

AN INVESTIGATION OF CLAIM MANAGEMENT CULTURE OF HIGHWAYS ROAD CONSTRUCTION PROJECTS IN GHANA.

By

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DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor materials which to a substantial extent has been accepted for the award of any other degree or diploma at Kwame Nkrumah University of Science and Technology, Kumasi or any other educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

The complexity of construction projects makes claims a common issue in construction projects which Highways road construction projects are no exception. The occurrence of claims can have a number of negative consequences on the delivery of construction projects. The current study investigated into the claims management culture of Highways road construction projects in Ghana. Key construction professionals such as Quantity surveyors, project managers, and engineers involved in the management of claim for A1 B1 road construction firms were selected for the study. The data collected were analyzed into descriptive statistics such as mean, frequencies and percentages. Inferential statistics such as relative importance Index was also used to analyzed some of the data. The results revealed different types of claims in Highways road construction projects, these includes, claims due to variation in the scope of work, claims due to error in description or quantities, claims due to change in specifications that affect quality of the work, claims on breech or termination, claims on addition, claims due to design error and claims due to different site condition. The study revealed that the most significant underlying causes of these claims are, Inaccurate design information, poor communications between project participants, Slow client response to decision and Unrealistic time targets. The constraining factors of claim management of Highways road construction projects in Ghana was also revealed and these includes, failure of parties to understand the terms of the contract, claims without supporting contractual clauses and Improper documentation of claims. In order to address the causes and challenges associated these with claims, it was suggested that, there should be proper

records keeping. Moreover, parties to construction projects should have good knowledge of the provisions of the contract.

KEYWORDS: Claims Management, Highways Road, Ghana.

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TABLE OF CONTENTS

DECLARATION	ii
ABSTRACT	iii
TABLE OF CONTENTS	v
LIST OF TABLES.....	ix
LIST OF FIGURES	x
ACKNOWLEDGEMENT	xi
DEDICATION.....	xii

CHAPTER ONE	
1 GENERAL INTRODUCTION.	
..... 1	
1.0 INTRODUCTION	1
1.1 BACKGROUND OF THE STUDY	1
1.2 STATEMENT OF THE PROBLEM	3
1.3 RESEARCH QUESTIONS	4
1.4 AIM AND OBJECTIVES OF THE STUDY	5
1.4.1 Aim of the study	5
1.4.2 Specific Objectives of the Study	5
1.5 SCOPE OF THE STUDY	5
1.6 METHODOLOGY	6
1.7 SIGNIFICANCE OF THE STUDY	7
1.8 STRUCTURE OF THE THESIS	8

CHAPTER TWO	
10 LITERATURE REVIEW	
..... 10	
2.0 INTRODUCTION	10
2.1 CONCEPTUAL REVIEW.....	11

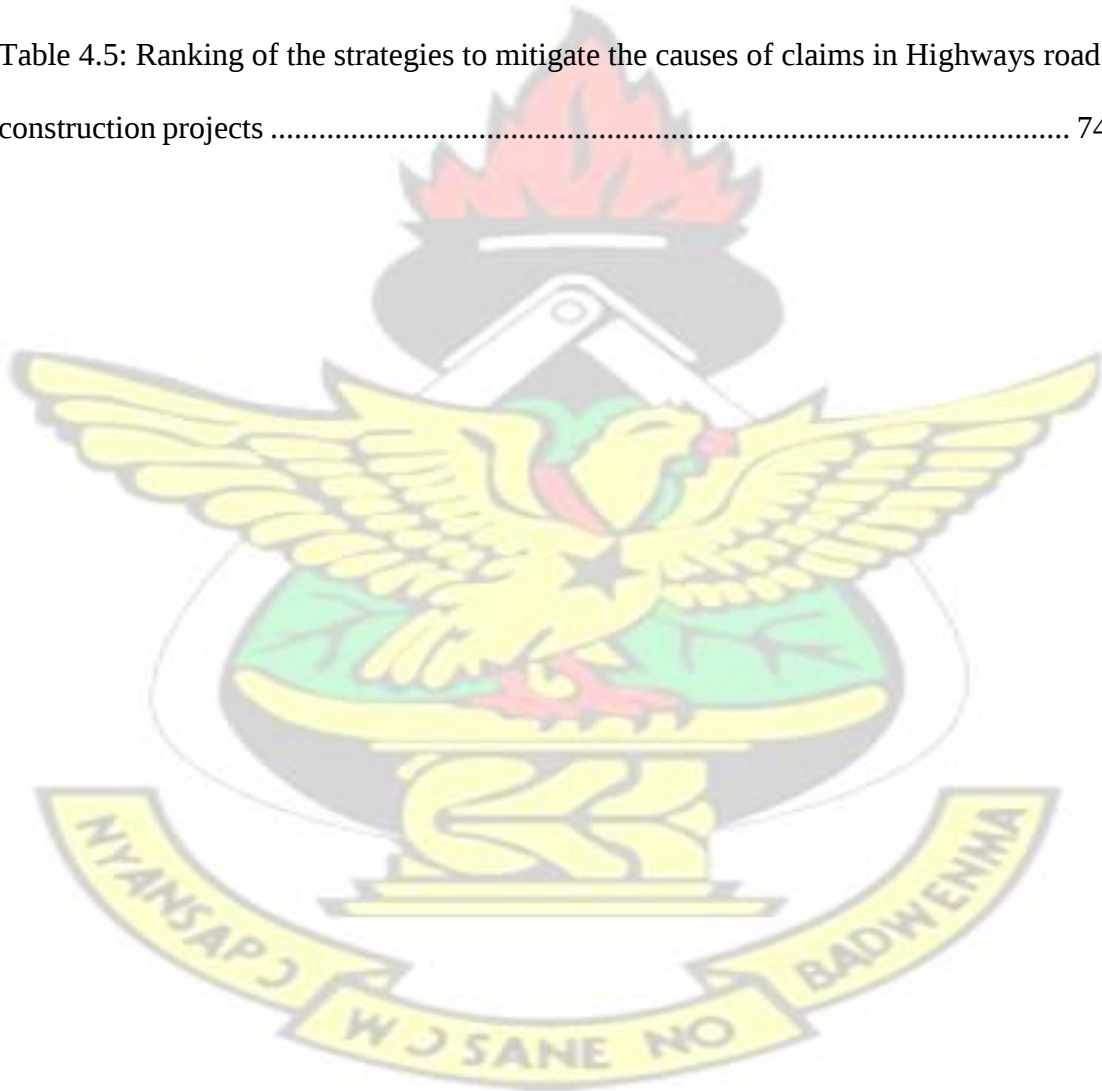
2.1.1	Overview of the Road Construction Sector in Ghana	11
2.1.2	Road Networks in Ghana	13
2.1.3	The Role and Impact of Road Infrastructure on the National Economy	14
2.1.4	Understanding Claims	15
2.1.5	Types of Claims	17
2.1.6	Construction Claims Management	22
2.2	THEORITICAL REVIEW	26
2.2.1	Construction projects	26
2.2.2	Claim definition.....	26
2.2.3	Conflicts and claims in construction projects	29
2.2.4	Claims management	32
2.2.5	Claims and relationships	35
2.3	EMPIRICAL REVIEW	36
2.3.1	Construction claims in Road Construction Projects	36
2.3.2	Effects of Claims on Construction Projects Delivery	36
2.3.3	Strategies to Minimize Claims in Road Construction Project	39
2.4	CONCEPTUAL FRAMEWORK	43
CHAPTER THREE		
45 RESEARCH METHODOLOGY		45
3.0	INTRODUCTION	45
3.1.1	Research Paradigm	46
3.1.2	Ontological approach	46
3.1.3	Epistemological consideration	48
3.1.4	Axiological consideration	48
3.1.5	Research Philosophy Adopted for the study.....	49
3.2	RESEARCH STRATEGY	49
3.2.1	Quantitative	49
3.2.3	Mixed Methods	50
3.2.4	Research Strategy Adopted for the study	51

3.3 RESEARCH APPROACH	51
3.3.1 Inductive	51
3.3.2 Deductive	52
3.3.3 The Research Approach Adopted	52
3.4.1 Experiment.....	53
3.4.2 Survey	53
3.4.3 Case Study	54
3.4.4 Grounded Theory	54
3.4.5 Action Research	54
3.4.6 Ethnography.....	55
3.4.7 The Research Design Adopted	55
3.5 DATA TYPE AND CATEGORIZATION	56
3.5.1 Sources of Data	56
3.6 POPULATION AND SAMPLING PROCEDURES	56
3.6.1 Population and Sample Frame	56
3.6.2 Sample Frame	57
3.6.3 Sampling Technique and Sample Size	57
3.7 DATA COLLECTION METHODS	58
3.7.1 Data Collection Instrumentation (Primary Data).....	58
3.8 DATA PROCESSING AND ANALYSIS TECHNIQUES	58
3.8.1 Descriptive Statistics	58
3.8.2 Relative importance index (rii) for establishing construction claims in highways road construction projects in ghana.	59
3.8.3 Ethical Considerations	59
3.9 VALIDITY AND RELIABILITY OF DATA	60
3.10 CHAPTER SUMMARY	60

CHAPTER FOUR	
62 RESULTS AND DISCUSSION	62
4.0 INTRODUCTION	62
4.1 RESPONSE RATE	62
4.2 BACKGROUND OF RESPONDENTS	62
4.3 CONSTRUCTION CLAIMS IN HIGHWAYS ROAD CONSTRUCTION PROJECTS IN GHANA.	64
4.4 UNDERLYING CAUSES OF CLAIMS IN HIGHWAYS ROAD CONSTRUCTION PROJECTS IN GHANA.	67
4.5 THE CHALLENGES FACTOR OF CLAIM MANAGEMENT IN HIGHWAYS ROAD CONSTRUCTION PROJECTS IN GHANA.	70
4.6 STRATEGIES TO MITIGATE THE CAUSES OF CLAIMS IN HIGHWAYS ROAD CONSTRUCTION PROJECTS IN GHANA.....	72
CHAPTER FIVE	
75 CONCLUSION AND RECOMMENDATIONS	75
5.0 INTRODUCTION	75
5.2 REVIEW OF RESEARCH OBJECTIVES	76
5.3 CONCLUSION	78
5.4 RECOMMENDATION	78
5.5 FUTURE RESEARCH DIRECTIONS	
79 REFERENCES	80
APPENDIX	
A: RESEARCH QUESTIONNAIRE	89

LIST OF TABLES

Table 4.1: Background of Respondents	63
Table 4.2: Ranking of the most prevalent types of claims in Highways road construction projects	67
Table 4.3: Ranking of the underlying causes of claims in Highways road construction project in Ghana.	69
Table 4.5: Ranking of the strategies to mitigate the causes of claims in Highways road construction projects	74



LIST OF FIGURES

Fig 1.1: Structure of the Thesis	9
Fig. 2.1 Claims management process	25
Figure 2.2: Basic relationships between conflict, claims and disputes and potential outcomes (Kumarswamy, 1997)	29
Figure 2.3: Potential sources of construction conflict. (Kumarswamy, 1997)	30
Figure 2.4: Risk, conflict, claim and dispute continuum model (Acharya et al., 2006)	32
Fig 2.5 show the conceptualized Highways road construction claims management approach.	44
Figure 3.1: Impact of research philosophy on the choice of research method	47
Fig 4.1: Years of working experience of respondents	64

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May the almighty God richly bless you all.

DEDICATION

I dedicate this work to God Almighty and my family

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CHAPTER ONE

GENERAL INTRODUCTION.

1.0 INTRODUCTION

This chapter presents a general introduction to the study by explaining the background of the study, the research problem, aim and objectives, research questions, scope of the study, summary of methodology and justification for conducting the study. Section 1.2 which talks about the background of the study provides an overview of the issue of claims in construction projects. Findings and gaps in the existing literature are summarized in the problem statement. Based on this, the research questions as well as the aims and objectives of the study are set. The last section of this chapter presents the structure of the thesis.

1.1 BACKGROUND OF THE STUDY

Claims appear, indeed, to be an integral part of almost all civil engineering and building contracts, and arise from the many uncertainties which are an inherent part of the industry (Amoah and Osei-Asibey 2010). Very few, if any, construction contracts can ever be completed without claims being made for additional payment, or for extra time in which to complete the work (Mbabazi, 2004). The reason for this is the extremely complex, dynamic and fragmented nature of the construction industry. It is genuinely difficult to recognise fully, at the commencement of a project, all the uncertainties of one kind or another in spite of all efforts to the contrary or project management. This leads to an increasing number and amount of claims in the industry (Pickavance, 2005).

A cursory observation reveals that almost all construction projects end up in claims in Ghana. Claim is the request for additional payment by one of the parties involved in the construction process as a result of change that was not foreseen at the inception of the

project. Within any construction project, a successful conclusion involves not only completion of the requisite work, but doing so within the time specified with budget and to the required technical standards (Singh *et al.*, 2006). Construction projects have become more complex and require greater investment, they have taken on added commercial importance (Surawongsin, 2002).

There are numerous documents that shows the effect of claims on cost and time of projects. It was discovered from literature that the majority of claims involve some delays as mentioned before and in most of the cases the delays exceeded the original contract period by over 100% (Amoah and Osei-Asibey, 2010; Norazian and Hammah, 2013). On most projects costs of claims constitute more than 30% of additional cost to the original contract sum (Pickavance 2005). Claims also sometimes leads to disputes between project parties. In view of the above, claims management has gained more attention in construction project management. Various efforts have been geared towards reducing claims, facilitating claims settlements, and controlling the incidence of claims, which includes the development of contractual/legal issues (Kululanga, 2001), the introduction of risk management in contract analysis (Ren *et al.*, 2001; Amankwatia, 2016), the adoption of new procurement systems (Rodke 2004), the improvement of the claims management process (particularly project documentation systems) (Scott and Harris, 2004), the application of information technologies (Khanchitvorakul 2000), and the adoption of alternative dispute resolution (ADR) Mechanisms (Sanders *Et Al.*, 2001).

Road construction project like other construction projects face a number of inherent risks and uncertainties (Adu-Boateng, 2014). Gebken and Gibson (2006) noted that, claims in the road construction industry have long been considered a problem, due to its negative effects on relationships, project delays and project cost. It has been

estimated that contractual claim leading to disputes cost the UK construction industry alone £8billion annually (Pickavance, 2003; Pickavance, 2005). Thus, claims continue to pose a challenge which needs the attention of all stakeholders in addressing the problem.

1.2 STATEMENT OF THE PROBLEM

As in nearly all construction projects, several contractors are engaged in the project. This includes; architects, structure engineering group, and designers along with the building contractor. The building contractor manages a number of other subcontractors, who are all majoring in an area (Chouichien and Touhaiwat, 2006). Construction is a high risk business; it is normally carried out on a particular site for a purpose. Different operational skill and site conditions either foreseeable or unforeseeable can lead to additional cost not provided for in the initial estimate, (Singh, 2006; Assaf and Alheji, 2006). In addition, changes in scope and/or delay or disruption could lead to loss or expense (Badu and Amoah, 2004).

In the construction industry parties to a contract institute efficient claims management mechanism within their respective organization in dealing with claims issues occasions. Though claims situations have proven to have a tremendous impact on the successful execution of a construction projects very little attention has been paid to studies concerning construction claims and construction claim management, especially in the road sector of Ghana. Previous studies have centered on causes of claims, its effects on construction project and how to manage it. Moreover, these studies (Amankwatia 2016; Buabeng 2016; Addotei 2015) centered on claims in building construction project.

There is limited study on claims management practices within the road sector of Ghana. Adu-Boateng (2014) investigated into the management of contractual claims in the road construction industry in Ghana. The results showed that, many of these claims were due

to the contractors and contracting officer's failure to read and/or fully understand the clauses in their own contract rather they rely on institutional knowledge or experience. Moreover, it was found that claims could be avoided if contracting parties had a better relationship, and clearer understanding of the contractual clauses. This study was exploratory and used case study research approach. Moreover, the scope of the study was limited to contractual claims under FIDIC and PPA conditions of contracts. The study also failed to investigate into the challenges with claims management at the road sector.

The current study seeks to fill the gaps identified above by investigating into the claims management culture of highways road construction project. Most importantly, the challenges with claims management at the road sector will be investigated.

1.3 RESEARCH QUESTIONS

The current study seeks to address the following research questions:

- (i) What are the most prevalent type of claims in Highways road construction projects in Ghana?
- (ii) What are the causes of claims in Highways road construction projects in Ghana?
- (iii) What are the most challenging factors of claim management in Highways road construction projects in Ghana?
- (iv) What strategies can be adopted to mitigate the causes of claims in Highways road construction projects in Ghana?

1.4 AIM AND OBJECTIVES OF THE STUDY

1.4.1 Aim of the study

The aim of the study is to examine the claims management culture of Highways road construction projects in Ghana.

1.4.2 Specific Objectives of the Study

The specific objectives of the study are:

- (i) To identify the most prevalent types of claims in Highways road construction projects in Ghana.
- (ii) To determine the causes of claims in Highways road construction projects in Ghana.
- (iii) To examine the most challenging factors of claim management in Highways road construction projects in Ghana.
- (iv) To suggest ways in mitigating the identified causes of claims in Highways road construction projects in Ghana.

1.5 SCOPE OF THE STUDY

The current study seeks to investigate into construction claims and claims management process in the road sector of Ghana. The causes of claims, the claims management practices of road contractors, and the challenges associated with claims management will be explored. Even though there are three departments responsible for road construction in Ghana namely the Department of feeder roads, the department of Urban roads and the Ghana Highways Authority this current study will be limited to the later. Thus the current study will be limited to Highways road construction projects managed by Ghana Highways Authority. Ghana Highways Authority road projects was selected due to the huge capital investment compared to the other road types. The current study will be limited to the perspective of the contractors. In other words key professional

responsible for managing claims in the contractor's outfit such as the Quantity surveyors, project managers etc. will be selected for the study. The road contractors will be limited to those in the A1 and B1 financial classification. Geographically the current study will focus on respondents in the Greater Accra Region.

1.6 METHODOLOGY

The philosophical position of the research was that of the positivist research paradigm. The researcher adopted the quantitative research strategy. The choice of this strategy was influenced by the nature of the research objectives being pursued. Deductive research approach was adopted since the current study seeks to test existing theories. The research design was a survey with data being collected from a large number of respondents.

The population of a study is defined by per Kothari (2004) as the total of items about which information is desired. The population for this study will be key practitioners responsible for the preparation and management of claims within the contractors' outfit. This includes the quantity surveyor, project manager, etc. Contractors in the classes A1 and B1 in the Accra Metropolis in the Greater Accra region of Ghana were targeted. These respondents will be randomly selected.

The current study used both primary and secondary data. The secondary data was collected through literature review of existing works published in journals, newspaper publications, books, organizations annual reports, previous thesis etc. This review among other things helped to identify the gaps in literature. The primary data was collected using questionnaire survey which was self-administered to the respondents. The questionnaire was designed to include both close-ended and open-ended questions.

The quantitative data gathered will be analyzed using descriptive statistics (e.g. frequency, percentages) and inferential statistics (e.g. Relative Importance Index). The analysis was done with the aid of the Statistical Package for Social Scientist (SPSS) software package. A summary of key findings, conclusions and recommendations will be presented in chapter five.

1.7 SIGNIFICANCE OF THE STUDY

Globalization has occasion the need for every organization to make a conscious effort of improving itself in order to be competitive within the international business fraternity. The occurrence of claims has so many effects on construction project delivery which include delays, project cost overruns, disputes etc. Thus any study geared towards increasing our understanding of the problem or providing strategies to address the problem is considered relevant. The current study will be of benefit in the following areas:

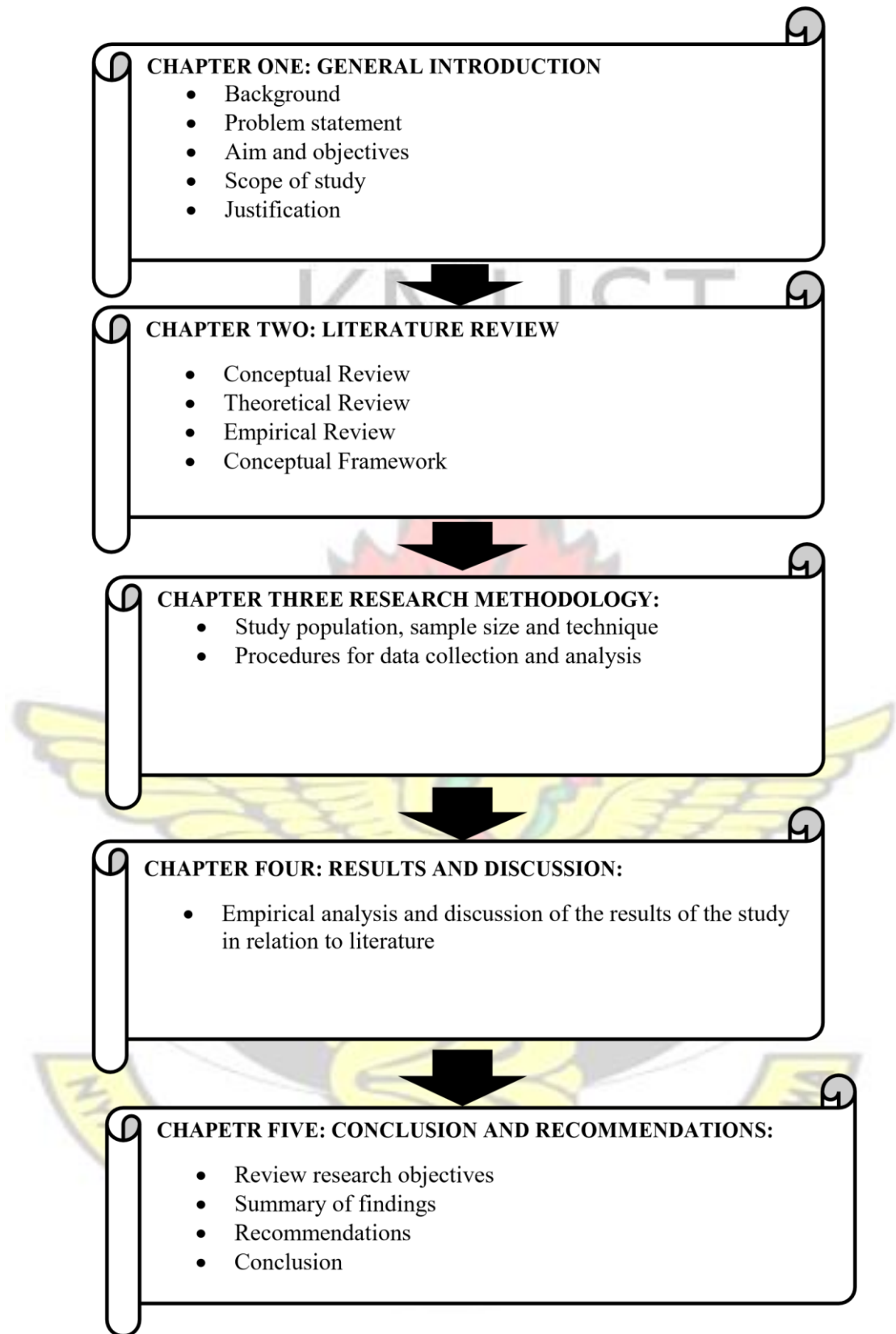
First the study will help to uncover the most significant underlying causes of claims in Highways road construction projects. As Taylor (2000) rightly put it, the best way to address an issue is to identify its causes. Knowledge about the causes of claims in Highways road construction project will assist contractors, the Ghana Highways Authority and other key stakeholder to devised appropriate strategies to minimize claims occurrence.

The study will also help to identify the challenges with claims management for road construction project and the strategies to deal with the challenges. The result can help both the contractors and the client to improve their claim management process. In addition to the above the current study will contribute to knowledge regarding claims management at the road sector of Ghana. The findings of the study will thus serve as a source of reference for further studies.

1.8 STRUCTURE OF THE THESIS

The study was organized into five chapters. Chapter one dealt with an introduction to the study which comprises the background of the study, problem statement, objectives and research questions, significance of the study, brief methodology and scope of the study. Chapter two, literature review: reviewed literature on the construction claims. The causes of claims, challenges with claims management among other issues was discussed. Chapter three was the methodology that was adopted for the work. This included the data collection and analyses method, sample size and sampling technique among others. Chapter four dealt with data presentation, analysis and discussion of the findings. The last chapter summarized key findings and present the conclusions and recommendations drawn from the study. Fig 1.1 shows a flow chart of the research process





**Fig 1.1: Structure of the Thesis (Source Authors construct 2019) CHAPTER TWO
LITERATURE REVIEW**

2.0 INTRODUCTION

The key issue in construction project success is not whether or not it was subjected to claims, but if it has achieved the desired goals: cost, time, quality, safety, environment performance and, most of all, stakeholder satisfaction (Moura and Teixeira, 2007). And, it is recognized by (Mbabazi 2004) that a project can possibly accomplish all these features and still be subjected to construction claims, during the delivery stage. The key to the problem is the management of the claims process. This review seeks to examine key concepts and theories relating to construction claims with a particular attention paid to road construction projects. Specifically, section 2.2 presents conceptual review on thematic areas such as meaning of claims and claims management as well as its benefits to construction project delivery. An overview of the road sector in Ghana will also be presented in this section.

Section 2.2 explains the key existing theories that underpin the current study. The relevance of those theories and how they explain the subject matter being studied. The next section presents empirical review on types of construction claims in road construction projects; causes of claims; effects of claims on project delivery; claims management challenges in road construction projects and strategies to minimize them. Based on the above reviews, a conceptual framework is developed to explain the researcher's understanding of the linkage between the various variables of the study. A summary of the chapter is also presented.

2.1 CONCEPTUAL REVIEW

2.1.1 Overview of the Road Construction Sector in Ghana

In Ghana road construction project are management by the Ministry of Roads and Highways (MRH). The main functions of the Ministry are policy formulation, monitoring, evaluation and coordination with regard to the Road Infrastructure sector

that consists of the following: Road Infrastructure Development and Maintenance; Road Safety and Environment; Road Maintenance Financing and Training (Ministry of Roads and Highways, 2019). The Ministry of Roads and Highways (MRH) has three road agencies with different assigned responsibilities: Ghana Highway Authority (GHA) (in charge of trunk roads); Department of Urban Roads (DUR) (managed the roads network in the Cities and Urban centres); and Department of Feeder Roads (DFR) (responsible for roads network in rural Ghana) (Quagraine, 2007). The agencies are subject to the budgetary, managerial and economic policies of the central government (Lamprey and Elle 2000; Quagraine, 2007).

The overall administration of the road transport infrastructure in Ghana is the duty of the MRH. The Ghana Highway Authority (GHA) has the responsibilities of administration, control, development and maintenance of the trunk roads (highways) and related facilities, subject to the national transport policies and strategies. The organizational chart of GHA consists of a Chief Executive with its functions divided among three departments that is Development, Administration and Maintenance. Each department is headed by a Deputy Chief Executive who is responsible for monitoring the activities under his jurisdiction and ensures efficiency within the department. GHA structure consists of a central office in Accra, 10 regional offices and 32 road area offices. External consultants supervise most of the capital-intensive road projects implemented by GHA. The Authorities account workload has been drastically reduced because road maintenance works are now being implemented by the private construction industry. Consequently, GHA staff, mainly involving young professionals, is increasingly assuming the responsibility of planning, supervising, monitoring and evaluating the works. Over the years, the road construction sector has received a substantial proportion of budgetary allocation for road construction and maintenance

(Lamptey and Elle, 2000; Adu, 2009; Foster and Pushak, 2011). Since the last three decades, Government of Ghana has injected huge resources to the construction and maintenance of roads infrastructure across the country with the aim of developing the economy and reduced poverty (World Bank, 2001; The IDL Group, 2011). Ghanaian roads accounted for 95% (ninety-five percent) of freight and 97% (ninety-seven percent) of passenger traffic (Quagraine, 2007). According to Foster and Pushak (2011), Ghana has a strong and quality road network, with 74% - 75% of both unpaved and paved —network in good or fair conditions. It is reported that road construction contract is made up of claims (judgment debt) due to inefficiencies of parties to the contract, regardless of the effort by the governments of Ghana and development partners like World Bank to improve performance. The absence of solid technical expertise with the requisite capability and competence have been cited by several publications from institutions including the World Bank as the cause of the weaknesses and underperformance of Ghana's road sector (Peprah 2001; World Bank, 2001; World Bank, 2003; World Bank, 2008; Ameyaw et al., 2012). In addition to that, bidding considerations in developing countries makes it clear that governments in developing countries have a direct influence on construction in both the public and private sector through their behaviour, policies and legislations (Jaselskis and Talukhaba, 1998) stated.

Studies also reveal that claims management is still performed in an ad hoc manner in construction contract (Vidogah et al., 1998 cited in Adu-Boateng, 2014). It is against this backdrop that, practitioners, researchers and society at large have, therefore, called for a change in attitudes, behavior and procedures in order to increase the chances for construction projects to be successful and result in improved end products (Love et al., 2000, Dubois and Gadde, 2002). It is in this regard that the aim of the study is to

investigate the claims management culture in Highways road construction projects and suggest strategies to enhance the management of contractual claims in the road construction industry in Ghana.

2.1.2 Road Networks in Ghana

Road networks are to improve convenience and mobility of humans, goods and services. The following road networks are constructed in Ghana (Ministry of Roads and Highways, 2019):

(i) Trunk Roads/Highways

The trunk road network provides essential regional and inter-regional market connectivity services, including ferries with the aim of filling in the gaps in the network. The trunk road network also links Ghana to its neighboring countries.

(ii) Feeder Roads

The feeder road network includes the delivery of safe and all weather reachable feeder roads at optimum cost which ease the movements of people, goods and services to encourage socio-economic development, in particular agriculture. Supplementary to decrease in transport cost, enhanced rural road travel dependability have the added impact of increasing access to social services and employment prospects especially to women and to those living in poverty.

(iii) Urban Roads

The urban road network delivers an all-weather city road access in support of the economic growth taking place in all Metropolitan and Municipalities across the Country. According to the statistics presented by the African Development Fund (2003) the quantities for the different types of roads in Ghana are: (i) 12,383-km of trunk roads, (ii) 24,000 km of feeder roads, (iii) 2,909 km of urban roads and (iv) 820-km of town

roads. The trunk roads are further classified into (i) 4,365-km of National Roads, (ii) 2,393-km of Inter-Regional Roads and (iii) 5,625-km of Regional Roads. About 5,551km of trunk roads and 1649-km of urban roads are paved. The remaining 7,651-km of trunk and town, 1260 of urban roads and the 24,000-km of feeder roads are essentially of gravel or earth surface. Of the 24,000 km of feeder roads only 50 percent are in maintainable condition.

2.1.3 The Role and Impact of Road Infrastructure on the National Economy

A reliable and affordable road transport system plays a key role in the socioeconomic development of Ghana. Road transportation also forms a very important segment of the social safety net, helping in the distribution of wealth through trade and employment opportunities in both urban and rural communities. More often than not road is the most preferred means for the transportation of people, goods and service in all sectors of the economy including tourism, mining, health, trade, education, agriculture, among others (World Bank, 2003).

A good and reliable road transportation system reduces cost and comparative distances between trading partners, thereby improving trade efficiency and maximizing returns on existing industrial investments and production. In order, for Ghanaian products to become competitive in the global market its imperative for us to improve our road transportation system, through an efficient and well integrated road network.

The nations growth prospects and poverty alleviation also rely heavily on an efficient road transportation system. The difficulties in the access of job opportunities and services due to poor road transportation systems or It's expensive nature is an important element of social exclusion which defines poverty. The Ministry of Roads and Highways therefore aims at improving accessibility to facilitate mobility and movement of goods and services throughout the country. Furthermore, a reliable urban road

transportation system is an integral part of a nation's growth and reduces poverty in the urban areas, it's in view of the above reason that, the problems associated with the road transport network in Ghana's urban centers are of growing concern to the Ministry and its Agencies (Ministry of Roads and Highways, 2019). The Ministry of Roads and Highways has revealed that approximately ninety-eight percent (98%) of the passenger and freight traffic in Ghana uses road as their major means of transport (Ministry of Roads and Highways, 2019). It is as a result of the aforesaid that there's the need for an improved investment in the provision of road infrastructure because it goes a long way to enhance the performance of other sectors of the economy. As a result of the significant role and impact of an integrated and well-maintained road transportation network on the socio-economic development of the country, it is important to ensure the efficient management of contractual claims that may arise in the execution of such projects.

2.1.4 Understanding Claims

According to Hegazy (2012), construction claim in the Canadian Law Dictionary is well-defined as a "declaration to the right to change, relief, or property" or a "not able to fulfil requirements under the contract". Kululanga et al. (2001) indicated that the word "claim" originates from the old French word "claime", which is well-defined in the Oxford English dictionary as a request for something as due; a declaration of right to something. This is echoed by Mbabazi (2004) who emphasized that, claim is a clearly written demand given in to by a contracting party in quest of extra money, time as well as other adjustment to a contract. However, according to Hughes and Barber (1992) claims is a demand for payment of supposed title to which the contractor, correctly or mistakenly, contemplates himself authorized with demand to an arrangement not yet achieved.

Further, building claim is normally employed to designate any application by the contractor for payments not under the normal contract payment requirements, as when the contractor confronts extra costs and/or delays (Revay, 1990). As soon as claim is offered, the contractor as well as the owner agreed on the claim and make a change order or an alteration (Ren et al. 2003; Zanelidin, 2006). Majority of construction projects comes with a lot of complexities and uncertainties from inception, it consists of a wide variety of business parties, also the duration of most construction projects spans over a lengthy period of time and requires a highly specialized designs, detailed plans and specifications, high-risk methods of construction, efficient management, professional supervision and close coordination. As a result of the aforesaid reasons claims are common with most construction project, thus delaying completion periods and causing cost overruns.

Furthermore, most construction project spans over a lengthy period of time, complex sets of documents are widely use, which more often than not are not properly understood by the contracting parties, leading to different interpretations by the different parties involved. As a consequence, disagreements or disputes arise regarding contractual obligations or expectations. According to Ho and Liu, (2004) claims constitute most of the primary source of disputes in the construction industry.

Construction claims are considered by most contracting parties as one of the most disruptive and unpleasant events of a project. The activities of the contracting parties themselves could result to claim (Clough et al., 2005).

Ho and Liu, (2004) argue that to bring claims occurrences to the barest minimum contracting parties must make a conscious effort to understand contractual terms and conditions at the very inception of the project and also been able to identify and understand the causes of the claims. When a party to a contract believes that the

contractual obligations or expectations has not been properly discharged and that they deserve monetary and/or time compensation, they may contemplate the submission of a claim.

According to Detlev (2004), there is a seemingly rise in claims situations and disputes over the past decade. It is evident that the reason why claims situation has rising over the past decade is due to the complexity of the projects now being undertaken and the price structure of the construction industry lately, which isn't flexible enough to be able to absorb unanticipated additional costs by the contractor. As a result, contracting parties in recent years, have become very conscious of situations that give rise to construction claims. The goal of this study is to examine the various construction claim types in Highways road construction projects and rank them according to the frequency of occurrence and severity of the claim amount. Additionally, the modes of claim settlement of the claims are analyzed

2.1.5 Types of Claims

There are four main bases on which a claim may be made (Chappell et al., 2005) these include:

- (i) Contractual claims -under express contract conditions;
- (ii) Common Law claims-for breach of contract at common law;
- (iii) Quantum Meruit claims - on quasi-contractual or restitutionary basis; and
- (iv) Ex-Contractual claims or ex gratia awards or claims - on out of kindness basis.

Contractual claims

These are claims that arise out of the express provisions of the particular contract for direct loss and/or damage under certain clauses of the (FIDIC or PPA) standard forms or conditions of contract. They make use of the machinery in the contract to process the claim and produce result.

Claims are originated on exact clauses in the contract terms.

- **Delay Claims:** this claims incline to be the least unstated and frequent in the construction industry (Harris and Scott, 2001). It relates to a time period on construction project for which the construction has been stretched or task not undertaken as a result of conditions not expected when parties came into agreement. A delay needs to be justifiable so that the foundation for an extra time or extra payment can be establish. Types of justifiable delay are very so often identified in the contract and naturally relate to issues outside the contractor's control. The most common types of claims under delay claims comprise of; different site situations, design changes, lack of labor, material and equipment, faulty plans and specifications. This will affect a contractor to increase the time period of its plan to accomplish the task under the contract. They come about as a result of extension of time (Callahan, 2010);
- **Acceleration Claims:** Building contracts plainly reveals important milestone times, date of completion together with probably liquidated damages for delay or additions for completing on time. Thus time is a key factor in project decisions. Speeding up arises when the work of the contractor is accelerated to finish a specific task earlier than planned. A contractor could rush willingly to compete the work earlier to get another, to meet bonuses for completing early. Construction claims that fall under acceleration claims are; directed acceleration and constructive acceleration. Situations whereby the client guides the builder to fast-track the project for early completion usually discussed to as directed increased. Together with the direct cost of the task, acceleration might lead to total loss of productivity of labour. In the building industry it is known that acceleration exertions like overtime working as well as work shift, doing out-of-sequence work, amassing

trades, and congestion on construction site leads to productivity of labour reduction, in the sense that new laborers possibly will not be used to the work or might need working out before attaining usual productivity levels. The extra charges related with the task accelerating, laterally with the inadequacies productivity are frequently involved in acceleration claims. Constructive acceleration claim requires an additional detailed examination of the simultaneous record of project to identify the position of the work as well as the source of the delays and successive acceleration. This may well contain a general examination of project communication, job reports, meeting notes, together with change orders. These result from expediting production pace to meet the original or revised contract completion date (Sanders and Eagles, 2001);

- **Disruption claims:** this is well-defined as any alteration in the process of evaluation order expected by the builder during the period the task was bid which obstructs the builder from really carrying out in that way. Disruption is a change of material in the conditions of performance required at the period of bid from those really met, ensuing in amplified problem together with cost of performance. Disruption are made up of three overall ethics in regards to contract performance. Foremost, when a builder bids on a contract, it is permitted to work out with its performance, each stage of performance is hooked upon a preceding stage. Disruption to a stage, thus, may well have a possibly negative influence on the following stages. Secondly, contracted parties are required to liaise with each other and not delay the work of each other. A general builder devises to undertake its job in a confident way and order, plus the client has an indirect obligation not to come across, or disturb the builder's scheduled work. Additionally, when a general builder strategizes its work, he must reasonably do so. He might not make

impractical expectations about contract performance. Example, a builder cannot conclude a binding disruption claim if he has presumed that he would have solely access to the construction site when the contract documents specified that another builder would be concurrently on-site (Ibbs and Liu, 2005); and

- **Cost Claims:** Though builders in pursuit of extra charges from clients are the utmost recurrent advocates of additional cost claims, and vice versa. Occasionally, a prime contract among the client and a general builder has a conditions of price terms that needs the client to pay the realistic cost of the builder's work together with profit and overhead. Though under a fixed price agreement there might be requests about overpricing and overpayment. The cherished but doubtful exercise of front end loading needs an valuation of whether the billed amount for work done at a particular stage was reasonable and fair given the building activity to that point. Changes in the work scope also results to client cost claims. Non negotiated add ons are generally identified on a cost-plus basis, further asking whether the builder has fairly charged the client for the work. Alternative type of client cost claim rises when there is a let-down to accord adequate credit to the client. Other construction contracts have clause on savings that allows a client to earn all or a share of the advantage when building costs are not as much of the initially scheduled. Accordingly, when a client can show that a builder has exaggerated the cost of building, the client should get well the overprice due to the savings provision.

Common law claims

Common law claims are therefore claims for damages for breach of contract under common law and /or legally enforceable claims for breach of some other aspect of the law e.g. in tort, repudiation, implied terms and other related matters. Thus, Common law claims are therefore claims for damages for breach of implied terms in the contract

and must be proved, and follow strict legal requirements in order for the injured party to successfully recover them. Common law sometimes and misleadingly called excontractual 'or extra-contractual 'claims. These terms should not be confusing with that Latin term —ex-contractual, which is sometimes found in legal textbooks to refer to claims arising from the contract, Chappell et al (2005) stressed. According to Chappell et al., (2005) there are four (4) situations which could give rise to common law claims:

- Misinformation to contractor about the condition of the site;
- Negligent misrepresentation breach of warranty, thus failure to give true picture of the contract or site (stated SSM7 to prepared Bills) through application misrepresentation (ACT, 1967); and
- Failure to give possession of site is a breach of major term of the contract; contractor may repudiate the contract and sue for damages for breach profit & loss.

In summary, contractual claims are those that arise under specific clauses in the contract while common law claims are based on implied terms in the contract and must be proved, and follow strict legal requirements in order for the injured party to successfully recover them.

Quantum Meruit claims

A quantum merit claims (as much as he has earned) provides a remedy where no price has been agreed. There are four situations which could give rise to quantum merit claims. These according to Chapel et al., (2005), are the four (4) situations:

- Where work has been carried out under a contract, but no price has been agreed;
- Where work has been carried out under a contract believed to be valid but actually void;

- Where there is an agreement to pay a reasonable sum; and
- Where work is carried out in response to a request by a party, but without a contract.

Ex-Contractual claims

These claims are not based on the clauses within the terms of contracts, although the basis of the claims may be circumstances that have arisen out of the project and have resulted in loss or expense to the contractor (Ex-gratia award). These claims are at the mercy of the client. It is not binding on the client to pay hence the name ex-gratia award.

2.1.6 Construction Claims Management

Claims management is the process of employing and co-ordinating resources to prepare a claim from identification and analysis through preparation, and presentation, before it proceeds to negotiation and settlement (Kululunga, 2011). The key objective of the claim management process is to resolve certain problems in an effective and efficient manner. Avoiding litigation and arbitration in claim settlement is one good practice that successful contractors must keep in mind (Pogorilich, 1992). Generally, there are 6 stages in a claim process. It starts with identification and followed by notification, examination, documentation, presentation and negotiation of claims (Zaneldine, 2006; Kululunga et al, 2011; Moura and Teixeira, 2007):

1) Recognition and identification of the claim

Construction claim recognition and identification involves “timely” and “accurate” detection of a change. It is the first and critically important ingredient in the claim process (Kululunga et al, 2001).

2) Notification of the claim

This sub-process involves alerting the other party of a potential problem in a manner that is non-adversarial. Time limit requirements are crucial and critical at this stage (Kululanga et al, 2001). Normally, construction contracts specify such duties to both parties.

3) Systematic and accurate documentation of the claim

Records and documentation play a very important role in the settlement of contract claims. Nonetheless, the parties involved in construction projects seldom realize the importance of record keeping and management (Pogorilich, 1992).

4) Analysis of the claim's impact

The object of this sub-process is to establish the impact of the claim. A claims analyst shall perform schedule analysis to determine the time impact of the claim on the project as well as breaking down the cost into various cost components in order to assess the cost impact too.

There are many processes used for calculating time and cost impacts, and each process has its own advantages and disadvantages (Adrian, 1988). In the claim pricing process, there are two types of methods: forward pricing and post pricing (Levin, 1998). Detailed cost descriptions are necessary for negotiating, and justifying extra contract costs.

5) Claim preparation

The construction claim documents must be well prepared, well organized, and factually convincing. It can be segmented into two parts, the first section being the claim entitlement and the second section representing the claim amount. The former section should form the legal and factual premises for the claim as stipulated in the conditions of contract while the latter representing the estimated recovery amount of the resulting harm suffered (Kululanga, 2001).

6) Negotiation of the claim

This sub-process concerns the process of presenting the claim to the client and negotiation of such claim. If an agreement cannot be reached a dispute resolution method should be proposed. If this fails, the choice remaining is to implement the contractors' "disputes" mechanism or take the matter to court (Ren, 2003)

Disputes occur when conflicts cannot be solved by negotiation. Disputes in the construction industry can be settle through various means that can prevent the resort to arbitration or litigation includes conciliation, quasi-conciliation, mediation, private enquiry, adjudication, and mini-trials (Ren, 2003). However, if parties to a contract fail to reach an agreement through the deployment of the above mentioned procedure, the only choice at their disposal is the institution of the more formal dispute resolution mechanisms such as arbitration or taking the matter to court.

Several studies have indicated the problems in claim management. Vidogah and Ndekugri (1998) found several insufficiencies in existing procedures. According to their work, claim management was always performed in an ad hoc manner, poorly resourced, and not treated as a management function. Furthermore, contractors' management information systems are ill-designed to support claims.

Another study showed that records available on sites seldom allowed an as-built schedule to be constructed easily (Scott and Assadi, 1999). The daily report is often given the least amount of attention though it may be the most important document on the project (Pogorilich, 1992). A survey of construction claim management practices in Thai construction companies showed that the lack of awareness of claim procedures by on-site people is considered the major problem of claim management.

Inadequacies of supporting evidence, stemming from unaware project personnel as well as improperly designed documentation systems, are the next most serious shortcomings

causing loss of opportunity to recover incurred damages. The survey recommended that the management level pay more attention to these aspects of a project for creating an effective claim management system (Surawongsin, 2002). Even though some works indicate problems in claim management systems, the majority of them focused on the contractors' systems. Thus, clients' claims should be studied in more detail because they are different from the contractors' claims in several aspects such as the parties' differing roles and responsibilities in projects, typical types of claims, available data, analyzing and pricing methods, and claim procedures. Knowing how to correctly deal with construction claims can enable the client to enhance the potential success of a project.

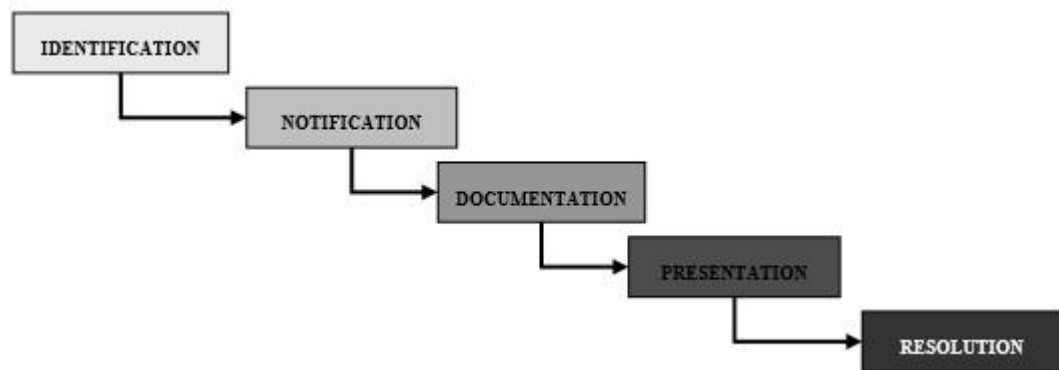


Fig. 2.1 Claims management process (Source: Moura and Teixeira 2007)

2.2 THEORITICAL REVIEW

2.2.1 Construction projects

Construction projects are highly complex, involving many different activities and actors. Any major events or a series of minor events in the project operation may create problems that could become construction disputes (Cheung and Yiu, 2006, p. 459). Construction projects usually face enormous uncertainties, and the contract is unavoidably incomplete in terms of the inability to plan for all the possible contingencies (Cheung and Pang, 2013). High complexity and enormous uncertainties may increase with new technologies and requirements. "Construction projects are becoming more and more complex due to new standards, advanced technologies, and

owner-desired additions and changes" (AbdulMalak et al., 2002, p. 84). There are many factors making construction projects more complex than other projects. The projects are not only affected by internal risks, but also external risks as weather and site conditions. While the external factors are difficult to prevent and predict, these have to be dealt with and remain a high risk. Peckiene et al. (2013) describes the complexity that the contractor has to deal with as: "Construction projects have an abundance of risk. Contractors cope with it and owners pay for it. The construction industry is subject to more risk than any other industries. This process requires a multitude of people with different skills and interests. Construction projects are also influenced by a number of external, uncontrollable factors"

2.2.2 Claim definition

The term "claim" can be confusing and the term itself can have several meanings, (Cambridge English Dictionary) gives two examples of definitions as: (1) to say that something is true or is a fact, although you cannot prove it and other people might not believe it or (2) to ask for something of value because you think it belongs to you or because you think you have right to it. This general definition of the term "claim" will not be useful in the project context nor in this thesis, whereas a more specific definition is needed. There is also some confusion in the terminology between authors and in research around the topic (Sun and Meng, 2009). According to Project Management Institute (2013), is claim defined as: "A request, demand, or assertion of rights by a seller against a buyer, or vice versa, for consideration, compensation, or payment under the terms of legally binding contract, such as for a disputed change." A more concrete and clear description of the definition would be as defined by Hadikusumo and Tobgay (2015): "When one party believes that the other party has not met the contractual obligations or expectations and that they deserve monetary and/or time compensation,

they may submit a claim.”This description describes more simply the concept of claims in project context. Claims are, and can often be related to a change or a variation in a project. When one party identify that a change is needed to the previous agreed scope, deliverables or specification, can they notify this by a change request. Project Management Institute (2013) defines the term “change request” as: “A formal proposal to modify any document, deliverable or base line”. The distinction between claim and change is narrow, Levin (1998) even uses the term “claim” to cover both claims and change order situations in his book, stating that” claims often start out as change orders, or vice versa”. For the sake of discussion, it would be needed to distinguish between the terms, whereas Mirza (2015) defines this difference as “What distinguishes a claim from a change is the element of disagreement between the parties as to what is due or whether or not anything is due. If agreement is reached, then the claim disappears and becomes a change”, based this definition is the level of agreement the determine factor of the two terms. Considering the above defined terms, will this thesis define Claim as defined by Project Management Institute (2013). On the other hand, change request could be considered as one form of claim where one party claim another party that the contracted work can’t not be performed as previously agreed in the contract and a change is needed. This definition will become useful in this thesis since the focus will be on construction projects where a principal contract out parts of the project to subcontractors. Due to this, will the previously mentioned “change request” be referred to as “change claim”. When a change claim is accepted by the principal party, does the Change claim become a Change order of which the sub-contractor is to be compensated for extra-work.

Other existing relevant terms that are often used as claim on in relation to claim are “dispute” and “conflict”. The inconsistent definitions of “dispute” between studies

make research findings difficult to compare and generalise with other studies (Love et al., 2010). However, all the terms fall into the same category in project context where one party has a different opinion or view of a matter than another party. In this thesis all of the terms are used, however the main focus will be on “claim”, while a “conflict” could be considered to build up to a “claim”, and “dispute” could be the result of a “claim”. The relationship of these terms can be seen in Figure 2 and in similar way in Figure 4.

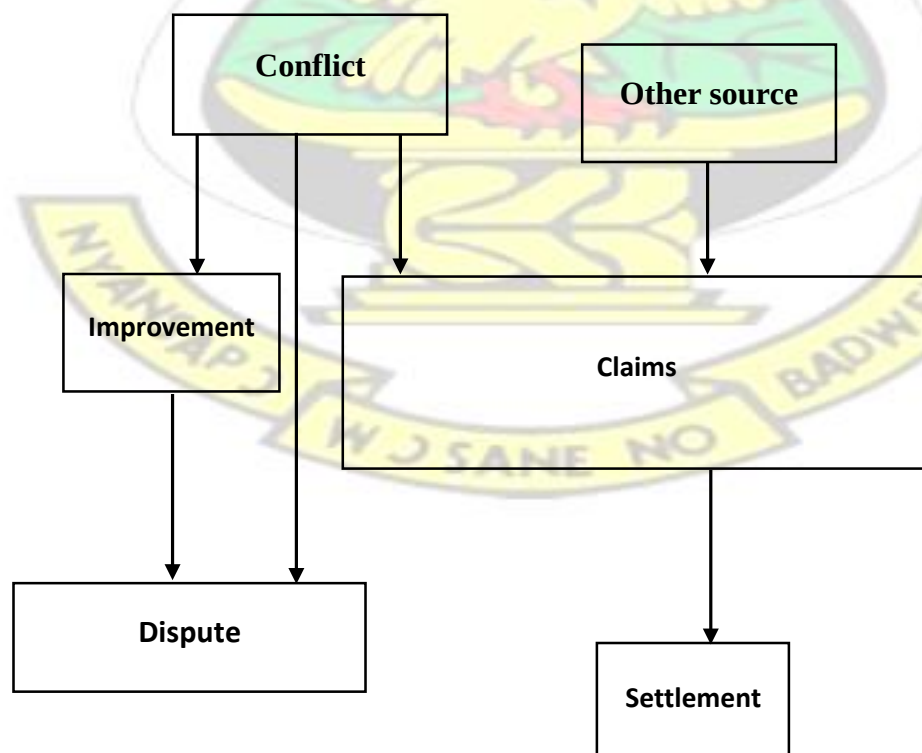


Figure 2.2: Basic relationships between conflict, claims and disputes and potential outcomes (Kumarswamy, 1997)

2.2.3 Conflicts and claims in construction projects

A claim, as defined, is due to assertion of right by a party in a project. Large construction projects usually involve many stakeholders and parties, and the project can be executed involving many different organisations. Even though there is one client and one contractor who has signed a contract for a specific project, can these two parties or organisations outsource parts of their tasks, creating an inter-organisational project. Tensions are frequent in inter-organizational projects where the parties share uncertainty about many important changes that occur after the contract is signed (Badenfelt, 2011). The more parties in a project, the more relations, thus also more possible sources for conflicts which is illustrated in Figure 3, where conflicts arise between parties and the potential of the risk increases when a sub-system is added

(Kumarswamy, 1997). In construction projects, can different parties experience additional costs due to the actions of the other party or parties involved, whereas claims and disputes arise over the right of compensations of time and money of the additional costs (Abdul-Malak et al., 2002).

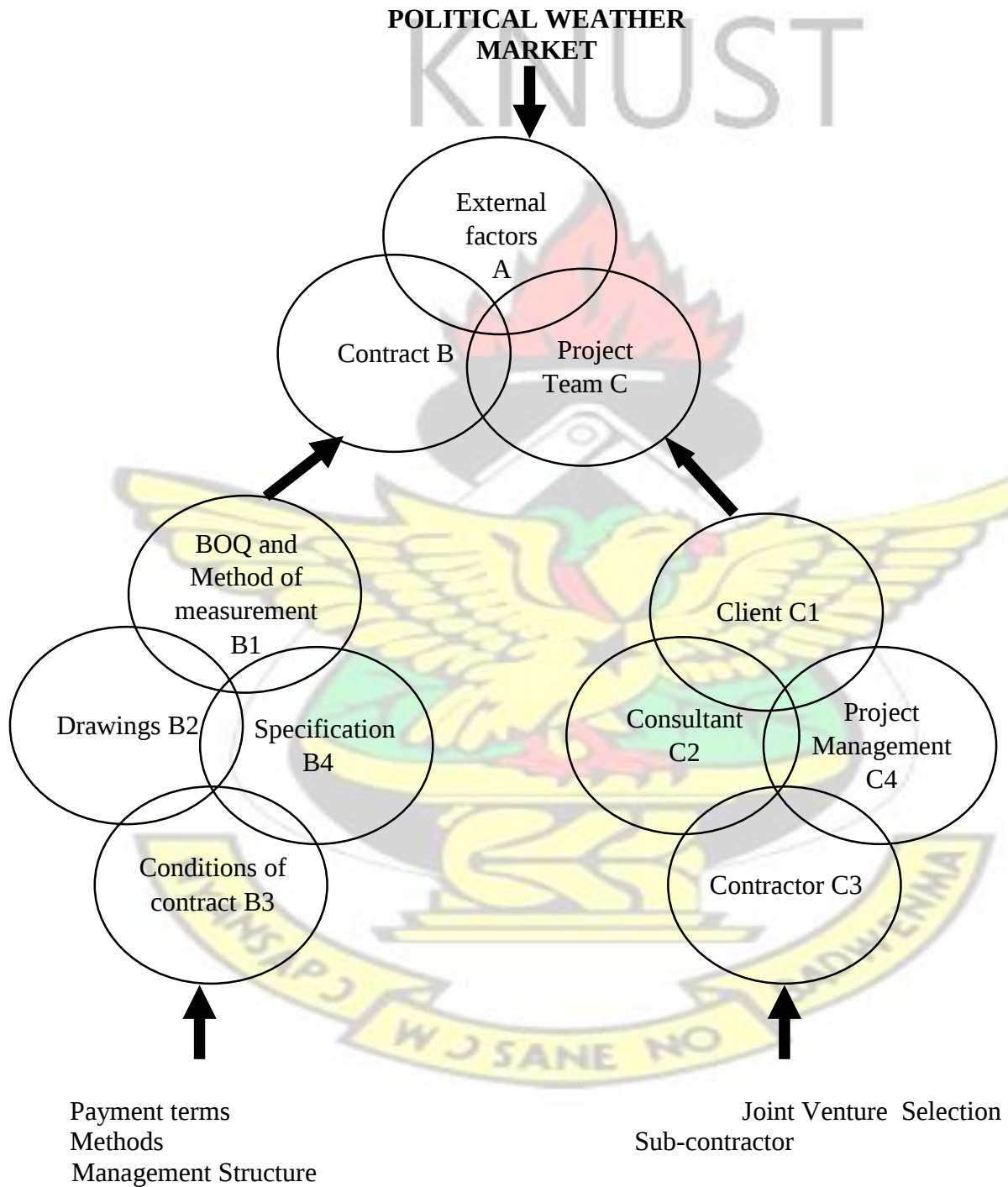


Figure 2.3: Potential sources of construction conflict. (Kumarswamy, 1997)

Some claims are unavoidable due to the unforeseen changes in project conditions. Such claims are usually settled amicably. Example of such kind of claims could be weather conditions and unforeseen or unexpected changes in some geographical areas. However, earlier unhealthy conflicts can trigger unnecessary disputes in such situation (Kumarswamy, 1997). Whereas these kinds of conflicts are uncontrollable or unavoidable by stakeholders in a project, they still remain a risk, and can create unwanted tensions between parties if they occur. Conflicts, whether controllable or not, may lead to claims from one or more parties and should be avoided considering the overall project performance. Some literature suggests that one source to a claim is more common than another. According to Kumarswamy (1997) does claims in construction projects usually arise as assertions for extra money or time. And are usually based on the contract itself, a breach of contract, a breach of some other common law duty, a quasi-contractual assertion for reasonable (quantum merit) compensation, or an ex-gratia settlement request. This is supported by Kadehors (2004) who states that “major sources of conflict in construction are contractors’ claims for additional payments for work resulting from changes, errors and omissions in the contract documents”. Changes in construction projects are common and seems to be a major source to conflicts, but changes are sometimes needed in order to complete a project. From a project owner’s or main-contractor’s perspective are changes undesirable, since changes have some indirect effects which ultimately have a damping impact on project cost and/or schedule (Sun and Meng, 2009). However, from a (sub) contractor’s perspective can changes desired since contractors are considered to benefit financially from claims, and many contractors develop a critical stance towards the

contractual documents (Kadefors, 2004, p. 179). This conflict of interest could be explained by agency theory or as opportunistic behaviour, which is presented in next section.

2.2.4 Claims management

The term “claim” were defined in section 2.3 Claim definition and the basic relationship between conflicts, claims and outcomes was presented in Figure 2. Whereas it was identified that claims are the source of some sort of conflict, and that conflicts are often related to changes in the construction project. During the construction process does changes and other circumstances requires flexibility and sound judgement (Abdallah et al., 2013). And claims arises when one party to the contract has suffered a detriment for which that party should be compensated by the other party (Kululanga et al., 2001). Whereas claims should be managed before leading to disputes. Following claims to disputes, does Acharya et al. (2006) argue that disputes cannot be managed with the statement that “Disputes require resolution; this means they cannot be managed.”. The chain of problems leading to disputes, as suggested by Acharya et al. (2006) in Figure 4 indicates that if claims are not clearly resolved it may lead to a dispute. Claim management is therefore important in order to avoid disputes and resolve conflicts, as suggested by Bakhary et al. (2015) “the key objective of the claim management process is to resolve certain problems in an effective and efficient manner”.

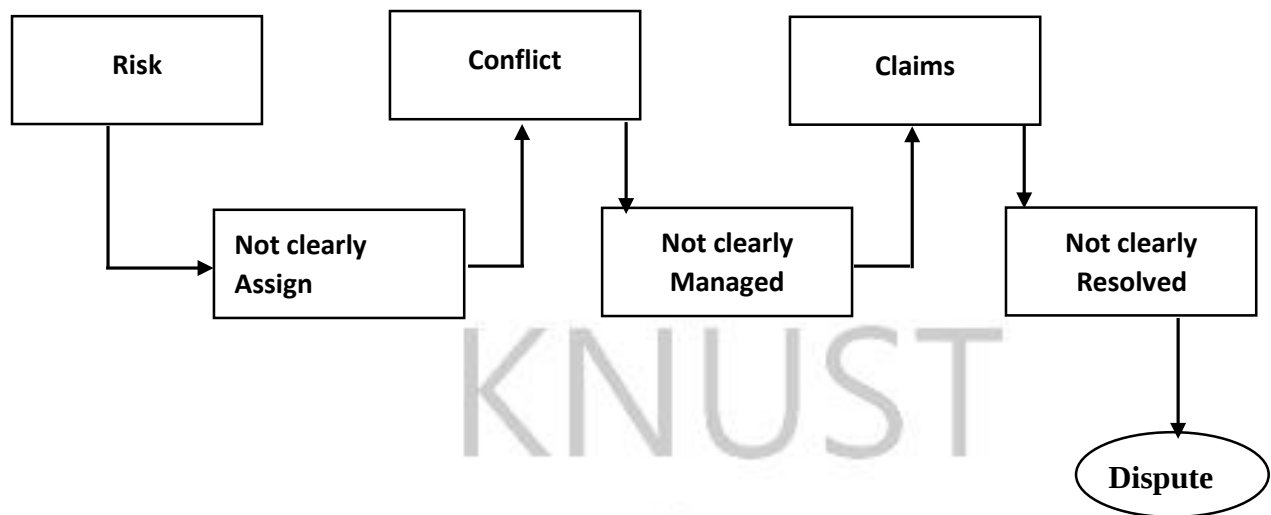


Figure 2.4: Risk, conflict, claim and dispute continuum model (Acharya et al., 2006)

Since claims are problems in construction projects, should claim management and resolution of ongoing claims get more attention. However, this is not the case as stressed out by Kululanga et al. (2001), who argues as following:

"The management of construction claims is the greatest challenge that is facing contractors in today's vacillating business environment. [...] Although the construction business environment has moved toward partnering arrangements in recent years. The number of contractual difficulties continue to rise."

Claim management requires a considerable great amount of resources, and the production of claims in acceptable detail and with sufficient supporting documentation involves great deal of effort (Vidogah and Ndekugri, 1998). Good documentation by the parties is essential in avoiding unproductive confrontation (Enshassi et al., 2009). However, adequate documentation and record keeping is probably one of the most common problems facing proper management of claims, according to Hassanein and El Nemr (2007) who refers to findings from existing research, where the problem stems from the lack of weight that the contractor site representatives give to documentation management. Documentation is an important step in the claim management process where all the supporting documents should

be compiled together. However, in reality, the importance of this step is not realised as much as it should be (Bakhary et al., 2015).

The lack sufficient documentation seems to be a major issue facing claim management, according to much previous research. In order to achieve proper documentation for claims does Bakhary et al. (2015) give some examples of supporting documents as: drawings, specification, written instruction, cost breakdown and measurement records.

Insufficient documentation is one of the problems identified in claim management. Further does not the process or management function itself receive enough attention during a construction project. Claim management is not recognized as a management function that require human expertise to give continues attention for claim-relevant matter throughout the project, whereas claims are often investigated after practical completion (Vidogah and Ndekugri, 1998). However, solving and settling conflicts with claims should be done directly, whereas issuing a claim should be done by the contractor directly after the occurrence of the cause of the claim or soon thereafter (Abdul-Malak et al., 2002). A problem related to that claim management is not receiving much attention during a construction project, is that the responsibility of handling claims is not clearly assigned. Vidogah and Ndekugri (1998) identified that the responsibility was often allocated to project owners architects and engineers even though they were not knowledgeable on the subject. Responsible personnel for claim management should have enough knowledge on the subject, not only in order to formulate a claim, but also when evaluating a claim. From the claimed party's perspective is the evaluation of importance, since a well-prepared defense can disprove evidence and claim costs that are not supported by accurate records (Enshassi et al., 2009). Considering the basic relationship in Figure 2 should claim management also focus on finding improvement from conflicts. As suggested by Kumarswamy (1997), does conflicts not necessarily lead to disputes but could potentially

lead to improvements. Cross-fertilization of ideas between parties and actors considering design alternatives can lead to a better design. Identifying improvements is not directly the purpose of claim management, but could be more considered in relation to claim management. To summarise the problems from existing literature associated with claim management in construction projects, are the major problems lack of attention and poor documentation. These two problems are further magnified when no responsible personnel with knowledge about the subject is assigned for claim management. From existing research, it is quite clear that claim management is lacking attention. However previous research have addressed claim management in construction projects, with no clear distinction of the contractual form.

2.2.5 Claims and relationships

Claims are issued by one party against another, whereas previous disputes could further trigger unnecessary disputes as identified by Kumarswamy (1997). Even though a project could be considered as a temporary organisation (Tonnquist, 2012), can the cooperation between different actors and parties continue in form of a new project. This is very much the case of the principal organisation is this research, since the sourcing of same suppliers and the partnership with engineering company is present in most projects. Sub-contractors are usually contracted locally, depending on where the plant is located, whereas the relationship is typically short. Abdul-Malak et al. (2002) identified that in some cases may one party decide not to issue a claim in order to maintain good relation to the other party. In this sense is the party that decides not to issue a claim, paying the costs of a conflict that another party have caused. As another aspect to relationship between two parties and claims, does Harmon (2003) argue that “the entity that controls the most resources can coerce the “weaker” party to perform in the manner in which it desires” which was identified especially in the relationship between owner and contractor. Having a history of

claims and especially lost disputes, could further affect the relationship whereas the main contractor preferably choose another contractor (Lu et al., 2015). With regard to future projects it would be important to avoid any disputes or conflicts that could affect the relationship. From another perspective should also all parties have the right to compensation of a conflict caused by another party, without fearing that that relationships to be affected. Considering potential source of conflicts in Figure 3, does Kumarswamy (1997) visualise conflicts between project teams (C1-C4) to be a potential source to conflicts. Since the main contractor outsources activities, can not conflicts from designer and supplier related factors be raised against the client, since designer and constructor are working as a team under the main contractor (Shen et al., 2017). Hence, would an additional sub-subsystem needed where the principal organisation is responsible for the conflicts that arise related to out-sourced activities. The relationship between principal organisation and sub-contractors creates more potential sources of conflict. However, these potential sources are “internal” for the main contractor and affects the relationship between principal organisation and client indirectly.

2.3 EMPIRICAL REVIEW

2.3.1 Construction claims in Road Construction Projects

Moura and Teixeira (2007) investigated the types of construction claims in the Portuguese construction industry. The results pointed out that direct changes claim, with a frequency of 36%, the other main subtypes of changes claim, namely indirect changes and errors and omissions, and delays claim with 16% were the most invoked. In relation to the amount requested by contractors it totaled more than € 245 million, representing 23.6% of project's initial contract value, while the amount paid by clients was about 76% of the demanded sum, indicated that contractors just requested to be paid for damages they could easier demonstrate. These conclusions also stand for the methods of settling disputes arising from presentation of

construction claims, as direct negotiation between parts was used in 73% of the cases, while in just two of them the dispute went to the courts of law.

2.3.2 Effects of Claims on Construction Projects Delivery

Literature have come to the consensus that claims have effects on construction project delivery. Some tangible and others intangible effects is noticed. According to Zanelidin (2006) once a claim is presented, the client together with the builder can agreed on creating a modification order or disagree and make a building contract dispute. This explains that claims must not always bring conflicts to affect the project. It can be settled amicably without the need for litigation. He further emphasized that, in the United Arab Emirates construction claims seems to humper the finishing of the building and result in delays in execution of projects. Thus construction claims delay the progress of work.

Al Mohsin (2012) collected data on the most effects of claims in building projects in Oman and discovered that, when there is an extension of time it often affects the project by a proportion of 75%, also 15% of the effects were in work postponement as effects of the claims but 10% of the effects occur when there is delay in payment. However, Ndiokubwayo (2008), indicated that, 14% of site instructions contained waste as a result of variation orders, such as:

- **Acceleration:** A way to make up for the delay caused by claims, the project must be accelerated to meet the completion date. Workers are forced to work faster and harder. If extra workers are introduced in to quicken the project, before crowding may arise resulting into other inefficiencies. Contractors might try to take advantage of claiming that he suffered damages so that he/she may well make more money. (Chester and Hendrickson, 2005);
- **Delay:** Claims that arise from construction projects affects the duration of the project. This delays the project completion. According to Chester and Hendrickson, 2005, Studies into the numerous advanced as well as emerging countries have shown that delays in

construction are common problems in the execution of projects (Sambasivan and Soon, 2007). Cost overruns and poor quality affects as a result of construction delay. It also results to more disagreements (Al-Khalil and Al-Ghafly, 1999), and can result to the abandonment and extended process of the project by the parties. (Aibinu and Jagboro, 2002). Also Assaf and Al-Hejji (2006) believed that delay denotes loss of client's revenue as a result of absence of production as well as other profitable facilities in time. Builders also suffer from material, higher expenses and labor costs. And this is as a results of productivity being low. In the emerging countries particularly, research over the last ten years reveals a variety of Challenges that have constantly lead to delay in construction and cost overruns in virtually all types of building projects (Faridi and El-Sayegh, 2006). The main problems which building projects encounter are typically as a result of insufficient procurement system, lack of project management practices inadequate resources, inconsistencies between design as well as construction, change orders, lapses in communication, cultural related issues, and diverse interests of the project members;

- **Cost cutting and overruns:** construction claims tend to influence the contractor to overrun cost or cut cost incurred. According to Koushki et al. (2005), the sources of cost overruns are builders-related falls, material-related problems and client's' financial constraints. To reduce cost overruns, owners of the project should find an experienced consultant as well as dependable contractor to undertake the projects.

Also one of the biggest cause in reducing cost cases rotate around the request for information. With poor engineering drawing, the builder will be required to give in several request for information as needed to make the drawings clearer. The chief difficulty is the inadequacies of sending request for information (RFIs). For instance, the builder will not clarify that the engineering drawings are not accurate the moment he takes them. It is expected that the workers on the site will run into problems as building begins. What

precedes is a succession of time delaying stages that affect the plan. After site checks, supervisors will make a request for information and it is sent to the engineer. For a large project, the turnaround for the engineer can be weeks. This result in delays to the builder. The request for information procedure takes some period as there involves a number of checks to be done all along the way. Though this is ongoing, the builder must create the best of the condition by working in other works or working around the difficulty. This will possibly slow productivity plus delay costs in sending the request for information. All of these steps are due to constitute a claim against the client or client's representative (Chester and Hendrickson, 2005):

- **Quality degradation:** The contractor tends to work around the problem or do another works whiles waiting for the RFIs (Chester and Hendrickson, 2005). This affects the quality of work done. As a results of frequent variations, the quality of work is poor. Builders tended to compensate for the losses by doing "short cut" works;
- **Productivity degradation:** There is delay when a claim arises. The view of Chester and Hendrickson (2005) was that interruptions, delays and redirection of work has an adverse effect on the productivity of labour. These in turn can be converted into labour, or financial value (Ibbs and Liu, 2005). They further explian that the workers' productivity was likely to be critically affected in cases where they were needed to work actively for longer times to compensate for plan delays. Claims normally lead to interruptions together these interruptions are accountable for the productivity of labour degradation. The utmost important types of interruptions were as a result of inadequacy of materials and information as well as the work out of sequence. Inadequacy of material was stated as the furthestmost grave disruption, since labour could not progress their works as well as end up idling whereas waiting for the materials. Though, the disruptive effects could not be evaded in numerous cases.

2.3.3 Strategies to Minimize Claims in Road Construction Project

Kululanga (2011) defined Construction claims management as a process of engaging and coordinating resources to improve a claim from ascertaining and examination through preparation, as well as performance, before it gets to negotiation and settlement. The main goal of the claim management development is to effectively and efficiently resolve problems. Hassanein and El Nemr (2008) shared their view that impoor management of claims from contractor's team due to lack of proper procedure and insufficient documentation for change orders can lead to loss of rights of about the fifty percent. Effective and efficient management can minimize the effect of claims on project performance. Enshassi et al. (2009) also expressed that, preventing arbitration and litigation in settling claim is a good solution that the successful builders must not ever forget. Contractors must try their optimum best to reduce the number of claims.

This keeps them in good standing. All project members naturally have strong attention in preventing and reducing the difficulties that result to claims. The solution, therefore anticipates and avoids problems in future. If a problem has already surfaced, there is the likelihood of the claim to reduced, if each party responds to the problem and resolves it in time. When problems arise, it is very necessary to resolve it as early as possible. Considerable claims cause damage to both the client and builder. The client might suffer loss of income, funding difficulties or of delayed. The growth and period of construction projects are impacted by disputes and claims. Disputes can cause the client to be unable to find their asset revenue as results of delays. They also affect contractors since projects' delayed come along with an increase in materials and labour costs (Marzouk and Moamen, 2009).

In light of the fact that nearly no building projects are contractually claim-free, when effectively implemented, Jergeas and Hartman (1994), established a general procedure to effectively accomplish contractual claims as well as keep differences from mounting. They include proper

record keeping, good knowledge about contract, planning and scheduling, taking proactive actions etc.

Proper Records Keeping

Realistic sign together with daily-progress reports, photographs as well as video films, memos, minutes of meeting, drawings, transmittals, and several others, are among the most imperative sign that should be reserved, preserved and prepared in an appropriate manner to facilitate contracts and project administration responsibilities;

Contract Knowledge

Regularly this is among the things ignored by builders. The builder should cautiously read and understand their requirements as well as tasks as levied by the contract. Loyalty to the contract is important and the builder must completely fulfil with all requirements of contract, particularly those that thoroughly relate to extension of time, like the variation clause, the claim clause, etc., as failure to do so reduces the probabilities of a claim's achievement;

Preservation of rights

To preserve their right to a claim, a written announcement of a probable claim should be attended within the period as specified in the contract. Among the circumstances that need written notice to preserve the builder's right are; any inconsistency in contract clauses; obligations to perform work in a specific method which differs from the original; any stop work order; owner supply materials or equipment related issues; and many others;

Qualify change orders;

Any change order that involves extra cost should be given proper attention prior to negotiation or signing off;

Planning and scheduling

The backbone of the construction project. Appropriate planning ensure resources are adequate and obtainable at any period of time required and that enough time is allowed for each task and

all activities starts at proper times. As critical paths may alter as the work develops, the client as well as the consultants should be kept abreast by regularly or periodically informing them work programme.

Proactive actions:

A claim conscious character is informed, as it will enable the claim management process. Practical actions including quick responses to complaints from clients, demanding written validation on any imperative verbal talk or teaching, extension of time, requests on explicable delays, records on any disagreements that arise with clients or his representatives, and clarification on any instruction or change order prior to the beginning of such additional works. Levin (1998) notified that the core difficulty of claims management is not from the excess of all management procedure, but from the incompetence of management task at each stage. Key features consist of how to defend a planned claim, how to work out and present it with complete and thorough documentation, as well as how to discuss positively with the client and his consultant. Ren et al. (2001) revised the progresses in claims management and stressed on the deficits in existing claims management methods. His outcome was targeting the requirement for advance of the efficacy of negotiating claims and proposes the use of multi consultant systems as a method to attain it. Further, they also brought out the values that clarify construction claim method and gives a general background that aims to enable assessment of construction claim method as one of the plans for adding up construction processes. Consequently, Scott and Harris (2004) employed a different method to appreciate how builders explain their claims on building contracts together with how contract administrators measure them. This is completed by summarizing specific claim types into situations and crossexamining not only builders and contract managers, nevertheless also claims consultants, to consider their views on how the circumstances characterized by the situations should be managed. More importantly, Hassanein (2008) revealed that claims management in the

Egyptian business sector has been suffering from many difficulties, together with lack of correct notification actions in state contracts and poor records. Change orders has really lost as a result of poor documentation. Oral change orders are present in roughly 76% of the projects; half of which resulted in loss of rights due to inappropriate documentation, which was mostly ascribed to the lack of contract responsiveness of the site team.

Enshassi et al. (2009) discussed that all parties including the client, consultant and contractor should fully appreciate the steps involved in a claim. Though both clients and contractors need to take thorough steps to ensure a claim never happens. They also need to be prepared and wellversed in how to identify, prepare, and defend a claim. For this reason, the claim management process should be clear and understood by all project parties, especially the contractor so that they know how to present claims in a way that ensures receiving their rights.

2.4 CONCEPTUAL FRAMEWORK

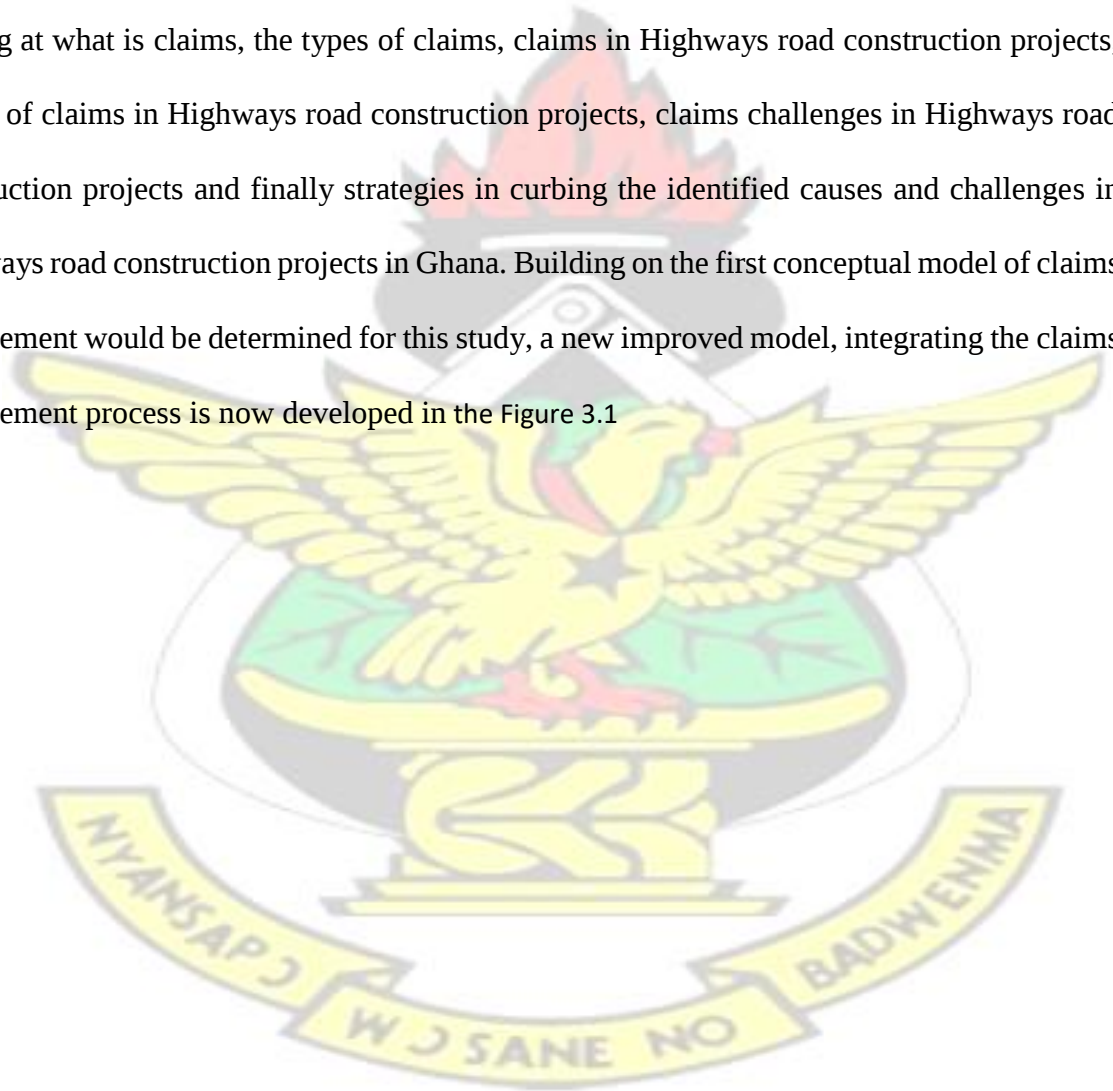
According to Hegazy (2012), construction claim in the Canadian Law Dictionary is welldefined as a “declaration to the right to change, relief, or property “or a “not able to fulfil requirements under the contract”. Kululanga et al. (2001) indicated that the word “claim” originate from the old French word “claime”, which is well-defined in the oxford English dictionary as a request for something as due; a declaration of right to something.

There are four main bases on which a claim may be made (Chappell et al., 2005) these include Contractual claims -under express contract conditions, Common Law claims-for breach of contract at common law Quantum Meruit claims - on quasi-contractual or restitutionary basis; and Ex-Contractual claims or ex gratia awards or claims - on out of kindness basis.

Claims are cause by a wide range of issues that is variation of the works, change in specifications, error in description etc.

The above notwithstanding, it can be settled amicably without the need for litigation. He further emphasized that, in the United Arab Emirates construction claims seems to humper the

finishing of the building and result in delays in execution of projects. Thus construction claims delay the progress of work according to Zanelidin (2006). In light of the fact that nearly no building projects are contractually claim-free, whether effectively implemented, Jergeas and Hartman (1994), established a general procedure to effectively accomplish contractual claims as well as keep differences from mounting. They include proper record keeping, good knowledge about contract, planning and scheduling, taking proactive actions. The study seeks to investigate claims management culture of Highways road construction projects by first looking at what is claims, the types of claims, claims in Highways road construction projects, causes of claims in Highways road construction projects, claims challenges in Highways road construction projects and finally strategies in curbing the identified causes and challenges in Highways road construction projects in Ghana. Building on the first conceptual model of claims management would be determined for this study, a new improved model, integrating the claims management process is now developed in the Figure 3.1



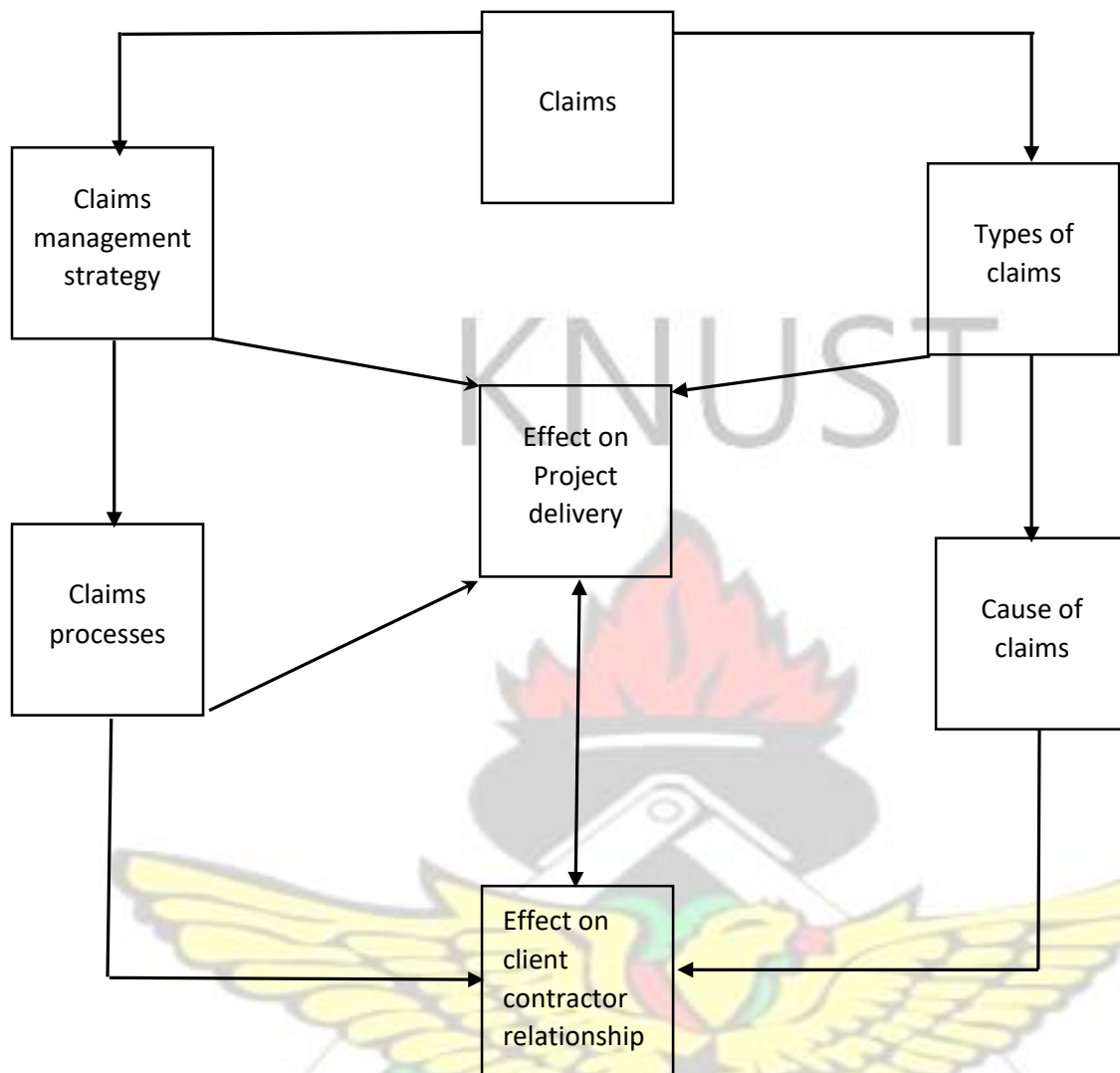


Fig 2.5 show the conceptualized Highways road construction claims management approach.
 (Source authors construct 2019)

CHAPTER THREE RESEARCH METHODOLOGY

3.0 INTRODUCTION

Henning et al. (2004) asserted that research cannot be done in vacuity: and hence, it must be created within a specific paradigm, beheld through the strategic lens of particular mindset and constructed using identified and appropriate approaches and strategies; this is called research methodology. Therefore, this chapter is dedicated to reporting on the research methodology or framework adopted for this study. It broadly considers the various philosophical underpinnings

and approaches used in conducting research, and why specific ones were employed in steering the study to achieving its specific objectives. The chapter broadly, like the research onion formulated by Saunders and Lewis, firstly presents on the research philosophy (where the various philosophies were discussed) and a concession made on the philosophy which would be adopted for the study. Following chronologically in a similar vein of discussing theories, and determining what was adopted for the study are presentations made on: the research approach used (either deductive or inductive); the research strategies to be implemented (whether experiment, survey, case study etc.); the time horizons which the study was conducted (longitudinal or cross-sectional); and the data collection methods employed (interviews, questionnaires, observations etc.). Also, the chapter presents on the population and sampling frame of the study, and concludes by discussing the data processing approaches and tools of analysis which would be used in analysing the primary data to be obtained from respondents of the study.

3.1 RESEARCH PHILOSOPHY

Philosophical acquisition and understanding of knowledge significantly affect the study framework espoused (Somia, 2015). Positivist research was used for the research. The Positivist predominantly belief science to be concerned with the prognosis and meanings to recognizable happening (Kincheloe, 1991). The trademark otherwise hallmark of positivism are proof that identification and prediction are key.

3.1.1 Research Paradigm

These paragon are vital to the researchers who choose analysis techniques that ought to be most acceptable for an underlying context of matching assumptions. Moreover, the paradigms are a collection of interconnected assumptions regarding the social world which provides a conceptual framework and philosophical approach for a standardized research (Blaikie, 2019). The researcher selects these paradigms and scholarly assumptions concerning methods,

instruments and partakers to be used in the research study (Banister, 2011). However, the study follows epistemology leg of philosophical system which, deals with how individuals define what is right (Cibangu, 2013).

Positivism considers the social earth as though it were concrete reality such that it is found to interpret objectively. In view of this the real world can be discipline only through the employment of techniques that prohibits human beings from contamination of its inclusion (Blaikie, 2019). In effect, the study is on the proposition of the identification of the motivational factors of project team members which must be carried out unbiased and can be replicated.

3.1.2 Ontological approach

Ontology and epistemology are the unique approaches of viewing a study philosophy. Ontology in commercial research may be described as “the technological knowhow or research of being” and it deals with phenomenon of truth (Saunders et al., 2012). Ontology is a system of perception that provides clarification with the aid of an individual or group concerning what comprises a reality (Bryman, 2012). There are two types of entities that as adjudged subjective or objective with a common question to know if they should be mentioned as such. Subjectivism and objectivism (positivism) are perceived as the two significant parts of ontology.

Objectivism specifies the stance that collective units’ social entities exist in facts outside their social settings about concerned with their existence”. In other words, objectivism “is an ontological stance that explains the collective unit of an existence of a social occurrence that have meaning independent of the individuals involved (Saunders et al., 2012).

Subjectivism otherwise known as interpretivism, identifies social occurrences as illusions that emanates the consequent effects of the social actors in perturbed with their social existence.

Alternately, constructionism could be described as “ontological position which explains social occurrences, what they mean and how they are attained (Blaikie, 2010).

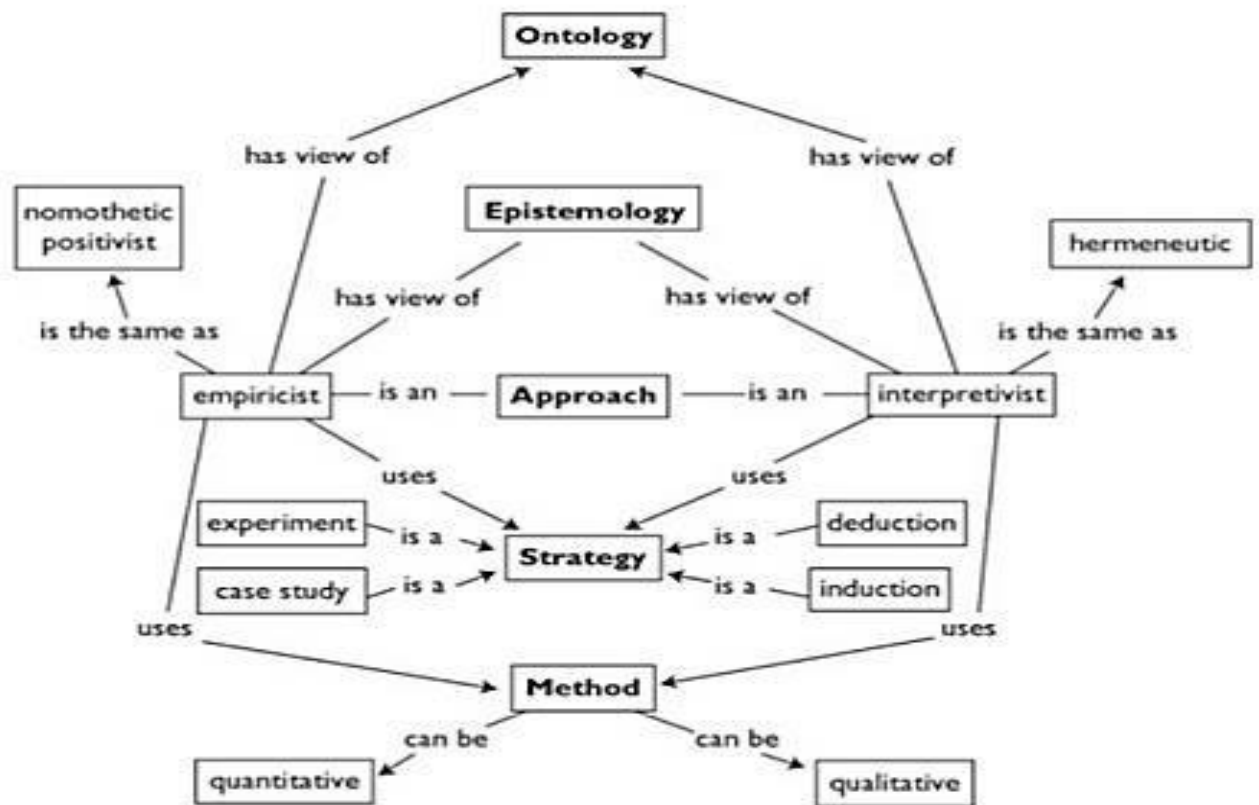


Figure 3.1: Impact of research philosophy on the choice of research method

Source: Dudovskiy (2009)

3.1.3 Epistemological consideration

Epistemology works with both the information sources in a corporate research as a branch of philosophy. In particular, in the field of research, epistemology has been associated with opportunities, existence, references and expertise constraints (Saunders et al., 2012). Alternately, epistemology could be labeled as the research of a standards whereby the scholar categorizes what information seems to and will not constitute. Simply put, epistemology concentrates on what can be known to be genuine. It's the opposing way of looking at things to ontology (Saunders et al., 2012). Epistemology has several components, including normativity, cultural outlook, perennialism, progressiveness, rationalism, pragmatism, empiricism,

constructivism, etc. Empirical science and rationalism may be defined as the two main development discussions related to personal research within the field of epistemological research (Hallebone and Priest, 2009). Empiricism recognizes observation-related private sensations, emotions and feeling as either a legitimate source of information, while rationalism is based on empirical evidences obtained as more of a source of understanding via valid and reliable procedures (Saunders et al., 2012; Hallebone and priest 2009).

3.1.4 Axiological consideration

Axiology has become a subset theory which explores quality judgments. In particular, axiology has been involved in evaluating the function of one's own significance as a scholar at all phases of the study process. Axiology mainly relates to the research's objectives (Li, 2016). This section of the study approach seeks to justify whether you're just attempting to demonstrate or judge the universe or just attempting to do it. Basically, axiology concentrates on what you cherish in your research study. This is very essential to the researcher because his or her principle may considerably affect his or her method of conducting research and what is valued in his results. (Lee and Lings, 2008; Li, 2016).

3.1.5 Research Philosophy Adopted for the study

In this research, the philosophical paradigm taken is that of positivism, where objectivism is the positivist epistemology. In finding absolute knowledge regarding impartial reality, the positivists are generally unbiased by objectivism. Researchers are autonomous on what is being investigated. That is, the consciousness of the researcher does not affect the results (Saunders et al., 2012). Meaning lies exclusively in objects, not in the researcher's consciousness (Saunders et al., 2012), and this significance is the goal of the researcher in this research. Positivist findings are generally reported in a descriptive and factual way.

3.2 RESEARCH STRATEGY

A studies strategy is a step-with the aid of-step plan of action that offers course for your mind and efforts, enabling you to perform research systematically and on time to provide satisfactory outcomes and distinct reporting. This allows one to stay attentive, lessen frustration, increase satisfactory and most significantly, preserve time and sources. The studies approach is the nuts and bolts of your approach, describing the motive to your research and the experiments you'll do to ascertain your expected goals (Jenny, 2014). However, Baiden (2006) asserts three (3) clear area as an alternative that are qualitative, quantitative and mixed method (triangulation). These types of strategies are available to the researcher for use, but the choice amongst these approaches is dependent on the reason for conducting the study and aims and objectives to be attained.

3.2.1 Quantitative

Quantitative research is defined by Aliga and Gunderson (2000) as the collection of statistical data that are interpreted using numerically based procedures, which implies that, the quantitative research is basically about gathering numerical data in order to interpret a phenomenon. Likewise, Bryman (2014) asserts the usefulness of this method when analysing data on a baseline survey or large scale. Creswell (2009) suggests that evidence with numerical importance or past words are considered by quantitative research methods in finding observations. Descriptive research approach such as standard deviation, mean score, regression analysis etc. uses quantitative research in other to distinguish between the variables being used. Therefore, in order to clearly explain quantitative research methods, this technique enable you to ascertained data when analysing and collating figures.

3.2.2 Qualitative

Qualitative research study is defined in many ways by scholars and authors base on their opinions. The ideas drawn by these scholars are focused on either the purpose of the research. Scholars/researchers who focus their study using qualitative research to make meaning out of what they have created try to interpret and make meaning out of the personal experiences in the world of these individual (Merriam, 2009). Qualitative research is described as the type of research study that yields outcomes that are obtained from actual global settings in which the occurrence of interest unwinds naturally (Patton, 2001). Qualitative research in applied context, stress the use of data in qualitative research but does not point out values that are ordinal (Nkwi et al., 2001). Moreover, qualitative research is perceived in using techniques such as case studies resulting in descriptive and narrative account of a particular practice (Parkinson and Drislane, 2011).

3.2.3 Mixed Methods

The use of both qualitative and quantitative research has gained some level of attention by researchers nowadays. Considering the level of attention, it is thought of as the third (3rd) research approach/method to both qualitative and quantitative methods. Mixed techniques and multi-strategy are amongst the names given to this new research (Bryman, 2004). Creswell, (2009) opined that, the mixed or triangulated method enables simultaneous collection of information through interviews and subsequently with an inductive observation for accurate response from respondents. However, the combination of these two techniques aids the researcher to increase the validity and reliability of the study compared to the use of one method (Tashkkori and Teddlie, 2004).

3.2.4 Research Strategy Adopted for the study

The type of research strategy used for this study was the positivist approach, that is, quantitative research. The aim of quantitative research is to identify, clarify and generalize the results of the studies. As far as the method is concerned, quantitative research begins with hypotheses and theories using formal tools such as questionnaires and transforms the information into calculation indicators.

3.3 RESEARCH APPROACH

Despite one's research area of study, the most suitable technique for the research is considered within the appropriate outlook with a logical reason for using that procedure. A step by step research approach is considered using techniques and master plans for the study right from the assumption stage through to the analysis and interpretation of the information (Creswell, 2013). Most scholars are of the point of the view that research techniques/approaches provide a way for problems arising in research to be solved and the rising questions answered. The theoretical posture of every research has an effect on the technique espoused for the research (Creswell, 2013). However, there are two (2) main research techniques as follows, inductive research approach and deductive research approach.

3.3.1 Inductive

The inductive research approach requires the researcher to be involved and thus, it has an objective nature (Newman, 2003; Creswell, 2009). This however can be interpretive and results in a generalised broad based non-linear exploratory path (Newman, 2003). there is a research gap between the proposition pronounced and the ending of a statement based on rational reasoning. The conclusion is being deduced to be aided by the pronouncement made (Ketokivi and Mantere, 2010). Interviews and case studies persist to be the most fit strategy within the

interpretive theoretical area using inductive strategy (Creswell, 2009). This qualitative research technique involves surveying a case or occurrence and logical enactment.

3.3.2 Deductive

Contrary to inductive technique/approach deductive judgement happens when proposition of a statement from which another statement is being inferred are valid, making all the conclusion valid when all propositions are true (Ketokivi and Mantere, 2010). This procedure tackles existing hypothesis that are being used far and wide and been acknowledged or an aim concerning a subject by recognising the hypothesis and examining through experiments to affirm the theory (Ofori-Kuragu, 2013). Naoum (2012) asserts that, deductive research is widespread and thus, progress from this point to a particular occurrence. Quantitative research method can take the form a deductive approach. This technique adopts numerical and statistical procedure in analysing and processing information gathered, while corroboration between the variables and experimenting the theories to draw a valid conclusion (Creswell, 2009).

3.3.3 The Research Approach Adopted

In considering the research approach adopted for this study, preference favored the use of the deductive research approach as it is more appropriate and suiting to the use of pragmatist research philosophy. The deductive research approach is objective in nature, and in the investigation of the claims management culture of Highways road construction projects in Ghana it was imperative to allow for experts 'views collection through primary data by using structured research questionnaires.

3.4 RESEARCH DESIGN

The research styles fall under any of the three main research strategies proposed by Baiden (2006). Thus, it could either be experiment or surveys (quantitative); case study, action

research, grounded theory, ethnography etc. (qualitative); or convergent, transformative, explanatory or exploratory sequential etc. (mixed method).

3.4.1 Experiment

As a research style, experiments are used mostly in the scientific or natural researches sciences and some forms of psychological social researches, so as to establish causality between two variables through the exploratory and explanatory mode to answer the how and why research questions (Saunders et al., 2009). With the aim at developing theories, the experiment research style is used in data collection through observing problems known as hypothesis under a controlled environment with a high sense of reliability and trustworthy of findings (Bryman, 2004; Baiden, 2006). In experiment research, we mostly look for treatment for a phenomenon which is expected to be one variable, by keeping the control factors for the other variables and measuring the outcome of both variables. While experiments undertaken in the natural sciences are mostly done in a controlled laboratory, those in the social sciences are conducted in the fields (Owusu-Manu et al., 2012).

3.4.2 Survey

Surveys are used as tools for the collection of large number of quantitative data for exploratory and descriptive research through the use of standardized questionnaires (Saunders et al., 2009) and structured interviews with the aim of generalising from sample to population using statistical analysis (Creswell, 2009). In congruence to the deductive methodology, surveys are adopted for answering the who, what, how many and by how much research questions. In studies with the need for a high degree of validity and reliability, the survey research style is adopted (Kwofie, 2015).

3.4.3 Case Study

Case studies are for empirical or exploratory investigations where the researcher has to do an in-depth analysis. It is mostly employed within a context of existence, and its purpose is for gaining rich understanding of such existence (Baiden, 2006; Saunders et al., 2009). In choosing case studies, one must be of the idealist mindset of ontological position, Interpretivism through the epistemological paradigm and a value driven stance of the axiological perspective; case studies could either be single, multiple, embedded or holistic (Pathirage et al., 2005) in providing insight into the phenomenon (Fisher and Purcal, 2010); it should be done through the collection of several data over a time period (Creswell, 2009). Yin (2003) opinionated that case studies are forms of empirical enquiry in which one looks into a contemporary phenomenon within its real-life context, especially where the boundaries between the phenomenon and context are not very overt.

3.4.4 Grounded Theory

Mostly called as a theory building strategy, which enforces the researcher to combine both the inductive and deductive research approaches to explain the behaviors and actions of respondents in a survey (Creswell, 2009; Saunders et al., 2009). In this research style, the researcher adopts numerous collections of several data which are subject to further observations to confirm or reject predictions generated from such data.

3.4.5 Action Research

This type of research style is so involving and requires several expertise to pull it through (Baiden, 2006). For action researches, the researcher and the participants are both involved in finding solutions to problems of genuine concern within a setup, where the researcher focuses the action, change and uses participants' involvement in detecting, evaluating and taking various actions (Baiden, 2006; Saunders et al., 2009).

3.4.6 Ethnography

As mentioned earlier, this style is used when one adopts the qualitative research methods. Ethnography also follows the inductive research approach by considering a particular group over a period in their natural settings through observatory or collection of primary data (Creswell, 2009). This style is tagged to be very time consuming and involving; as the inquirer must be able to explain the phenomenon just as the respondents shows it. Hence, the only way to do that accurately is to get the inquirer involved in the setting where the research is being undertaken (Saunders et al., 2009). Therefore, it is not surprising that this research style adopts the inductive approach, because a high degree of flexibility is required in this regard to easily see and record the changing patterns of behavior's observed in real context (Saunders et al., 2009).

3.4.7 The Research Design Adopted

The research strategy and style employed for this study were the use of survey questionnaires (quantitative approach). Surveys are used as tools for the collection of large number of quantitative data for exploratory and descriptive research through the use of standardized questionnaires (Saunders et al., 2009) and structured interviews with the aim of generalizing from sample to population using statistical analysis (Creswell, 2009). In the investigation of the claims management culture of Highways road construction in Ghana large numbers of quantitative data will be collected thus the adoption of a survey.

3.5 DATA TYPE AND CATEGORIZATION

3.5.1 Sources of Data

Primary and secondary data

The study collected both primary and secondary data. The secondary data was collected through literature review from previous thesis, book, journal publications etc. The primary data on the other hand was collected from the field survey.

3.6 POPULATION AND SAMPLING PROCEDURES

3.6.1 Population and Sample Frame

Cohen et al. (2000) defines population as a class or category of persons prone to investigation. This was further explained by Angrist and Pischke (2010) as a class or group of persons who have similar attributes needed for study by a researcher. This collection of components generally has particular features or expertise or other qualities that allow them to provide the type of data required (Ary et al., 2018). Basically, a population is any specified subject's complete percentage of people, animals, objects, observations, information, etc. The significance of recognizing the suitable group depends on the reality that the research results are valid and reliable (Chow et al., 2018). The population of the research is the universe of units from which the sample is selected (Bryman, 2004). In the current study, the target population (study respondents) comprised all road construction companies register with the ministry of Roads and Highway who are in good standing. Since the scope of study was limited to road construction companies in the Greater Accra region, these respondents will be selected from road construction firms in this area. The population will be selected from A1 – B1 road construction firms registered with the Ministry of Roads and Highways who are in good standing, they were one hundred and seventy (170) in number. This can be verified from the ministry roads and highways or their website.

3.6.2 Sample Frame

Sample Frame is the complete list of all the units or cases or elements in the population from which the sample can be selected (Israel, 1992). Sample frame is the “operational definition of

the population” (Passer, 2004). The sample frame for this study covered built environment professionals specifically project managers, quantity surveyors, engineers and supervisors registered respectively with the Project Management Institute - Ghana Chapter (PMI-Gh), Ghana Institution of Surveyors (GhIS), as well as, Ghana Institution of Engineering and the Institution of Engineering (GhIE) and Technology, Ghana (IET,Gh) who are in good standing as of 2019 who work with A1 – B1 road contractors located in the Greater Accra region, registered with the Ministry of Roads and Highways and are in good standing.

Inputs to assist determine the precise total numerical value of the sample frame were obtained from the website of the Ministry of Roads and Highways.

3.6.3 Sampling Technique and Sample Size

The sample size required for a study is influenced by several factors, including the purpose of the study, the population size, the level of precision, the level of confidence or risk and the degree of variability in the attributes being measured (Glenn, 2012). According to Glenn (2012), sample size for a study can be determined using (a) figures in Published tables (b) Sample size of similar studies (c) A census for small populations and (d) Formulas.

The researcher used the census sampling technique, all the one hundred seventy (170) population was targeted and questionnaires were administered to them.

One hundred and fifty four (154) responded out of which ten (10) were incomplete leaving one hundred forty four (144) as the valid sample size representing 84.7% response rate.

3.7 DATA COLLECTION METHODS

3.7.1 Data Collection Instrumentation (Primary Data)

Primary data for the study was collected using structured questionnaire. The questionnaire had 2 parts. Part one captures the background data of the respondents such as position, employment

and experiences while the second part asked all the relevant questionnaires necessary to achieve the aim of the study, specifically section A of part 2 required the respondents to use their experience in Highways road construction in Ghana to rank some common claims identified in literature whereas section B require the respondents to rank the causes of claims in Highways road construction projects in Ghana. Section C on the other hand requires respondents to use their experience in Highways road construction projects to rate some of the claims management challenges identified in literature. The last section requires respondents to use their experience in Highways road construction projects to indicate the effectiveness of strategies in curbing the causes and challenges in claims in Highways road construction projects.

The questions on the questionnaire were mainly close ended. This helped to ensure uniformity in the answers. A copy of the questionnaires is attached at the appendix.

3.8 DATA PROCESSING AND ANALYSIS TECHNIQUES

3.8.1 Descriptive Statistics

The responses of the respondents were analyzed to enable discussions to be made on the subjects. SPSS (Statistical Package for Social Scientist) version 16 was first used to collate the responses. Afterwards, the questions on the demographic characteristics and general particulars of the respondents were analyzed into percentages. The results were further presented in graphs, charts and tables. The ordinal data was analyzed using Relative Importance Index (RII).

The formula is given by:

Relative Importance Index (RII) =

Where, W= the weights given to each variable by the respondents, ranging from 1 to 5;

A = the highest weight (i.e. 5 in the study)

N = the total number of samples (144)

3.8.2 Relative importance index (rii) for establishing construction claims in highways road construction projects in ghana.

As the responses for this research were received on a (1 – 5) Likert scale, the use of parametric methods was not applicable as it was not practicable for assessing the opinions of the respondents (Waris, 2014). As a result, the Relative Importance Index method was used in establishing the most prevalent claims in Highways road construction projects in Ghana. Relative Importance Index (RII) is a non-parametric technique that is widely used by construction researchers for analyzing structured questionnaire responses for data involving ordinal measurement of attitudes (Kometa *et al.*, 1994). For this section of the questionnaire, the five-point Likert scale of 1 to 5 (where 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often and 5 = Always) was adopted and the Relative Importance Indices (RII) for each of the variables were established. The equation shown below is a formula which was used to determine the relative index of the factors (Chan and Kumaraswamy, 1997).

$$RII = \frac{\sum W}{N \times A}$$
 Where **W** indicates the assigned weighting to each variable by the respondent, **A** represents the highest assigned weight and **N** denotes the total number of respondents. The RII value ranges from 0 to 1 with zero (0) not inclusive. With this method, the higher the value of RII, the more the more prevalent is the variable with respect to claims in Highways road construction project in Ghana.

3.8.3 Ethical Considerations

Prior consent/permission of the selected respondents was sought and the purpose of the study explained to them. This enabled the respondents to feel free and answer the questionnaires with all frankness without hiding any information. The privacy, anonymity and confidentiality of the responses were highly treated. Effort was made to keep the questions in the questionnaire in simple language, devoid of technical terms to minimize potential challenges. Any piece of document used for the work was appropriately referenced to void plagiarism.

3.9 VALIDITY AND RELIABILITY OF DATA

Problems arising from research study validity and reliability has to be looked at in the methodology in a precise way. When conducting a research study that is reliable, other scholars ought to be able to generate the needed informant required if they decide to use the same type of instrument and techniques you used in generating results. In other words the reliability of an information or data refers to the ability of a researcher to generate same answers in a particular condition using the same technique more than once. Wilson (2010) asserts that the reliability of a study can be altered if the researcher in question uses the subjectivity procedure which is closely related to reliability. Reliability is a challenge each time one person is the supplier of information, because we do not have any sure guard towards the effect of the observer's subjectivity (Babbie, 2010). Research validity may be defined as a quantity at which necessities of scientific study approach were observed throughout the method of producing research findings. Oliver (2010) regards validity as an obligatory necessity used in varieties of research. There are several forms of validity, internal validity study, the major ones are indicated by Cohen et al. (2007) as external validity, internal validity, content validity, concurrent validity, criterion-related validity, face validity and construct validity.

3.10 CHAPTER SUMMARY

In conclusion, this chapter looked at the various types of methodological approaches used to address the research problem. The chapter outlined the primary elements that are important/relevant to the methodology used which includes, research philosophy which looks at nature and the development of knowledge. The chapter further viewed the various research strategies, research designs, data collection methods or techniques, population and sample frame, reliability and validity tests of the study, data analysis to interpret the findings and most importantly the ethical issues involved.

CHAPTER FOUR RESULTS AND DISCUSSION

4.0 INTRODUCTION

This chapter present a discussion of the results of the study. Specifically, section 4.2 discusses the background of the respondents in terms of their position within their firm and years of working experience. This was done to establish the credibility of the respondents. Section 4.3 discusses the prevalent types of claims in Highways road construction projects in Ghana.

Afterward the cause of claims as well as the challenge with claims management are discussed. The chapter ends with discussions on possible strategies that can be implemented to address the problems with claims management.

4.1 RESPONSE RATE

The questionnaire was administered through google form online survey platform, WhatsApp (social medium platform) and as many 170 questionnaires were sent out to A1, B1 road construction firms located in the Greater Accra region

The data was collected in 2 weeks in the month of August 2019. A total of 170 questionnaires were sent out of which 154 were successfully received. However, out of this number 10 were incomplete and hence excluded from the data analysis representing 84.7% response rate.

4.2 BACKGROUND OF RESPONDENTS

This section presents the demographic characteristics of the respondents specifically their position within their organization and years of working experience. From Table 4.1, the respondents selected for the study play various roles within their organization. However, what was relevant was that each of these parties play a role in one way or the other in the management of claims within the respective organization. From the results (Table 4.2) 65% were Quantity surveyors, 25% Project managers while engineer's/site supervisors formed 6% of the total respondents.

With respect to their years of working experience, it was realized that majority of the respondents (66.7%) have over 5 years of working experience. Only 33.3% of them have less than 5 years of working experience. The above statistics shows gives enough justification about the credibility of the respondents selected for the study as argued by Fellow and Liu (2008).

Table 4.1: Background of Respondents

Sn	Respondent Profile	Frequency	Percentage
1	Profession		
	Quantity Surveyor	93	65.00
	Project Manager	36	25.00
	Engineer/site supervisors	9	6.00
	Others	6	4.00
	Total	144	100.00

(Source: Field Survey, 2019)

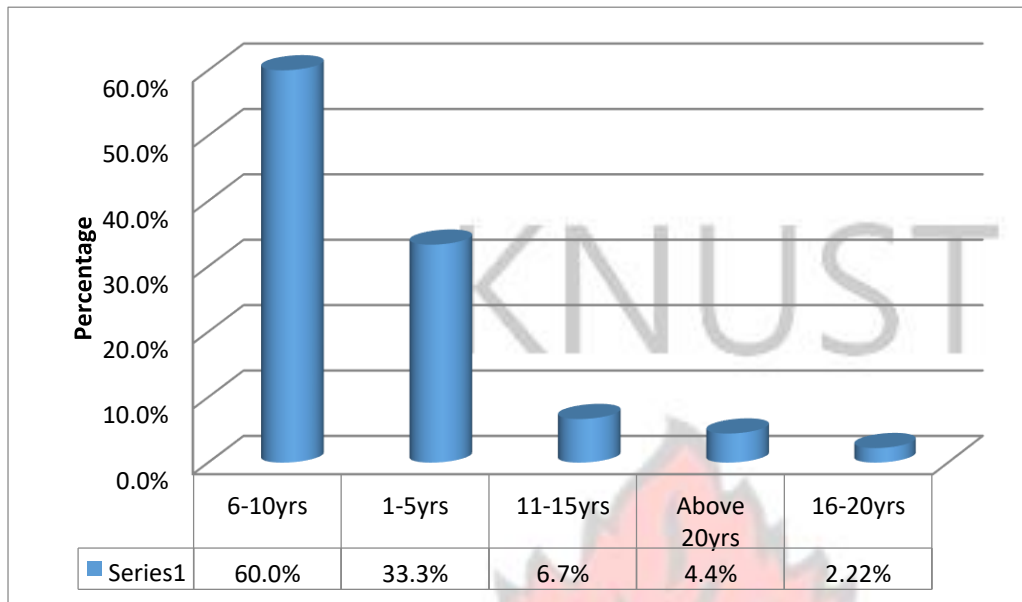


Fig 4.1: Years of working experience of respondents

(Source: Authors construct 2019)

4.3 CONSTRUCTION CLAIMS IN HIGHWAYS ROAD CONSTRUCTION PROJECTS IN GHANA.

One of the objectives of the current study was to identify the prevalent claims in road construction projects. From the results shown in Table 4.2 it was found that a number of claims types occurs in Highways road construction projects in Ghana. However, the top four (4) claim types are claims due to variation in the scope of work, error in description or quantities or any omission in the form, claims for change in specifications that affect quality of the work, claims on breach or termination, claims on addition, claims on design error and claims due to different site situations.

Claims due to variation in the scope of Work

The topmost causes of claims in Highways road construction projects in Ghana according to the respondents is claim due to variations in scope of work, from the table 4.2 it can be seen that it has the highest (RII) of 0.94, this is further cemented by it having the highest (M) of 4.7

and the lowest (STD) of 0.03 as compare to the second in rank, claims for change in specifications that affect quality of the work which had an (RII) of 0.93, (M) of 4.67 and a (STD) of 0.05, Claims due to different site situations came third with an (RII) of 0.92, (M) of 4.60 and a (STD) of 0.02 and finally the fourth which was errors in description or quantities or any omission of the form with a (RII) of 0.89, a (M) of 4.45 and a (STD) of 0.13.

In explaining this, some of the respondents noted that the nature of Highways road construction works is such that there are a number of unforeseen site conditions especially when it comes to earthworks. These unforeseen site conditions usually occasion the need for additions or subtractions to the original design. The above finding agrees with Ren et al. (2003); Zanelidin, (2006) who noted that road construction projects are complex and are susceptible to variation claims. Moura and Teixeira (2007) also found that in Portugal the most prevalent claim type is that due to variations.

This implies that if this trend continuous most highways road construction project will suffer cost overruns or in the worst case scenario suffer abandonment.

Claims due to different site situations

The third rank claim type according to the table are the once due to different site conditions, which had a (RII) 0.92 with a (M) of 4.6 and a (STD) of 0.02 as compare to the first which is claim due to variations in scope of work with the highest (RII) of 0.94, a (M) of 4.7 and a (STD) of 0.03 the second in rank, claims for change in specifications that affect quality of the work with a (RII) of 0.93, a (M) of 4.67 and a (STD) of 0.05. This explains the fact that, although claims due to error in description or quantities or any omission in the form is a major cause of claim, by virtue of a higher (RII), claims due to different site condition is rank as third most prevalent type of claim. This was a unanimous agreement among the respondent as the third type of claim. This is not surprising because as noted by Chappell et al., (2005) road works are more of earthworks and there is always the possibility of encountering a different ground

condition compared to what was anticipated at the start of the project. The above ranking notwithstanding the fourth variable should not be discounted because the mean value is more the 3.5. Since with Alston's Likert scale a range of 2.50-3.49 is considered to be a minor contributing factor but anything above 3.5 is a major contributing factor.

This implies that adequate time is not spent in establishing the actual subgrade situation before designs and contract documents are prepared, and this can affect the progress of works if not disrupt it.

Claims resulting from error in description or quantities or any omission in the form

The forth ranked type of Highways road construction claims in Ghana are the once that due to errors in description or quantities or any omission in the form. The above mention claim has an (RII) of 0.89 a (M) of 4.45 and a (STD) of 0.13 making it the fourth most prevalent as compare to the first which is claim due to variations in scope of work with the highest (RII) of 0.94, a (M) of 4.7 and a (STD) of 0.03, the second in rank, that is claims for change in specifications that affect quality of the work with a (RII) of 0.93, a (M) of 4.67 and a (STD) of 0.05, and third that is Claims due to different site situations with a (RII) of 0.92, a (M) of 4.60 and a (STD) of 0.02. Under Alston's Likert scale a range of 2.50-3.49 is considered to be a minor contributing factor but anything above 3.5 is considered a major contributing variable, therefore a mean of 4.45 indicates that the variable is a major contributing factor. Ho and Liu, (2004) posited that the short limited time used in the preparation of construction documents is a major cause of this type claims. Detlev (2004) also argue that errors or omissions in bills of quantities are usually as a results of the intense pressure put on the design team to submit design drawings. In the current study the respondents agreed with Detlev (2004) and Ho and Liu, (2004) on the fact that claims due to errors in Bills of quantities occurring in Highways road construction projects are as a results of pressure put on the design team.

This reveals one fact, consultants involved in the preparation of contract document are not given ample time to write a detailed specification hence this types of claims, to avert this sufficient time should be given to people involved in the preparation of contract document otherwise it has the potential of straining contractor – client relationship.

Table 4.2: Ranking of the most prevalent types of claims in Highways road construction projects

	Types of Claims	Mean	STD	RII	Rank
1	Claims due to variation	4.70	0.03	0.94	1 st
2	Claims for change in specifications that affect quality of the work.	4.65	0.05	0.93	2 nd
3	Claims due to different site situations	4.60	0.02	0.92	3 rd
4	Error in description or quantities or any omission in the form	4.45	0.13	0.89	4 th
5	Claims on design error	4.30	0.21	0.86	5 th
6	Claims concerning weather changes	4.20	0.09	0.84	6 th
7	Claims for delays in work schedule	4.00	0.15	0.80	7 th
8	Claims on addition	3.90	0.30	0.78	8 th
9	Claims on breach or termination	3.85	0.45	0.77	9 th
10	Claims on wrong instruction on the administrator	3.10	0.07	0.62	10 th
11	Claims concerning the payment terms.	2.80	0.06	0.55	11 th

(Source: Field Survey, 2019)

4.4 UNDERLYING CAUSES OF CLAIMS IN HIGHWAYS ROAD CONSTRUCTION PROJECTS IN GHANA.

In an effort to address the issues of claims in Highways road construction projects in Ghana, it is important that the causes of claim are identified. Thus one of the object of the current study

was to explore the most significant underlying causes of claims of Highways road construction projects in Ghana. Analysis of the results as presented in Table 4.3 revealed that the top four (4) causes of claims are inaccurate design information, poor communications between project participants, slow client response to decision and unrealistic time targets

Inaccurate design information

Most construction drawing were reported to sometimes contain errors, omission or discrepancies. These errors affect the volume of works to be done and consequently the need for variation orders to be issued. Thus inaccurate design information was agreed upon by the respondents as the leading cause of claims in Highways road construction projects in Ghana with the highest (RII) of 0.94, the highest (M) of 4.70 and above all had the lowest (STD) of 0.10 as compare to unforeseeable site condition which had a (RII) of 0.92, a (M) of 4.6 and a (STD) of 0.19, slow client response to decision making with a (RII) of 0.88, a (M) of 4.40 and a (STD) of 0.20 and poor communication amongst project team members which had a (RII) of 0.86, a (M) of 4.30 and a (STD) of 0.11. This finding agreed with that of Moura and Teixeira (2007) regarding causes of claim in road construction projects in Portugal. In spite of the fact that inaccurate design information was ranked as the leading underlying cause of claims in Highways roads construction projects it can be observed from the (RII) and (M) values, of the second, third and fourth variables, that they are also major causes of claims highway roads construction projects in Ghana. The implication of this is different people will be interpreting different things differently and if not handled properly can delay the entire project.

Slow client response to decision

Slow client response to decision making was agreed upon by the respondents as the third leading cause of claims in Highways road construction projects in Ghana because it had the

third highest (RII) 0.88, the third highest (M) of 4.40 and above all had the third lowest (STD) of 0.20 as compared to inaccurate design information with a (RII) of 0.94, a (M) of 4.70 and a (STD) of 0.10 and unforeseeable site condition with a (RII) 0.92, a (M) of 4.6 and a (STD) of 0.19. The above statistics implies that in as much as its third highest in terms of ranking, its (M) values indicates that its indeed a major cause of claims in Highways road construction projects in Ghana. It was also noted by the respondent that; clients are usually slow in taking decisions at the planning stage of the project. For instance, decisions regarding the scope of work and material specifications. When this occurs it creates room for changes to be made frequently at the construction stage. This finding agrees with that of Harris and Scott (2001) and Callahan (2010). The implication of the above finding is that if clients are sluggish in their responds to the queries of contractors and that activity on which clarity is been sought is a critical activity then it can potentially throw the whole contractors schedule of gear and this also has the potential of affecting the project delivery negatively.

Table 4.3: Ranking of the underlying causes of claims in Highways road construction project in Ghana.

	Causes of Claims	Mean	STD	RII	Rank
1	Inaccurate design information	4.70	0.10	0.94	1 st
2	Unforeseeable site conditions	4.60	0.19	0.92	2 nd
3	Slow client response to decision	4.40	0.20	0.88	3 rd
4	Poor communications between project participants	4.30	0.11	0.86	4 th
5	Unrealistic time targets	4.30	0.16	0.86	5 th
6	Unrealistic expectations by parties	4.20	0.30	0.84	6 th
7	Failure of participants to deal promptly with changes and unexpected outcome	3.90	0.45	0.78	7 th
8	Unbalanced risk allocation	3.85	0.35	0.77	8 th
9	Late instructions		0.19	0.75	9 th
10	Confused and complex interdependent relationships presented about by some project procurement	3.70	0.44	0.74	10 th

11	Lack of team spirit	3.4	0.34	0.68	11 th
12	Performing work that is more difficult than what is described in the contract	3.1	0.31	0.62	12 th

(Source: Field Survey, 2019)

4.5 THE CHALLENGES FACTOR OF CLAIM MANAGEMENT IN HIGHWAYS ROAD CONSTRUCTION PROJECTS IN GHANA.

The study also seeks to find out the constraining factors of claims management of Highways road construction projects in Ghana. From the results shown on Table 4.4, the top four (4) constraining factors are parties to a construction project not understanding the contract, Claims without supporting contract clause; Improper documentation of claims and No records on the claims.

Poor knowledge of project parties on contract administration

Poor knowledge of project parties on contract administration was agreed upon by the respondents as the leading constraining factor of claims management of Highways road construction projects in Ghana because per table 4.4 it had the highest (RII) of 0.92, the highest (M) of 4.60 and lowest (STD) of 0.03 as compare to the second in rank, improper documentation of claims which had a (RII) of 0.88, a (M) of 4.4 and a (STD) of 0.08, the contractors not understanding the contract came third with a (RII) of 0.77, a (M) of 3.85 and a (STD) of 0.05 and finally the fourth which is late submission of claims with a (RII) of 0.76, a (M) of 3.80 and a (STD) of 0.10.

According to Ibbs and Liu, (2005) one of the major issues confronting the construction industry worldwide is failure of parties to fully understand the various provisions in a contract. This creates a situation whereby one party (e.g. the contractor or client) fails to fulfil the requirement of their contract. Sanders and Eagles, (2001) added that most construction disputes the industry has been witnessing are as a result of the above problem. In the current study, the respondents unanimously agreed with Ibbs and Liu, (2005) that Poor knowledge of project parties on contract

administration is a major challenge confronting the management of claims in Highways road construction projects in Ghana. The implication of the above findings is that, parties to a contract will use the wrong the approaches in addressing contractual issues and this has the potential of creating an avoidable construction dispute.

Improper documentation of claims

Improper documentation of claims was agreed upon by the respondents as the second leading constraining factor of claims management of Highways road construction projects in Ghana because per table 4.4 it had the second highest (RII) of 0.88, the second highest (M) of 4.40 and the second lowest (STD) of 0.08 as compare to the third in rank, the contractors not understanding the contract with a (RII) of 0.77, a (M) of 3.85 and a (STD) of 0.05 and finally the fourth which is late submission of claims with a (RII) of 0.76, a (M) of 3.80 and a (STD) of 0.10. The above ranking notwithstanding the third and fourth variable should not be discounted because their mean values are more the 3.5

The lack of proper documentation of claims also pose another challenges according to the respondents. One of the respondents noted that in some cases claims being made by parties are not well documented and substantiated with enough evidence therefore making it difficult for parties to come to agreement on such claim. This confirm the early finding by Chappell et al. (2005) who noted that the lack of poor records on work done and document makes settlement of claims difficult. The implication of the above finding is that if claims are not properly documented and substantiated it will be extremely difficult for it to be accepted and agreed upon by the parties involved and this of not properly handled can potentially lead to a legal battle.

Table 4.4: Ranking of the challenges factor of claims management in Highways road construction projects.

Sn	Claims management challenges	Mean	STD	RII	Rank
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1	Poor knowledge of project parties on contract administration	4.60	0.03	0.92	1st
2	Improper documentation of claims	4.40	0.08	0.88	2nd
3	The contractors not understanding the contract	3.85	0.05	0.77	3rd
4	Late submission of claims	3.80	0.10	0.76	4th
5	No records on the claims	3.60	0.12	0.72	5th
6	Claims not having bases in the contract document	3.50	0.20	0.70	6th
7	Claims without supporting contract clause	3.50	0.15	0.70	6th
8	Lack of agreement between client and contract on validity of claims	3.25	0.17	0.65	8th
9	Poor claim management procedure	3.20	0.09	0.64	9th
10	Frequent change orders leading to incessant claims	2.90	0.50	0.58	10th

(Source: Field Survey, 2019)

4.6 STRATEGIES TO MITIGATE THE CAUSES OF CLAIMS IN HIGHWAYS ROAD CONSTRUCTION PROJECTS IN GHANA.

In the light of the above issues, the study also sought to find out possible strategies that can be implemented to address the causes and challenges with claims management. From Table 4.5 the respondents recommended the following strategies in addressing the problem: Proper records keeping; Parties to contract should have good knowledge of the provisions in the contract; Proper planning and scheduling; Effective communication among project parties and proper site investigation before commencement of project among others.

Proper records keeping

Proper records keeping was agreed upon by the respondents as the leading strategy in curbing the causes and challenges of claims management of Highways road construction projects in Ghana because per table 4.5 it had the highest (RII) of 0.96, the highest (M) of 4.80 and lowest (STD) of 0.11 as compare to the second in rank, Parties to contract should have good knowledge

of the provisions in the contract which had a (RII) of 0.95, a (M) of 4.75 and a (STD) of 0.18, the third in rank that is, Quick responses to complaints with a (RII) of 0.88, a (M) of 4.40 and a (STD) of 0.30 and finally the fourth which is Proper planning and scheduling with a (RII) of 0.85, a (M) of 4.25 and a (STD) of 0.32

By the above statistics the respondents confirm what was asserted by Kululanga, (2011) that no client or contractor is willing to pay for claims which are not properly substantiated with evidence. Adding up to the above, Moura and Teixeira (2007) recommended that contractors should always take pictures of work done to back up claims. The above ranking notwithstanding the second, third and fourth variable should not be discounted because their mean values are more than 3.5. The implication of the above findings is that if proper record keeping is adhered to most of the challenges associated claims will be brought to the barest minimum or completely eradicated.

Parties to contract should have good knowledge of the provisions in the contract

Parties to contract should have good knowledge of the provisions in the contract was ranked second as one of the strategies in curbing the causes and challenges of claims management of Highways road construction projects in Ghana because from table 4.5 with a (RII) of 0.95, a (M) of 4.75 and a (STD) of 0.18, as compared to the third in rank that is, Quick responses to complaints with a (RII) of 0.88, a (M) of 4.40 and a (STD) of 0.30 and finally the fourth which is Proper planning and scheduling with a (RII) of 0.85, a (M) of 4.25 and a (STD) of 0.32. Good working knowledge about the terms of a contract is key to avoiding claims and disputes in construction project (Ren, 2003). Agreeing with Ren (2003), the respondents noted that parties to a construction project should carefully study and understand the terms of a project. This recommendation also agrees with what was stated by Zanelidin (2006) in their previous studies. This will go a long way in addressing most road construction dispute and enable work to be completed on schedule.

Table 4.5: Ranking of the strategies to mitigate the causes of claims in Highways road construction projects

S n	Strategies	Mean	STD	RII	Rank
1	Proper records keeping	4.80	0.11	0.96	1st
2	Parties to contract should have good knowledge of the provisions in the contract	4.75	0.18	0.95	2nd
3	Quick responses to complaints	4.40	0.30	0.88	3rd
4	Proper planning and scheduling	4.25	0.32	0.85	4th
5	Effective communication among project parties	4.20	0.15	0.84	5th
6	Proper site investigation before commencement of project	4.10	0.18	0.82	6th
7	Education on the right and obligation of parties involved	3.75	0.25	0.75	7th
8	Contract documentation adequacy	3.60	0.28	0.72	8th
9	Preservation of rights	3.40	0.45	0.68	9th
10	Proactive actions	2.75	0.20	0.55	10th

(Source: Field Survey, 2019)

CHAPTER FIVE CONCLUSION AND RECOMMENDATIONS

5.0 INTRODUCTION

This last chapter of the study consists of a summary of the main findings, the conclusions drawn as well as the recommendations made for consideration in the management of future claims in road construction project. The chapter also presents the limitations of the study and highlights future research directions.

5.1 SUMMARY OF FINDINGS

The summary of key findings of this research which sought to investigate the claims management culture of Highways road construction project in Ghana are;

- Claims due to variations in the scope of work was found to be the most prevalent type of claims in Highways road construction projects in Ghana
- claims for change in specifications that affect quality of the work was found to be among the prevalent type of claims in Highways road construction projects in Ghana
- claims on design error and claims due to different site was found to be amongst the prevalent type of claims in Highways road construction projects in Ghana
- Inaccurate design information was also found to be the most significant underlying cause of claims in Highways road construction projects in Ghana.
- Poor communications between project participants was also found to be a significant underlying cause of claims in Highways road construction projects in Ghana.
- Furthermore, contractors not understanding the contract was also found to be the major constraining factor of claims management in Highways road construction projects in Ghana.
- Claims without supporting contract clause was also found to be among the major constraining factor of claims management in Highways road construction projects in Ghana.
- And finally proper records keeping was found to be the most effective strategy in curbing the identified causes and challenges of claims management in Highways road construction projects in Ghana
- Parties to contract should have good knowledge of the provisions in the contract was found to be among the most effective strategy in curbing the identified causes and challenges of claims management in Highways road construction projects in Ghana

5.2 REVIEW OF RESEARCH OBJECTIVES

The current study was designed to investigate into the claims management cultures of Highways road construction projects from the perspective of A1B1 contractors located in the

Greater Accra region. Four research questions and objectives were set. Based on the results of the survey the following are the key findings per the various study objectives.

Objective 1: To identify the most prevalent construction claims in Highways road construction projects in Ghana.

There are different types of claims that may arise in construction project. With respect to Highways road construction projects, it was found from the current study that the following claims are prevalent: claims due to variation in the scope of work, error in description or quantities or any omission in the form, claims for change in specifications that affect quality of the work, claims on breach or termination, claims on addition, claims on design error and claims due to different site situations. The study results revealed that even though delay payment is common in construction projects in Ghana however claims for late payment to contractor was very common.

Objective 2: To explore the most significant underlying causes of claims of Highways road construction projects in Ghana.

Similarly, a number of factors contribute to the occurrence of claims as noted in existing literature. In the current study the significant underlying causes of claim were found to be:

- (i) Inaccurate design information. Most construction drawing were reported to sometimes contain errors or discrepancies. These errors affect the volume of works to be done and consequently the need for variation orders to be made.
- (ii) Poor communications between project participants
- (iii) Slow client response to decision
- (iv) Unrealistic time targets

Objective 3: To examine the constraining factors of claim management of Highways road construction projects in Ghana.

A number of constraints were also reported to be prevalent in the management of Highways road construction projects. The critical ones were found to be:

- The contractors not understanding the contract
- Claims without supporting contract clause
- Improper documentation of claims
- No records on the claims

Objective 4: To suggest ways in curbing the identified causes and challenges of claims in Highways road construction projects in Ghana.

The following strategies were found to be effective in addressing the problems associated with claims management.

- Proper records keeping
- Parties to contract should have good knowledge of the provisions in the contract
- Effective communication among project parties
- Proper site investigation before commencement of project
- Proper planning and scheduling

5.3 CONCLUSION

Effective management of claims is key to the success of construction projects. From the results of the current study, it is evident that claims are common in Highways road construction projects in Ghana. Claims due to variations, claims due to errors and omissions in drawings or quantities. Poor record keeping, failure of parties to have good knowledge of the provisions in the contract among others make the management of claims difficult.

5.4 RECOMMENDATION

- **Proper records and documentations-** It is evident from the results of the current study that poor documentation leads to errors in bills of quantities which in turn brings about

claims. It is therefore recommended that enough time should be allocated for the preparation of contract documents before construction begins. This will reduce the number of errors and discrepancies which are usually common in construction projects. Moreover, contractors should also keep proper records of details of work done on site to facilitate claims settlement.

- **Parties to construction projects should carefully read contracts documents and abreast themselves with the various provisions in the contract.** One of the major causes of claim is that parties to a contract sometimes fails to fulfil their part of the contractual requirements as a result of their lack of understanding of the various contractual provisions.it therefore recommended that, contractual parties should a make a conscious effort to abreast themselves with all the provisions of the contracts they enter into in order to avoid the creation of claim situation.
- **Inaccurate design information.** It's evident from the results of this study that inaccurate design information is also one of the major causes of claims in Highways road construction project.in Ghana, it is therefore recommended that the designing team should take a lot of pain in providing the necessary design information so that all contracting parties will be on the same page with respect to design information interpretation.
- **Scope variations** as can be observed from the result of this study, variations to the scope of works has also shown itself to be a major contributing factor to claims in Highways road construction projects, It's therefore recommended that a lot of effort should be channeled into soil investigation so as to be adequately certain about the ground situation during the design stage in order to avoid a lot of unforeseen circumstances thus reducing claims situation.

5.5 FUTURE RESEARCH DIRECTIONS

It is recommended that future research should compare the claims management culture of Highways road project to that of Urban and feeder roads project in Ghana viewing it from the perspective of both the contractors and the consultants

Correlation analysis should be carried out in such a study to establish the differences in the claims management culture of these three government agencies and their respective contractors

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**APPENDIX A: RESEARCH QUESTIONNAIRE KWAME NKRUMAH UNIVERSITY
OF SCIENCE AND TECHNOLOGY (KNUST) DEPARTMENT OF
CONSTRUCTION TECHNOLOGY AND MANAGEMENT**

Dear Respondent

An invitation to partake in a Research Survey

I am undertaking this research in KNUST as part of the requirement for the award of MSc degree in Project Management. The aim of the study is to investigate claims management culture of Highways road construction projects in Ghana.

The main objectives of the research are:

- (i) To identify the most prevalent construction claims in Highways road construction projects in Ghana.
- (ii) To explore the most significant underlying causes of claims of Highways road construction projects in Ghana.
- (iii) To examine the constraining factors of claim management of Highways road construction projects in Ghana.
- (iv) To suggest ways in curbing the identified causes and challenges of claims in Highway road construction projects in Ghana.

Attached is a copy of my questionnaire. I will be very grateful if you could answer this questionnaire to aid the study. All information collected will be confidential and would be used only for academic purposes. **For any assistant in filling the questionnaire kindly contact me through the address below.**

Mr. Gabriel Foli
Student)

Email:

Mobile: + 233243561999 (Research

Department of Construction Technology and Management, KNUST

Dr. De-Graft Owusu-Manu

Project Supervisor, Department of Construction Technology and Management, KNUST **PART ONE**

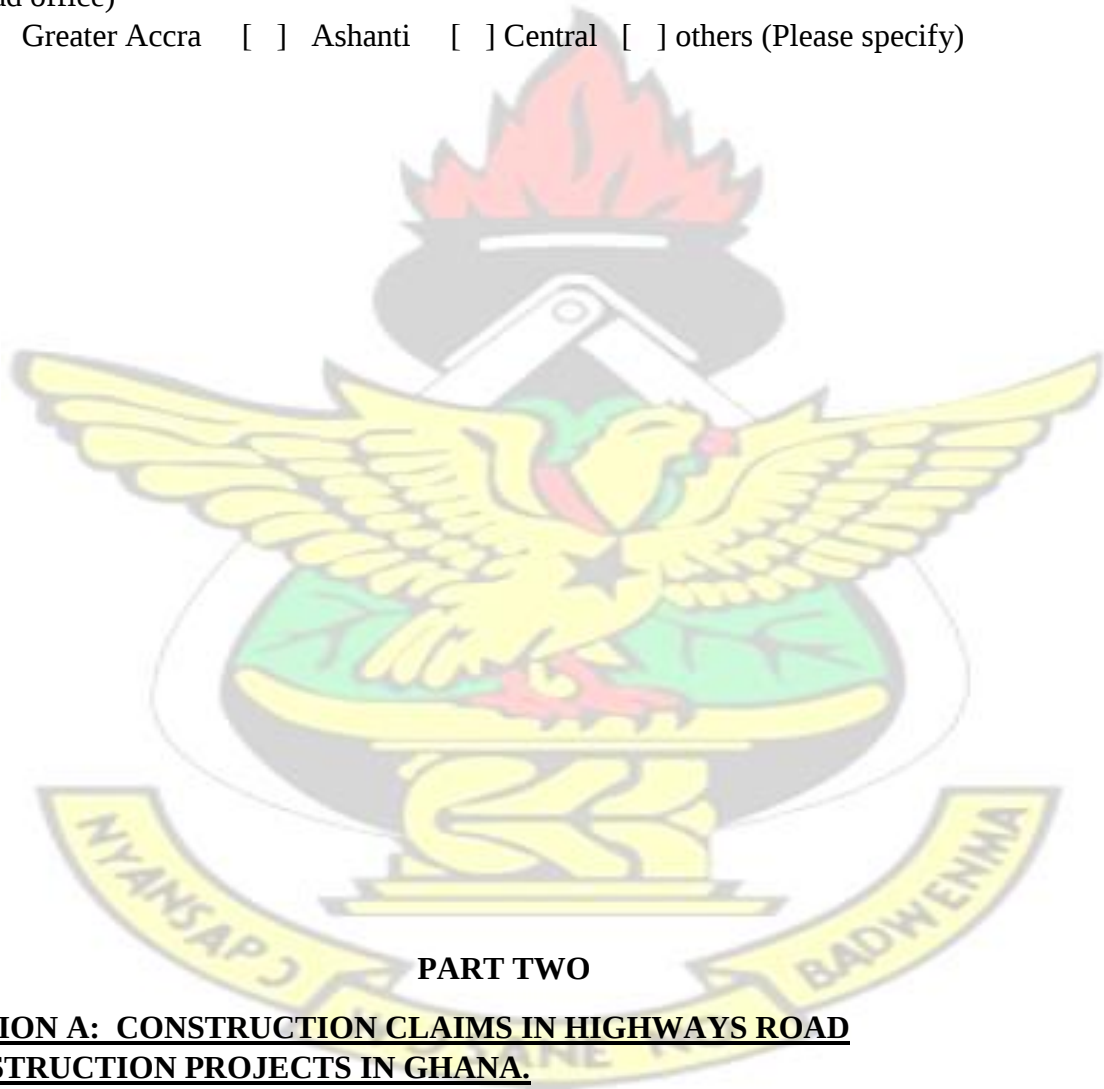
SECTION A: DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Please, kindly respond to the questions by ticking (✓) in the appropriate box for each item.

1. Please state the capacity in which you work in your firm [] Quantity Surveyor
[] Project Manager [] Supervisors [] Engineer [] Others (please specify)

.....

2. How many years have you been practicing your profession in Road Construction projects?
☐ 1 – 5 years ☐ 6-10 years ☐ 11- 15 years ☐ 16-20 years ☐
☐ Over 20 years
3. Which class of road contractor do you work with?
☐ A1 – B1 ☐ A2 – B2 ☐ A3 – B3 ☐ A4 – B4
4. Which region is the construction company you work with located (permanent location or head office)
☐ Greater Accra ☐ Ashanti ☐ Central ☐ others (Please specify)



PART TWO

SECTION A: CONSTRUCTION CLAIMS IN HIGHWAYS ROAD CONSTRUCTION PROJECTS IN GHANA.

3. The table below shows some common claims in road construction projects according to literature. Based on your experience in Highways road construction projects in Ghana please rate each of the variables using the Likert scale below were,

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

Please use the spaces below the table to add other claims and rank

	Types of Claims	1	2	3	4	5
1	Claims due to variations.					
2	Claims for change in specifications that affect quality of the work.					
3	Claims concerning the payment terms.					
4	Error in description or quantities or any omission in the form.					
5	Claims for delays in work schedule.					
6	Claims concerning weather changes.					
7	Claims on breach or termination.					
8	Claims on additions.					
9	Claims on design errors.					
10	Claims on wrong instruction from the consultant.					
11	Claims due to different site situations.					
	Others (please specify)					

SECTION B: THE CAUSES OF CLAIMS IN HIGHWAYS ROAD CONSTRUCTION PROJECTS.

5. Please based on your experience in Highways road construction projects in Ghana please rate the following variables as causes of claims using the Likert scale below were,
1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

Please use the spaces below the table to add other causes and rank

	Causes of Claims	1	2	3	4	5
1	Inaccurate design information.					
2	Inadequate design information.					
3	Slow client response to decision.					
4	Poor communications between project participants.					
5	Unrealistic time targets.					

6	Unrealistic expectations by parties.					
7	Failure of participants to deal promptly with changes and unexpected outcome.					
8	Lack of team spirit.					
9	Late instructions.					
10	Confused and complex interdependent relationships presented about by some project procurement methods.					
11	Unforeseeable site conditions.					
12	Unbalanced risk allocation.					
13	Performing work that is more difficult than what is described in the contract.					
	Others (please specify)					

SECTION C: CLAIMS CHALLENGES IN HIGHWAYS ROAD CONSTRUCTION PROJECTS IN GHANA.

5.The table below shows some factors identified in literature as being claims management challenges in Highways road projects. Based on experience rate the following factors on a five-point Likert scale were,

1 – Barrier 2 – Somewhat of a barrier 3 – Moderate barrier 4 – Extreme barrier.

Please use the spaces below the table to add other barriers and rank

Sn	Claims management challenge	Rankings			
		1	2	3	4
1	Improper documentation of claims.				
2	Claims without supporting contract clause.				
3	The contractors not understanding the contract.				
4	Late submission of claims.				
5	No records on the claims.				
6	Claims not having bases in the contract document.				
7	Poor knowledge of project parties on contract administration.				

8	Lack of agreement between client and contractor on validity of claims.				
9	Frequent change orders leading to incessant claims.				
10	Poor claim management procedure.				
	Others (please specify)				

SECTION D: STRATEGIES TO CURBING THE IDENTIFIED CAUSES AND CHALLENGES OF CLAIMS IN HIGHWAYS ROAD CONSTRUCTION PROJECTS

6. The following are the possible strategies to address the causes and challenges of claims in Highways road construction projects. Considering your experience, please indicate how effective the following strategies are using the scale were,

1–Very ineffective 2 –Ineffective; 3 – Neither effective nor ineffective; 4 – Effective
5 - Very effective.

Sn	Strategies	Rankings				
		1	2	3	4	5
1	Proper records keeping.					
2	Parties to contract should have good knowledge of the provisions in the contract.					
3	Proper planning and scheduling.					
4	Quick responses to complaints.					
5	Effective communication among project parties.					
6	Proper site investigation before commencement of project.					
7	Education on the right and obligation of parties involved.					
8	Contract documentation adequacy.					

9	Preservation of rights.					
10	Proactive actions.					
	Others (please specify)					

END OF QUESTIONNAIRE

THANK YOU VERY MUCH FOR YOUR TIME.

