Challenges to Minimising DDCs in Assembly Projects

What key challenges are associated to minimising DDCs of assembly projects in Ghana?

Please rate by ticking (√) on a scale of 1-5 where 1-Strongly Disagree; 2-Disagree; 3-Neutral; 4-Agreeand 5-Strongly Agree).

No	**Challenges**	**Rating**				
		1	**2**	**3**	**4**	**5**
C35	Inadequate contract documentation					
C36	Unfair contract conditions to parties (allocating projects risks to one party in the contract)					
C37	Lack of proper communication channels					
C38	Unrealistic assessment of the value of project					

C39	Ignorance on the rights and obligations of parties under the contract					
C40	Failure to set up dispute review boards prior to the start of construction					
C41	Frequent interfere of client to making major changes in the design during the execution of the project					
C42	Lack of proper tendering procedures					
C43	Irregular payments					
C44	Inadequate monitoring procedures					
C45	Incompetent contractors					
C46	Lack of proper schedule of work					
C47	Failure of clients to honour payments					
C48	Dissatisfaction of work progress of main contractor by consultant					
C49	Inaccurate valuation of variations and works in progress					
C50	Poor interpretation of specifications					
C51	Unnecessary delays by the contractor					
C52	Inadequate descriptions of the Preliminary Items in the Bills of Quantities					
C53	Unconfirmed oral instructions					
C54	Conflicting instructions					
	Please indicate other challenges that have not been captured above and rank them accordingly. Any feedback is greatly appreciated					
a						
b						
c						
d						
e						

Sec D: Effective Management of DDC's in Assembly Projects

To what extent can the following factors improve project performance for effective management of DDCs?

Please rate by ticking (√) on a scale of 1-5 where 1-Strongly Disagree; 2-Disagree; 3-Neutral; 4-Agreeand 5-Strongly Agree).

	Statement	**Rating**				
		1	**2**	**3**	**4**	**5**
D55	Prompt negotiations					
D56	Setting up conflict mediators at the design stage					
D57	Collaboration between the parties to reach a solution					
D58	Accommodating the concerns of the other party					

D59	Competing for high concern					
D60	Suppression the concern for both parties					
D62	Sharing where by both parties give up something to make a mutually acceptable decision					
D62	Improvement in communication channels					
D63	Appropriate procurement methods					
D64	Training of project managers to acquire essential skills in developing strategies and operating styles					
D65	Positive attitude of project managers to all issues					
D66	Effective teamwork/ teambuilding					
D67	Adequate contract documentation devoid of errors and omissions					
D68	Decisions at design stage should ensure proper planning and review of project plans & specifications					
D69	Establishment of appropriate mechanisms for early identification of potential conflict issues					
D70	Education of stakeholders on their rights and obligations					
D71	Employment of qualified personnel with specialized knowledge to handle key positions					
D72	Adequate funding for projects					
	Please indicate other factors that have not been captured above and rank them accordingly. Any feedback is greatly appreciated					
a						
b						
c						
d						
e						

APPENDIX B

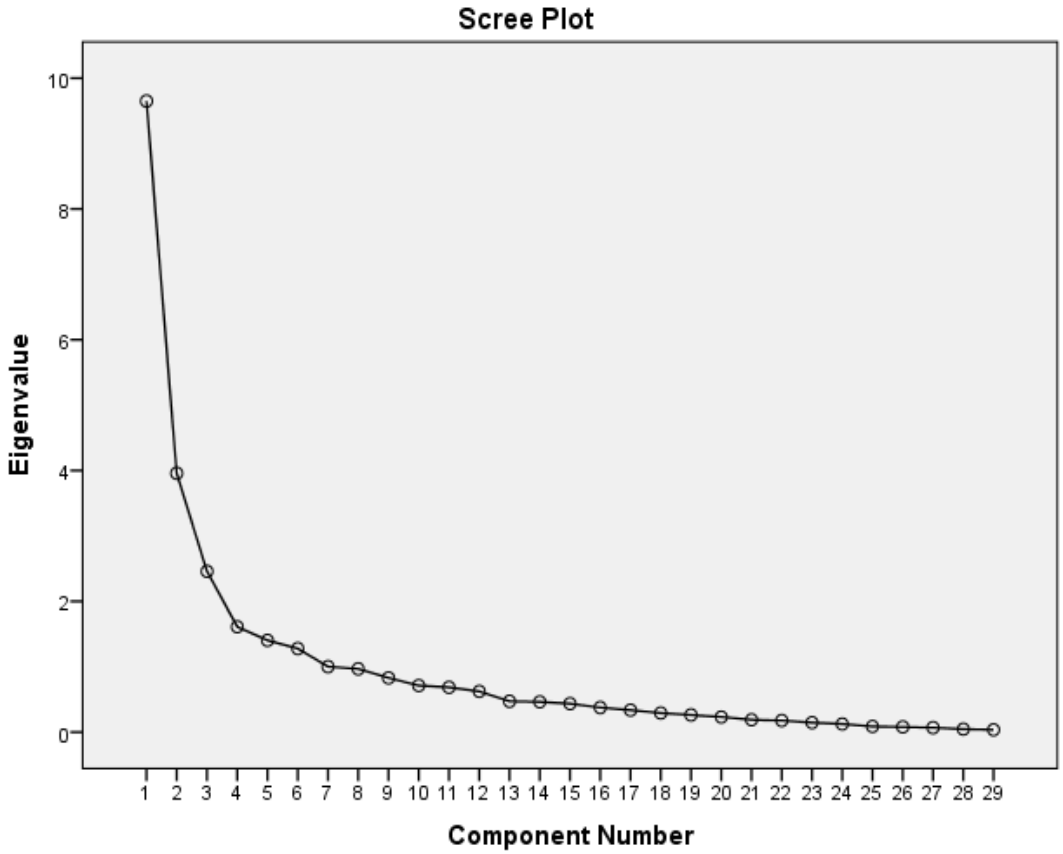
FACTORS INFLUENCING DISCORDS, DISPUTES AND CONFLICTS

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.922	.922	29

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.723
Bartlett's Test of Sphericity	Approx. Chi-Square	5621.534
	df	406
	Sig.	.000



APPENDIX C

KEY CHALLENGES TO MINIMISING DDCS IN ASSEMBLY PROJECTS

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.924	.924	20

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.838
Bartlett's Test of Sphericity	Approx. Chi-Square	3534.986

	df	190
	Sig.	.000