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Conflicts in Building Projects in Tanzania: Analysis of Causes and Management Approaches

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Abstract

The prime objective of a client in a building project is to attain a successful project, a project that has been properly planned, designed and constructed in accordance with plans and specifications, and completed within time and cost originally anticipated. However the success of a building project depends on a number of variables one of them is the way the building team approach conflicts facing the project. This study examines the causes and management approaches of conflicts in building projects in Tanzania. The main objective of the study is to identify issues/areas on which conflicts occur, factors causing them and how conflicts are managed in building projects in Tanzania.

As a means to achieve the above objective, the study was structured into two main parts; the first part aimed at mapping up the nature of conflicts in building projects in Tanzania by establishing critical symptoms of conflicts, factors causing them and the approaches used in resolving the conflicts. This was done through literature review, interviews and questionnaire survey. The second part aimed at in-depth study of conflicts from their root cause, how they develop/progress and how they are managed in a real building project setting. Four case studies of building projects were studied for this part.

The study found that factors causing conflicts are in several forms. There are those related to the nature of contracts, where the contracts are unclear and ambiguous they give room for contracting parties to develop opportunistic behaviour when post adjustments are needed. There are those factors which are related to role functions when the parties fail to perform as expected. As such the study confirmed that contractual incompleteness and consequent post contract adjustments and opportunistic behaviour of some project participants are root causes of conflicts in building projects in Tanzania. However, the study established that there are sufficient mechanisms to deal with conflicts in the standard forms of building contracts used and when the provisions are against the interests of the parties, the parties resort to amicable resolution approaches.

Notwithstanding the availability of mechanisms in the standard forms of contracts to deal with conflicts, the study proposes the framework as a strategy that could reduce effectively the occurrences of conflicts in building projects.

Keywords: Conflict, building project, Transaction cost economics theory, systems theory.

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Notwithstanding the above mentioned, all errors and mistakes that may happen to appear in this document are genuinely mine and I therefore take full responsibility.

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List of Acronyms

AQRB	Architects and Quantity Surveyors Registration Board
AQSRA	Architects and Quantity Surveyors Registration Act
BOT	Build Operate and Transfer
BOQ	Bills of Quantities
CRB	Contractors Registration Board
CTB	Central Tender Board
DB	Design and Build
DAWASCO	Dar es Salaam Water and Sewerage Company
EAIA	East Africa Institute of Architects
ERB	Engineers Registration Board
GDP	Gross Domestic Product
GST	General Systems Theory
MC	Management Contracting
MHSW	Ministry of Health and Social Welfare
MNH	Muhimbili National Hospital
MTB	Ministerial Tender Board
NCC	National Construction Council
PM	Project Management
PPA	Public Procurement Act
PPR	Public Procurement Regulations
RIBA	Royal Institute of British Architects
RICS	Royal Institute of Chartered Surveyors
SADC	Southern African Development Community
TCE	Transaction Cost Economics
UK	United Kingdom
UN	United Nations
VAT	Value Added Tax

Abbreviations

T.shs.	Tanzania shilling
USD	United States of America Dollar

CHAPTER ONE
INTRODUCTION

1.1 Background

Building projects involve interaction among many different participants. Depending on the nature and size of the project, a project team or organisation may include interalia, the client / financier, consultants (architect, engineer, quantity surveyor etc.), general contractor, sub-contractors and material suppliers.

In the process of project execution the participants interact with each other within the project team (organisation) as a unit and as individuals or sub units also interact with units outside the project team. The units outside the project team may include government authorities, public institutions, financial institutions, community or communities in which the project is executed, and other project stakeholders. In view of the composition and interactions that take place in a building project, participants form a society with a complex set of interrelated relationships. Therefore, cooperation and collaboration of the participants in coordination of resources, time and communication is essential if the project is to be successful, that is, if it is to be completed within the anticipated duration, cost and quality desired.

The success of a building project however, depends on a number of variables. Diekman, et al (1994) point out that, one of the key variables is the way the participants to a building project approach the problems and conflicts facing the project. They contend that, conflicts create adverse environment in a project, foster distrust, and undermines the cooperative nature of the building process.

A study on causes of conflicts and disputes in the Hong Kong construction industry carried out by Yates and Hardcastle in 2003, revealed a dramatic increase in conflicts and disputes in construction industries of many countries. It was found that, conflicts and disputes led to high attendant cost both in terms of direct and indirect costs (Yates and Hardcastel, 2003). The direct costs found include the costs for lawyers, claims consultants, management time and delays in project completion, while the indirect or consequential costs include degeneration of working relationships, mistrust between participants, lack of teamwork and resultant poor standards of workmanship, the factors which undermine project success.

A number of authors such as Langford (1992), Walker (1996), Fenn et al (1997), Ambrose and Tucker (1999), Kumaraswamy (1998), Loosemore et al (2000), Harmon (2003), Ankrah and Langford (2005) contend that, in a project environment, conflict is an inevitable by-product of the organisational activities. Langford, et al (1992) affirm this to be caused by the fact that, each participant in a project has individual aims that could be in conflict with the aims of the project they are working on. Walker (1996) echoed this by noting that, in a construction project participants tend to develop multiple objectives, which could be in conflict with the objectives of the project. Ambrose and Tucker (1999) argue that, the temporary nature of construction projects and their multi-organizational structure make them prone to conflicts. These contentions amount to the assertion that, in a project environment there is a need to acknowledge and plan ahead for conflicts and any subsequent changes arising and to control them. However, planning and control of conflicts in projects demand a comprehensive understanding of conflicts and their causes. This is important in order to setup strategies and mechanisms for their management and prevention in a timely and cost effective manner if the project is to be successful.

Nonetheless, Bresmen and Haslan (1991) contend that, some conflicts may be meaningful and may produce beneficial results to the project. Loosemore et al (2000) argue that, meaningful or what is termed as functional conflicts give a doorway of opportunities to organisational learning and creativity. Therefore, such functional conflicts should be permitted to continue as long as project constraints are not violated and beneficial results are being received. However, conflicts that have negative effect to the project, the dysfunctional conflicts should be prevented. This study therefore, explores factors causing conflicts and how they are managed so as to have a clear understanding of conflict situation and propose an effective framework for their management and prevention in building projects in Tanzania.

1.2 Statement of the Problem

The prime objective of a client in a building project is to attain a successful project; a project that has been properly planned, designed, and constructed in accordance with plans and specifications, and completed within the time and cost originally anticipated by both the owner and the contractor (Rwelamila, 1996; Harmon 2003). In Tanzania, most building projects are rarely completed within the scheduled time, budget and desired quality (Hartkoon, 1997).

A pilot survey of 15 public building projects in Dar es Salaam done in 1998 and 2003 by the author revealed that, all projects studied were behind their respective schedules, construction costs had surpassed their original budgets, and clients expressed dissatisfaction of the quality of work attained. Some of the causes cited were:

i. Failure of the designers to understand and interpret the client's requirements in their designs;
ii. Failure of the contractors to conform to specifications during tender action or construction stage or both;
iii. Delays caused by parties to complete their assignments;
iv. Delays in honouring contractor's claims for additional payments; and
v. Increase in cost of project inputs beyond the anticipated levels.

The problems cited above and other similar problems manifest adverse (conflictful) environment that exist in the projects. This environment needs to be unwrapped and understood so as to manage it effectively if the client's prime objectives are to be attained.

1.3 Objectives of the Study

The objectives of this study are both knowledge seeking and normative. They are knowledge seeking in the sense that causes of conflicts and how they are managed in building projects in Tanzania are examined and documented. The study is also normative as it intends to give recommendations on how conflicts can be managed in the most efficient manner.

The main objective, therefore, is to identify issues on which conflicts occur in building projects, factors causing conflicts and how conflicts are managed. The study intends also to explore the existing conflicts management approaches, and examine their applicability in building projects in Tanzania. The specific research objectives are:

i. To identify internal conflicts and their causes that is, conflicts among the project participants within the project team
ii. To identify conflict management systems/mechanisms used in building projects in Tanzania; and
iii. To develop a framework for effective management of conflicts in building projects in Tanzania.

1.4 Research questions

The main research questions are:

i. On what issues are conflicts prominent in building projects in Tanzania
ii. What factors cause conflicts in those issues
iii. What is the intensity of conflicts at various stages of project life
iv. Among which members in a project team do most conflicts occur?

    Conflicts between:

    a. Design team and General contractor
    b. Design team and Client
    c. Client and General contractor
    d. General contractor and Sub-contractors

v. What is the intensity of conflicts at various stages of project life;

    a. Pre design stage
    b. Design stage
    c. Construction stage
    d. Post-construction stage

vi. What approaches are used in resolving conflicts in building projects in Tanzania?

1.5 Relevance of the study

Building activities are part and parcel of every form of life. Think of houses, schools, hospitals, shopping centres, etc. that we use every day, all are products of building activities. Moreover, building activities consume various resources that by their nature are scarce. Therefore, it is important that building projects are done in the most efficient and economical manner.

Conflicts in building projects are cited by a number of authors such as Langford (1992), Walker (1996), Fenn et al (1997), Ambrose and Tucker (1999), Kumaraswamy (1998), Loosemore et al (2000), Harmon (2003), Ankrah and Langford (2005); as one of the factors that undermine project success. Therefore, it is important to understand conflicts that a project is likely to face in order to make provision in the project set up for their management and prevention.

This study features within the field of project management. The study, therefore contributes to the research and practice communities, by addressing issues on which conflicts occur and

their causes in building projects in Tanzania. Strategies and mechanisms for management and prevention of conflicts in building projects in Tanzania are proposed. The results of the study provides additional knowledge required by clients / financiers, project managers, architects, engineers, quantity surveyors, contractors and other stakeholders in the management of building projects.

1.6 Conceptual Definition of Conflict

Literature review has revealed that, the terms conflict and dispute are used indiscriminately without clear indication of the precise meaning of each other. Fenn et al (1997) affirm that, some authors do not differentiate conflicts from disputes. It is for this reason that, the term conflict can be defined in many ways.

The Free dictionary, defines conflict as a state of opposition, disagreement, or incompatibility between persons or a group of persons over ideas, interests, beliefs, feelings, behaviour or goals. Handy (1983) defines conflict as the process that begins when one party perceive that the other party has frustrated or is about to frustrate some concern of his. Brown and Marriot (1993) have a similar notion about conflicts. They contend that, a conflict exists in the mind of an individual when he or she perceives a situation of incompatibility among objectives. They, on the other hand, define dispute as a conflict in which both parties are conscious of. Loosemore and Djebarni in Yates and Hardcastle (2003) comment that, whilst there is little consensus among sociological schools on a specific definition of conflict, a common denominator is that, for a conflict to occur, there must be an incompatibility of need and a perception by one party that this incompatibility interferes with the attainment of that person's needs.

Fenn et al (1997) advocates that, conflicts and disputes are two distinct notions. They underline that conflicts exist wherever there is incompatibility of interest, and therefore is pandemic. They argue that, conflicts can be managed, possibly to the point of preventing them from leading to disputes. They further contend that, conflicts can lead to disputes when the mechanisms for avoiding them are exhausted or inadequate and at that point in time, a conflict matures to a dispute for which techniques for resolving the disputes are required. They conclude that, disputes unlike conflicts, are associated with distinct justifiable issues.

However, Yates and Hardcastel (2003) define conflict in the context of the spectrum by linking the terms; “claim”, “dispute” and “conflict”. First, they define claim as “an assertion of a right to money, property, or a remedy, and can be made under the contract itself; for breach of the contract, for breach of duty in common law, or on quasi – contractual basis”. They simply define dispute as unresolved claim. Then they define conflict by combining the definitions of claim and disputes with sociological definitions of conflicts given above by Brown and Marriott (1993) and Fenn et al (1997). In summary, their definition is illustrated in a diagrammatic form as a spectrum of conflict as shown in figure 1.1.

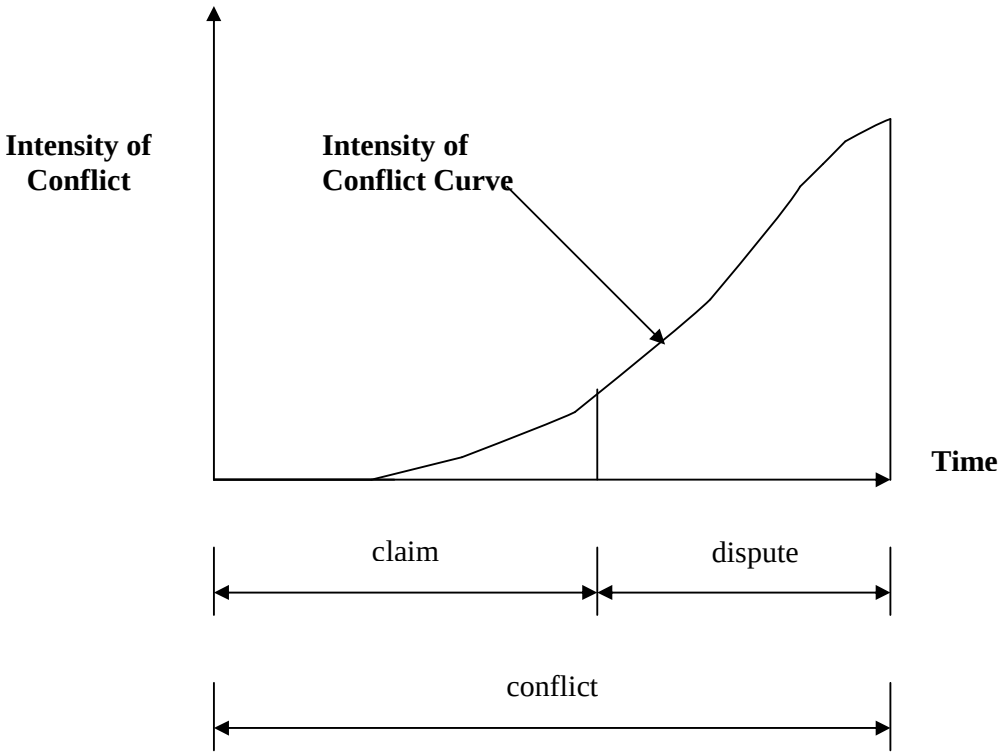

Figure 1.1: The Spectrum of Conflict (Source: Yates and Hardcastel, 2003).

The figure shows the conflict to range from the notification of a claim at one end of the spectrum to resolution of a dispute at the other end. The intensity of the conflict curve illustrate the increasing strength and intensity of feeling between the parties as the conflict progress through the various stages of a claim, which if unresolved, develops into a dispute and proceeds through the various resolution stages until it is ultimately resolved.

According to Yates and Hardcastel (2003), the figure above demonstrate that, a conflict occurs at the same point in time as when a notes of a claim is given, and exists until the claim or dispute is resolved. They argue that, theoretically it is possible that, a claim submitted by the contractor and immediately accepted by the consultants would not necessarily give rise to a conflict. Equally, it could be argued that, a conflict comes into existence in the mind of the contractor at the point in time when the contractor becomes aware that, the relevant event has occurred and a potential claim situation exists even though the consultant may not be aware of it. In summary, Yates and Hardcastel (2003) contend that, for all practical purpose, it is assumed that, the genesis of a claim and conflict are synonymous.

The foregoing illustration compares with the conflicts phenomena identified by Pondy (1967) in Bressmen and Haslan (1991). According to Pondy, the conflict phenomena include:

i. Latent conflict, which refers to the source of conflict on the assumption that, due to certain antecedent conditions, a conflict should occur.
ii. Perceived conflict, this generally follows after a latent conflict has occurred. It is a cognitive state where at least one of the parties begins to perceive or become aware of a conflictful situation but neither party is upset about it.
iii. Felt conflict, this is a perceived conflict that grieves the parties involved, but which neither would normally do anything about it. Stress and tension are usual outcomes of this type of conflict.
iv. Manifest conflict, this involves openly aggressive behaviours ranging from wild passive resistance through sabotage to actual physical confrontation.
v. Conflict aftermath, this is the response to and outcome of conflict and involves change.

According to Pondy (1967), the interface between perceived and manifest conflicts and the interface between felt and manifest conflicts are the pressure points where most conflict resolution programmes should be applied. The objective of such programmes should be to prevent conflicts that have gone beyond the latent stage and reached the level of awareness or effect from erupting into non co-operative behaviour.

In the context of the spectrum of conflict illustrated in figure 1.1, the latent conflict stage can be compared to a point in time when a member in a project team (a client, contractor, consultant or any other project participant) becomes aware of occurrence of an event that creates a situation for a potential claim to be made.

The perceived and felt conflict stages can be compared with the stage when a claim is raised by one of the parties in a project. The claim raised if not accepted by the recipient, a dispute may then arise. The stage at which a dispute arises and before it is resolved can be compared with a manifest conflict stage of the conflict phenomenon.

Nonetheless, Helen et al (2007) clearly distinguishes the terms; conflict, dispute, claim and lawsuit. Referring to the adversarial nature of construction industry they assert that, "project managers should focus on avoiding and preventing conflicts from escalating into claims and resolving claims to prevent them from becoming disputes and lawsuits". In that context, Pena-Mora et al in Helen (2007) define conflict as any action or circumstance resulting from incompatibility or opposing needs. Adopting the definition given by Adrian, Helen et al (2007) they define a claim as a request by a construction party to another party for compensation over and above the agreed-upon contract amount for additional work or damages that may have resulted from events that were not included in the initial contract. Further, they define a dispute as a disagreement that requires a final determination, which is aided by the intervention of a third party. In defining a lawsuit they adopt a definition given by Lectlaw (2004), as a legal action where a plaintiff files a complaint against a defendant within the public court system based on the defendant failing to perform a legal duty, resulting in harm to the plaintiff. The above clearly delineate the definitions of the four interrelated terms.

On the basis of the various perceptions considered by different authors, in this study, conflict is perceived as any act or situation resulting from disagreement, incompatibility or opposition between project participants within their contractual obligations, whereby such disagreements, incompatibility or opposition have not matured into a dispute requiring intervention of a third party. Further, in this study it is considered that, conflicts in building projects can lead to claim for extra money and or time, and unresolved claims result in disputes. However, it should be noted that, not all conflicts do necessary lead to claims, and as well as not all claims result in disputes.

1.7 Theoretical Framework

This section cites out theories and concepts that are found to be relevant to the study. The intention is to come up with a theoretical framework with relevant variables for analysing the

interactions taking place in a building project. The Systems theory and Transaction Cost Economics (TCE) theory are found to be relevant for this study.

1.7.1 The Systems Theory

According to Walker (1996:27), this theory essentially gives a way of thinking about complex processes so that, the interrelationships of the parts and their influence upon the effectiveness of the total process, can be understood, analysed and improved. Its origin lies in the biological sciences through its founder Ludwig von Bertalanffy who devised the general system theory (GST) from his consideration of the fundamental interdependency of many aspects of science which were studied independently. He generalised his theory to show that, it was applicable and valuable to a broad spectrum of disciplines. The theory was subsequently applied to business organisations.

Ackoff in Walker (1996:35), defines a system as "an entity", conceptual or physical, which consists of interdependent parts. Each of a system's elements is connected to every other element, directly or indirectly, and no sub-set of elements is unrelated to any other sub-set. According to Walker (1996:36), the suitability of systems theory as a medium for identifying a conceptual framework for the management of the construction process lies in the basic premise that, a system is an organised or complex whole: an assemblage or combination of things or parts forming a complex or unitary whole, which is greater than the simple sum of the parts. The systems approach stresses the contribution of the interrelationships of the parts of the system and the system's adoption to its environment in achieving its objectives.

Clearly, the success of the building process depends, to a large extent, on the way in which the project participants, inter alia, the client/financier, contractors and the design team (architect, engineer, quantity surveyor), and others, work together. This largely depends upon the project participants perceiving the same objectives for the project in a collective way and recognising that, what each of them achieves depends upon what the others do. It is this view of collective actions and interrelationship of the components of the system that makes the theory appropriate for analysis and explaining relational conflicts occurring in building projects.

1.7.2 Transaction Cost Economics Theory (TCE)

Yates and Hardcastle (2003) applied this theory as a framework for identification and analysis of causes of conflicts and disputes in the Hong Kong construction industry. The theory was found to be appropriate due to its focus on contracting problems and, in particular, its suitability for the complex and dynamic relationships which are found in construction contracts.

The TCE theory has five key elements (Milgon and Roberts, 1992:127) namely; the governance structures, contractual in-completedeness and consequent ex post adjustments, asset specificity and monopoly power, opportunism, and credible commitments.

The governance structure refers to organisational arrangements. Transactors will always try to choose the governance structure that will minimize the total sum of production cost and transaction costs of making their transactions. Building projects are procured through various procurement methods, which determine the governance structure of a project. Contractual liabilities, roles and communication links among the members in a project team are largely determined by the procurement method used.

Contractual incompletedeness and consequent ex post adjustment element explains the nature of contracts. The element proclaims that, certain types of contracts, in particular complex and long-term contracts are invariably incomplete. According to the TCE theory the factors that give rise to contractual incompletedeness are bounded rationality and uncertainty / complexity. Bounded rationality can be described as the cognitive constraints of participants that prevent the preparation of fully contingent contract ex ante. These constraints in a building project can be limits of knowledge, ability, experience and competence, which often can be exacerbated by limited time. Yates and Hardcastle contend that, in theory, a building project tendered on the basis of a fully completed design, having no errors or omissions in tender documents and requiring no changes or variations during the construction phase could be described as complete that is fully contingent contract. In practise, however, that is hard to achieve.

Asset specificity and monopoly power element of TCE theory generally assumes that, markets are competitive, that is, there are many buyers and sellers. Opportunism can emerge ex post because certain characteristics of the transaction may give one or both of the parties some

monopoly power when certain contingencies arise. The primary source of monopoly is the presence of transaction specific investments (asset specificity). In building projects, this can happen when a consultant or a contractor is engaged in a project through non-competitive methods like negotiation, to undertake a given assignment in the transaction.

Opportunism element of TCE theory refers to behaviour that involves the appropriation of the wealth of one party by the other when a particular contingency arises, and also, to behaviour that does not maximize joint profits and, therefore, is inefficient. In anticipation that opportunistic behaviour may occur, the governance structure and the terms and conditions of any contractual arrangements, make provision ex ante for adjusting ex post. In practice, contracts that pose more serious hazards are provided with greater safeguards. The safeguards normally take on one or more of the following forms:

a. Inclusion of appropriate incentives or disincentives, which usually involve some type of severance payment or penalty for default;
b. Inclusion of procedures and mechanisms for the efficient resolution of disputes; and
c. Introduction of trading regularities that support and signal the intention of ongoing and future business relations like serial tendering.

Credible commitments element of TCE theory refers to the need to cope with both contractual incompletedeness and opportunism by adopting mixed or intermediate modes of governance providing appropriate safeguards, assurances and mechanisms (credible commitments) to ensure that, the parties have confidence in trading with each other, and the relationship does not fracture when different contingencies arise, but is maintained until the transaction is fully completed.

Building projects in nature are complex and involve a number of uncertainties that cannot be foreseen and incorporated in contracts; as a result most building contracts are incomplete making building projects prone to opportunism and moral hazards among project participants.

1.8 Research Methodology

The study is structured into two main parts each comprising a number of stages.

The first part aimed at establishing critical symptoms of conflicts, factors causing such conflicts and preferences on approaches used in resolving conflicts in building projects in Tanzania. This part was done in four stages:

The first stage involved literature review to compile a list of symptoms of conflicts, factors causing them and existing conflict resolution approaches as independent variables. The second stage-involved verification of independent variables established from literature review in the context of building industry in Tanzania. This was adopted because at the time of conducting this research it was not known if the variables that have been theorised or found to be important in other countries were also important in the building industry in Tanzania. Interviewing a sample of clients, contractors and consultants did the verification. That was adopted because interviews is one of the qualitative methods that are valuable and appropriate in identifying key variables in new or underdeveloped areas like conflicts in building projects in Tanzania. At this stage, the list established in stage one was improved by in-cooperating new variables found from interviews.

The third stage involved questionnaire survey. This stage aimed at determining the attitude of key participants in building projects on criticality of the established variables in the second stage; the issues on which conflicts occur, their causes and preferences on conflict resolution approaches. A five – degree rating system was used in all cases. The questionnaire design targeted the key members in a building project team, that is; clients/ financiers, contractors and consultants. Stage four involved analysis of questionnaire responses using SPSS 16 the statistical method in order to draw various statistical inferences from the results.

The second part of the study involved in-depth study of the most critical issues on which conflicts occur, their causes and conflict resolution approaches established in the first part. The aim of this part was to study conflicts in their real setting, from the root cause level, how they develop / progress and how they are managed in a real project setting. This approach provided a base for proposing an effective conflict management framework that can be adopted in the management of building projects in Tanzania. For this part, a case study approach was used because as advocated by Yin (1994:5), a case study approach is a comprehensive study of a social unit, aims at deep and detailed investigation of a unit in question and the data obtained is synthesised scientifically which should imply a good

prognosis of the problem at hand. In this study, a building project is considered as a unit of analysis comprising of project participants as sub units or smaller units of analysis.

In the case study approach, data may be collected through a combination of qualitative and quantitative methods. However, in this study only qualitative methods were used and various methods of data collection were used including; archival data, interviews and observations.

Four cases of building projects were selected. The selection was based on:

i. The projects that are rich in information for the study in hand;
ii. Public financed building projects, these were selected because they exhibited more symptoms of conflicts such as delays and cost overruns, moreover it is relatively easy to get information on such projects than private financed projects; and
iii. The projects were selected from three categories of public clientele, the central government, local government and parastatal organisations. For the reason that the three organs have similarities and differences in the way projects are handled.

1.9 Scope and Limitation of the Study

The study focuses on internal conflicts in building projects that is, conflicts occurring within the project organisation among participants in the building project team. The participants are considered in their capacities of firms and not as individuals. For instance where a contractor or an architect, engineer or quantity surveyor is mentioned as a member in a building team is considered to represent a firm. This study therefore, does not include conflicts that may arise at personal or individual level in a building team, however, it should be realised that conflicts at a firm level may crop or at least may be influenced by conflicts at a personal level.

1.10 Organisation of the thesis

The thesis consists of eight chapters. Chapter One covers the background to the research, statement of the problem, objectives of the study, research questions, relevance of the study, conceptual definition of conflict, a brief theoretical framework and research methodology, scope and limitation of the study. Chapter Two presents research methodology used in this study. The chapter first discuss research approaches, the research design, criteria for judging the quality of research design, selection of cases and sources of evidence used in this study. Chapter Three describes the nature of construction industry in Tanzania. The chapter discuss characteristics of the industry, key participants and their roles in building projects, project

procurement systems, the construction process and selection and appointment of the design team and contractor. Chapter Four reviews and discusses the phenomenon of conflicts, models of organisational conflicts, types of conflicts, sources of conflicts in construction projects and conflicts management approaches. Chapter Five provides theoretical framework used for analysis of conflicts in building projects in Tanzania. The chapter first explains what a theory is and then the chapter reviews systems theory used for analysis of conflicts arising due to inter-relationships of project participants, and TCE theory used for identification and analysis of causes of conflicts.

Chapter Six provides an empirical investigation from the survey. The chapter unveils and maps out the nature of conflicts in building projects in Tanzania. The results from interviews conducted to generate a list of issues of conflicts, possible causes, various stages of project life over which conflicts are prevalent and approaches preferred for conflicts resolution are presented in this chapter. The chapter also gives results of questionnaire survey and discussion of the results. Chapter Seven presents case study. The data collected and discussion of four building projects in Tanzania selected as cases for study are presented. For each case a brief description of the project, areas/issues on which conflicts were experienced, causes of conflicts identified, how they emerged/surfaced and managed are discussed in the chapter. A synthesis and discussion of conflicts phenomenon with reference to literature, TCE and systems theoretical framework are presented for each conflict identified. The chapter also presents cross case analysis, where the key emerging issues in the four projects are compared to establish general concepts on conflicts situation in building projects in Tanzania by logic linking the data to the theoretical propositions of the study.

Chapter Eight is a conclusion and recommendations chapter. The chapter discusses the relevance of theoretical premises to the context of this study, conclusion is made, a framework for management of conflicts in building projects in Tanzania is proposed and finally the chapter provides the limitations and areas for further study.

CHAPTER TWO
RESEARCH METHODOLOGY

2.0 Introduction

This chapter presents the research methodology used in the study. The chapter first reviews the basic research approaches available; the quantitative, qualitative, and the mixed method approach. Thereafter, the chapter discusses the research design adopted for this study. The research is designed in two major parts; the first part involves problem definition, literature review, interviews and questionnaire surveys. Each of these strategies has been discussed and explained how was applied and carried out in this study.

The second part of the study, involves case studies. The chapter discusses the justification of adopting the case study strategy and its design. Attention has been made on the important components of a case study design; the study's questions, propositions, unit of analysis, the logic linkage of the data to the propositions, the rationale of choosing multiple against single case, and replication against sampling logic.

The chapter also covers the criteria that were used to judge the quality of the research. Issues covered include; construct validity, internal and external validity, and reliability. The selection of cases and sources of information are also covered in this chapter.

2.1 Research approaches

Social science studies identify two principle approaches to research, namely; quantitative and qualitative approaches. However, Creswell (2003:3) identified the third approach which he calls mixed method approach. The following part gives a brief outline of each of these three approaches.

2.1.1 Quantitative research approach

This method has been available to social and human scientists for years (Creswell, 2003:3). Its fundamental features are of a cause and effect thinking, hypothesis and questions, use of measurements, and is inclined to deductive, in other words it tests theory, and results produced can be generalised. The most common strategies of enquiry used in this approach, are experiments and surveys.

Experiments are carried out either in a laboratory or in field. In both settings the investigator wishes to infer causality by maximizing control over extrinsic and intrinsic variables, while employing one of the various experimental research designs, and systematically recording observations (Nachmias and Nachmias, 1993:97). Experiments like case studies, can be exploratory, descriptive or explanatory and focus on the "how" and "why" forms of research questions (Yin, 2003:4-5). Yin (2003:8) asserts that, experiments are done when the investigator can manipulate behaviour directly, precisely, and systematically so as to focus on one or two isolated variables while the remaining variables are controlled. This line of inquiry has not been adopted in this study because the subject under study (building projects) cannot be manipulated as it has to be in its natural setting.

Survey is another quantitative research strategy. The purpose of surveys is to explain the relationship between numbers and variables. The survey emphasizes the frequency or number of answers to the same questions to different people. According to Yin (2003:5), survey enquiry focus on "who", "what", "where", "how many", "how much" form of research questions. For research questions focusing on what questions, some may be in a form of "how many" or "how much" line of inquiry and others may be exploratory. The questions, which are exploratory, justify the rationale of conducting exploratory study aiming at developing pertinent hypotheses and propositions for further inquiry.

Nachmias and Nachmias (1993:215), outline three common survey methods used to elicit information from respondents; the mail questionnaire, personal interview, and telephone survey. In my study personal interviews and questionnaire surveys were employed mainly for part one of the study for developing propositions for further inquiry in the cases studied.

2.1.2 Qualitative research

Qualitative research approach is not as old as quantitative approach, and emerged primarily during the last three or four decades (Creswell, 2003:5). It is an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. Unlike quantitative approach that is inclined to reduction to isolated variables and hypothesis, for this approach, the researcher builds a complex, holistic picture of the object or process under study, analyses words, reports, detailed views of information, and conducts the study in a natural setting.

The approach employs different strategies of enquiry and methods of data collection and analysis. Some of the strategies include; ethnographies, grounded theory, phenomenology, narrative and case study research. A brief outline of each of these strategies is given below.

Ethnography studies a subject within its natural setting. The study is more appropriate in studying cultural group over a prolonged period of time. It is fundamentally based on observational data. This strategy of inquiry was not adopted for this study because building projects are not cultural groups, and the time for my study was limited. Moreover, the research questions set cannot be addressed by this strategy.

Grounded theory is characterized by rigorous procedures for data collection, coding and theory generation. The method focuses on systematically building up a theory about the subject and emphasis on method triangulation as a means to collect data. Interviews, observations, and studies of documents are the most common methods recommended for data collection. This method too was not adopted, since my study did not intend to generate theories, rather intended to test theoretical propositions.

Narrative strategy is a form of inquiry in which the researcher studies the lives of individuals and asks one or more to provide stories about their lives. This information is then retold or re-storied by the researcher into a narrative chronology. This study is not about lives of individuals, and did not intend to make a story about building projects, therefore, this strategy is not appropriate for this study.

Case study is another qualitative research strategy. Stake (1995:2) defines a case as a specific, complex functioning thing while Lowis Smith in Stake (1995:2), defines a case as “a bounded system” drawing attention to a case study as a study of an object rather than a process. This perception contradicts with Yin (2003:13), who perceives a case as a method of inquiry. Yin (2003:13-14), gives two technical definitions of a case study. The first definition reflects to the scope, and he defines it as an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident. The second definition refers to the characteristics of carrying out the study. He defines a case study as an inquiry that copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needing to converge in a

triangulation fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis. In view of the two definitions, Yin (2003:14) perceives a case study as a comprehensive research strategy covering logic of design, data collection techniques, and specific approaches to data analysis, that all amount to a process rather than an object.

Case study like experiments and histories research strategies is appropriate when a "how" or "why" forms of research questions are being asked. But unlike history, the questions should be about contemporary set of events, and unlike experiments, the investigator has little or no control over the events (Yin, 2003:3-7). According to Stake (1995:3), there are two types of case studies; an intrinsic case study – a case in which a researcher has an intrinsic interest, and an instrumental case study - where a study is used in-order to understand something else other than the object itself. Most scholarly research falls in this category, where the interest is to study a certain phenomenon or problem in its real life context. Case studies can be exploratory, explanatory or descriptive (Yin, 2003:3-6). Exploratory case studies seek to get new ideas or insights on the phenomenon being studied, while explanatory case studies seek to develop or unveil the causes – effect of the phenomena, and descriptive case studies deals with issues or events which have or are taking place.

Case study strategy employs a broad range of techniques of collecting evidence, and this is one of its strength compared to other strategies. Without limitation, the most common sources of evidence used include; documentation, archival records, interviews, direct observations, participant observation, and physical artefacts (Yin, 2003:85). The case study strategy has been adopted in my study since my research questions can properly be addressed by this strategy.

2.1.3 Mixed methods research approach

The mixed method approach is considered as a "third paradigm" for social research, which emerged from 1990s (Denscombe 2008). According to Denscombe, the approach has developed a platform of ideas and practices that are credible and distinctive alternative approach to quantitative and qualitative paradigms.

The mixed methods research approach means adopting a research strategy employing more than one type of research method (Brannen 2005). The methods may be a mix of qualitative

and quantitative methods, it may also mean working with different types of data, involving using different investigators – sometimes different research teams working in different research paradigm. Creswell, et al, (2006) contend that, the method is both a methodology and a method as it involves collecting, analysing, and mixing qualitative and quantitative approaches in a single study or a series of studies.

Some researchers have attempted to classify varieties by which mixed methods can be described (Driscoll et.al. 2007). Researchers such as and Ivankova (2004), Johnson and Christen (2004), Tashakkori and Teddlie (2003), have differentiated the mixed research designs by the level of prioritization of one form of data over the other, by the combination of data collection, such as whether the quantitative and qualitative phases take place concurrently or sequentially, and if so, in what order. However, Johnson and Onwuegbuzie (2004) argue that, there is no specific discrete list of mixed methods design options, and advice that researchers should plan to develop a design that answers their own research questions within the constraints and boundaries of the study context.

Nevertheless, according to Tashakkori and Teddlie's (2003) the common classifications of mixed methods research approach include the following:

i. The concurrent mixed method design; this is a multi-strand design in which both qualitative and quantitative data are collected and analysed to answer a single type of research question (either Qualitative or Quantitative). The final inferences are based on both data analysis results. The two types of data are collected independently at the same time or with a time lag.

ii. The concurrent mixed design; this is a multi-strand mixed design in which there are two relatively independent strands/phases: one with quantitative questions and data collection and analysis techniques and the other with qualitative questions and data collection and analysis techniques. The inferences made on the basis of the results of each strand are pulled together to form meta-inferences at the end of the study.

iii. Concurrent nested design; this is a concurrent mixed model design classified on the basis of (conceptual or paradigmatic) dominance or priority of the study. In this design, a quantitative strand/phase is embedded within a predominantly qualitative study or vice

versa. Qualitative and quantitative approaches are used to “confirm, cross-validate, or corroborate findings within a single study”.

iv. Concurrent triangulation design; this is a concurrent mixed model design classified on the basis of purpose of the study. In this design, qualitative and quantitative approaches are used to “confirm, cross-validate, or corroborate findings within a single study”.

v. Multilevel mixed methods design; this is a design in which qualitative data are collected at one level, and quantitative data are collected at another level in a concurrent or sequential manner to answer different aspects of the same research question. Both type of data re-analysed accordingly, and the results are used to make inferences. Because the questions and inferences all are in one approach (qualitative or quantitative), it appears predominantly qualitative or quantitative study with some added components.

vi. Sequential mixed method design; this is a design which one type of data (eg. quantitative) provides a basis for the collection of another type of data (eg. qualitative). It answers one type of question (qualitative or quantitative) by collecting and analysing two types of data (qualitative and quantitative). Inferences are based on the analysis of both types of data.

vii. Sequential mixed model design is a multi-strand mixed (qualitative-quantitative, or quantitative-qualitative) design in which the conclusions that are made on the basis of the results of the first strand (e.g. a quantitative phase) lead to formulation of questions, data collection, and data analysis for the next strand (eg. a qualitative phase). The final inferences are based on the results of both strands of the study. The second strand/phase of the study is conducted to either confirm/disconfirm the inferences of the first strand, or to provide further explanation for unexpected findings of the first strand.

In recognition that all methods have limitations as well as strength and weaknesses, the mixed research method has a fundamental principle that, methods should be mixed in a way that has complementary strengths and non-overlapping weaknesses (Johnson and Turner, 2003). Johnson and Turner proclaim that, this principle can be applied to all stages or components of the research process in-order to obtain convergence or collaboration of findings which are forms of triangulation that increase a study’s validity, eliminate or minimize key plausible alternative explanations for conclusions drawn from the research data, and to elucidate the

divergent aspects of a phenomenon. More-over, the mixed methods research provide ground for complementarities of one method with the other, whereby results obtained from one method could elaborate, enhance, illustrate, and clarify the results obtained from the other method and that increases the study's validity and interpretability (Rocco et.al., 2003) and (Bryman, 2006). Bryman further argue that, the use for instance of qualitative data to illustrate quantitative findings that can be adopted in mixed research methods, is like putting meat on the bones of dry quantitative findings. Indeed in view of this the mixed methods research was adopted for this study as discussed in the next section.

However, notwithstanding the benefits cited above, some of the shortcomings of mixed methods research include the possibility of the grounds on which multi-strategy research are undertaken may not have been sufficiently articulated in the methodological literature that could result in lack of certainty about its uses. Furthermore, there could be cases where this strategy is unnecessarily applied while a single approach would have been sufficient, thus creating data redundancy, whereby some data are generated which are highly unlikely to shed light on the topic of interest. This would entail not just a waste of research resources but also a waste of participants' time.

2.2 The research design

A research design is the program that guides the investigator in the process of collecting, analysing, and interpreting observations (Nachmias and Nachmias, 1993:97). In other words Yin (2003:20-21), considers it as an action plan for getting from here to there. Where here, is regarded as the initial set of questions to be answered, and there, is some set of conclusion about the questions.

This research focuses on the understanding of conflicts situation in building projects in Tanzania. It is designed broadly in two parts. Part one aimed at establishing critical issues of conflicts and their causes in building projects in Tanzania. This part involved four stages;

i. Problem definition,
ii. Literature review,
iii. Interview and
iv. Questionnaire survey.

Part two of the research involved in-depth study of the most critical issues of conflicts and their causes. The aim of this part was to track conflicts from their root cause level, to monitor how they develop / progress and how they are managed in real project setup. This approach provided a base for proposing a framework that can be adopted in the management of conflicts in building projects in Tanzania. This part involved mainly two stages:

i. Main case study

ii. Cross case synthesis, conclusion and recommendations

The design involving the above stages is illustrated by figure 2.1 and each of the stages involved is described below.

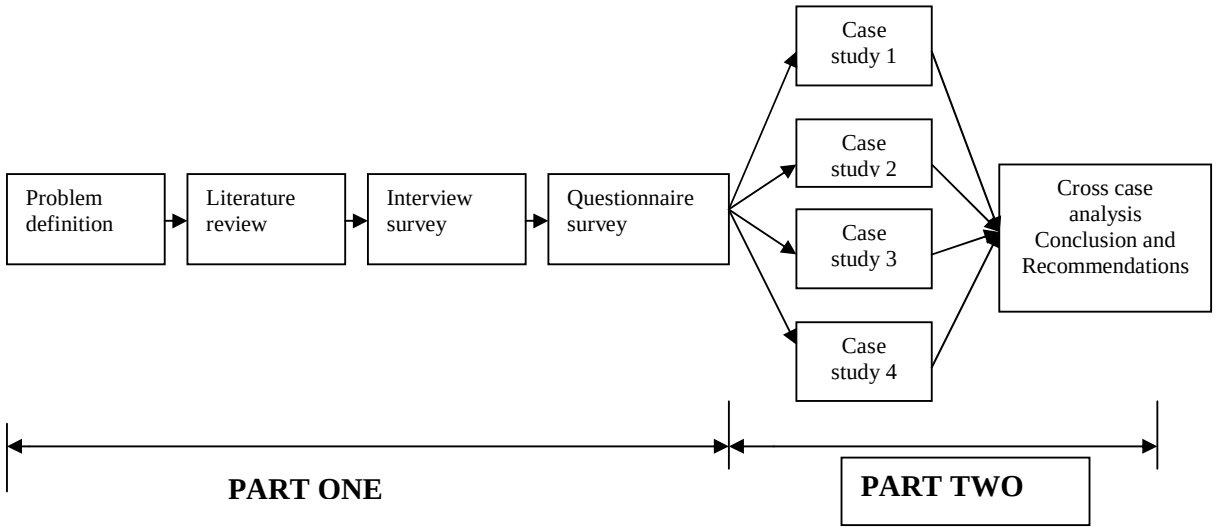

Figure 2.1: The research Design

2.2.1 Problem definition

Nachmias Nachmias (1993:51) describe a research problem as an intellectual stimulus calling for an answer in the form of a scientific inquiry. He points out that, the problem must be empirically grounded, clearly and specifically articulated.

For this study, the problem is perceived from poor performance of building projects in Tanzania. It is common to encounter delays, cost overruns, and poor quality of workmanship in most building projects. The above three parameters are regarded as indicators of project performance (Rwelamila, 1996:12). One of the causes of such problems as identified by a

number of researchers in other countries, are conflicts among project participants. This research therefore, intended to explore conflicts, their causes, and how they are managed in building projects in Tanzania. This provided a base for proposing a framework for management of conflicts in building projects in Tanzania.

2.2.2 Literature review

This stage covered key definitions and concepts relevant to the study and related areas. The key areas covered include; the nature of building industry in Tanzania, inter alia; the structure of the industry, the procurement systems used, the building process, the phenomenon of conflicts, models of organisational conflict, functional and dysfunctional conflict phenomenon, sources of conflicts and conflicts management approaches.

The literature used include; technical journals, reports, textbooks, conference proceedings, official and government reports, and homepages.

The literature review had two main purposes;

i. To explore conflicts and their causes in building projects as has been identified by researchers in other countries so as to be used as a base line for my inquiry.
ii. To facilitate clarity in the identification of the research questions and propositions, which according to Yin (2003:22-26), is crucial in the selection of an appropriate unit of analysis.

2.2.3 Interview survey

This stage intended to verify conflicts and their causes identified in literature review in the context of the building industry in Tanzania. This approach was adopted because, it was not known if the issues and causes of conflicts that have been theorised or found to be important in other countries were also relevant in Tanzania.

At this stage a sample of key participants in a building project (clients, contractors and consultants), were interviewed to verify and explore new findings of conflicts and their causes in the industry. Exploratory interviews were used, since they are heuristic in nature and assist the researcher to develop ideas and hypothesis compared to standardized interviews (Oppenheim, 1994:67).

2.2.4 Questionnaire survey

This stage involved questionnaire survey, and aimed at determining the attitudes of key building project participants on criticality of conflicts and their causes between various project participants. The five degrees rating system was used. The questionnaire design targeted key project participants, that is; prominent clients, contractors, and consultants (architects, engineers structural and civil, and quantity surveyors). A representative sample of those based in Dar es Salaam was selected. This is because most key project participants in Tanzania are based in Dar es Salaam, or at least they have their branch offices there. The questionnaire replies were analysed using the SPSS statistical methods to draw various statistical inferences.

This stage intended to map out the most critical conflicts and their causes among various participants in building projects in Tanzania.

2.2.5 Case study

Part two of the research involved in-depth study of the most critical conflicts, causes, and their management established in part one. For this part a case study approach was used. A case study approach as the strategy of inquiry was adopted on the bases of the following facts:
The nature of investigation: The fundamental nature of this study is exploratory. It intends to answer questions about why do conflicts occur between project participants, how do they develop / progress, and how are they managed / prevented in building projects in Tanzania. As contended by Yin (2003:3-7), a case study is appropriate for exploratory inquiry where "why" and "how" research questions need to be answered. Moreover, case studies provide an opportunity to study the case in a natural setting, taking a holistic approach in order to have in-depth understanding of a complex phenomenon like conflicts in building projects. The choice of this method has been reinforced by the fact that the nature of investigation did not attempt to have control over events and that the study's focus was on a contemporary issue.

Multiple source of evidence: The use of a multiple source of evidence in case study strategy addresses the problem of limitation inherent in various methods of data collection in that, it makes up for the shortcoming that exist within each individual method (Creswell, 2003:15). The case study strategy, unlike other research strategies, gives an opportunity to use many different sources of data collection, thus achieving data triangulation. With data triangulation,

the potential problems of construct validity were addressed because the multiple sources of evidence provide multiple measures of the same phenomenon (Yin, 2003:97).

Previous empirical studies in the field: A number of researchers such as Langford, et al, (1992), Fenn, et al, (1997), Harmon (2003) focusing on causes of conflicts used survey methods as strategy of inquiry. These studies have taken a top down approach, an approach that does not provide an in-depth understanding of the phenomenon from its root cause. RICS report on conflicts in construction projects in the United Kingdom (1997), suggest that in order to understand the root causes and management of conflicts, a bottom-up approach should be adopted. Some researchers such as Awakul and Ogunlana (2002), Yates and Hardcastle (2003) have adopted the case study strategy as a bottom-up approach inquiry on conflicts in construction projects. The above-cited examples provide a reference for choosing case study strategy as a method of inquiry for part two of the study.

Components of a case study research design

Yin (2003:21) outline five important components of a case study research design as; study's questions, its propositions, its unit(s) of analysis, the logic linkage of the data to the propositions, and the criteria for interpreting the findings. Each of these components and the rationale of using a single or multiple case designs are discussed below.

Study's questions: Part two of the research seeks to answer questions related to, "why do conflicts occur" and "how are they managed" in building projects in Tanzania. Although these questions have been used as a guide to select a case study as the appropriate strategy of inquiry, but do not point to what should be studied. The direction of study has been determined by setting out some study propositions as discussed below.

Study propositions: Yin (2003:22) advocate that study propositions set the direction of the study, however, he acknowledges that, some studies may have legitimate reasons for not having any propositions. That condition exists in experiments, surveys, and other research strategies in which the topic is the subject of "exploration". However, Yin (2003:22) contend that, instead of propositions, the design for an exploratory study should state its purpose and the criteria by which will be judged successful. This study has two theoretical propositions;

a. Contractual incompleteness and consequent post contract adjustments and opportunistic behaviour of some project participants are root causes of conflicts in building projects in Tanzania.
b. There are in-sufficient mechanisms and strategies to deal with conflicts in building projects in Tanzania.

Unit of analysis: Guided by research objectives and questions, the unit of analysis considered appropriate for this study is the building project. A building project may be defined by combining the definitions of a "building" and a "project". According to quality management – guidelines to quality in project management, SS – ISO 10006, a project is defined as a unique process, consisting a set of co-ordinated activities with a start and finishing date, undertaken to achieve an objective conforming to specific requirements, including constraints on time, cost and resources. And a building is defined as a structure that has a roof and walls and stands more or less permanently in one place (Word reference.com dictionary).

The participants in a project such as the client, contractors, sub-contractors, architect, engineers of various disciplines, and quantity surveyor are regarded as embedded units of analysis within a unit - a building project.

Logic linking the data to the proposition / purpose and the criteria for interpreting the findings: According to Yin (2003:26) the two components overshadow the data analysis steps in case study research, and a research should lay a solid foundation for this analysis. Yin (2003:111-119) identified three general strategies for analysing case study data, which are: relying on theoretical propositions, thinking about rival explanations, and developing a case description. In this study the strategy relying on theoretical propositions put forward above was adopted. Pattern matching mode of analysis was used where the empirical data collected was compared with the predicted ones based on the theoretical propositions made. According to Yin (2003:116), if the patterns coincide, then the results help a case study to strengthen its internal validity.

Rationale for single or multiple case design: Yin (2003:41) identified four basic types of designs for case studies; holistic single case (with a single unit of analysis), a holistic multiple cases (each with a single unit of analysis), embedded single case (with multiple units of analysis), and embedded multiple cases (each with multiple units of analysis).

In this study an embedded multiple case design is adopted basing on the advantages it has over the other designs, and the structure of a building project. Yin (2003:46-47), advocate that the evidence from embedded multiple cases is considered more compelling, and the overall study is therefore regarded as being more robust. Moreover, the nature of the study itself do not have features that justify a holistic single case designs which would be appropriate if the case is unusual, rare, critical or revelatory. However, a holistic multiple case study design is not appropriate too since a building project organisation consist of various participants (client, contractor(s), architects, engineers, quantity surveyors etc.) who are regarded in this study as embedded units of analysis.

Replication, not sampling logic for multiple-case studies: Figure 2.2 depicts a very different logic from that of sampling design commonly used in quantitative research.

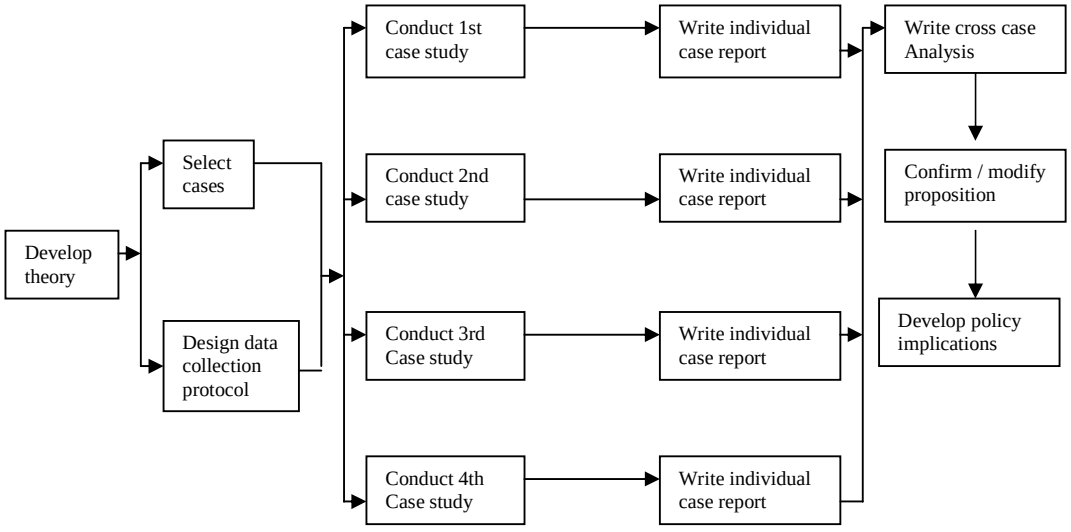

Figure 2.2: Case study design (Adopted (Yin, 2003: 50) and modified

In a multiple case design a sampling logic and sample size are irrelevant instead, one should think of a reflection of the number of case replications that is analogous to the logic used in multiple experiments (Yin, 2003:51). In this study, embedded multiple cases that support the research theoretical proposition that Yin referred to as “literal replications” – that which predicts similar results, and those which do not support the theoretical proposition, that he referred to as “theoretical replications” - that which predicts contrasting results but for predictable reasons were selected.

The cases selected with literal replications, were building projects that have high degree of symptoms of conflicts that are; delays, cost overruns and poor workmanship. These are therefore presumed to have:

i. Insufficient mechanisms and strategies to deal with conflicts, and

ii. Incomplete contract documents

The cases with theoretical replication are building projects that have low degree of symptoms of conflicts as mentioned above, and therefore were assumed to have:

i. Sufficient mechanisms and appropriate strategies to deal with conflicts, and

ii. Relatively complete contract documents.

The replication approach as applied in multiple case studies is illustrated in figure 2.2. The figure shows that, the initial step involve developing the theory that was done in part I of the study; this is followed by case selection and the designing of the protocol for data collection. Conducting individual case studies then follows. At this stage each individual case study was considered as a "whole" study, in which convergent evidence was sought out regarding the facts and conclusions for the case. Each case's conclusion is then considered to be the information needing replication by other individual cases.

The individual findings and conclusions were synthesised to come up with a cross case synthesis, in order to draw a cross case conclusion that confirm or modify the propositions. The confirmation or modification of the propositions provide a base for developing policy implications, which in this research is the framework appropriate for management of conflicts in building projects in Tanzania.

2.3 Criteria for judging the quality of research designs:

Yin (2003:34-38) identified four tests that can be used to measure the quality of a research design at various research stages, these include: construct validity, internal validity, external validity, and reliability. This section explains how the quality of research design was tested.

Construct validity: this refers to establishment of correct measures for the concepts being studied. People who have been critical of case studies often point to the fact that a case study investigator fails to develop a sufficiently operational set of measures and that subjective

measures are used to collect data. In line with suggestions by Yin (2003:98-99) and Stake (1995:108-109), this problem was addressed by; use of multiple sources of evidence (triangulation of data), the establishment of chain of evidence by linking the research questions and propositions to the data collected, synthesis and conclusion made. This approach, in addition of capturing the strengths and weakness of each source of evidence, also provide a complementary function for each source.

Internal validity: This has been given more attention in experiments and quasi-experimental research (Yin, 2003:36). It is mainly concerned with causal (explanatory) case studies rather than exploratory cases considered in this study.

External validity: The third test has to do with the problem of knowing whether a study's findings are generalizable beyond the immediate case study. One of the critiques of case study approach is that the study provide little basis for scientific generalization. "How can you generalize from a single case?" This is a frequent asked question (Yin, 2003:10). However, Yin refers the same question being asked about an experiment! He gives a short answer that case studies, like experiments, are generalizable to theoretical propositions and not to populations or universes. In this sense, the case study, like the experiment, does not represent a "sample" the generalization is analytical and not statistical generalization. Therefore, in this study the propositions made are tested through both literal and theoretical replication logic in order to achieve analytical generalization.

Reliability: According to Yin (2003:37), the objective of this test is to be sure that if a latter investigator followed the same procedures as described by an earlier investigator, and conducted the same case study all over again the latter should arrive at the same findings and conclusions. Generally the goal of reliability test is to minimize the errors and biases in a study. This test was addressed in the study by preparing prior to the data collection a case study protocol that guided the process of collecting data. The protocol is detailed enough, showing the questions to be asked, identification of the project participants to be interviewed, documents to be sought, and archival records to be collected. Furthermore, to enhance reliability, a case study database was developed.

2.4 Selection of cases

The selection of cases involved two stages. The first stage was nomination by screening the possible building projects that have the following characteristics (nomination of cases by screening is one of the approaches suggested by Yin (2003:77-78)):

i. Public projects. The projects that seem to be most affected by delays, cost overruns, and poor quality of workmanship. The public projects were selected because it is relatively easy to get information compared to private projects.
ii. A project that has been completed recently, or is in the final stages of completion for the reason that information is available and still fresh in the memories of the project participants.
iii. The projects should be of medium or large size. In Tanzania standards the value of such projects should be above T.shs. 300,000,000 equivalent to about US$ 300,000 (at 2004 exchange rates). Small projects are excluded on the assumption that they are simple in nature and therefore are not prone to conflicts.
iv. The projects should have features showing either literal or theoretical replications.

The screening process was conducted informally during the interview session, and at the time of distribution and collection of questionnaires that was done in part one of the study. During the two sessions, salient information about the prospective projects was collected.

Out of the list of prospective projects, a purposeful sampling of cases that are information rich was made in the second stage of selection. For the number of cases to be selected, an analogy from statistical studies was used as the selection criterion by establishing levels of significance as suggested by Yin (2003:51), that, "much as the choice of "$p < .05$" or "$p < .01$" is not derived from any formula but is a matter of discretionary and judgmental choice but what is important is that, the selection of the number of replications depends on the certainty the researcher wants to have about the multiple case results. For this study two cases with literal replications and two with theoretical replications were selected.

2.5 Sources of evidence

Yin (2003:85) identified six sources of evidence most commonly used in doing case studies; documentation, archival records, interviews, direct observations, participant-observation, and physical artifacts. This section discusses how each of these was applied in the study.

Documentation: This can take many forms, however, in a building project among others, the following documents were considered: Contract documents, minutes of site meetings, letters, memoranda, work programs, progress reports, valuation certificates, proposals, site records, and other communiqués.

Archival records: These in a building project are in the form of; service records eg. Records showing the number of clients served over a given period of time, organizational records, maps and charts, lists of suppliers, sub-contractors, etc., and survey data.

Interviews: According to Yin (2003:89) this is considered as one of the most important source of evidence in case study inquiry. Interviews can be standardized (focused) or exploratory (open-ended), the choice between the two depends on the nature of the study. For this study the choice was not between the two extremes, but rather between many possible degrees between exploratory and standardized. What was import is that; interview guide that was prepared in line with the case study protocol in order to catch the salient information required guided all interviews.

Direct observation: This involve field visit to the case study site. Visits to the building project sites were made so as to observe the nature of the site as a way of comparing the data obtained from offices, and to get any other additional information that was useful for the study.

Participant observation: According to Yin (2003:93), this is a special mode of observation in that one is not merely a passive observer. Instead, the researcher may assume a variety of roles within a case study situation and may actually participate in the events being studied. This source of evidence was employed in the inquiry by attending site meetings where some issues of conflict were being discussed in two of the four projects.

Physical artifacts: This refers to technological devices, tools or equipment, or some other physical evidence used in building projects. The idea here was not to collect these artifacts, rather was to observe and reflect their implications to the subject being studied.

CHAPTER THREE
THE NATURE OF CONSTRUCTION INDUSTRY IN TANZANIA

3.0 Introduction

This chapter describes the nature of construction industry in Tanzania so as to provide a general environment in which building projects are undertaken in Tanzania. This is important in-order to understand characteristics of the industry, procurement systems used, key participants in the projects and regulatory systems, which all have influence on conflict situation in building projects.

3.1. Definition and importance of construction industry in Tanzania

The construction industry is defined as a sector of the economy that transforms various resources into constructed physical economic and social infrastructure necessary for socio-economic development (Construction industry policy in Tanzania, 2003:1). It embraces the process by which the said physical infrastructure are planned, designed, procured, constructed or produced, altered, repaired, maintained, and demolished. The constructed infrastructure according to the policy includes: buildings, transportation systems and facilities such as airports, harbours, highways, subways, bridges, railroads, transit systems, pipelines and transmission and power lines, structures for fluid containment, control and distribution such as water treatment and distribution systems, sedimentation lagoons, dams, irrigation and canal systems and underground structures, such as tunnels and mines.

The industry comprises of organisations, companies, firms and individuals working as consultants, main contractors and sub-contractors, material and component producers, plant and equipment suppliers, builders and merchants. The government is involved in the industry mainly as a purchaser (client), financier and regulator.

The construction industry in Tanzania as is the case in other countries, is one of the key sectors of the economy. The industry accounts for more than 50% of the capital formation, 6% of the gross domestic product (GDP) and 9% of the employment (National Bureau of Statistics Tanzania, 2007). In nature the industry permeates through all sectors of the economy such as manufacturing, agriculture, education, etc, thereby stimulating their growth.

3.2 Characteristics of the industry

The industry in Tanzania relative to developed countries is underdeveloped, characterized by high level of labour-based activities on construction sites. A substantial part of the construction work takes place in the informal sector of the industry. About 80% of the population lives in the rural areas (Construction industry policy, 2003:2). The buildings and other small infrastructure facilities for this major part of the population are constructed by the informal sector. The informal construction sector comprises of unregulated and unprotected individuals engaged in economic activities that include the supply of labour, materials and building components to the formal construction sector directly in response to needs of clients. It also includes works carried out by individuals and groups on a self-help basis without contracting.

The majority of contracting enterprises in construction industry in Tanzania are small with a few of them being in the medium category as reflected in table 3.1. The table shows that 80% of the 1837 registered local building contractors in 2007 were small contractors, 17% were medium and only 3% were big contractors. According to Contractors Registration Board (CRB), small contractors are those registered in class six and seven, medium contractors are those registered in class four and five and big contractors are those registered in class one, two and three.

Table 3.1: Number of registered Building Contractors in Tanzania (2007)
Source: CRB: 2007

Class	Local	Foreign	Total
One	33	26	59
Two	15	0	15
Three	13	0	13
Four	66	0	66
Five	241	0	241
Six	245	0	245
Seven	1224	0	1224
TOTAL	**1837**	**26**	**1863**

However, according to CRB, small and medium firms / enterprises are vital for ensuring diversity and flexibility of the economy responsible for the creation of employment and growth. They are the only firms willing and able to undertake the small, scattered projects, especially in rural areas, which are among the key components of development required to satisfy the basic needs of people such as housing, health facilities and sanitation. CRB

acknowledged that in recent years the small and medium firms have been very instrumental in the countrywide campaign in construction of classrooms for primary and secondary schools and dispensary buildings.

In least developed countries, the construction industries are dominated by Foreign Service providers to the tune of at least 65% in terms of money value of market share. For example based on 2003 statistics in the Southern African Development Community (SADC) region, and with exception of South Africa, local contractors and consultants had approximately 30% market share in the region; Malawi (23%), Swaziland (35%), South Africa (85%), Tanzania (20%). Tanzania foreign contractors and consultants account for about 80% of the market share in terms of value. Based on the values of registered construction projects in Tanzania in 2007 as shown in table 3.2, the market share of foreign contractors was 70.4% while local contractors had only 29.6%.

Table 3.2: Value of registered projects in Tanzania (2007) Source: CRB: 2007

	Number of projects registered	Value of projects registered (in USD)
Local Contractors	484	182,016,129
Foreign Contractors	34	433,629,023
Total	515	615,645,616

3.3 Key participants and their roles in building projects

Construction is a teamwork, which demands high level of performance from each one in the team. However, it should be noted that, the participants who come together have different cultural diversity arising from their specific professions. Based on traditional procurement approach which is predominantly used in Tanzania the key participants in a building project include: client / financier, contractors, sub-contractors, design team consisting of architect, engineers (structural, civil and services engineers), quantity surveyor, and a project manager may be involved in some projects. These parties come together to form a temporary organisation to undertake a project in hand for a specific period. This section discusses the key participants in a typical building project and how they are engaged in a project team in-order to reflect on relationships existing among the project participants.

3.3.1 Client / Employer

The client in a building team is the owner or the developer of a building project, and when employs a contractor to undertake the works, is also referred to as the employer. In most projects the client is also the financier of the project although there are projects where the financier may be a different entity. Under the traditional procurement system as discussed in section 3.4, the client enters into a contract with the design team (consultants) for design work and supervision of construction works, and a separate contract with general contractor for construction works. Other contractual arrangements depending on the mode of procurement selected are available as discussed in section 3.4. The key role of a client when is also a financier in a building project is to finance the project.

In Tanzania clients / financiers of building projects are: the central government through its various ministries and institutions, local government through municipalities and district councils, private organisations and individuals.

3.3.2 Architect

According to Architects and Quantity Surveyors Registration act in Tanzania (AQSRA) of 1997, every building should be designed and supervised by an architect. The architect is appointed by the client / employer and normally is a team leader of a building design team (AQRB Form of Agreement Terms and Conditions for appointment of an Architect, 2000 edition). The scope of the work undertaken by an architect may be divided into two phases, the pre-contract and post-contract phases. During the pre-contract phase, the architect based on the client's requirements often given in a project brief, formulates the project idea in terms of size, function and appearance then transforms these into plans that can be used for construction. During the post contract phase the architect is involved in supervision and administration of the project so as to provide the client with an acceptable and satisfactory building upon completion.

Depending on the nature, sophistication and specialist knowledge required in the design, supervision and administration of the project, the architect may require the assistance of consultants from other professional disciplines like engineers and quantity surveyors.

3.3.3 Quantity surveyor

The quantity surveyor is another member in a building project team. The quantity surveyor's

role mainly is of a building cost advisor that includes forecasting the cost of the project, preparation of tender and contract documents, preparation and control of financial expenditure of the project. According to AQRB Form of Agreement Terms and Conditions for appointment of a quantity surveyor, 2000 edition) a quantity surveyor may be employed direct by the client / employer of the project or by a design team leader to work on behalf of the client in a building project. However on the other hand quantity surveyors are also employed by building contractors to work on project matters related to cost and contract.

3.3.4 Engineers

There are different engineering disciplines required in building projects. The most common disciplines are civil, structural, mechanical and electrical engineering. The engineers in line with their areas of specialisation are responsible for design and supervision of their respective areas of expertise. Engineers as is the case of quantity surveyors may be directly employed by the client or may be employed by a design team leader to work on behalf of the client. However, engineers also are employed by building contractors to work on their behalf in particular for supervision and management of construction works.

3.3.5 Contractor

The contractor is a member in a building project who carries out the actual physical construction works of the structure. In Tanzania depending on the nature of project, there may be a general or main contractor who has a contract with the client. The contractor is fully responsible for undertaking the project works within time, cost and quality stipulated in the contract. However, depending on the complexity of the project, some parts of the work may require specialized skills, for instance electrical, plumbing and air conditioning installations that may demand involvement of a specialist or sub-contractor in a project. Two forms of subcontracting are mostly used: (i) Domestic sub-contracting; under this arrangement the main contractor engages a sub-contractor who is fully under his control, and the sub-contractor has no contractual relationship with the client. (ii) Nominated sub-contractor whereby under this arrangement, the sub-contractor is nominated by the client through his consultants, and is approved by the contractor who enters into a contract with him. However, the nominated sub-contractor has some limited contractual links with the client. For instance under the East Africa standard form of building contract, 1991 edition, the client can intervene and make direct payments in case the main contractor has not paid the sub-contractor his dues.

3.4 Project procurement systems

Building projects involve coalition of separate organisations, which come together on temporary basis to form a project team in order to implement and achieve project objectives. The coalition is in form of institution or governance structure (procurement system) that express contracting system and relationships between various members involved in the project. There are various contracting systems and different procurement options that can be adopted for a building project. This section discusses various procurement systems commonly used in building projects in order to appreciate the interactions taking place among the project participants. The systems discussed include; traditional procurement system, design and build, management contracting, project management, partnering and build-operate transfer approach.

3.4.1 The traditional procurement system

This system has been widely used in United Kingdom and most of commonwealth countries Tanzania being one of them for a number of decades (Ramus, 1993: 11). Essentially it is the procurement method, which separates the design and construction responsibilities. The client engages an architect and other design consultants to design a building or any form of structure and a contractor is appointed after a competitive tender or through negotiation to carry out the construction. It is a fragmented approach as expressed in figure 3.1, involving the client / employer, the design team (architect, engineers and quantity surveyor), the general contractor and sub-contractors. In Tanzania according to the survey is the most used system.

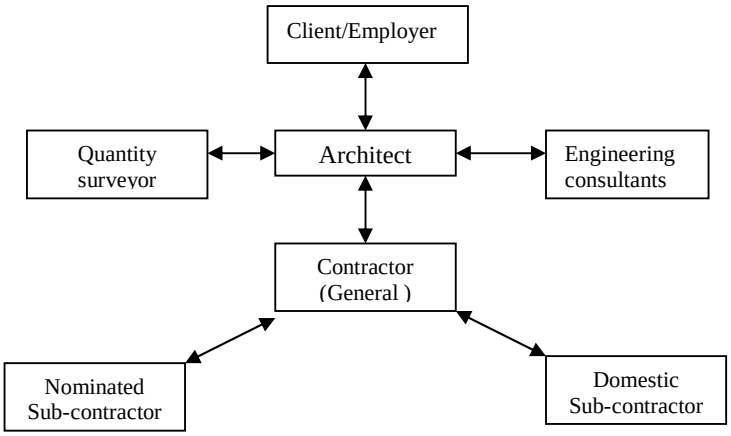

Figure 3.1: Relationships and communication links in traditional procurement system

3.4.2 Design and Build (DB)

Under the DB system the contractor is responsible for design as well as construction. The important characteristic of this system is the single point responsibility of the contractor for the entire project execution by taking up the role of both the professional design team and the builder as illustrated by figure 3.2. The figure shows the relationships and communication links in the system, which gives the contractor a central role. The single point responsibility of the system offers a non-adversarial and less confrontational environment, greater contractor participation and effectiveness in resolving conflicts and disputes at design interfaces and design and construction interfaces (Weddikkara, 2003).

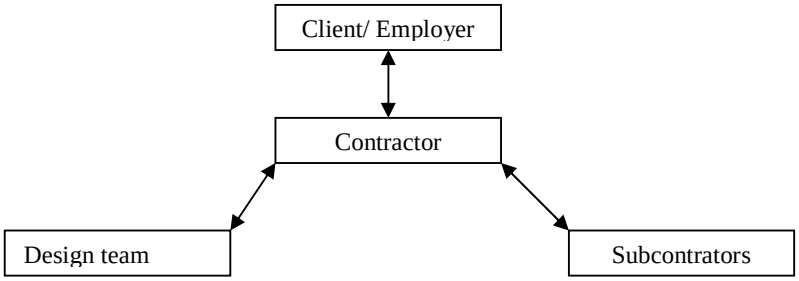

Figure 3.2: Relationships and communication links in design and build system

However, literature informs that DB is not a preferred route for projects where the client's requirements (project brief) cannot be adequately defined, post contract design changes are likely to occur or there are complex pre-design research or investigation to be undertaken. Other disadvantages of the system are lack of competition, monitoring of quality and the restriction in the flexibility of design. Changing client profile and requirements could lead to extensive changes of the originally conceived DB system. Therefore, in selecting this type of procurement due regard must be given to the suitability of the project in view of the advantages and disadvantages of the system otherwise the system could give rise to occurrence of conflicts.

3.4.3 Management Contracting (MC)

The MC evolved at the beginning of 1970's as a method of building complex projects in a shorter time (Ramus, 1993: 31). The key feature of MC system in that it overlaps the design and the construction processes and by that it reduces the pre-contract period.

In MC system the managing contractor acts as a link between the client/employer and the interfacing or works contractors in the project as shown in figure 3.3. The benefits of MC are reduction in program time, value for money, flexibility in absorbing design changes during the construction period and bringing together a team chosen for their professional abilities to act together in the client's best interest from inception to completion of the project. The MC brings together the two processes of design and production that introduces the building skills from the contractor to the design team at the early design / feasibility stages of the project. This arrangement facilitates co-operation, unification and encourage a teamwork spirit both on the site and the consultants' offices to construct a building to meet the client's objectives in respect of quality, time and cost. This could be perceived as a passive avoidance of conflicts among project members. However, one of the drawbacks of the system is that the final cost of the project is not known until when the last works contract has been signed. In Tanzania based on the information available this system has not been used in any building project.

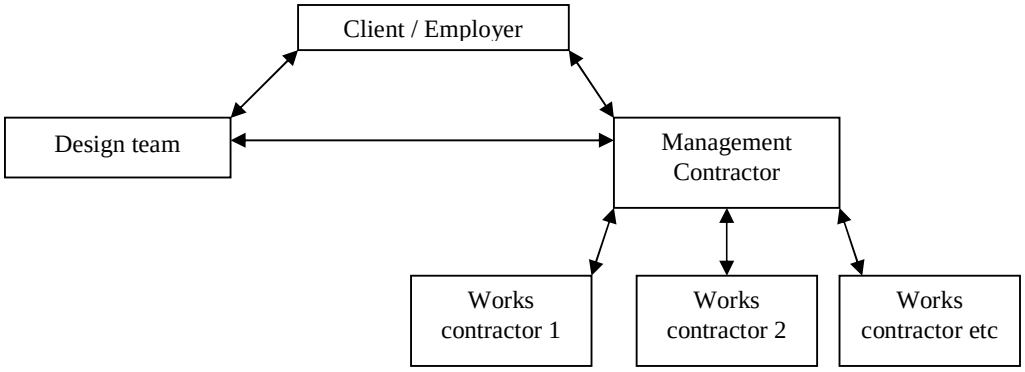

Figure 3.3: Relationships and communication links in Management contracting system

3.4.4 Project Management (PM)

PM system is perceived as the overall planning, control and co-ordination of a project from inception to completion aimed at meeting client's requirements and ensuring completion on time, within cost and to required quality standards (RICS, 1986). The system is not a procurement system in itself, as it does not include the site construction process but essentially provides general supervision (Ramus, 1993: 38). Under this system the project manager is the client's representative with the authority to supervise and control the entire planning and building operation from acquisition of the site to completion of the project and settlement of the accounts.

The key role of a project manager is planning, organising and co-ordinating the services provided by the design team, main contractor, and subcontractors as well as those concerned with development and marketing. The project manager's task essentially is geared towards establishing an internal environment within the project for effective operation of individuals working together in groups. Figure 3.4 shows the relationships and communications links of the parties in the system. This system is fragmented more or less the same as the traditional procurement, and therefore prone to occurrence of conflicts if the project manager is not effective.

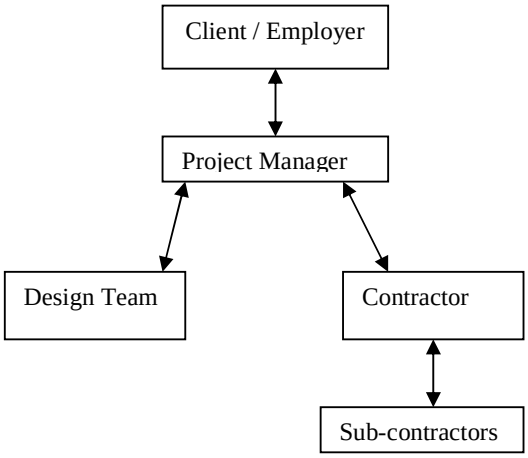

Figure 3.4: Relationships and communication links in Project Management system

3.4.5 Partnering

Partnering is not a procurement method in itself, rather is the arrangement that involves two or more organisations working together to improve the performance, agreeing mutual objectives, devising a way for resolving disputes and committing themselves to continuous improvement, measuring progress and sharing the gains. Literature indicates that there are two categories of partnering, which are strategic partnering and the project partnering. Strategic partnering takes place when two or more firms use partnering on a long-term basis to undertake more than one construction project, and project partnering is when two or more firms come together in a partnering arrangement for a single project.

The essential factors which form the foundation for successful partnering relationships are mutual trust and understanding as central core factors and relationship building activities, openness, continuous and structured meetings, economic incentive contracts, predetermined dispute resolution methods and facilitation as "petals" of partnering "flower" (Nyström,

2005). Partnering can achieve significant benefits for all parties if approached correctly and in right spirit and attitude. A successful partnering according to Crowley and Karim (1995) will enable overcoming traditional roles of adversarial management, poor quality and performance cost overruns and delays. The non-adversarial culture of a partnering relationship as pointed out by Weddikkara (2003) will reduce conflicts. However, it should not be assumed that conflicts would not occur in a partnering arrangement, it is still important to have conflicts resolution procedures in place.

3.4.6 The Build-Operate Transfer Approach (BOT)

BOT is essentially a form of project financing whereby a client, mostly the government awards to a group of investors a concession for development, operation, management and commercial exploitation of a particular project (UN Commission, 1996). Unlike the traditional project financing by which the employer assumes responsibility for obtaining finance and guaranteeing its repayment, in BOT payment responsibilities are assumed by the developer. The developer undertakes to complete the construction and to operate the facility for a certain period of time with a view to recouping its costs and gaining profits. The developer has a keen interest in the feasibility, design, construction and operation of the facility.

The advantages of BOT projects are the potential for mobilizing the private sector, access to technologies and skills not available and serve as a parameter for measuring the performance of similar projects carried out using traditional procurement procedures. However, one of the disadvantages of BOT is a big number of contractually interrelated parties such as lenders, construction companies, equipment suppliers, independent capital investors and purchases or end uses of the project. BOT system has recently been introduced in Tanzania for building and infrastructure projects.

3.5 Regulatory systems in construction industry in Tanzania

A major institutional player in the construction industry in Tanzania is the government represented by the Ministry responsible for works, promotional and advisory government institutions, councils and regulatory bodies. Each of these has a specific role in the promotion and regulation of various members and the construction process in the industry. This section outlines the key roles of the institutions in-order to express the regulations environment in which building projects are carried out, that have impact on conflicts in building projects. The

institutions discussed include: Contractors Registration Board (CRB), Architects and Quantity Surveyors Registration Board (AQRB), Engineers Registration Board (ERB) and National Construction Council (NCC). All these institutions operate under the ministry responsible for works in Tanzania.

3.5.1 Contractors Registration Board (CRB)

The CRB was established by section 3 of the Contractors Registration Act No.17 of 1997 in Tanzania. The mission of CRB is to regulate and develop a competitive and sustainable contracting industry with capable contractors who deliver quality works and observe safety in pursuing of economic growth. The key functions of the board are to register, regulate and promote the activities and conduct of all contractors in Tanzania.

According to section 2(a) of the contractors registration Act (1997) in Tanzania, a contractor on one hand is defined as any person who for reward or other valuable consideration undertakes the construction, installation or erection for any person, of any structure situated below, on, or above ground or other work connected therewith or the execution, for any other person, of any alteration or otherwise to any structure or other work connected therewith.

According to the Act registration of contractors is mandatory and any person or firm not being a registered contractor found to be acting as such commits an offence, and upon conviction is liable to pay fine as stipulated by the board.

The Act recognizes five types of contractors, namely; building contractors, civil works contractors, mechanical contractors, electrical contractors and specialist contractors. Each of these five types are further categorised into local and foreign contractors. Local contractors according to the act are those whose majority shares are owned by citizens of the United Republic of Tanzania and those not meeting these criteria are registered as foreign contractors.

The contractors are further classified into seven classes of registration for building, civil, electrical and mechanical contractors. For specialists contractors there are only three classes. Foreign contractors are restricted to register in classes one and two in building and civil types, and to class one up to three in electrical and mechanical types. The classes of registration reflect the capacity of the contractor to undertake the works in terms of value of a single

contract as shown in table 3.3. Table 3.1 shows the majority of building contractors (67%) are registered in class seven, which is the lowest class while those registered in class one -the highest class are only 3 percent. All foreign contractors are registered in class one, and they form 44% of all contractors registered in class one. Although the foreign building contractors are the minority in number but they have a big share of value of registered projects in Tanzania as shown in Table 3.2 when in 2007 they had a share of more than 70% of all registered projects leaving local contractors with only 30%.

Table 3.3: Contractor's class limit for any single contract (in Million T.shs.)
Source: CRB: 2007

Class	Civil	Building	Mechanical	Electrical	Specialist
One	**Unlimited**	Unlimited	Unlimited	Unlimited	Unlimited
Two	**4500**	**1200**	**750**	**750**	**150**
Three	**1500**	**900**	**450**	**450**	**75**
Four	**750**	**600**	**300**	**300**	**-**
Five	**450**	**300**	**150**	**150**	**-**
Six	**200**	**150**	**75**	**75**	**-**
Seven	**100**	**75**	**30**	**30**	**-**

3.5.2 Architects and Quantity Surveyors Registration Board (AQRB)

The board was established under the Architects and Quantity Surveyors Registration Act, No.16 of 1997. The board is responsible for monitoring and regulating architectural and quantity surveying activities and conduct of the architects and quantity surveyors and architectural and quantity surveying consulting firms in Tanzania. Under the law it is illegal for an architect and quantity surveyor or an architectural and quantity surveying firm to practice the professions if not registered with the board.

3.5.3 Engineers Registration Board (ERB)

The board was established under the Engineers Registration Act, No.15 of 1997. The board is responsible for monitoring and regulating engineering activities and conduct of the engineers and engineering consulting firms in Tanzania. Under the law it is illegal for an engineer or an engineering firm to practice the profession if not registered with the board.

3.5.4 National Construction Council (NCC)

Is the institution operating under the ministry responsible for construction works. Its main role among others is to promote and provide leadership for the growth, development and expansion of the construction industry in Tanzania with emphasis on the development of the

socio-economic development and competitiveness in the changing global environment. Moreover it is also mandated to provide advisory services and technical assistance to construction industry stakeholders on all matters related to the construction industry including promoting and monitoring the development and implementation of standards, regulations and codes of practices related to the construction industry.

3.6 The Construction process

The construction process involves a number of stages that are distinct or may overlap depending on the nature of construction and the procurement method used as discussed in section 3.4. In Tanzania the construction process has its roots to the United Kingdom (UK) construction process as outlined by the Royal Institute of British Architects (RIBA).

For a typical building project based on the traditional procurement system (which is mostly used in Tanzania) the construction process is divided into four main stages, namely: pre-design, design, construction and post-construction stages. Each stage involves a number of sub-stages under which a number of activities are performed.

3.6.1 Pre-design stage: This is the first stage in the construction process. It is the stage from the time when the client conceives an idea of undertaking a construction project to the time before the start of design work. This stage includes three sub-stages; the idea development, inception and feasibility study sub-stages.

The idea development is the sub-stage when the prospective project client comes up with ideas of building a structure. Such ideas may arise from the need and demand for the facility or may arise from someone outside the client's setup who may advise the prospective client on the best way of utilizing his resources by investing in construction. Interviews conducted revealed that, it is becoming common in Tanzania for architects, quantity surveyors and engineers to approach individuals and public institutions possessing land particular in prime areas or those with good financial capital base to advise them how best they can invest in building projects.

The inception is the next sub-stage that the prospective client considers his requirements and appoints an architect or the design team to prepare the general outline of requirements and plan future actions to come up with a project "brief". In Tanzania the Public Procurement Act

of 2004 and its regulations of 2005 govern the appointment of the design team for all public funded projects. The appointment process is discussed in section 3.7.

The feasibility sub-stage provides the client with an appraisal and recommendation in order to determine the form in which the project is to proceed, ensuring that it is feasible functionally, technically and financially. In order to accomplish this stage the design team has to carry out studies of user requirements, site condition, planning, design and cost etc. as necessary to reach such decisions. This sub-stage although is essential for building projects, often is not included in the terms of reference prepared by the procuring entity as one of the assignments to be done by consultants as was revealed by some interviewed consultants.

3.6.2 The design stage: This is the second stage in the construction process after the pre-design stage. It covers all activities involving design work up to the time when the contractor starts the works on site. The key sub-stages or activities under this stage include: outline proposal design, when the design team determines the general layout, design and construction in order to obtain approval of the client on the outline proposals and accompanying report. The scheme and detailed design sub-stage when the design team completes the brief and decide on particular proposals, including planning arrangement, appearance, constructional method, outline, specification, and cost plan in order to obtain all approvals from the client and statutory authorities including municipality / town council in which the building is to be constructed.

Preparation of production or working information sub-stage follows after getting the necessary approvals. At this sub-stage a full design of every part and component of the building is carried out and completed, every matter related to specifications, construction and cost checking of the design are also completed. This stage involves the preparation of final production or working information including schedules and specifications and making final detailed decisions to carry out work. Preparation of bills of quantities and tender action is the next sub-stage. This sub-stage involves preparation of all information and arrangements for obtaining tenders and normally is done after the design work under the traditional procurement approach. The procedure for tendering and selection of contractors for all public funded projects in Tanzania is governed by the Public Procurement act of 2004 and its regulations of 2005 as discussed in section 3.8.

3.6.3 The construction stage: This is the stage when the design is transformed into physical objects or structures by the contractor(s). At this stage the design team has a duty of visiting the site of works, provide further information required for the works, inspect the works to ensure they are done according to the design and give general advice on all matters related to the project.

3.6.4 Post-construction stage: This is the stage after completion of construction works and the completed project handled to the client. A defects liability period is normally set in the contract during which if there are any defects noted after practical completion of the works, which are due to faults committed by the contractor, the contractor is liable to rectify them at his cost. This period depending on the nature of the project may range from six to twelve months. During this period it is the duty of the design team to make final inspections, identify defects and final account for final payments to the contractor.

3.7 Appointment of the design team for public funded projects in Tanzania

The appointments of the design team for all public funded projects are done in line with Public Procurement Act of 2004 and its regulations of 2005 for selection and employment of consultants. According to the act and regulations consultants for public funded projects are selected through one of the four methods cited in part three of the regulations, which are; international competitive selection, national competitive selection, restricted competitive selection and single source selection.

International competitive selection is the method by which the procurement entity invites consultants regardless of their nationality, by means of an expression of interest notice that should be advertised nationally and internationally. This method is used in cases where payment may be made in whole or in part in foreign currency when the estimated cost of the services exceeds T.shs. 1,000,000,000 (about 850,000 USD at 2007 prices) or where it is desired to attract a wide range of consultants regardless of the estimated value of the services to be procured.

National competitive selection is the method by which the procuring entity invites consultants regardless of their nationality, by means of an expression of interest notice advertised only in the United Republic of Tanzania. This method according to regulation 33(2) may be used in cases where; payment may be made wholly in Tanzanian shillings, the services can be

obtained locally at prices below the international market, the estimated cost of the services does not exceed T.shs. 1,000,000,000 (850,000 USD at 2007 prices), and where the advantages of international competitive selection are clearly outweighed by the administrative or financial burden involved.

Restricted competitive selection is the method by which a procuring entity may restrict the issue of request for proposal to a limited number of specified consultants when such consultants have already pre-qualified, the services required are within the competence of a limited number of specialised consultants, or the estimated contract value is within the limit for restricted competitive selection as prescribed in the second schedule of the regulations, (the ceiling is T.shs. 500,000,000 about 417,000USD at 2007 prices), or there is an urgent need for the services such that there would be insufficient time for the procuring entity to engage in open national or international tendering, provided that the circumstances giving rise to the urgency could not have been foreseen by a procuring entity and have not been caused by dilatory conduct on its part.

The last method is the single source selection, this method is restricted to circumstances where it presents a clear advantage over competition such as for tasks that represent a natural continuation of previous work carried out by the firm, where a rapid selection is essential such as in an emergency operation, for very small assignments or when only one firm is qualified or has experience of exceptional worth for the assignment.

The selection procedures discussed above according to the regulations of 2005, are based on five principal criteria, which are; selection based solely on technical quality, selection based on combined technical quality and price consideration**,** selection based on compatibility of technical proposals and least cost consideration, selection based on quality and fixed budget and selection based on consultant's qualification.

The consultant appointed has to enter into a contract with a procuring entity. Part viii of the PPA (2004) provides six types of contracts that could be used for public funded projects, these are; lump sum contracts, time based contracts, retainer and/or contingency fee contracts, percentage contracts, indefinite delivery contract price agreement contracts, and running contracts.

The lump sum type of contracts, are recommended mainly for assignments in which the content and the duration of the services and the required output of the consultants are clearly defined, while time based contracts are recommended when it is difficult to define the scope and length of services to be provided by the consultant. These two types of contracts were mentioned by interviewees as the common types of contracts for consultancy services in building projects.

The retainer and/or contingency fee contracts are used when consultants, mainly banks or financial firms are preparing companies for sale or mergers of firms. The percentage contracts may be used where it is appropriate to relate the fee paid directly to the estimated or actual cost of the contract. The indefinite delivery contract price agreement contracts are used when a procuring entity needs to have "on call" specialized services to provide advice on a particular activity, the extent and timing of which cannot be defined in advance. According to the PPA (2004), this type of contract is commonly used to retain "advisers" for implementation of complex project experts such as adjudicators for dispute resolution panels, institutional reforms, procurement advice, technical troubleshooting, etc. normally for a specific period. The running contracts are commonly used for contracts for which continuity of expert services is desirable such contracts according to PPA (2004) may include inspection agency, procurement agency contracts, etc. These four types of contracts as mentioned by interviewees are not common in building projects in Tanzania.

3.8: Tender action and selection of contractor for public funded projects in Tanzania

For all public financed projects in Tanzania, tendering proceedings and selection of contractors have to follow the requirements of the PPA, 2004 stipulated in the Public Procurement Regulations (PPR) of 2005 (goods, works, non-consultant services and disposal of public assets by tender).

The policies of the PPA 2004 are based on the need to make best possible use of public funds, whilst conducting all procurement with honesty and fairness. To achieve that, regulation 4 of the PPR (2005) provides guide lines that should be adhered by all public officers and members of tender boards while undertaking or approving procurement. Economy, efficiency, equality of participation, transparency and fairness are cited as key factors to be considered. Regulation 63 of the PPR (2005) requires procuring entity to use competitive tendering

proceedings in procurement of all public works, except otherwise as provided by regulation 70, 71, or 72, which provide for price quotation from a single contractor.

The methods of procurement of a contractor under competitive tendering provided in the regulations are: international competitive tendering, national competitive tendering and restricted tendering. Under international competitive tendering a procuring entity invites tenders from contractors regardless of their nationality by means of a tender notice advertised nationally and internationally. This form of tendering as provided under regulation 65(2) is used in all cases where; payment may be made in whole or in part in foreign currency, the estimated cost of works exceeds T.shs.3 billion (3.2 million USD at 2007 prices), it is desired to attract tenders from the widest range of contractors regardless of the estimated value of works to be procured.

Under national competitive tendering the procuring entity invites contractors to tender regardless of their nationality by means of a tender notice advertised only in the United Republic of Tanzania. As per regulation 65(2) this method can be used in cases where: payment may be made wholly in Tanzanian shillings, the works are available locally at prices below the international market, the estimated cost of the works does not exceed T.shs. 3 billion (equivalent to UDS 3.2 million at 2007 prices) limit, works are scattered geographically or spread over time, works are labour intensive and where the advantages of international tendering are outweighed by the administrative or financial burden involved.

Under restricted tendering a procurement entity may restrict the issue of tendering to a limited number of specified contractors when; such contractors have already pre-qualified, works required are of a specialised nature or can be obtained from a limited number of specialised contractors, the estimated contract values are within the limit for restricted tendering prescribed in the regulations (up to T.shs. 1.5 billion equivalent to 1.6 million USD at 2007 prices), and there is an urgent need for the works such that there would be insufficient time for a procuring entity to engage in open national or international tendering, and provided that the circumstances giving rise to the urgency could not have been foreseen by a procuring entity and have been caused by dilatory conduct on its part.

After the contractor has been selected, is required to enter into a contract for works with the procuring entity. The PPR of 2005 for (goods, works, non-consultant services and disposal of

public assets by tender) under regulation 56 prescribes three types of contracts that can be used, namely; Lump-sum contracts, schedule of rates contracts, and contracts with special features. Lump-sum contracts are contracts for a fixed amount for the works as specified and tendered for. Such contracts may or may not be accompanied by a priced schedule but when such schedules are provided, their purpose is to assist in the evaluation of progress payments and for the pricing of variations. With a lump sum contract, as per the regulation, the works are not (except in respect of variations) measured for the purpose of payment.

Schedule of rates contracts, these are contracts for which tenderers submit rates for the estimated quantities which forms part of the tendering documents and from which the lump sum price is derived from the aggregation of sums tendered based on these quantities and rates. Payment under a schedule of rates contract is determined by measurement of the actual quantities completed and at the rates as tendered.

Contracts with special features according to PPR regulation 56 include cost reimbursement type of contracts in which the contractor is paid the actual cost of the work plus a fee. This fee may be a fixed sum, a percentage of the cost or a fluctuating fee. Nevertheless, the regulation recommends that, where cost reimbursement contracts are used, the contract should best be arranged whenever possible on the basis of “cost plus fixed fee” rather than “cost plus percentage fee”. Apparently cost plus percentage fee provides grounds for opportunisms and moral hazards for contractors to inflate the cost of the works unnecessary in order to get higher amounts of percentage fee.

3.9. Summary

The purpose of this chapter was to express general environment in which building projects are undertaken in Tanzania so as to give a base upon which causes and management of conflicts in building projects can be reflected and referred to. The chapter gives definition of construction industry as a process by which the physical infrastructures are planned, designed, procured, constructed, altered, repaired, maintained and demolished. Such process in Tanzania entails involvement and interaction of many participants in form of organisations, companies, firms and individuals working as consultants, contractors, suppliers and the government. Indeed as asserted by Ankrah and Langford (2005), where such interactions are taking place, conflicts are inevitable to occur.

Conflicts and their management are influenced by a number of factors some of which are inherent from the characteristics of the industry itself, the nature of members in terms of their professional backgrounds and roles they play in building projects, the procurement systems, which fundamentally determines the relationships and communication links among the project members. Other factors are inherent from the regulatory systems which regulate conducts of the members and processes of carrying out building projects, and how the various members in a project team are appointed and engaged to perform their roles.

CHAPTER FOUR
CONFLICTS AND CONFLICTS RESOLUTION APPROACHES

4.0 Introduction

This chapter reviews literature of key concepts of conflicts and conflicts resolution approaches. The chapter first reviews the phenomenon of conflict perceived as a dynamic process comprising latent conflict, perceived conflict, felt conflict, manifest conflict and conflict aftermath which are regarded as conflicts episodes. The bargaining, bureaucratic and systems models which are considered as three models of general conflict theory are also discussed in this chapter. The three levels of conflicts; intrapersonal, interpersonal and intra-group levels are reviewed. The chapter also discusses the functional and dysfunctional phenomenon perceptions of conflicts so as to express the positive and negative sides of conflicts in organisations. The chapter further reviews sources of conflicts in construction projects as determined by various researchers. The chapter ends by reviewing various approaches that can be used in resolving conflicts.

4.1 The phenomenon of conflicts

Conflict can be more understood if is considered as a dynamic process comprising a sequence of conflict episodes. Pondy (1967) identified five stages of conflict episodes namely; latent conflict, perceived conflict, felt conflict, manifest conflict, and conflict aftermath. Pondy contend that, each conflict episode begins with conditions characterized by certain conflict potentials and can be thought of as a gradual escalation to a state of disorder with an open war or aggression as a climax of a conflict episode. However, that does not mean every conflict episode should pass through every stage to open aggression. Parties to the conflict may not perceive a potential conflict, or if perceived, the conflict may be resolved before hostilities break out (Vaaland and Häkansson, 2003). For good understanding of conflict phenomena, each of the five episodes is discussed below.

4.1.1 Latent conflict

Latent conflict is considered as the first stage of conflict episode. This stage is characterized by conditions or underlying four sources of conflict (Vaaland and Häkansson, 2003). The first condition is competition for scarce resources. This happens when the aggregated demands of participants for resources exceed the resources available in the project or the organisation. Second condition is drives for autonomy, this happens when one party either seeks to exercise control over some activity that another party regards as his own province or seeks to insulate

himself from such control on which is deemed to exercise. Third is divergence of subunit goals. This is a source of conflict when two parties who must cooperate on some joint activity are unable to reach a consensus on cooperation action. And fourth is the role conflict, this model treats the organisation as a collection of role sets, each composed of the focal person receiving incompatible role demands or expectations from the persons in his role set.

4.1.2 Perceived conflict

In the context of conflict as a dynamic process, the perceived conflict episode follows the latent conflict episode stage. This is a cognitive state when at least one of the parties to a conflict begins to perceive or become aware of a conflictful situation but neither party is upset about it. Nonetheless, Vaaland and Häkansson (2003) argue that, conflict may, or may not stem from a latent conflict, and latent conflict may be present in a relationship without any of the participants perceiving the conflict. This may happen when there are suppression mechanism and attention focus mechanisms which limit the perception of conflict. According to Vaaland and Häkansson the suppression mechanism mainly apply to conflicts related to personal values and the attention focus mechanisms are related to organisational behaviour values.

In situations where conflict is perceived when no latent conflicts exist, such conflict can best be handled by "semantic model" of conflict (Vaaland and Häkansson, 2003). According to this model, conflict is said to result from the parties' misunderstanding of each others' true position. The model advocates such conflicts may be resolved by improving communications between the parties. However, the problem may arise when the parties' true positions are in opposition, since open communication may exacerbate the conflict rather than resolving it.

4.1.3 Felt conflict

This is regarded as the stage of conflict episode when a person is aware that is in disagreement with another person, but that may not make him tense or anxious, and it may have no effect on their affection. In that case the conflict is there but is not felt by any of the parties. The felt conflict according to Pondy (1967) is characterized by the personalization of conflict, which sometimes occurs in business-to-business relations. The personalisation of conflict can be explained in two folds; first is from the perspective of inconsistent demands of efficient organisation and individual growth which create anxieties within the individual.

Anxieties may also result from identity crises or from extra-organisational pressures, as a result individuals need to vent these anxieties in order to maintain internal equilibrium.

Second explanation is from the fact that, conflict becomes personalised when the whole personality of the individual is involved in the relationship. Hostile feelings are most common in the intimate relations that characterise total institutions, such as monasteries, residential colleges and families. In order to dissipate accumulated hostilities, institutions require certain safety-valves such as athletic activities or norms that legitimize solitude and withdrawal, like non-communication norms prevalent in religious orders.

4.1.4 Manifest conflict.

Manifest conflict refers to a situation when conflictful behaviour becomes apparent. Such behaviour can be expressed in form of open aggression, sabotage, apathy, resistance to the rules, etc. However, the issue could be, how can one decide when a certain behaviour or pattern of behaviour is conflictful? One important factor according to Vaaland and Häkansson (2003) is that, the behaviour must be interpreted in the context in which it takes place. It is therefore, important to have the knowledge of the organisational requirements and of the expectations and motives of the participants in-order to characterize the behaviour as conflictful. Nonetheless Pondy in Vaaland and Häkansson (2003) contend that one is said to engage in a conflictful behaviour if consciously, but not necessarily deliberately blocks another member's goal achievement.

The interface between perceived conflict and manifest conflict and the interface between felt conflict and manifest conflict are the pressure points where most conflict resolution programmes should be applied. The aim of such programmes should be to prevent conflicts, which have reached the level of awareness or the level of effect from erupting into non-cooperative behaviour. The availability of appropriate and effective administrative devices is a major factor in determining whether conflict becomes manifest. Nevertheless, the mere availability of such devices is not sufficient to prevent conflict from becoming manifest. If the parties to a relationship do not value the relationship, or if conflict is strategic in the pursuit of sub-goals, then conflictful behaviour is likely to occur.

It is common according to Vaaland and Häkansson, once conflict brakes out on some specific issue, then the conflict frequently widens and the initial specific conflict precipitates more

general and more personal conflicts, which earlier had been suppressed in the interest of preserving the stability of the relationship.

4.1.5 Conflict aftermath

Each conflict episode is one of a sequence of such episodes that constitute the relationships among organisation participants. On one hand if the conflict is genuinely resolved to the satisfaction of all participants, the basis for a more cooperative relationship may be laid; or the participants, in their drive for a more ordered relationship may focus on latent conflicts not previously perceived and dealt with. On the other hand if the conflict is merely suppressed but not resolved, the latent conditions of conflict may be aggravated and explode in more serious form until they are rectified or until the relationship dissolves.

However, according to Vaaland and Häkansson (2003), organisations in nature are not closed systems, the environment in which they are imbedded may become more benevolent and alleviate the conditions of latent conflict, but a more malevolent environment may precipitate new crises. Figure 4.1 below depicts the dynamics of a conflict episode.

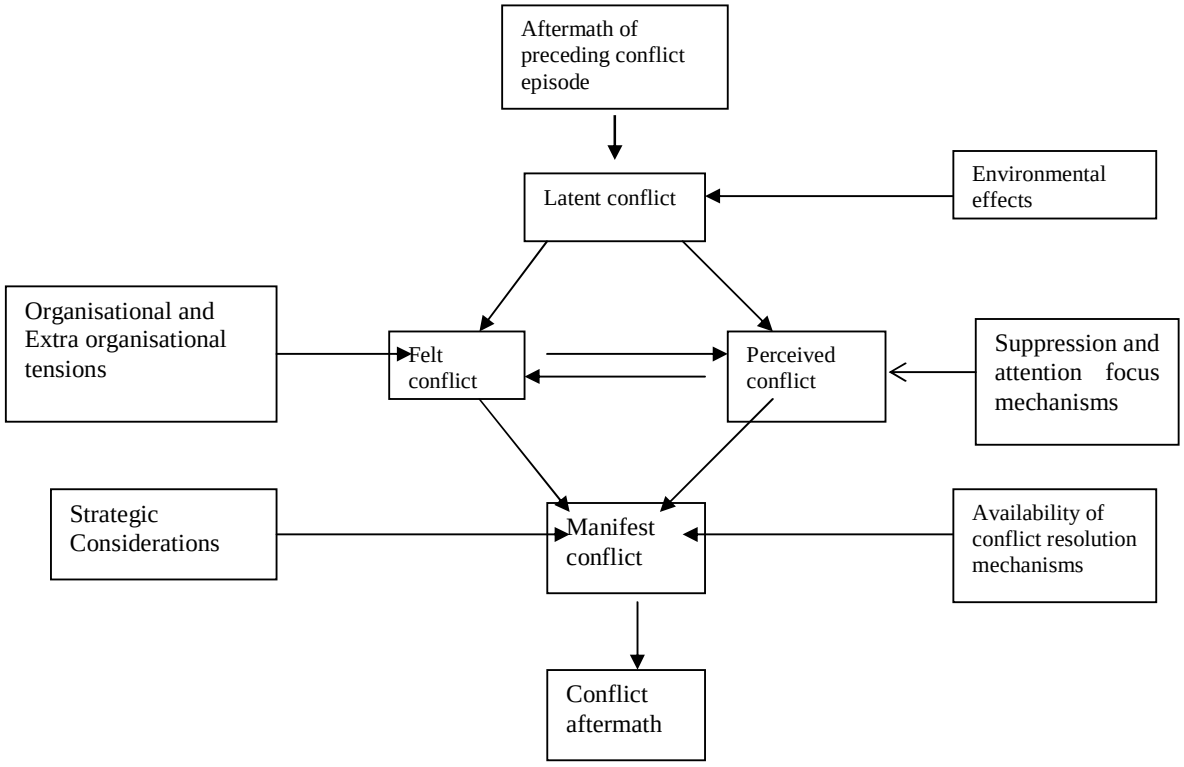

Figure 4.1. The dynamics of a conflict episode. Source: Pondy (1967)

The figure illustrates the dynamic perception of conflict. Latent conflict may exist in the organisation due to environmental effect or as a result of conflict aftermath when the conflict is not resolved. The latent conflict if not attended could give rise to perceived conflict stage however, the conflict may not be perceived due to presence of suppression and attention focus mechanisms. The perceived conflict could give rise to felt conflict which would create tension among members in the organisation. Both perceived and felt conflict when not attended to would manifest themselves into different forms such as sabotage, aggression, etc. The available conflict resolution mechanisms and strategies should be applied to prevent prolongation of the conflict. When the conflict is resolved the satisfaction of all parties, the aftermath of the conflict is more cooperation and strong relationship, while if the conflict is merely suppressed, the conditions and sources of conflicts will remain and hence the latent conflict will persist, leading to another circle of conflict episodes.

4.2 Models of organisational conflict

Ephron in Pondy (1967) asserts that, only a very abstract model is likely to be applicable to the study of all organisational conflict phenomena. To be useful in the analysis of real situations, a general theoretical framework must at least fit several broad classes of conflict, which may occur within the same organisation. This suggests that, different ways of abstracting or conceptualizing a given organisation are required, depending on what phenomena are to be studied. Three models, which are; bargaining, bureaucratic and systems models regarded as basis for general theory of conflicts used as a framework for analysis of several broad classes of conflicts in organisations are discussed below.

4.2.1 Bargaining model of conflict

A reasonable measure of potential conflict among members in a group is the discrepancy between aggregated demands of the competing members and the available resources. In situations where the resources in a group are limited, each competing party strives to acquire the scarce resources on expense of the other party loosing hence resulting into conflict. Such conflict is described by Walton and McKersie in Pondy (1967) as complex relationships which involve both integrative (cooperative) and distributive (competitive) sub-processes. The integrative sub-process is largely concerned with joint problem solving among the competing parties, and the distributive sub-process is concerned with strategic bargaining. A key element in strategic bargaining is that of attitudinal structuring, whereby each party attempts to secure the moral backing of relevant third parties, like the public or government.

An important characteristic of interest group conflict is that negotiation is done by representatives who face the dual problems of securing consensus for the negotiated solution among respective group members, and compromising between the demands for flexibility by his opposite member and the demands for rigidity by his own group. At conflict resolution stage the attempt is normally made to either increase the pool of available resources or to decrease the demands of the parties to the conflict. The bargaining conflict rarely escalate to the manifest level, because normally administrative mechanisms in organisations and market conditions do provide orderly allocation of scarce resources, except when is done as a strategic manoeuvre.

4.2.2 Bureaucratic model

This model is appropriate for analysis of conflicts along the vertical dimension of a hierarchy that is conflicts among the parties to an authority relation. Vertical conflicts in an organisation usually arise because superiors attempt to control the behaviour of subordinates, and subordinates resist such control. The authority relationship is defined by a set of subordinate's activities over which the subordinate has surrendered to a superior the legitimacy to exercise discretion. The potential for conflicts exist when the superior and subordinates have different expectations about the zone of difference. The subordinate is likely to perceive conflict when the superior attempts to exercise control over activities outside the zone of indifference; and the superior perceives conflict when his attempt to control are thwarted.

The bureaucratic approach attempts to minimize conflict by altering the act of supervision, the leadership approach has sought to alter the style of supervision (Pondy, 1967). Leadership theorists have proposed minimising conflict by using personal persuasion and group pressures to bring subordinates goals more closely into line with the legitimate goals of the organisation. They have actually prescribed solutions, which decrease autonomy and increase dependence. By heightening the individual's involvement in the organisation's activities, they have actually provided the basis for the intense personal conflict that characterizes intimate relations. The bureaucratic and the leadership approaches to vertical conflict both take the superior-subordinate relation as the unit of analysis.

4.2.3 Systems model

This model is more appropriate for analysis of conflicts among the parties to a functional relationship. In other words is concerned with lateral conflicts, or conflicts among persons at

the same hierarchical level where as the bureaucratic model is about problems of control, and the bargaining model is about problems of competition, the systems model is about problems of coordination.

In organisations the roles of each manager with respect to the other at the same level are normally specified by a set of directions, requests, information, and goods which he may receive from other managers. These formal specifications of positions and role are frequently described in written job descriptions, but may also form part of a set of unwritten, stable, widely shared expectations legitimized by the appropriate hierarchical authorities. The fundamental source of conflict in such systems arises out of pressures towards sub-optimization. For organisations which are goal oriented rather than procedure – oriented the subunits will for various reasons, have different sets of goals, or different preference sequence orderings for the same set of goals. If two subunits having different goals are functionally interdependent, then conditions exist for conflict. Important types of interdependence could be in respect of common usage of some service or facilities, sequences of work or information flow prescribed by task or hierarchy, and rules of unanimity or consensus about joint activity.

Two ways of reducing conflicts in lateral relationships as pointed by Vaaland (2004) are to reduce goal differentiation by modified incentive systems and to reduce functional interdependence. However, if the parties to the conflict are flexible in their demands and desires, the conflict is likely to be perceived only as a transient disturbance. Furthermore, conflict may not be perceived, if alternative relationships for satisfying needs are available. This is one of the persuasive arguments for building in redundant channels of work and information flow in organisations.

4.3 Types of conflicts

Conflicts may be considered in three levels; level one may be viewed as intrapersonal conflict that is the conflict that takes place within the individual. Level two is interpersonal conflict the conflict experienced between individuals in the same group or unit for example co-workers, roommates, unit members and etc. Such conflicts exists whenever people interact or come together to accomplish a common goal or objective. Level three is the intra-group conflict, the conflict between groups in the same organisation, team or command. The interpersonal and intra-group conflicts can further be categorised into three types: the relationship, task and process conflicts (Jehn, 1997; Simmons and Peterson, 2000; Jackson et. al, 2008).

Relationship or emotional conflict is a perception of interpersonal incompatibility and typically includes tension, annoyance, and animosity among group members (Simmons and Peterson, 2000). A number of studies done by researchers such as Gladstein (1984), Wall and Nolman (1986), Jehn (1995), Jahnssen et al., (1999) cited in Simmons and Peterson, document the negative effects of relationship conflict on group and organisation satisfaction and commitment. Relationship conflict negatively affects group decision quality in three ways. First, it limits information processing ability of the group because the group members spend most of their time and energy focusing on each other rather than on the group problems. Second, it limits group members' cognitive functioning by increasing their stress and anxiety levels and third, it encourages antagonistic or sinister attributions for other group members' behaviour, which can create a self-fulfilling prophecy of mutual hostility and conflict escalation.

Task or cognitive conflict is a perception of disagreements among group members about the content of their decisions and involves differences in viewpoints, ideas, and opinions. According to Jehn (1997), task conflict can improve decision – making outcomes and group productivity by increasing decision quality through incorporating devil's advocacy roles and constructive criticism. Groups use members' capabilities and prior knowledge better when the conflict is task-focused, rather than when conflict is absent or relationship-focused. Jehn further contend that moderate levels of task conflict are constructive, since they stimulate discussion of ideas that help groups perform better. Groups with an absence of task conflict may miss new ways to enhance their performance, while very high levels of task conflict may interfere with task completion.

According to Simons and Peterson (2000) a number of researchers have found that task conflict can lead to increased satisfaction with the group decision and a desire of members to stay in the group, and also have shown a cross relationship between the two forms of conflict. Researchers have established that efforts to stimulate potentially beneficial task conflicts run a substantial risk of triggering detrimental relationship conflict. Simmon and Peterson suggest two possible explanations; first they contend that, task conflict leads to relationship conflict through a process of misattribution. Group members constantly interpret the behaviour of other group members – they infer intentions, appraise whether the source of the behaviour they see is internal or external, and assess the completeness and accuracy of the arguments

made by others. When this attribution process points toward personal attachment or hidden agendas, then task conflict triggers relationship conflict.

The second explanation is the behaviour of group members. In the process of task conflict, some group members may use emotionally harsh language, intimidation tactics, or ad-homonym arguments. From such behaviour and conduct other members can feel bruised, humiliated, offended, disrespected or even brutalised thus causing relationship conflicts. While on the other hand it is possible that relationship conflict could trigger task conflict. This may happen when one group member attempts to make life difficult to another group member by sabotaging any influence that the other might have and by so doing a task conflict is manufactured.

Jackson et al (2008) define process conflict as an awareness of controversies about aspects of how task accomplishment will proceed. It pertains to issues of duty and resource allocation such as; who should do what or how much one should get. This may happen when for instance group members disagree about whose responsibility is to carry out and complete a specific duty. Jackson et al in their study of process conflict identified three sub-categories of process conflict which are; scheduling and timing referring to issues of attendance punctuality and time spent on a particular work. Contribution and workload; referring to issues of fairness in workload distribution, commitment and follow up of assigned works, conflict over credit recognition and conflict about members not showing up at all. Work method and approach; referring to issues such as conflicts over ideas or work method. Process conflict may activate latent conflicts or may detract from the benefits of healthy task conflict.

4.4 Functional and dysfunctional conflict phenomenon

The phenomenon of conflict is considered along two different perspectives. According to Vaaland and Håkansson (2003), the first perspective regards conflict as a disease in organisations with primarily disruptive, dissociating, and dysfunctional consequences. In this perspective, the study of conflict has aimed to resolve it and to minimize its deleterious effects because of fear that too little coherence can develop into destructive conflict and a diffusion of focus. In projects this is achieved through detailed contracts and a high degree of specification. Furthermore, price mechanisms and institutionalized patterns of behaviour are used as instruments to reduce emergence and growth of conflict.

The second perspective holds that, conflict can be functional. In a project environment according to Loosemore (2000) conflicts can enhance creativity and innovation. History tells that conflicts like the two world wars stimulated inventions which led to development of radar, jet-propelled aircraft, the United Nations, the World Bank, the international Monetary Fund just to mention a few. The cold war conflict led to development of nuclear power and space race which provided communication satellites and cell phones widely used today (Loosemore, 2000:2-3). Vaaland and Häkansson (2003) argue that, "several scholars within industrial network approach and conflict theory argue that development and creativity are stimulated by imbalance and problems. This is backed by the old Japanees proverb that the moment two bubbles are united, they both varnish". Indeed as proclaimed by Vaaland (2004), without conflicts, progress and creativity disappear.

Gadde and Häkasson in Vaaland and Häkansson (2002), illustrate how conflict may be functional and dysfunctional by a figure with two axes, the first axis indicate the degree of collaboration between two parties, and the second indicate the degree of conflict in connection with business relationships as shown in figure 4.2. The figure reflects that, by viewing collaboration and conflict as two dimensions, it is possible to identify four combinations. The most interesting is the fourth quadrant "well developed" characterised by a high degree of conflict and at the same time a high degree of collaboration.

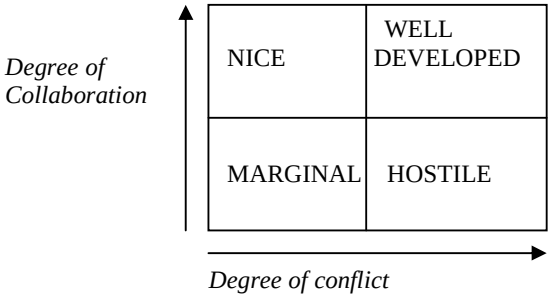

Figure 4.2: Functional and dysfunctional conflict model Sources: Vaaland and Häkansson (2003)

This situation is explained by Vaaland and Häkansson (2003) basing on the studies of industrial business relationship as an indication of a typical well developed buyer – seller relationship, expressing an efficient process that is accompanied with technological complexity, strong activity interdependencies, large number of internal and external third parties directly and indirectly involved, and time pressure. This exemplify a typical situation

for a complex construction project that demands specialized knowledge and skills in the design and construction process and involve various participants who come together on temporary basis to compose a building.

The main argument that conflicts can be functional is based on the view that the origin for improvement can be found in conflict as long as it is accompanied by cooperation. According to Vaaland (2004), conflict is characterized as functional when it adds necessary tension and motivation to the relationship that extend opportunities and speed up innovation. The question is how in a project a hostile relationship can be transformed into a well developed relationship in other words, as Vaaland advocate, how can "steam" be released without removing the functional conflict? The conflict and relationship improvement model as discussed below explains how "steam" can be released.

4.4.1 Conflict and relationship improvement model

Based on an initial assumption of a "hostile" relationship the proposed model by Vaaland (2004), takes the parties through a process that identifies conflicting events, assesses and analyses the events, and applies the results in a balancing process which could be through steps involved are discussed below.

Step 1: The initial relational position; this can either be nice, marginal, hostile or well developed as shown in figure 4.2. If the position is hostile, then there is a reason to apply the model. One important indication of the relational position is the presence and extent of latent conflict.

Step 2: Identification of conflictful events; this is based on both parties' perceptions of events that cause tension in the relationship. One of the parties or both can identify the events from unobtrusive data sources, or by obtrusive sources such as interviews.

Step 3: Assessment criteria; this is done by addressing core issues related to the event's effect on the relationship. In the assessment it is important to consider the perceived sources of the conflictual events and the perceived importance of the events to the parties in relation to the negative consequences arising from the events.

Step 4: The event perceptions and perceptual distance; at this stage both parties separately should assess all perceived conflictual events in relation to the agreed assessment criteria. The parties' assessment of all conflictual events is then structured to reveal perceptual distances. Distances can be judged through the use of frequencies, classification of issues, the events' relatedness to distinct phases of the project, or relatedness to resource or activity interdependencies. The purpose of this stage is to provide an overview of the issues that the parties need to reach consensus on in order to improve the relationship. The analytical results are then carried into the next step.

Step 5: The balancing process; the aim is to reveal the reasons behind the perceptual distances in order to reach two mutually exclusive organisation goals. This process involves either reducing the distance through removing conflictual event per se, clearing out misunderstandings, or removing the uncertainty about the extent and effect of an event.

In all situations conflict "hidden" in the relationship is disclosed and becomes subject to mutual interpretation, thus reducing the risk of events threatening the relationship. The strength of the model is that, each stage of the process involves actions and interpretations by both parties. However, in order to reduce the risk of further escalation of tension while discussing the core issues of conflict, a third party could be engaged to facilitate the process.

4.5 Sources of conflicts in construction projects

In any construction project, on one hand the contractors' primary concern is to complete the project in time and to make a financial gain while on the other hand, the client requires a facility as good, but as economic as possible. These two aims when simply considered together seem to be contradicting, and even the procedure undertaken to achieve them may result in conflict. Moreover, the team that come together to execute a building project comprise members of various professional disciplines as discussed in chapter three with diverse norms, standards and morally allowable patterns of behaviour. Therefore it is evident that, undertaking a project under such environment competitive tensions can arise due to a variety of factors, which are inherent in the various contractual relationships in the construction industry (Weddikkara, 2003). These include the nature of the project, the creation of a temporary multi-organisation, and the time and financial constraints all of which can be attributed to the project participants' culture, attitudes, and the legal system that work alongside and within the construction industry.

Many authors have made studies to examine the causes of conflicts in construction projects. Diekmann and Nelson (1985) and Semple (1994), underlined major sources of construction conflicts to be a combination of design errors and scope increases of work. Thamhain and Wilemon in Cheung and Chuah (1999) categorized causes of conflict over the life cycle of a project into seven major sources, namely, project priorities, administrative procedures, technical opinions and performance trade-offs, manpower resources, cost, schedules and personality. Kezsbom (1992) presented a list of thirteen major conflict sources, these are; scheduling, managerial and administrative procedures, communication, goal or priority definition, resource allocation, reward structure/performance appraisal or measurement, personality and interpersonal relations, costs, technical opinion, politics, leadership, ambiguous roles / structure and unresolved prior conflict.

Watts and Scrivener (1994) in Weddikkara (2003) carried out an analysis and comparative study of sources of disputes from judgements in building disputes from the courts of Australia and the UK. They identified 290 sources from 60 cases in each country. In UK the most common cause was negligence, while in Australia it was determination of the agreement. Howell and Miropulas (1994) in Weddikkara (2003) state that, contractual conflicts stem from a combination of uncertainty and the limited ability of people to think and communicate. They suggested that, there are three basic factors that drive the development of a conflict. First is the high degree of uncertainty arising from complexity of projects, second are imperfect contracts, and third is the opportunistic behaviour of many parties who try to take advantage of one another in the competitive market place.

Grotons (1994), findings outline three reasons for disputes; first is project uncertainty, uncertainty arising from pre-existing conditions, outside forces and their complexity, which cause change beyond the parties' expectations. Second is process problem; problems in the contracting process including incomplete scope definitions, unrealistic operations (with regard to cost or completion date) and poor performance in the execution of work. And third is peoples' issues; issues and problems that arise between people as a result of poor interpersonal skills, poor communications, lack of responsiveness and unethical or opportunist behaviour.

Colin et al (1999) were interested in identification of sources, causes and main effects of conflict. They considered the "source of conflict" to a person in the organisation or initial

action that stimulate or initiate the action resulting in a conflict. They considered “causes of conflict” as on how conflicts develop and the “effect” of conflict as the main effects of the conflict on the construction project. They identified the sources of conflict in the order of culpability as the contractor, architect, client and the subcontractor with the contention that organisations act through individuals as a result all conflicts events emanate from the key actors in the organisation, and therefore the greater the involvement in the construction process the more the incidents of conflict. They also identified that, organisations exhibit identifiable modes of behaviour, such behaviour relates to the organisational culture, which is built from the corporate arms and professional background of the key actors within the firm.

Weddikkara (2003) contend that conflict situations in construction projects arise due to various contractual relationships that exist in the construction industry and many conflicts evolve from un-clarified assumptions, differing expectations or when inevitable shortfalls occur in the performance of the responsibilities outlined in the contract and where the resolution procedures are inadequate.

4.5.1 Summary of causes of conflicts; findings from literature

The list of causes of conflicts could be not exhausted as different authors have come up with different perceptions in different contentions. However, based on broad literature review the causes can be summarized as given in table 4.1 below. The causes are given in four categories; the common root causes category, this include primary causes that are commonly expected to cause conflicts in building projects. The second category is of causes generated by them-selves; these are causes that arise from the environment or state of affairs created by members in the project team, for instance if there is poor communication or personality clashes among members in a project team that may cause conflicts at some stage of project life. The third category is of common proximate causes; these are considered as closest or immediate factors responsible for causing conflicts in building projects. For instance incomplete tender documents which do not prescribe the extent of work to be done will cause conflicts at the time of payment due to lack of quantities that could provide the base for payment. Lack of quantities in the tender document is the proximate cause of conflict in such cases.

The forth category of causes of conflicts is claims; claims are demands made for a right or requirement. If the demand is not honoured, it will aggrieve the person making such demand

and hence cause conflict with the other person who is turning down the demand. Therefore, un-honoured claims such as financial claims for additional works, claims for extension of time etc. may cause conflicts in building projects.

Table 4.1: Summary of causes of conflicts in building projects established from literature review

Common root causes	Causes generated by themselves	Common proximate cause	Claims
Unrealistic time / cost /quality targets (by the client)	Clients' lack of information or decisiveness	Internal conflicts (eg. In joint ventures)	Variations
Unrealistic tender pricing	Unrealistic information expectations (contractor)	Inadequate contract administration	Unforeseen ground conditions
Inappropriate contract type	Inadequate brief	Inadequate contract documents	Ambiguities in contract documents
Adversarial (industry) culture	Poor communication	Inaccurate design information	Interference with utility lines
Uncontrollable external events	Personality clashes	Incomplete tender information	Exceptionally inclement weather
Unclear risk allocation	Lack of professionalism of project participants	Inadequate design documentation	Delayed site possession
Unfair risk allocation	Lack of competence of project participants	Inappropriate contractor selection	Delayed design information
	Vested interest	Inappropriate payment modalities	Acceleration of work
	Changes by the client	Inappropriate contract form	Suspension of work
	Slow claim response		Other disruptions (by employer or others)
	Exaggerated claims		Interest on claims
	Estimating errors		Substantial increase in quantities
	Others, work errors		Price fluctuations (escalations)

4.6 Conflicts management approaches

Conflict management according to Stickley (2002) seeks to involve parties in a consensual process and empower them to resolve their incompatibility or difference, understand their respective rights and interests of each other and settle their incompatibility or differences themselves and not solving it by way of an imposed decision. It is an approach based on finding the interest of the parties and accommodating legitimate needs without vindicating legal or contractual rights. In conflict management as noted by Nardin (1971), each party must perceive that the continued existence of the other is both necessary and desirable from

the point of view of his own self-interest. Where common self-interest exists, coordination will occur and be reinforced, and conflict management will evolve. Therefore, facilitation of a coordinated approach is a key to conflict management.

However, it should be acknowledged that conflict management is the principle that all conflicts cannot necessarily be resolved, but learning how to manage conflicts can decrease the odds of nonproductive conflict escalation. Conflict management also involves acquiring skills related to conflict resolution, self-awareness about conflict modes, conflict communication skills, and establishing a structure for management of conflict (The foundation coalition, **http://www.foundationcoalition.org/teams**).

Another interesting aspect is to think of how do people respond to conflict? Fight or flight? Physiologically people respond to conflict by "get away from it" or by getting ready to "take on anyone who comes on the way" (Stickley, 2002). Nevertheless, according to Stickley neither of the two responses is bad, what is important to lean, regardless of initial physiological response to conflict, is that one should intentionally choose a response to conflict that is productive to solving the problem at hand.

According to Zikmann in Fenn and Gameson (1992:55) there are passive and active conflict responses. The passive responses are in three forms; first is the denial of the existence of conflict, second is the avoidance of the conflict and third is capitulation to the demands and threats of other project participants. Capitulation brings an incorrect perception that a conflict has been resolved when in fact it has only been unwillingly suppressed. In general as implied from the three forms, the passive response does not deal with the problem in hand, and often results into frustration, gradual withdraw of cooperation, concealed hostility and cultivation of false sense of security, creation of "no go" areas and encourage shallow commitment to project goals.

The active responses to conflict according to Zikmann in Fenn and Gameson (1992:56) are normally either aggressive or creative in nature. The aggressive respond include attempts to dominate others particularly those perceived as weaker parties. This can occur when unreasonable demands are made or one-sided solutions are imposed on others. The undesirable consequences of this approach can often be the stifling of future initiative, reduced creativity and creation of the environment where poor decisions are allowed to go

unchallenged. On the other hand adopting this response can create an environment in which parties regularly "over inflate" initial demands. Moreover significant time and resources can be wasted in arriving at solutions, which are at best only partially acceptable to the parties.

The active responses can take several forms as referred by Zikmann. Blake and Mouton in Cheung and Chuah (1999) identified the five classical main modes or methods of resolving or handling conflicts as collaborating, compromising, smoothing, avoiding and forcing. Subsequent researchers have largely concurred on these, but some have called them by different terms. Each of these methods with other common alternative terms given in brackets are discussed below.

4.6.1 Collaborating (or confronting, integrating, problem solving)

Under this approach, the conflicting parties meet face to face and try to work through their disagreements. This approach focuses more on solving the problem and is less combative. According to Cheung and Chua (1999), the attitudes of parties to the conflict if this approach is adopted should be to generate the "best" solution even though the original views of either or both parties may need to be modified or discarded. Both parties should aim to seek a win – win situation.

This mode as suggested by Kerzner (2003:293) can be used: when conflicting parties can both get at least what they wanted and even more, when a common power base can be created, when cost for resolution of conflict in hand should be reduced, when skills are complementary, when a conflict fundamentally involves attacking a common foe, when there is trust between conflicting parties, when there is enough time for resolving the conflict, when there is confidence in the person's ability and when the ultimate objective is to learn. This approach exemplifies a creative active response to conflict.

4.6.2 Compromising (or negotiating)

Compromising fundamentally is to bargain or search for solutions with a give and take attitude so that both parties leave with some degree of satisfaction. Compromising as suggested by Kerzner (2003:293) is often the result of confrontation. The theory suggests this mode to be used when: no outright winner or loser can emerge, maintaining relationship between conflicting parties is important, the stakes involved in the conflict are moderate, parties to the conflict are equally strong, sufficient time is available for negotiation to reach

agreement and when parties to the conflict are not sure whether they are right or not with their claims. This approach like collaborating exemplifies a creative active response to conflict.

4.6.3 Smoothing (or accommodating, suppression)

This approach mainly attempts to reduce the emotions that exist in a conflict. It does that by emphasizing areas of agreement, strong points, and areas of commonalities and de-emphasis or even suppresses any differences in viewpoints among conflicting parties. An example of smoothing would be to tell someone; "we have agreed on three of the five points and there is no reason why we cannot agree on the last two points". Smoothing does not necessarily resolve a conflict, but tries to convince both parties to remain at the bargaining table because a solution is possible. In smoothing one may sacrifice one's own goals in order to satisfy the needs of the other party Kerzner (2003:293).

The theory suggests this mode to be used when: an overarching goal need to be reached, there is a need to create an obligation for a trade-off at a later date, there are low stakes involved in the conflict, liability is limited, to maintain harmony among the conflicting parties, any solution is adequate, creation of good will among conflicting parties is important, there is a high possibility of losing the claim at stake in the conflict and when there is need to gain more time. Indeed this approach has some features of a passive response to conflict because under this approach some problems are left unresolved.

4.6.4: Avoiding (or withdrawing, denial)

This approach is often regarded as a temporary solution to a problem. The problem and the resulting conflict can come up again and again. Some people view avoiding as cowardice and an unwillingness to be responsive to a situation (Kerzner (2003:294). The theory suggests this mode to be used when: there is possibility of winning, the stakes are low, the stakes are high but one is not ready yet to pursue them, when one wants to gain time, to unnerve one's opponent, to preserve neutrality or reputation, when one think the problem will go away or may win by delaying. This is a passive response to conflict as classified by Zikmann in Fenn and Gameson (1992:55).

4.6.5 Forcing (or competing, being uncooperative, assertive, power)

This approach happens when one party tries to impose the solution on expense of the other party. This leads to a win – lose situation. Kerzner (2003:294) asserts that, conflict resolution

works best when resolution is achieved at the lowest possible levels. The higher up the conflict goes, the greater the tendency for the conflict to be forced with the result being a "win – lose" situation in which one party wins at the expense of the other.

The theory suggests this mode to be used when: exists a do-or-die situation, there is certainty that you are right, stakes involved in the conflict are high, important principles are at stake, one part in the conflict is stronger than the other, a party to the conflict wants to gain power or status, the conflict is on short term deals, maintenance of the relationship is not important, it is understood that a game is being played and when a quick decision has to be made. This is a typical aggressive conflict resolution approach as classified by Zikmann in Fenn and Gameson (1992:55).

Thamhain and Wilemon in Cheung and Chuah (1999) found that different modes of conflict resolution might lead to either positive or negative consequences to conflict management. An avoiding approach may intensify the conflict in future as it is neglected and left unresolved. A smoothing approach may have similar consequences although the conflicting parties are less resentful as there is inherent emphasis on identifying some common grounds in resolving the conflict. A forcing approach always leads to a win – lose situation thereby generating feelings of resentment among conflicting parties regardless of whether they come out as winners or losers. It is advised that before using this approach, one should always assess the probable effects on the team members and all the parties involved.

The compromising approach can generate resolutions that satisfy to some degree both conflicting parties, but most probably may not be the optimal ones. It would be too risky to use this approach to handle for instance disagreements over quality or technical performance issues in construction projects. The collaboration approach was found to be the most effective solution in handling conflicts (Cheung and Chuah, 1999). Under this approach the conflicting parties set out with a positive frame of mind in search of what is the best course of action to take.

Each of the above five modes can be characterized by two scales; assertiveness and cooperation. The Thomas-Kilmann Conflict Mode Instrument (TKI) developed by Keneth W. Thomas and Ralph H. Kilmann is a conflict style inventory developed to measure an individual's response to conflict situation and widely used instrument for assessment to

determine the appropriate conflict mode to be used. The instrument is based on two scales; assertiveness set as a horizontal scale and cooperation as a vertical scale as shown in figure 4.3.

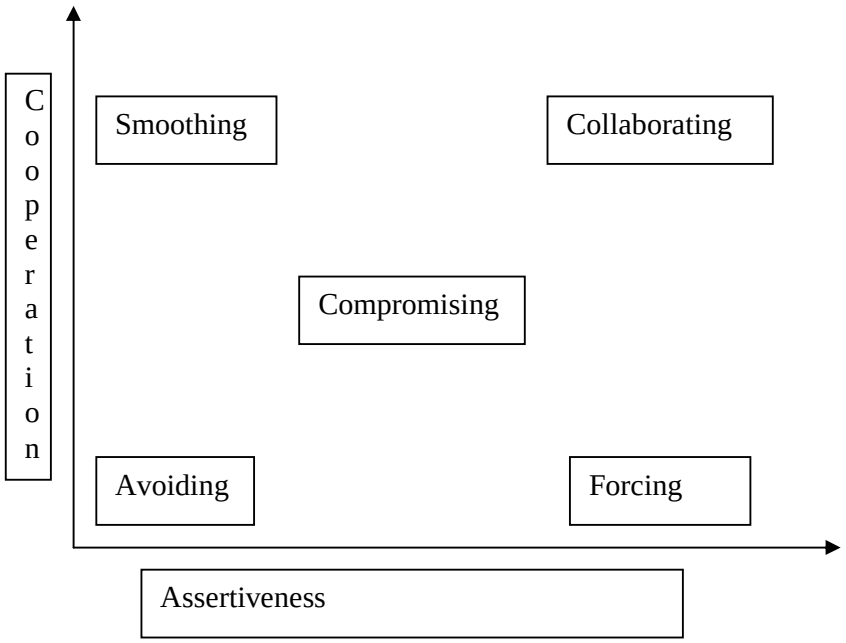

Figure 4.3: Thomas-Kilmann conflict mode instrument (TKI) Source: World Wide Web at ***http://www.cpp-db.com*** *downloaded 4th June, 2008.*

The instrument as shown in figure 4.3, the avoiding mode is low assertiveness and low cooperation as the person simply withdraws and refuses to deal with the conflict. The forcing mode is high assertiveness and low cooperation as the party places great emphasis on his or her own concerns and ignores those of others. The compromising mode is moderate assertiveness and moderate cooperation as both parties give up some and split the difference to reach an agreement. The smoothing mode is high cooperation and low assertiveness, one of the parties gives in to the other at the cost of his or her own concerns. The collaborating mode is high assertiveness and high cooperation, under this style the attempt is to have a solution that will meet the needs of all parties in conflict. However as contended by Brandt and Murphy (2000) in management of conflicts, it is important to recognize one's predominant conflict management style because it influences the manner in which the conflict will be managed.

4.7 Summary

The key concepts of conflicts and conflicts resolution approaches have been reviewed in this chapter. The phenomenon of conflict as a dynamic process comprising of a sequence of

conflicts episodes involving latent conflict, perceived, felt, manifest and conflict aftermath have been discussed. The three models of organizational conflicts; the bargaining, bureaucratic and systems models which are regarded as basis of general theory of conflicts that can be used as a framework for analysis of conflicts in organizations have been reviewed.

The three levels of conflicts namely; intrapersonal, interpersonal and intra-group conflicts with the associated relationship, task and process conflicts categories of interpersonal and intra-group levels of conflicts have been discussed. The two conflicts perspectives; functional and dysfunctional conflicts and how dysfunctional conflicts can be transformed into functional conflicts have been reviewed. The chapter also has cited various sources of conflicts in construction projects established from literature and summarized in table 4.1. The two categories of conflicts management approaches; the passive responses which include denial, avoidance and capitulation, and the active responses which include collaboration, compromising, smoothing, avoidance and forcing have been reviewed.

The chapter essentially has explored the various concepts of conflicts that have been used as a baseline for enquiry for the empirical investigation presented in chapter six and case studies presented in chapter seven.

CHAPTER FIVE
THEORETICAL FRAMEWORK

5.1 What is theory

According to the American heritage dictionary of English language 4th edition (2000), theory is defined as a set of statements or principles devised to explain a group of facts or phenomena, especially one that has been repeatedly tested or is widely accepted and can be used to make predictions about natural phenomena.

This chapter reviews theoretical framework for analyzing conflicts in building projects in Tanzania. The challenge has been to identify appropriate theories for analyzing conflicts in the context of construction industry due to the fact that, not many researchers have used this approach in the analysis of conflicts in construction industry. However, this study has adopted this approach so as to gain appropriate explanation of conflicts situation in building projects in Tanzania using a case study. This is a bottom-up approach compared to a survey approach which primarily is a top-down approach that has been used by many researchers in the subject of conflicts in construction industry.

The chapter first discusses the linkage between theory, research, development and practice. Theory, research, development, and practice together compose an important cycle that allows ideas to be progressively refined as they evolve from concepts to practices and from practices to concepts (Swanson and Holton, 2005).

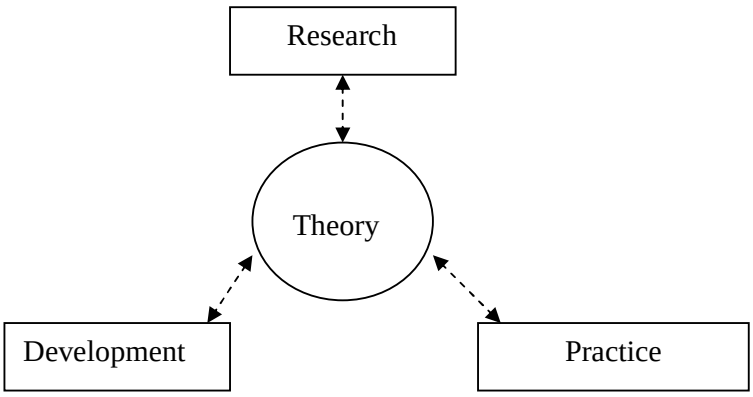

Figure 5.1: Theory – Research – Development – Practice Cycle. Source: Swanson and Holton (2005)(modified)

Figure 5.1 shows the systematic application of research methods working to advance the knowledge by both the researchers and practitioners. The cycle illustrates the union of the four domains and the need for all domains to inform each other in order to enrich each other. What is important to note, is that any of the domains can serve as an appropriate starting point for knowledge generation. As one starting point of the cycle, research is undertaken to expand our professional knowledge base and frequently yields recommendations for development of new systems or the improvement of practice. Research can also proceed along the cycle to produce theory. Additional theories are needed for greater understanding of a wide range of human and organizational phenomena. Thus research serves a dual role in advancing knowledge and provides knowledge that can be directly applied to the improvement of practice, and it is used to develop core theories.

Swanson and Holton (2005) assert that, organizational development efforts offer a unique opportunity to enter the cycle. The demands of practice and the need for fundamental change establish the conditions for creating fundamentally new organizational models and methods. An organization intervention is viewed as a subsystem within a larger system. The subsystem and system influence one another to the point that innovative and practical new developments often become bold starting points of activity and inquiry.

When starting with practice, there is a number of problems and challenges facing functioning organizations that can be identified. These challenges provide an inexhaustible source of researchable problems. Proceeding from practice to research or practice to development along the cycle traces the familiar path between the problems that continuously arise in organizations and the research and development efforts they stimulate. Each of the domains of the cycle serves to advance research in organizations and each can be a catalyst to inquiry and a source of verification.

In summary, the process of knowledge generation can begin at any point along the theory – research – development – practice cycle, and flow along the cycle is multidirectional. The researcher or practitioner can start at any point and proceed in any direction. Thus, each of the cycle's domains both informs and is informed by each of the domains.

However, in this study as is the case for most academic studies, the cycle starts with theory as it is used to guide and inform the processes of research, development, or practice. Reviewing

the literature, which includes relevant theories identify the variables and relationships to be considered. The theories reviewed and used in the analysis of conflicts in building projects in Tanzania are the systems theory and the transaction cost economics theory which are discussed below in this chapter.

5.2. Systems theory for analysis of inter-relationships of project participants

The origin of systems theory lies in the biological sciences through its founder Ludwig von Bertalanffy who devised the general systems theory (GST) from his consideration of the fundamental interdependency of many aspects of science which were studied independently. He generalised his theory to show that, it was applicable and valuable to a broad spectrum of disciplines. The theory was subsequently applied to business organisations (Walker, 1996:27). According to Haines (2000:37) and Walker (1996:27), the theory gives a framework for diagnosing, analysing and a way of thinking about complex processes so that the interrelationships of the parts, and their influence upon the effectiveness of the total process, can be understood, analysed and improved. Haines contend that, complex problems become easier to understand, as do the interrelationships of parts and the multiple cause – effect cycles, identifying the root cause of problems in a system.

Walker (1996:57) further asserts that, systems theory and its derivatives are important to an understanding of how construction projects are organized and managed, the theory provides a framework for understanding how the process of undertaking the tasks needed to produce the completed project within its environment should best be carried out. That is, it helps to explain how the project management process should be structured and hence how the various firms and other organizational units are integrated into a unified process for the production of the project. Moreover, the theory is also relevant to how the firms and their organizational units organize internally and hence how they respond to their task and their environment impacts on the project management process as a whole.

Systems theory is explained better by first understanding what the word “system” means. Skyttner (1996) defined a system as a set of interacting units or elements that form an integrated whole intended to perform some function. Ackoff in Skyttner (1996) gives a more scientific definition that, a system is a set of two or more elements that satisfies the following three conditions: first the behaviour of each element has an effect on the behaviour of the whole, second the behaviour of the elements and their effects on the whole are interdependent

and third, the elements are formed all have an effect on the behaviour of the whole but none has an independent effect on it. The above conditions exemplify the interrelationship and interdependence of participants in a building project team.

Skyttner further emphasize that, in order to conform to the definition of the system there has to be a functional division and co-ordination of labour among the elements. This implies that the elements have to be assembled in a certain way in order to form a system. A system formed is quite different from its individual elements, and clearly is distinguished from its elements by its organization. Among the systems each system is distinguished from another in the way each is organized, in particular the mechanisms and dynamics of the interrelation among the elements within the system and with the environment in which it exists. To qualify to be a system Skyttner asserts that, two conditions apart from organization have to be present, these are; continuity of identity and goal directedness. This implies that, something that is unable to preserve its structure amid change is not recognized as a system and there have to be a function being done or intended to be done by a system. The most distinctive feature of any system according to Haines (2000:38) is each and every element influences and affects other element of that same system, ideally all elements of a system fit and work together synergistically, and no individual element can be independent.

A building project team is a system formed with a goal of undertaking and completing a project in hand within a pre-set target cost, quality and duration. The team comprise of various project participants – the systems' elements that for a typical building project include the client, contractor and the design team as discussed in section 3.3 who assemble together to form a project team. Each member in a team has a specific role to perform so as to achieve a collective project goal. The roles of each member are quite interrelated and interlinked such that non performance of one of the roles assigned to a member directly affect the project goal achievement no matter how best other members could be performing their roles. This is where coordination among the project members becomes important. Coordination among the members is made possible by formulating the organization structure where lines of communication and roles are clearly defined in every project in line with project procurement system adopted as discussed in section 3.4.

5.2.2: Systems concepts and their relevance to the construction process:

This part describes and discusses relevant key concepts of systems theory in relation to construction process so as to express how the concepts were used to explain interrelationships among members in a project team. The concepts discussed include the concept of hierarchies of systems, interdependence of elements of a system, closed and open systems concepts.

The concept of hierarchies of systems: This concept reflects on hierarchies in the meaning of arrangement of sub-systems, systems and super-systems Walker (1996:59). This concept literally creates an environment in which all systems and subsystems are linked together to achieve the overall organizational goals or vision (Haines, 2000:17). A project team is a system, which is part of a larger system like the building industry in the country or municipality in which the project is being undertaken and other super systems depending on the system boundary one may draw. The project team comprise of various members like the client, contractor(s), consultants etc. who are independent entities and are regarded as sub-systems within the system which in this study is regarded as the project team.

The concept of interdependence of elements of a system: The fundamental idea of the system is that it consists of interdependent parts or elements. On one hand the parts may be tightly and strongly linked and change in response to each other. This scenario expresses strong interdependence of the systems parts. While on the other hand the parts may be relatively weakly connected and capable of autonomous action not requiring a response for other parts to which they are connected. This is an expression of loose interdependence of the systems' parts. The interdependence of parts of a system may be gauged on a scale from tightly to very loosely interdependence relationship scale. The parts of the project management system tend to be tightly coupled in technical dependency but even this can vary. The degree to which they are organizationally coupled in terms of organizational development, long range objectives, etc. is certainly variable depending to a large extent on the organizational configuration adopted as required by the task and the environment of the project.

In a project team all members are interdependent, the architect will produce architectural design, the engineers based on the design will produce engineering designs after that a cost expert- a quantity surveyor will come in to prepare bills of quantities and cost estimates. Based on the designs and agreed cost contractors will come in to produce the

building/structure. The client / employer will meet the cost involved in the entire process. Whether the links are tight or loose that will be demonstrated in the way they communicate and undertake the project jointly. Tight links reflect close cooperation associated with project success while loose links reflect disjointed cooperation associated with conflicts and project failure.

The concept of closed and open system: To understand how the building process operates as a system, it is necessary to understand the distinction between a closed and open system, which is one of the key concepts of the theory. On one hand, a closed system is one that does not respond to events and occurrences outside the system. It cannot adapt to changes and is, therefore, predictable. On the other hand, an open system adapts to events and occurrences outside the system. An open system has permeable boundary and, there is import and export between an open system and its environment. An open system is dynamic and adapts to its environment by changing its structure and processes. Although stable, it is always changing and evolving and presents differences over time and in changing circumstances. Building projects exemplify this phenomenon, as it receives various resources like building materials, labour and capital required in the transformation process from its environment outside the project team. In a closed system the inputs are determined once and for all while in an open system additional inputs are admitted from its environment.

The systems theory concepts of hierarchies of systems, interdependence of system parts and closed and open systems are employed in this research to explain the relationships among members in a building project team so as to determine the degree of cooperation existing among them which is important in the management of conflicts in building projects.

5.3. Transaction cost economics theory for identification and analysis of causes of conflicts

Transaction costs are the costs of carrying out transactions, which are the costs of running the system; the costs of coordinating and of motivating (Milgrom and Roberts (1992:28). These costs depend both on the nature of the transaction and the way it is organised. Therefore, different organisational forms, institutional and contractual arrangements represent different solutions to coordination and motivation.

Ronald Coase in 1937 developed the TCE theory which he generalized by stating that, “the existence of transaction costs will lead those who wish to trade to engage in practices which bring about a reduction of transaction costs whenever the loss suffered in other ways from the adoption of those

practices is less than the transaction costs saved" (Walker, 1996:47). However, it is Williamson and others who popularized and expanded the theory particularly in the management field (Nyrhinem and Dahlberg, 2007).

According to Yates and Hardcastle (2003) the TCE theory focus on contracting problems and, has been found suitable for analysis of complex and dynamic relationships like those found in building projects. The theory has five key elements; the governance structure, contractual in-completedeness and consequent ex post adjustments, asset specificity and monopoly power, opportunism and credible commitments.

Governance structure refers to organizational arrangements for undertaking the project. According to Williamson (2007), the difference in governance costs stems from the motivation, cognitive limitations and the moral character of the people involved. His assumption about people is that, people are bounded rationally and negatively opportunistic. As a result transactions cannot be achieved unless parties transacting have confidence in the arrangements that overcome the negative effects of these assumptions. If these are not overcome, transaction costs will rise and may make other organisational forms more attractive.

For building projects there are a number of arrangements by which a project can be procured. The arrangement chosen determines the degree of involvement and interaction among the participants and also has influence on the management of the project, including the associated conflicts that may arise. The theory advocates that transactors should select a governance structure and a procurement system that will give optimum costs for producing and transacting the building project.

Contractual incompletedeness and consequent ex post adjustment element refers to incomplete contracts that do not provide sufficient contingencies for events that may happen in the course of contract execution. According to Milgon and Roberts (1992:129), incomplete contracts may be caused by bounded rationality, uncertainty, and complexity of the project in hand. Such constraints in a building project may include; limits of knowledge, ability, experience, competence, and limited time. In theory, a building project tendered on the basis of a fully completed design, having no errors or omissions in tender documents, and requiring no changes or variations during the construction phase, could be described as a complete fully contingent contract.

According to Williamson (2007) the implications that can be drawn from bounded rationality, is that it is costly to negotiate and write complete contingent contracts that fully describe each party's responsibilities and rights for all future contingencies that could conceivably arise during a transaction. Williamson further contends that all complex contracts are unavoidably incomplete. This notion of incomplete contracts suggests that when circumstances arise which are not accounted for in the original agreement, individuals will need to negotiate revised terms, which address the newly uncovered contingency. These renegotiations may lead to calculated effort to take advantage of the vulnerabilities of one's trading partner in the hopes of achieving a more favourable distribution of the joint economic profits delivered from the exchange that could lead into conflicts.

As mentioned above, one of the causes of incomplete contracts is uncertainty. The main issue under this variable is how hard it is to foresee the eventualities that might occur during the course of the transaction. One of the factors to be considered is the length of time involved in the transaction. The transactions, which take place on "spot markets", will have very little uncertainty, because one does not have to predict the future. On the other hand transactions that involve a commitment over some time have some uncertainty built in to them. Uncertainty causes problems in part because of bounded rationality. One cannot foresee all possible eventualities and it might come because of information asymmetries and danger of opportunism.

Winch (2006) characterized the sources of uncertainty for construction projects as task, natural, organisational, and contractual uncertainties. Task uncertainty comes from the fact that construction is classified as a small batch production, and the experience gained in one project is not directly used in other projects due to unique nature of projects. Natural uncertainty is caused by weather that has a major impact on construction activity. Organisational uncertainty arise from the project orientation of the construction industry that each new contract requires a temporary organisation to be established hence new setup with associated uncertainties. The contracting uncertainty arise from the contracting system based on competitive tendering, which induces uncertainty in estimating when tendering and the relationship between estimated cost and actual cost of the project. These four uncertainties according to Winch are found within the projects and in the way the projects are awarded.

Asset specificity and monopoly power; The TCE theory generally assumes that the markets are competitive that is, there are many buyers and sellers, and that the transactions are controlled by market forces. However, this assumption is undermined when there is one or few buyers and sellers who tend to develop opportunistic behavior when transacting (Milgrom and Roberts, 1992:307).

Williamson (1985) in Spraakman (1997) identified four types of asset specificity which are: site specificity, physical asset specificity, human asset specificity and dedicated assets. Site specificity refers to designated place or places for specific activities for example successive stations that are locate in a cheek – by – jowl relation to each other so as to economize on inventory and transportation expenses. Physical asset specificity refers to specific device or tool, for example specialised dies that are required to produce a component. Human asset specificity could arise in a learning – by –doing fashion and dedicated assets, this represent a discrete investment in generalized production capacity that would not be made but for the prospect of selling a significant amount of product to a specific customer. In-order to gain economies of scale or meet demanding technical specifications it may be necessary to make capital investment, which has limited alternative uses. Such situation may lead to a small number of such investments such that the supplier cannot withdraw due to transaction specific investments, and the buyer cannot withdraw due to the greater cost of alternative supplies.

According to Winch (2007), assets specificity situations are rare in construction projects, and are probably limited to the more demanding civil engineering projects and high performing specifications in areas such as building services for example lift installation that is almost dominated in East Africa by OTIS.

The opportunism refers to the tendency of people acting in a self-interested way, “with guile”. The assumption is that, people are not entirely honest and truthful about their intentions, or they might attempt to take advantage of unforeseen circumstances that gives them the chance to exploit another party by giving incomplete or distorted information, misleading, confusing etc. Although not all parties are prone to such opportunistic behaviour, the assumption of bounded rationality suggests that it is costly to identify untrustworthy individuals ex-ante (Milgrom and Roberts, 1992:128). In building contracts contingencies may arise that were not planned for. When they do happen, the parties must find ways to adapt them. The TCE theory indicates that, these adaptations introduce the possibility of opportunistic behavior, where

some project participants may develop opportunistic behavior, by trying to benefit out of it, which could be in conflict with the project objectives. For instance a contractor may come up with an exaggerated financial or time claim on such events.

Credible commitments; This element refers to the need to cope with both contractual incompletedeness and opportunism by adopting mixed or intermediate modes of governance, providing appropriate safeguards, assurances and mechanisms (the credible commitments) to ensure that, the parties have confidence in trading with each other, and the relationship does not fracture when different contingencies arise, but is maintained until the transaction is fully completed (Yates and Hardcastle, 2003). Building contracts, often provide incentives or disincentives that usually involve some type of severance payment or penalty for default, procedures and mechanisms for efficient resolution of disputes, introduction of trading regularities that support and signal the intention of ongoing and future relations - like serial tendering. In summary the TCE theoretical framework for identification and analysis of conflicts in building projects adopted in this study is presented in figure 5.2.

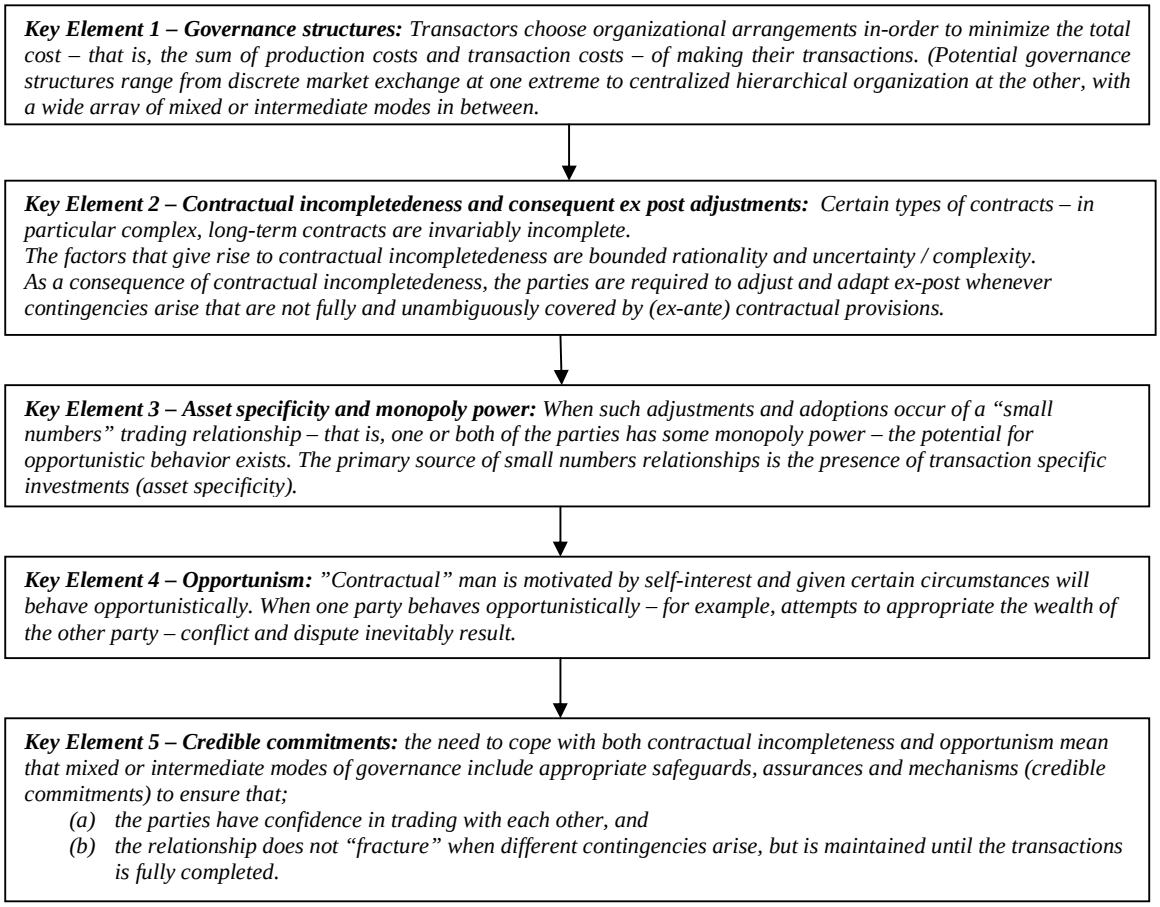

Figure 5.2: Summary of framework for identification and analysis of conflicts in building projects. Source: adopted from Yates and Hardcastle (2003).

CHAPTER SIX

EMPIRICAL INVESTIGATION FROM QUESTIONNAIRE SURVEY

6.0 Introduction

This chapter unveils and maps out the nature of conflicts in building projects in Tanzania. The main areas of conflicts, their causes, intensity of conflicts at various stages of project life are identified. The members in a building project team among which conflicts do occur, and conflict resolution approaches preferred for resolution of different nature of conflicts are also identified.

Two stages were involved to generate information required: the first stage involved interviews, a qualitative approach. This was adopted because qualitative methods are valuable in identifying key variables in new or underdeveloped areas as is the case of conflicts in building projects in Tanzania. A sample of prominent clients/financiers, contractors and consultants in building industry were selected for interview. This stage generated a list of areas of conflicts, their causes and approaches preferred for conflicts resolution in building projects. The findings from interviews were integrated with findings from literature review to establish a list that formed the base of the questionnaire.

The second stage involved a questionnaire survey that was conducted to establish attitudes and preferences of key participants in building projects on the variables established from interviews and literature review so as to determine which variables were most critical and which were not. A five degrees Likert rating system was used. Responses from questionnaires returned were analyzed using SPSS 16.0 in order to draw relevant statistical inferences from the results. The results and discussion are given in the last part of this chapter.

6.1 Methodology

This section describes the procedure of data collection and techniques used in the survey. Interview technique was first employed and the findings were used as inputs to the survey technique that was conducted through questionnaires as stage two of the study.

6.1.1 Interview

The interview stage had two main purposes; first was to establish the existence of conflicts in building projects in Tanzania, and second was to generate a list of variables on conflicts which were combined with those established from literature review to form the base of

questionnaire. Interviews were conducted with prominent key participants in building projects that included; clients/ financiers, contractors, sub-contractors, consultants (architects, quantity surveyors, engineers – structural, civil and services engineers). The criteria used for selection was:

i. A person should be engaged in building construction for not less than 5 years
ii. With exception of clients/employers others should be registered with relevant professional registration board in the country.
iii. Should currently be active in construction business in Tanzania.

A judgement sample which is a small sample that is typical with good spread of respondent characteristics to which the questionnaires were later sent was selected for interviews as shown in table 6.1. In the category of clients / financiers three persons were selected each representing the central government, public organisation (parastatals) and local governments as clients/financiers of building projects in Tanzania. In the category of contractors one local contractor from each class of registration (I – VII) and one foreign contractor were selected. Two architects, two quantity surveyors and one engineer from structural, civil and services engineering categories were selected. In the category of subcontractors, one for electrical works and one for plumbing and mechanical installation works were selected.

In-order to ensure consistency all interviews were conducted by the researcher himself assisted by an assistant who was present to take notes to compliment and compare with the notes taken by the researcher. The interviews were conducted group-wise starting with clients / financier's group followed by contractor's category until all categories were completed.

Exploratory interviews were conducted because the purpose was to explore, collect and develop ideas from the interviewers on conflict situation in Tanzania. According to Oppenheim (2004:67) exploratory interviews are appropriate when the purpose is to develop ideas and research hypothesis. This type of interview is concerned with trying to understand how people think and feel about the topics of concern to the research contrary to the standardized interview, which its purpose is to gather facts and statistics.

Table 6.1: Number of persons interviewed

Designation	**Number**
Clients / Financiers	3
Contractors	8
Sub-contractors	3
Architects	2
Quantity surveyors	2
Engineers (structural, civil & services)	3
Total persons interviewed	**21**

Exploratory interviews do not have fixed questions set although as advocated by Oppenheim (2004:70) it is important to have a list of general topics or areas (a "hidden agenda") around which the interview should be conducted. This is important because the interviewers fully understand the objectives of the research, and that the interview could move naturally from topic to topic, while maintaining the fiction of an interesting conversation. However, as cautioned by Oppenheim the agenda is only hidden in the sense that it should not be too obvious to the respondent.

The hidden agenda used for the interviews conducted included the following general topics:

i. The meaning of disagreements or conflicts in building industry
ii. The issues on which disagreements often occur in building projects in Tanzania
iii. The possible causes giving rise to such disagreements
iv. How such disagreements are dealt with when they occur in building projects in Tanzania?

The findings from the interviews conducted are summarized in table 6.2

Table 6.2: Summary of areas of conflicts and their possible causes identified from interviews conducted

Areas of conflicts identified	**Possible causes**
Design errors	• Misinterpretation of client's requirements by designers • Inexperience of the designer • Incompetent designer • Inadequate time for design • Wrong design data • Cheap design hired instead of quality
Contractual claims (on extension of time and financial claims)	• Incomplete tender documents • Inadequate contract documents • Contractor's strategy to offset unrealistic tender price • Inadequate contract administration
Multiple meanings of specifications	• Negligence • Inexperience of specification writer • Cut and paste tendency

	• Use of outdated specifications
Delays in payments	• Lack of funds • Poor financial projection on the client's side • Excessive claims made by the contractor beyond client's financial projection • Unnecessary bureaucracy in the payment process on the client's side • Delays originating from evaluation process of the contractor's claim by the consultants • Inadequate contract provisions for enforcement of timely payments
Poor communication	• Lack of communication procedures • In effective means of communication • Negligence
Excessive contract variations	• Change of scope of works as a result of changes in requirements ordered by the client • Change of scope of works as a result of design errors • Errors in bills of quantities • Errors in drawings • Errors in specifications • Misinterpretation of contract information
Differences in evaluation	• Unclear method of pricing the contract • Tendency of contractors claiming high prices • Dubious claims made by contractors • Tendency of consultants / clients under valuing contractor's claims • Profit making or loss balancing approach of the contractors by using inferior items in lieu of the ones specified in the contract
Differing site conditions and limitations	• Lack of money, time, experts to conduct site investigation • Wrong interpretation of site investigation • Ignorance of client and consultants on the importance of site investigation • Lack of necessary building permit from regulatory authority
Errors in project documents	• Inadequate time for preparation of documents • Incompetent personnel in preparation of project documents • Inexperience of personnel involved in preparation of documents • Low consultancy fee • Negligence
Public interruption	• The project involves displacement of people • Unfair compensation for displaced people • Poor public relationship between the project people and the public • Non adherence to public authorities regulations, Municipal councils, Tanzania Electricity Supply Company (TANESCO), Dar es Salaam Water and Sewerage Company (DAWASCO) etc.
Cultural differences	• Language problem • Working norms problem • Professional culture problem

6.1.2 Questionnaire survey

The second stage involved questionnaire survey aimed at determining attitudes of key building project participants on criticality of the variables established from interviews and literature review as extracted from table 6.2 and table 4.1.

Questionnaire design: The questionnaires consisted of closed ended questions, with a space provided at the end of each section where the respondents were asked to add more information they thought to be relevant but not covered in the questionnaire.

The questionnaire was divided into eight sections:

(i). **Respondent's background;** consisting of designation of the respondent (client/employer, architect, quantity surveyor, structural/civil/services engineer, general contractor and sub-contractor/specialists contractors), name (this was optional), class of registration for general and sub-contractors or specialists contractors and years of experience in building industry in Tanzania.

(ii). **Introduction:** in this section a brief definition of conflict was given. This was important in-order to avoid misunderstandings and misconceptions of the term as noted in literature review.

(iii). **Areas of conflicts in building projects in Tanzania:** this was first basic question on which respondents were asked to rate the areas in building projects which are prone to conflicts using a five degree Likert scale. Respondents were asked to indicate "0" if the area is not applicable or relevant as far as conflicts in building projects is concerned, "1" if is very low, "2" low, "3" moderate, "4" high and "5" if is rated as a very high area prone to conflicts. Respondents were also asked to give additional areas (other than those given in the questionnaire) in the space provided which they thought were prone to conflicts in building projects.

(iv). **Causes of conflicts in building projects in Tanzania:** this was second basic question. Respondents were asked to rank the causes identified as sources of conflicts related to the specific area of conflict. Respondents were asked to rate their attitudes on causes of conflicts using a Likert scale as explained in item (iii) above.

(v). **Stage of building project life during which most conflicts are experienced:** this was third basic question which respondents were asked to give their attitudes on the stages in construction process which are prone to conflicts. The building process was divided into four stages; pre-design, design, construction and post construction stages. Respondents were asked to indicate intensity of conflicts for each area of conflicts at the various stages of project life using a Likert scale as explained in item (iii) above.

(vi). **Between which members in a project team are conflicts most prevalent:** this was fourth basic question. Respondents were asked to indicate between which members in a building project team most conflicts occur using the Likert scale as explained in item (iii) above.

(vii). **Conflict resolution approaches:** this was fifth basic question. Respondents were asked to rank the most preferred to the least preferred approach in resolving conflicts. The five common conflicts resolution approaches which are; compromising, smoothing, avoiding and forcing were set out in the questionnaire. Respondents were asked to rank from 1 to 5 for the most preferred to the least preferred approach. Each approach was defined in the questionnaire for clarity to respondents.

(viii). **Remarks and comments:** the questionnaire has a section where respondents were asked to give remarks and comments on conflicts situation in building projects in Tanzania.

The sample of the questionnaire is given as an appendix of this report.

Sampling frame of the study: The sample included all key parties in a typical building project team. The questionnaires were distributed to government ministries, public organisations (parastatals) those mainly engaged in building activities, regulatory authorities dealing with construction industry matters, like the National Construction Council (NCC), registration boards for engineers, contractors, architects and quantity surveyors, general contractors, specialist contractors / sub-contractors dealing with trades directly connected to building construction such as electrical, plumbing and mechanical installation works, the design team comprising of architects, quantity surveyors, structural/civil/services engineers.

Population and sampling size: The focus of the study is not industry wide, but rather on the controlling sector of the industry. Therefore the distribution of the survey questionnaires was not simply extensive in general, non-discriminate in a sense, rather, was highly targeted.

The sample size was determined according to statistical concerns as tempered by the local dictates of the subject, and according to the peculiarities of three respondent groups: clients in the public sector (central government, local government and parastatals), consultants (architects, engineers, and quantity surveyors), and contractors (general and sub-contractors).

Questionnaires were delivered and collected by hand to the respondents by the researcher and his assistants. Questionnaires distributed to the clients / financiers were delivered to technical personnel in-charge with construction in the organisations and government ministries. For building contractors and specialist/sub-contractors questionnaires were distributed to cover all seven classes of building contractors. For the consultants group, questionnaires were distributed to professionals who are registered with their respective registration boards. This was done purposely to ensure that the respondents are professionally qualified and have adequate experience in the construction industry in Tanzania. A total of 300 questionnaires were distributed and 121 replies were received equivalent to 40% as shown in table 6.3.

Table 6.3: Distribution and replies of questionnaires

Designation	Number of questionnaires distributed	Number of questionnaires returned	Percent of questionnaires returned
Client / financier	60	15	25%
General contractors	90	35	39%
Specialist contractors	20	7	35%
Architects	40	18	45%
Engineers	50	20	40%
Quantity surveyors	40	26	65%
TOTAL	**300**	**121**	**40%**

6.1.3 Data processing and analysis

All collected information from the survey were checked and verified for their correctness. The checked data were then analysed using SPSS 16.0.

Respondents rated the variables on a scale from 0 (not applicable) to (5) very high. The five-point Likert scale was 0 = not applicable, 1= very low, 2 = low, 3 = moderate, 4 = high, 5 = very high. The mean score (MS) for each variable was established and ranked.

As mentioned above, this chapter aimed at giving a general overview by mapping out the conflicts situation in building projects in Tanzania. Therefore, the research objectives form the bases of analysis and discussion. Since the research aimed at identifying areas which conflicts mainly occur in building projects in Tanzania, the factors causing them and how the conflicts are managed, and eventually develop a framework for effective management of conflicts in building projects in Tanzania.

The main research questions as given in section 1.4 include; on what issues/areas are conflicts prominent in building projects, what factors cause conflicts in those areas, what is the intensity of conflicts at various stages of building project life, among which members in a project team do most conflicts occur and what approaches are preferred in resolving conflicts in building projects in Tanzania.

6.2 Results

Areas of conflicts in building projects

Respondents were asked to rate eleven areas of conflicts in building projects established from interviews and literature review. Table 6.4 represents the results. Based on the mean value criterion, the first ranked area is delay in payments. The client / financier is the one who makes payments to both contractors and consultants, and yet the operationalization of the project depends on a smooth cash flow, therefore, if there are conflicts in this area the project progress will be negatively affected.

Contractual claims are ranked as second area of conflict. Extension of contract period and financial claims are typical issues of disagreements in this area. The third ranked area of conflict is excessive contract variations. Excessive contract variations imply that, the client or financier has to provide extra funds to the project. The fourth ranked area of conflict is differences in evaluation. The normal practise in building contracts is that, a contractor evaluates the work that he has done and submits a claim for payment to the consultant. The consultant on behalf of the client assesses the claim and recommends to the client the amount that should be paid to the contractor. Disagreement could arise from the difference in the value claimed by the contractor and that assessed by the consultant.

Poor communication among project members was ranked as fifth area of conflict, misinterpretation and misunderstanding of information sent / received could give rise to conflicts in this area. Design errors were ranked sixth. Errors in project documents, multiple meanings of specifications, differences in site conditions and public interruptions were ranked seventh, eighth, ninth and tenth respectively. The last area in the rank is cultural differences, which has the mean value of 1.32, which is the lowest. This area and public interruption have mean score value less than 2.50 the mean standard score of the rating, therefore, they are considered not crucial areas of conflicts in building projects in Tanzania. However, other areas are considered crucial since their mean score values are over the mean standard score of rating as reflected in table 6.4.

Table 6.4: Ranking of areas of conflicts in building projects in Tanzania

Identified areas of conflicts in building projects in Tanzania	**Mean**	**Std. Deviation**	**Rank**
Design errors	2,71	1,12	6
Contractual claims	3,76	,95	2
Multiple meanings of specifications	2,54	1,32	8
Delays in Payments	4,19	,87	1
Poor communication	2,77	1,16	5
Excessive contract variations	3,03	1,09	3
Differences in evaluation	2,88	1,18	4
Differences in site conditions	2,52	1,13	9
Errors in project documents	2,65	1,07	7
Public interruption	2,19	1,31	10
Cultural differences	1,32	1,23	11

Causes of conflicts in design errors

Design errors is one of the crucial areas of conflicts in building projects as reflected in table 6.4. The causes for conflicts related to design errors and the rating results are shown in table 6.5. The first ranked cause of conflicts in design errors is cheap design hired instead of quality. This reflects to the process used for engaging consultants explained in section 3.7, where the method of selection mainly is based on technical and financial competition. The consultant submitting a lowest financial proposal scores the highest mark (100%) and that becomes a benchmark of all other bidders. When that is combined with technical proposal, gives room of selecting a consultant who is cheap but not capable of providing the services to the standard expected.

The second ranked cause of conflicts related to design errors is inadequate brief. Design brief discussed in section 3.6.1 is a document prepared by the designer containing the requirements of the client which the designer should consider in the design. If the brief is not adequate the design will not cover adequately the desires of the client. The third ranked cause of design errors is inadequate time for design, which means that, contracts are concluded when the design is not complete leading to problems of in-complete contracts as discussed in section 5.3.

Inexperience of designers and incompetent designers are ranked number four and five consecutively. These two causes are closely related since competency in professional work is acquired to a larger extent through experience. Mis-interpretation of client's requirements and wrong design data are ranked number six and seven respectively. Nevertheless these last two causes were not found critical, because their mean score values are below the mean standard rating value of 2.50.

Table 6.5: Ranking of causes of conflicts in design errors

Causes of conflicts in design errors	Mean	Std. Deviation	Rank
Mis-interpretation of client's requirements	2,45	1,44	6
In-experience of the designer	2,70	1,40	4
Incompetent designer	2,58	1,36	5
Inadequate time for design	2,80	1,44	3
Wrong design data	2,37	1,40	7
Inadequate brief	2,86	1,25	2
Cheap design hired instead of quality	3,25	1,48	1

Causes of conflicts in contractual claims

Contractual claims mainly are those claims related to extension of contract period and financial claims. The causes of conflicts in this area are shown in table 6.6. Incomplete tender documents is ranked as the first cause of conflicts in contractual claims. Indeed when the contract is based on incomplete tender documents it provides ground for opportunistic behaviour as discussed in section 5.3. Inadequate contract administration is ranked as the second cause of conflict in this area. The project consultants have the role of administering the contract on behalf of the client, therefore the consultants should have the necessary competency and experience in contract administration. However, as reflected in table 6.5, in-

competency and inexperience of designers was cited as one of the crucial causes of design errors, which again are reflected in poor contract administration.

Unclear risk allocation is ranked as third cause of conflicts giving rise to contractual claims. Every contract has risks that should be taken by the parties. If the allocation of risks is not fair, then disagreements are likely to occur when a risk event happens and someone has to bear the outcome arising from it. The fourth ranked cause of conflict is the tendency of contractors submitting claims so as to offset unrealistic low tender prices. Contractors may strategically submit a low tender in order to win the bid. When that happens, after winning the project, the contractor will come up with unrealistic claims in-order to offset his low priced tender.

The fifth ranked cause of conflict in this area is inadequate contract documents. Building contract documents in Tanzania according to PPRA standard form of contract (2004:3) comprise of; contractor's letter of acceptance, contractor's tender, conditions of contract with contract data, specifications, drawings and bills of quantities. When one of these documents or some important information in any of these documents is missing it provides ground for conflicts.

The last cause of conflict in this area is in-appropriate contract, which has a mean score value of 2.28 that is below the average rating mean score value and therefore, it is not a crucial cause of conflicts in this area. This partly may explain the fact that building contracts used in Tanzania are standard contracts as such they have undergone rigorous tests and checks before they are put into use in-order to minimize problems.

Table 6.6: Ranking of causes of conflicts in contractual claims

Causes of conflicts in contractual claims	Mean	Std. Deviation	Rank
Incomplete tender information	3,13	1,25	1
Inadequate contract documents	2,82	1,18	5
To offset unrealistic tender price	2,86	1,46	4
In-adequate contract administration	3,12	1,08	2
In-appropriate contract type	2,28	1,31	6
Unclear risk allocation	2,99	1,27	3

Causes of conflicts in multiple meanings of specifications

The results of ranking of causes of conflicts in this area are shown in table 6.7. The first ranked cause is the use of outdated specifications. Experience has shown that most consultants were still making reference to the standard specification of building materials and standard methods of measurement of building works first edition of 1970. These documents contain some materials that are outdated and no longer in use, like asbestos materials, cast iron pipes to mention a few. These documents do not cover most of new building materials currently used like gypsum boards, metal sheets roofing tiles, paints, varnishes, etc. Cut and paste tendency is ranked second cause of conflict in this area. From interviews it was noted that some consultants do not give sufficient attention when writing specifications as a result they use a cut and paste style to amend specifications of previous projects to suite new projects without sufficient care. In-experience of specification writer is ranked number three. This cause compliments the first two ranked causes, since a consultant with adequate experience and competency will take more care in writing specifications knowing the consequences it has to the project. Vested interest, peculiar or complicated project and negligence of the specification writer are ranked number four, five and six respectively. However, based on the values of mean standards, all causes are considered crucial to conflicts in multiple meanings of specifications in building projects since the values are more than the mean standard score rating value of 2.50.

Table 6.7: Ranking of causes of conflicts in multiple meanings of specifications

Causes of conflicts in multiple meanings of specifications	Mean	Std. Deviation	Rank
Negligence	2,65	1,49	6
In-experience of specification writer	3,05	1,28	3
Cut and paste tendency	3,48	1,41	2
Use of outdated specifications	3,63	1,29	1
Peculiar / complicated project	2,69	1,20	5
Vested interest	2,69	1,33	4

Causes of conflicts in delay of payments

Delay in payments is ranked first as the area most prone to conflicts in building projects. Factors causing delay in payments are ranked in table 6.8. As mentioned earlier, the client / employer is the member in a contract responsible for payments both to the contractor and the consultants. According to PPRA standard form of contract (2004:24) the standard period set

within which the contractor should be paid is 28 days, short of which the contractor has a remedy for claiming interest on the amount for number of days delayed at existing bank commercial interest rate. From interviews it was noted that, in most public institutions the payment process involves so much bureaucracy making it impossible for payments to be done within the time specified in the contracts.

The second ranked cause of conflicts in delay of payments is poor financial projection on the client's side. It was noted from interviews that, some public projects start without proper budget and cash flow forecast. Lack of funds is ranked number three which complements the second cause. The fourth cause is delay in evaluation process of claims submitted by contractors. The normal procedure in building contracts in Tanzania is the contractor prepares his claim for the value of work he has done for which is seeking payments. The claim is submitted to the consultants for assessment so as to recommend to the client a fair amount that should be paid to the contractor in respect of the work done. The time for assessment by the consultants is at large as noted in the three standard forms of contracts (EASF, NCC and PPRA) commonly used for building projects in Tanzania.

Table 6.8: Ranking of causes of conflicts in delays in payments

Causes of conflicts in delay of payments	Mean	Std. Deviation	Rank
Lack of funds	3,57	1,26	3
Poor financial projection on the client's side	3,75	1,25	2
Excessive claims made by the contractor	2,93	1,34	6
Unnecessary bureaucracy in the payment process	4,12	1,03	1
Delays in the evaluation process	3,29	1,08	4
Inadequate contract provisions for enforcement of timely payments	3,05	1,38	5

The fifth ranked cause is inadequate contract provisions for enforcement of timely payments. As earlier mentioned the PPRA standard form of contract has a provision for enforcing the client to pay the contractor within the time set in the contract by setting a penalty for payment of interest on delayed payment as per PPRA standard form of contract (2004:24) clause 43.1. However, lack of a clause in the contract that could enforce the consultants to assess and recommend the payment to the client within a specific time undermines the whole purpose. The last ranked cause is excessive claims made by the contractor. This may cause delays in payment due to additional time required by the consultants to assess the claims in questions,

and may also compel the client to seek additional funds which originally were not budgeted for the project. However, all the six causes have mean score values over 2.50 therefore, all causes are considered as crucial causes of conflicts in delay of payments in building projects.

Causes of conflicts in communication

Causes of conflicts in communication are ranked as shown in table 6.9. Poor feedback system is ranked first. Effective communication is a two-way phenomenon, when a message is sent to the recipient it is important that the receiver acknowledges receiving the message and is interpreted in the same meaning as sent by the sender. If this does not happen then communication is not complete, since the receiver may give different meaning to the message sent without the knowledge of the sender. Therefore, feedback is crucial for effective communication and where lacking, conflict is likely to occur as reflected in the findings.

Negligence is ranked as the second cause of conflicts in communication. This may arise when parties to the project do not effectively fulfil their obligation of disseminating information as and when required. Non-adherence of communication procedures set is ranked third. Different procurement systems as reflected in section 3.4, apart from contractual links, they also provide communication links among project participants. The lines of communication on various matters on the project are clearly spelled out. If such links are not followed conflicts are bound to occur.

Ineffective means of communication is ranked as fourth cause of conflicts related to communication in building projects. The common means of communication in building projects include; meetings, letters, instructions, memorandums, documents like drawings, bills of quantities etc. in contracts when such means are not sufficiently used, communication breakdown among project participants is likely to occur. Lack of communication procedures and deliberate blockage of information were ranked number five and six respectively. Nevertheless, all causes have mean standard score values over 2.50 therefore, all are considered to be important factors causing conflicts on communication in building projects.

Table 6.9: Ranking of causes of conflicts in communication

Causes of conflicts in communication	Mean	Std. Deviation	Rank
Lack of communication procedures	2,73	1,29	5
Non adherence of communication procedures set	2,81	1,10	3
Ineffective means of communication	2,76	1,18	4
Negligence	2,92	1,43	2
Poor feedback system	3,29	1,19	1
Deliberate blockage of information flow	2,68	1,44	6

Causes of conflicts due to excessive contract variations

Excessive contract variations is ranked third as an area prone to conflicts in building projects in Tanzania. Table 6.10 shows the ranking of factors causing excessive variations in building projects. Change of scope of works as a result of changes in client's requirements is ranked first. This is related to inadequate brief cause that is ranked as second cause of conflicts related to design errors. When the client's requirements are not adequately covered in the brief and hence not sufficiently considered in the design, it is likely that the client will demand the missing requirements to be added at a later stage of the project causing variations of work to the original contract.

Change of scope of works as a result of design errors was ranked second cause of conflicts related to excessive variations. Errors in the design are committed by designers (architects and engineers). This is related to design concept and layout, if such errors are discovered after signing the contract, its financial and time implications to the contract may be enormous to cause conflicts in the project.

Errors in the drawings, specifications and bills of quantities are ranked number three, four and five consecutively. The three causes are closely related, as errors in the drawings will affect quantities in the bills of quantities, as well as changes in the specifications will also have effect on specifications in the bills of quantities. Correction of errors for all three causes has financial and time implication to the project, thus creating ground for conflicts.

Misinterpretation of contract information is ranked number six. This happens when different parties to the contract assign different meanings on the same information thus causing

misunderstandings and disagreements. As reflected from the values of mean standard scores in table 6.10, all values are above 2.50 the mean standard score of rating, therefore all factors are considered important causes of conflicts related to excessive variations in building projects in Tanzania.

Table 6.10: Ranking of causes of conflicts in excessive contract variations

Causes of conflicts in excessive contract variations	Mean	Std. Deviation	Rank
Change of scope of works as a result of changes in clients' requirements	3,43	1,33	1
Change of scope of works as a result of design errors	3,03	1,01	2
Errors in bill of quantities	2,78	1,31	5
Errors in drawings	2,95	1,18	3
Errors in specifications	2,93	1,24	4
Misinterpretation of contract information	2,60	1,14	6

Causes of conflicts related to differences in evaluation

Conflicts related to differences in evaluation were ranked as fourth area prone to conflicts in building projects. The ranking of causes of conflicts in this area are shown in table 6.11. The tendency of consultants under-pricing claims submitted by contractors was ranked first. Consultants from professional ethical point of view are supposed to be impartial when undertaking their assignments. However, it was learned from interviews that often contractors are not honest when preparing their claims. There is a tendency of contractors submitting inflated claims with an assumption that the consultants will assess and bring the claim down to a realistic value.

Profit making or loss balancing approach of contractors by using inferior items is ranked as second cause of conflicts in this area. From interviews it was noted that, some contractors tend to cheat by using inferior and cheaper material contrary to what is in the contract, while they still claim the for prices quoted for the items specified in the contract which are higher than the actual cost of the inferior item supplied.

The tendency of contractors claiming high prices is ranked as third cause of conflicts in evaluation. This may happen when new items are introduced in the contract and there no clear method of pricing provided in the contract. Contractors tend to be opportunistic by inflating the prices and thus leading to disagreements with the consultants and the client. Dubious

claims and unclear method of pricing the contract are ranked fourth and fifth cause of conflicts related to evaluation. All five factors as shown in table 6.11 have mean score values over 2.50, therefore all are considered crucial causes of conflicts related to differences in evaluation in building projects in Tanzania.

Table 6.11: Ranking of causes of conflicts related to differences in evaluation

Causes of conflicts in differences in evaluation	Mean	Std. Deviation	Rank
Unclear method of pricing the contract	2,52	1,46	5
Tendency of contractor claiming high prices	2,68	1,22	3
Dubious claims by contractor	2,58	1,28	4
Tendency of consultants / clients under-pricing	3,61	4,83	1
Profit making or loss balancing approach of the contractor by using inferior items	3,17	1,33	2

Causes of conflicts related to differing site conditions

The causes of conflicts in this area are ranked as shown in table 6.12. Lack of money was ranked first and ignorance of importance of site investigation second. From interviews it was noted that some clients are not willing to spend money for site investigation, as they perceive the risk involved in designing and constructing without proper site investigation is not worth the money to be spent for site investigation.

Lack of adequate knowledge of site condition was ranked as third cause of conflicts related to differing site conditions. Without detailed site investigation like soil investigation, one is likely to have knowledge only on physical features of the site on and above the ground level only which is not adequate for design purpose. However, it was noted from interviews that, designers do take precaution when designing without adequate site investigation by providing design allowances over and above the standard allowances required (the extra allowance some labelled it as “factor of ignorance”).

Superficial investigation of site conditions, carelessness of site investigator, wrong interpretations of site investigation report and lack of necessary building permit from regulatory authorities were ranked fourth, fifth, sixth and seventh cause of conflicts related to differing site conditions. However, all four causes were found to be less important as their mean score values are less than 2.50 the average mean value of rating as shown in table 6.12.

Table 6.12: Ranking of causes of conflicts in differing site conditions

Causes of conflicts in differing site conditions	Mean	Std. Deviation	Rank
Lack of money	3,13	1,32	1
Lack of knowledge of site conditions	3,01	1,31	3
Carelessness of site investigator	2,14	1,19	5
Superficial investigation of site conditions	2,25	1,04	4
Wrong interpretation of site investigation	2,03	,99	6
Ignorance of client and consultants on the importance of site investigation	3,02	1,36	2
Lack of necessary building permit from regulatory authorities	1,64	1,52	7

Causes of conflicts related to errors in project documents

Conflicts related to errors in project documents was ranked seventh and is one of the crucial areas prone to conflicts in building project in Tanzania as shown in table 6.4. The causes of conflicts in this area are ranked as shown in table 6.13. Inadequate time for preparation of tender documents was ranked first. It was noted from interviews that, clients often take long time in making decisions, but when it comes to implementation they often give consultants little time to prepare the tender documents, as a result due to urgency and lack of time for checking the documents mistakes are committed. The second and third ranked causes of conflicts are incompetent and inexperience of personnel involved in preparation of tender documents. These two causes are closely related, because competency partly is acquired through experience. Low consultancy fee and negligence were ranked fourth and fifth respectively, although are considered less important factors as their mean score values are less than 2.50 the mean standard score value of rating.

Table 6.13: Ranking of causes of conflicts in errors in project documents

Causes of conflicts in errors in project documents	Mean	Std. Deviation	Rank
Inadequate time for tender documents preparation	3,41	1,16	1
Incompetent personnel in preparation of documents	3,28	1,21	2
Inexperience of personnel involved in preparation of documents	3,07	1,29	3
Low consultancy fee	2,31	1,44	4
Negligence	2,23	1,43	5

Causes of conflicts related to public interruption

Conflicts related to public interruptions as reflected in table 6.4 are considered not important area of conflicts in building projects in Tanzania. However, table 6.14 shows the ranking of factors that may cause conflicts in that area as poor public relationship between project participants and the public was ranked first and unfair compensation for displaced people was ranked second. This may happen when the project is on a place which is inhabited by people and the people have to be displaced and compensated before commencement of the works on site. The third cause is non-adherence of public authority's regulations, like regulations for electricity, water and sewerage utilities connection.

The fourth ranked cause is the process involved in displacing people from the area where construction will take place and the last is public resistance due to pollution of the environment to be caused by the project. However, this was found to be less important as the mean score value is less than 2.50 the mean standard score value of rating.

Table 6.14: Ranking of causes of conflicts in public interruption

Causes of conflicts in public interruption	Mean	Std. Deviation	Rank
Public resistance due to pollution of the environment to be caused by the project	2,41	1,52	5
The project involves displacement of people	2,70	1,41	4
Unfair compensation for displaced people	3,22	1,44	2
Poor public relationship between the project people and the public	3,28	1,10	1
Non adherence to public authorities regulations	3,04	1,42	3

Causes of conflicts related to cultural differences

Conflicts related to cultural differences were found not important in building projects in Tanzania as shown in table 6.4. However, the causes of conflicts in this area were found to be; professional culture problems which is ranked first. This factor relates to the way each field of practise conducts its business. Each profession for instance has its formal code of conduct that often is intermingled with informal conduct. Both conducts together describes and delineates one profession from the other and forms a professional culture of that specific group. It is very common to hear people saying, "Someone talks or behaves like an engineer or like an architect, or you are too sensitive to cost like an economist, you are really strategic like a

contractor etc." When people from different professions come together to execute a building project, conflicts may arise from their different professional cultural background. However, this factor was not found to be crucial in building projects in Tanzania as its mean score value is less than 2.50, the mean standard value of rating.

The second ranked cause of conflicts related to cultural differences is working norms. Each organisation or firm has it characteristics that are peculiar and define the firm being considered. For instance the way of assigning activities, control, monitoring, rewards and penalties for non- performance, etc. vary from one firm to another. When different firms come together to undertake a project such differences may cause conflicts among the firms.

The third cause of conflicts in this area is language problem. The official language used in building contracts in Tanzania is English. However, it is mostly used in formal communication like in contract documents, written correspondences - letters, instructions etc. all have to be in English otherwise most verbal communication is done in "Kiswahili" the first national language. It was noted from interviews that, language was not a major problem even for foreign firms whose personnel could speak English. It was a problem only for few Chinese construction firms whose personnel could not speak either of the two languages; they could communicate with the help of an interpreter and sometimes by using body language as was narrated during interviews.

The adversarial industry culture of conflicts was ranked fourth cause. From practice and literature it was found that, the construction industry compared to other industries like manufacturing, agriculture etc. is most prone to conflicts. Nevertheless as earlier mentioned conflicts related to cultural differences was found not crucial in building projects in Tanzania, similarly the cause of conflicts in this area are considered less important as their mean score values are less than 2.50 the mean standard score rating value.

Table 6.15: Ranking of causes of conflicts in cultural differences

Causes of conflicts in cultural differences	Mean	Std. Deviation	Rank
Language problem	2,08	1,48	3
Working norms	2,27	1,18	2
Professional culture problems	2,41	1,34	1
Adversarial industry culture	2,07	1,25	4

Intensity of conflicts at various stages of project life

The project life is broadly divided into four stages according to the traditional procurement approach, the approach mostly used in Tanzania and the main activities performed; pre-design stage, design stage, construction stage and post-construction stage. The activities done in each stage are discussed in section 3.6.

Table 6.16: Mean score values of responses on intensity of conflicts at various stages of project life

Area of conflict	Stage of project life							
	Pre-design		Design		Construction		Post-construction	
	Mean	Std. deviation	Mean	Std. deviation	Mean	Std. deviation	Mean	Std. deviation
Design errors	0	0	1,60	1,40	**3,69**	1,15	1,70	1,68
Contractual claims	0	0	0	0	**3,75**	1,17	2,01	1,59
Multiple meanings of specifications	0	0	1,22	1,41	**3,24**	1,34	1,09	1,49
Delays in payments	0	0	,67	,99	**3,71**	1,46	2,84	1,54
Poor communication	,97	1,16	1,79	,15	**2,98**	1,31	1,25	1,28
Excessive contract variations	0	0	0	0	**4,78**	1,33	0	0
Evaluation	0	0	0	0	**3,76**	1,13	1,33	1,62
Differences in site condition	0	0	,50	1,01	**3,16**	1,41	2,27	1,60
Errors in project documents	0	0	1,47	1,56	**2,99**	1,37	,85	1,38
Public interruption	0	0	0	0	**2,87**	1,51	,97	1,43
Cultural differences	0	0	,92	1,37	**3,04**	1,41	,90	1,23

The main purpose of this section was to identify stages in building project life in which most conflicts are experienced. Using the variables established from interviews and literature as areas of conflicts in building projects in Tanzania (see table 6.2), intensities of conflicts for every stage of project life were established using the mean score values for each area of conflict as shown in table 6.16.

Intensity of conflicts related to design errors at various stages of project life

Table 6.16 shows that, there are no conflicts related to design errors experienced at pre-design stage of the project. Indeed that was expected because at that stage the design is not yet in place. At the design stage the table shows intensity of conflict with mean score value of 1.60. At design stage conflicts can occur among members in the design team and the client. For instance disagreements may arise on the size and position of some elements in the building like columns, beams etc. The architect and or the client may not want to have columns in a

certain space in-order to avoid obstruction of vision or movement, but the structural engineer from engineering point of view may insist to provide such columns.

The table shows most conflicts related to design errors are experienced during the construction stage, with a mean score value of 3.69. It is expected that, if there is an error in the design it will be revealed at the construction stage when the drawings and specifications are transformed into physical objects / structures. However, conflicts related to design errors experienced at this stage originate from pre-design and design stages as reflected on table 6.5 of causes of conflicts related to design errors. Design errors that are not revealed at construction stage, will be noted and revealed when the construction has been completed and the building is put into use. This is reflected by intensity of conflicts at post-construction stage which has a mean score value of 1.70 as shown in table 6.16.

Intensity of conflicts related to contractual claims at various stages of project life

Table 6.16 shows that, there are no conflicts related to contractual claims experienced at both pre-design and design stages. However, most conflicts are experienced at the construction stage, as shown in the table with a mean score value of 3.75. The construction stage is the actual project implementation stage, where most funds and time are spent therefore any extra costs and time will be demanded and required at this stage. At post-construction stage the table shows conflict intensity with mean score value of 2.01. According to PPRA standard form of contract (2004) and other standard forms of building contracts in Tanzania, the settlement of accounts for the entire building project is done after practical completion of the works and expiry of defects liability period that may range from six to twelve months after completion of construction work. It is during this time when cost reconciliation is done between the contractor and the consultants, therefore, that cause conflicts are likely to occur on the accounts.

Intensity of conflicts related to multiple meanings of specifications at various stages of project life

There are no conflicts related to multiple meanings of specifications experienced at pre-design stage as shown in table 6.16. At design stage there are conflicts experienced and as shown in the table where the intensity of conflicts is equivalent to 1.22 mean score value. Conflicts at this stage are those among the members in the design team and the client. Such conflicts are on specifications shown in architectural documents, which could be misinterpreted by the

engineer or vice visor, and/or specifications misinterpreted by a quantity surveyor when preparing bills of quantities. At post-construction stage there are conflicts related to multiple meaning of specifications with a mean score value of 1.10.

Intensity of conflicts related to delay in payments at various stages of project life

Table 6.16 shows that, there are no conflicts related to delays in payments at pre-design stage, but at design stage there are conflicts with 0.67 mean score value intensity. Since at this stage based on the traditional procurement system, it is only the consultants who are engaged in the project, therefore, the delays in payments are expected to be those related to consultancy fees only. At construction stage the table shows that, the mean score value of intensity of conflicts is 3.71 which is the highest. The payments at this stage are in respect of work done by contractor(s) and consultancy fees to the consultants. As mentioned earlier although contracts do specify the time within which payments should be made but clients often do not pay in time as required. Conflicts related to delay in payments are also found at post-construction stage with a mean score value of 2.84. The payments at post-construction stage mainly are those related to final account and certificate prepared by consultants after reconciling all accounts of the project.

Intensity of conflicts related to communication at various stages of project life: Conflicts related to communication in building projects are found in all stages of project life. Table 6.16 shows at pre-design stage the intensity of conflicts is equivalent to 0.97 mean score value, at design stage is 1.79, at construction stage is 2.98 and at post-construction stage is 1.25. Communication is important right from the time when the client conceives the idea to undertake a project, therefore conflicts related to poor communication are expected to be found at every stage of project life.

Intensity of conflicts related to excessive contract variations at various stages of project life: In practise variations to the contract take place only after signing the contract and in most cases during the construction stage. Table 6.16 shows conflicts related to contract variations only occur at the construction stage. The intensity of conflicts at this stage is equivalent to 4.78 mean score value.

Intensity of conflicts related to evaluation of work done by the contractor at various stages of project life: Conflicts in this area occur during construction and post-construction

stages only, there are no conflicts at pre-design and design stages. At the construction stage the mean score value is 3.76 and at post-construction stage is 1.33.

Intensity of conflicts related to differing site conditions at various stages of project life: Table 6.16 shows conflicts related to this area to occur at design, construction and post-construction stages with means score values of 0.50, 3.16 and 2.27 respectively. There are no conflicts related to differing site conditions at pre-design stage.

Intensity of conflicts related to errors in project documents at various project life: Table 6.16 shows conflicts related to this area to occur at design, construction and post-construction stages with means score values of 1.47, 1.56 and 2.99 respectively. There are no conflicts related to errors in project documents at pre-design stage.

Intensity of conflicts related to public interruption at various stages of project life: Conflicts in this area occur only during construction stage, the level of intensity as shown in table 6.15 is equivalent to 2.87 mean score value. There are no conflicts related to public interruption in other stages of project life.

Intensity of conflicts related to cultural differences at various stages of project life: Table 6.16 shows conflicts related to this area to occur at design, construction and post-construction stages with means score values of 0.92, 3.04 and 0.90 respectively. There are no conflicts related to cultural differences at pre-design stage.

Generally the construction stage was found to be the stage of project life during which most conflicts occur as reflected by the mean score values which are the highest in this stage as shown in table 6.16. Conflicts related to excessive contract variations and public interruptions were found to occur during construction stage only, while others were occurring during design, construction and post-construction stages except conflicts related to poor communication, which were occurring in all four stages of project life.

Conflicts among project participants:

The purpose of this section was to establish the intensity of conflicts among key members in a building project team. The members were considered in line with their contractual positions in a typical building project team as follows:

- Design team and contractor
- Design team and client
- Client and contractor
- Contractor and sub-contractors

The intensity of conflicts in each pair was analysed by establishing mean standard score values on each area of conflict as shown in table 6.17. On conflicts related to design errors it was found more intense between the design team and general contractor with a mean score value of 3.13 followed by the design team and the client with a mean score of 2.00, the general contractor and sub-contractors with mean value of 1.55, and last is between the client and general contractor with a mean score value of 1.40.

Intensity of conflicts related to contractual claims among members in a project team was found more intense between the client and the contractor with a mean score value of 3.14 and least tense between the design team and client with the mean score value of 1.60 as shown in table 6.17.

For the intensity of conflicts related to multiple meanings of specifications it was found more crucial between the design team and contractor with a mean score value of 2.83 and lowest between the design team and the client with a mean score value of 1.76. Conflicts related to delay in payment was found to be crucial between the client and general contractor with the highest mean score values followed by the pair between the general contractor and sub-contractors with a mean score value of 3.02.

On intensity of conflicts related to poor communication, it was found to be more between the client and general contractors with a mean score value of 2.56 and was lowest between the design team and the client with a mean score value of 1.92 as shown in table 6.16. Conflicts related to excess contract variations were found to be more between the design team and contractor followed closely by the client and contractor with mean score values of 2.69 and 2.43 respectively, and was lowest between general contractor and sub-contractors with a mean score value of 1.93. Conflicts related to evaluation were found to be more tense between the design team and general contractor with a mean score value of 2.61 and lowest between the general contractor and sub-contractors.

Conflicts related to differences in site conditions were found to be more between the client and general contractor with a mean score value of 2.20 and lowest between the general contractor and sub-contractors with a mean score value of 1.61. Conflicts related to errors in project documents were found to be more between the design team and general contractor with a mean score value of 2.63 and lowest between the general contractor and sub-contractors. On conflicts related to public interruptions and those related to cultural differences were found more between the client and the contractor with mean score values of 1.97 and 1.90 respectively.

Table 6.17: Intensity of conflicts among project participants

Area of conflict								
	Design team Vs Contractor		**Design team Vs Client**		**Client Vs Contractor**		**Contractor Vs Sub-contractor**	
	Mean	**Std. deviation**	**Mean**	**Std. deviation**	**Mean**	**Std. deviation**	**Mean**	**Std. deviation**
Design problems	**3,13**	1,54	2,00	1,52	1,40	1,83	1,55	1,46
Contractual claims	2,43	1,55	1,60	1,49	**3,14**	1,35	2,49	1,44
Multiple meanings of specifications	**2,84**	1,68	1,76	1,19	2,35	1,23	1,82	1,52
Delays in payments	1,40	1,39	1,65	1,41	**3,91**	1,09	3,03	1,59
Communication	2,30	1,52	1,92	1,42	**2,56**	1,38	2,05	1,28
Excessive contract variations	2,43	1,61	2,18	1,53	**2,69**	1,57	1,93	1,51
Evaluation	**2,61**	1,56	2,14	1,26	2,18	1,55	2,00	1,48
Site condition and limitation	2,15	1,53	1,64	1,31	**2,20**	1,45	1,61	1,36
Errors in project documents	**2,63**	1,70	2,07	1,63	2,18	1,58	1,70	1,38
Public interruption	1,34	1,49	1,31	1,30	**1,97**	1,63	1,48	1,38
Cultural differences	1,25	1,47	1,21	1,42	**1,90**	1,51	1,59	1,44

In general as shown in table 6.17, it was found that there are more conflicts between the client and the general contractor, followed by the pair between the design team and general contractor, the design team and client and least between the general contractor and sub-contractors.

Preferences on conflicts resolution approaches

This section aimed at establishing preferred approaches of resolving conflicts in building projects in Tanzania. Since preferences and appropriateness of the approach may vary depending on the nature of the conflict, the data was collected and analysed in respect of different areas of conflicts established in the preceding sections.

Table 6.18: Preferences of conflict resolution approaches

Conflict area	**Conflict resolution approach mean score value (most preferred with least score and less preferred with highest score)**				
	Collaboration	**Compromising**	**Smoothing**	**Avoiding**	**Forcing**
Design problems	1,66	2,03	2,17	3,23	3,17
Contractual claims	1,65	1,84	2,43	3,36	3,02
Multiple meanings of specifications	1,70	1,84	2,20	3,25	2,98
Delays in payments	1,91	2,00	2,66	2,98	2,93
Communication	2,01	1,99	2,30	3,03	3,28
Excessive contract variations	1,58	1,75	2,32	3,20	3,43
Evaluation	1,51	1,98	2,22	3,23	3,23
Site condition and limitation	1,69	1,95	2,42	3,02	3,27
Errors in project documents	1,72	2,00	2,55	3,02	3,44
Public interruption	1,31	1,71	2,17	2,70	3,13
Cultural differences	1,45	1,57	2,04	2,57	3,35

The mean score value of preferences for each approach was established for each area of conflict. The approach with lower value is the most preferred and the approach with higher value is the least preferred.

As shown in table 6.18 the most preferred approach for resolving conflicts related to errors in design is collaboration with a least mean score value of 1.66, followed by compromising approach with a mean score value of 2.03. The next closely preferred approach is smoothing with mean score value of 2.17, this is followed by forcing with a score of 3.17 and the least preferred is avoiding with a highest score of 3.23.

On conflicts related to contractual claims collaboration again is the most preferred approach with a mean score value of 1.65 followed by compromising with the value of 1.84. Next is smoothing with mean score value of 2.43, and forcing and avoiding approaches are the least preferred approaches with mean score values of 3.02 and 3.36 respectively. The order of preferences for resolution approaches for conflicts related to multiple meanings of specifications and delays in payments have the same order as above for conflicts related to contractual claims with mean score values as shown in table 6.18.

For conflicts related to communication problems, the most preferred resolution approach is compromising with a mean score value of 1.99 followed by collaboration, smoothing,

avoiding and forcing with mean score values as shown in table 6.18. Approaches most preferred for resolution of conflicts related to excessive contract variations, differences in evaluations, differing site conditions, errors in project documents, public interruptions and cultural differences are in the order of; collaboration being the most preferred, followed by compromising, smoothing, avoiding and the least preferred approach is forcing.

In general as shown in table 6.18, the most preferred approach is collaboration, followed by compromising, smoothing, avoiding and last is forcing.

6.3 Summary

The results presented above unveil and provide an outline of the nature of conflicts in building projects in Tanzania. The main areas of conflicts, their causes, intensity of conflicts at various stages of project life, the members in a project team among which conflicts do occur and different conflicts resolution approaches have been mapped out and summarized in table 6.19 below.

Among the areas of conflicts identified in the order of criticality are: delays in payments, contractual claims, excessive variations, differences in evaluations, poor communication, design errors, errors in project documents, multiple meanings of specifications, differences in site conditions, public interruptions and cultural differences. The causes of conflicts in each of those areas are summarized and given in table 6.19.

Conflicts were found more intense during the construction stage as compared to design and post-construction stages and were least intense during the pre-design stage. Conflicts among the project participants were found more intense between the client and general contractor followed by the design team and general contractor, the design team and client and were least intense between the general contractor and sub-contractors. Collaboration was found to be the most preferred conflicts resolution approach followed by compromising, smoothing, avoiding and last was forcing. The above findings provided the base for in-depth study of the nature of conflicts in building projects in Tanzania by case studies approach presented in chapter seven.

Table 6.19: Summary of empirical investigation from questionnaire survey

Area of Conflict		***Causes of conflicts***		***Intensity of Conflicts at various stages of project***		***Intensity of conflicts between project members***		***Conflicts resolution approach applied***	
	Rank		**Rank**		**Rank**		**Rank**		**Rank**
Delays in Payments	**1**	Unnecessary bureaucracy in payments	1	Construction stage	1	Client and contractor	1	Collaboration	1
		Poor financial projection by client	2	Post-construction stage	2	Contractor and Sub-contractors	2	Compromising	2
		Lack of funds	3	Design stage	3	Design team and Client	3	Smoothing	3
		Delay in evaluation process	4			Design team and contractor	4	Forcing	4
		Inadequate contract provisions for timely payments	5					Avoiding	5
		Excessive claims made by contractor	6						
Contractual Claims	**2**	Incomplete tender information	1	Construction stage	1	Client and contractor	1	Collaboration	1
		Inadequate contract administration	2	Post-construction stage	2	Contractor and Sub-contractors	2	Compromising	2
		Unclear risk allocation	3			Design team and contractor	3	Smoothing	3
		To offset unrealistic low tender price	4			Design team and client	4	Forcing	4
		Inadequate contract documents	5					Avoiding	5
		Inappropriate contract type	6						
Excessive variations	**3**	Change in scope of work due to changes in client's requirements	1	Construction stage	1	Client and contractor	1	Collaboration	1
		Changes of scope of works due to design errors	2			Design team and contractor	2	Compromising	2
		Errors in the drawings	3			Design team and client	3	Smoothing	3
		Errors in specifications	4			Contractor and Sub-contractors	4	Avoiding	4
		Errors in bills of quantities	5					Forcing	5
		Misinterpretation of contract information	6						

Table 6.19: Summary of empirical investigation from questionnaire survey (continued)

Area of Conflict		***Causes of conflicts***		***Intensity of Conflicts at various stages of project***		***Intensity of conflicts between project members***		***Conflicts resolution approach applied***	
	Rank		**Rank**		**Rank**		**Rank**		**Rank**
Differences in evaluation	**4**	Tendency of consultants / clients of under-pricing	1	Construction stage	1	Design team and contractor	1	Collaboration	1
		Profit making / loss balancing approach of contractors	2	Post-construction stage	2	Client and contractor	2	Compromising	2
		Tendency of contractors claiming high prices	3			Design team and Client	3	Smoothing	3
		Dubious claims by contractors	4			Contractor and Sub-contractors	4	Avoiding	4
		Unclear method of pricing the contract	5					Forcing	5
Poor communication	**5**	Poor feedback	1	Construction stage	1	Client and contractor	1	Collaboration	1
		Negligence	2	Design stage	2	Design team and contractor	2	Compromising	2
		Non-adherence of communication procedures set	3	Post-construction stage	3	Contractor and Sub-contractors	3	Smoothing	3
		Ineffective means of communication	4	Pre-design	4	Design team and client	4	Avoiding	4
		Lack of communication procedures	5					Forcing	5
		Deliberate blockage of information flow	6						
Design Errors	**6**	Cheap design hired instead of quality	1	Construction stage	1	Design team and contractor	1	Collaboration	1
		Inadequate brief	2	Post-construction stage	2	Design team and client	2	Compromising	2
		Inadequate time for design	3	Design stage	3	Contractor and Sub-contractors	3	Smoothing	3
		In-experience of designer	4			Client and contractor	4	Forcing	4
		Incompetent designer	5					Avoiding	5
		Mis-interpretation of client's requirements	6						
		Wrong design data	7						

Table 6.19: Summary of empirical investigation from questionnaire survey (continued)

Area of Conflict		***Causes of conflicts***		***Intensity of Conflicts at various stages of project***		***Intensity of conflicts between project members***		***Conflicts resolution approach applied***	
	Rank		**Rank**		**Rank**		**Rank**		**Rank**
Errors in project documents	**7**	Inadequate time for tender documents preparation	1	Construction stage	1	Client and contractor	1	Collaboration	1
		Incompetent personnel in preparation of documents	2	Design stage	2	Design team and contractor	2	Compromising	2
		Inexperience of personnel	3	Post-construction stage	3	Design team and client	3	Smoothing	3
		Low consultancy fees	4			Contractor and Sub-contractors	4	Avoiding	4
		Negligence	5					Forcing	5
Multiple meanings of specification	**8**	Use of outdated specifications	1	Construction stage	1	Design team and contractor	1	Collaboration	1
		Cut and paste tendency	2	Design stage	2	Design team and client	2	Compromising	2
		In-experience of specification writer	3	Post-construction stage	3	Contractor and Sub-contractors	3	Smoothing	3
		Vested interest	4			Client and contractor	4	Forcing	4
		Peculiar / complicated project	5					Avoiding	5
		Negligence	6						
Differences in site conditions	**9**	Lack of money	1	Construction stage	1	Client and contractor	1	Collaboration	1
		Ignorance of clients on the importance of site investigation	2	Post-construction stage	2	Design team and contractor	2	Compromising	2
		Lack of knowledge of site conditions	3	Design stage	3	Design team and client	3	Smoothing	3
		Superficial investigation	4			Contractor and Sub-contractors	4	Avoiding	4
		Carelessness of site investigator	5					Forcing	5
		Wrong interpretation of site investigation	6						
		Lack of necessary building permit from regulatory authorities	7						

Table 6.19: Summary of empirical investigation from questionnaire survey (continued)

Area of Conflict		***Causes of conflicts***		***Intensity of Conflicts at various stages of project***		***Intensity of conflicts between project members***		***Conflicts resolution approach applied***	
	Rank		**Rank**		**Rank**		**Rank**		**Rank**
Public interruption	**10**	Poor public relationship between the project people and the public	1	Construction stage	1		1	Collaboration	1
		Unfair compensation for displaced people	2	Post-construction stage	2	Contractor and Sub-contractors	2	Compromising	2
		Non adherence to public authorities regulations	3			Design team and contractor	3	Smoothing	3
		The project involves displacement of people	4			Design team and client	4	Avoiding	4
		Public resistance due to pollution of the environment to be caused	5					Forcing	5
Cultural difference	**11**	Professional culture problems	1	Construction stage	1	Client and contractor	1	Collaboration	1
		Working norms	2	Design stage	2	Contractor and Sub-contractors	2	Compromising	2
		Language problem	3	Post-construction stage	3	Design team and contractor	3	Smoothing	3
		Adversarial industry culture	4			Design team and client	4	Avoiding	4
								Forcing	5

CHAPTER SEVEN

CASE STUDY

7.0 Introduction

This chapter presents data collected from four building projects in Tanzania. One project was a rehabilitation work and the other three were new construction works. The aim of this chapter is to study and analyse conflict situations in building projects from root cause level, how they develop/progress and how they are managed in a real project setting. With reference to research objectives and questions outlined in chapter one, the following information was collected for each case study project:

- Brief description of the project
- Areas / issues on which conflicts were experienced
- Causes of conflict on each area/issue identified
- How the conflict emerged/surfaced, and
- How was it handled and managed?

A synthesis and discussion of conflicts phenomenon with reference to literature, systems theory and TCE theoretical framework reviewed in previous chapters is presented for each conflict identified. The last part of this chapter is a cross case analysis, where the areas / issues on which conflicts were experienced, causes of conflicts, how the conflicts emerged and how were handled and managed are pooled and compared.

7.1 Case study one

7.1.1 Description of the project

The project representing case study one is construction of paediatric ward complex building for national hospital in Dar es Salaam, the largest referral hospital in Tanzania. The project is a five storeys building comprising of basement floor, ground, first, second and third floors with approximately 12,000 square meters total built up floor area. Initially the building was designed as a hospital for children comprising mainly of wards, doctor's consultation rooms, theatres, laboratories and offices for hospital administrators.

The idea of constructing a paediatric ward complex building was conceived in 1987 due to acute shortage of hospital facilities for children at the national hospital and in Tanzania at large. However, the government of Tanzania had no money to implement the project. Due to gravity of the problem the first lady (the wife of the President) by then in 1989 initiated a fund

raising campaign for the project. Various ways including charity walks involving the President himself were used. The design team comprising of architects, engineers and quantity surveyors, as their contribution, volunteered to design the building at a fee discounted by 50% of the chargeable professional fee.

Design of the building was completed in 1991 and by then the contribution was about T.shs. 110,000,000 equivalent to USD 258,216. The construction cost for the entire building was estimated at T.shs.1,200,000,000 equivalent to USD 2,816,900 at 1991 prices. Regardless of inadequate funds it was decided to call in bids from building contractors. The lowest evaluated bid submitted was T.shs.1,031,400,000 equivalent to USD 2,421,127, which was much higher than the total contributions collected at that time. Following that, it was decided to split the project into two stages; stage one involved construction of substructure costing T.shs.116,400,000 equivalent to USD 273,240 and stage two involved construction of all other remaining works at the cost of T.shs. 915,000,000 equivalent to USD 2,147,887 at 1991 prices. It was informed that the fund raising campaign continued although contributions were dwindling and the money raised was not sufficient to finance the entire project (when and why campaigns for contribution stopped, and the total amount contributed could not be established).

Construction works for stage one commenced in November 1991 and was completed in March, 1993 within the programme set. After completion of stage one, construction works for stage two commenced, but the progress was poor due to lack of funds and the problem persisted until June 1994 when all construction works were suspended. At the time of suspension only concrete frame work was done up to first floor level and some block-work walls to the basement and ground floors.

The works resumed in December 1999 when the government committed itself to finance the project by allocating some funds in its annual budgets. However, before resumption of the works, the entire project was redesigned to take care of new requirements of the client that changed from a hospital building for children (with services offered free of charge) to a general hospital with some services offered on commercial basis.

After redesign of the building the construction cost was revised on account of the changes in the design, increase in construction cost and value added tax (VAT) which was not in place

before 1999. The changes caused construction cost to rise from T.shs. 1,031,400,000 to T.shs.5,729,333,225 equivalent to USD 7,188,624 at 2002 prices. The government took over the financing role through the Ministry of Health and Social Welfare (MHSW). However, before resumption of work on site, the necessary approvals had to be sought in order to comply with the requirements of the Public Procurement Act of works and goods which was introduced in 2001. The procedure involved seeking approvals from the tender board of the client (MNH), Ministerial Tender Board (MTB) of the MHSW, and finally the Central Tender Board (CTB) as shown in figure 7.1. The approval process took about two years until 2002 when the works effectively resumed on site. After approval a new programme for completion of the project was set to be December 2005 with a strategy of constructing and completing one floor at a time starting with the basement, ground, second and third floors in that order.

Although there was a government commitment to fund the project by setting funds in its annual budgets, the funds set each year were not sufficient to meet the cost of construction works as were scheduled, as a result the project suffered again from shortage of funds. The client and MHSW as financier made some effort to seek funds from other sources. This was achieved after convincing some donor countries and organisations on the importance of the project (using the original intended purpose of building that was a hospital for children), the donors volunteered to contribute some money through what was termed as "basket fund" (the donors and amounts contributed were not established).

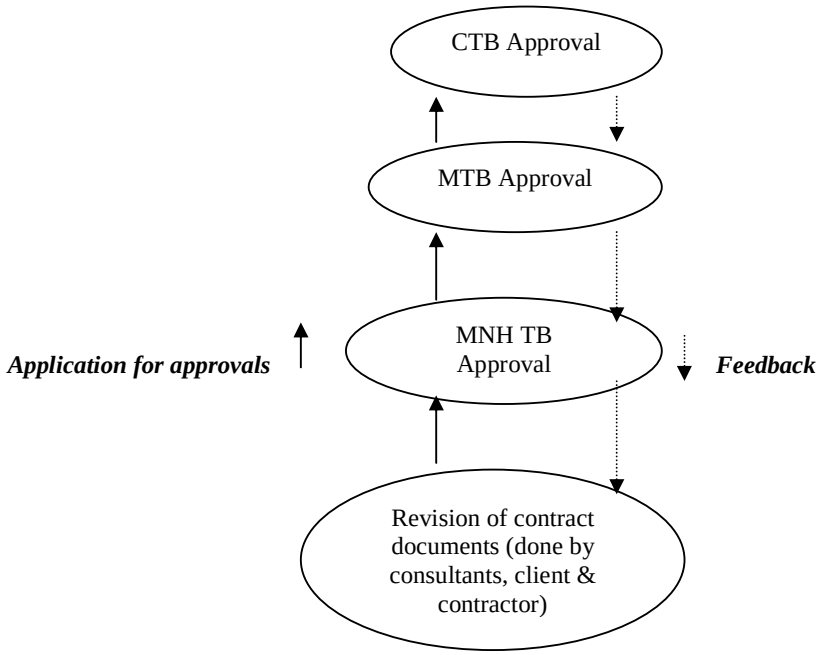

Figure 7.1: Approval process for revision of contract documents for case study one project, first revision of 2002.

That approach boosted the financial position of the project and the works relatively progressed well until 2004 when the donors withdraw their support apparently after realising that the client had changed the purpose and use of the building from a children hospital to a general hospital use. By that time the construction of basement, ground and first floors were almost complete to the level of being used. The second and third floors were yet to be completed as only concrete framework - columns, beams, concrete floors, and roof were done by then. However, due to acute shortage of space in other buildings at the hospital following major rehabilitation works, which were taking place, the completed parts of the building; the basement, ground and first floors were put into general hospital use. After withdrawal of the donors and given that the funds set by the government in its annual budgets were not sufficient, the construction works were suspended again.

Early 2007 following the visit of Tanzania parliamentary committee in-charge of social welfare and the pressure from the association of paediatricians in Tanzania who demanded the building to be used as a hospital for children as originally intended, the government again decided to set aside sufficient funds in its budget for completion of all remaining works, including making adjustments in the design back to hospital use for children. The design of second and third floors was adjusted again to meet the changed client's requirements and consequently the cost was reviewed to T.shs. 7,760,160,142 equivalent to UDS 6,015,628 at 2007 prices.

In order to comply with the requirements of the Public Procurement Act (PPA) of 2004, approvals had to be sought again from the Public Procurement Regulatory Authority (PPRA) through Ministerial tender board (MTB) before works could resume. The process started in July 2007 and the approval was obtained in February 2008. Following that, an addendum to the original contract had to be prepared to take care of the requirements of the PPA of 2004 and its regulation for procurement of public works in Tanzania of 2005. That was necessary because a number of contractual matters in the original contract based on the East Africa Institute of Architects (EAIA) standard Agreement and Schedule of Conditions of Building Contract with quantities, 1977 edition were in conflict with the PPA of 2004 and common practice as was mentioned by consultant and contractor. That process took almost two months until mid April, 2008 when the works on site resumed again with a target of completing the project in October 2008.

The key participants in this project were; the client- the Muhimbili National Hospital (MNH), the financiers – at the beginning of the project was the public at large under coordination of the client, latter the central government through the MHSW, and at one moment was a joint endeavour of the government and donors, and last was the government through the MHSW. Other key participants in the project were; the consultants team comprising of architects, services engineers, quantity surveyors, structural and civil engineers, main contractor, nominated sub-contractors for electrical installations, plumbing installation, lift installation and medical gas installations.

7.1.2 Theoretical contextualization of case study one building project

This section presents findings from case study one building project in the context of TCE and systems theoretical framework. The purpose is to express the case study in the perspective of theoretical framework and to show how the case study illustrates the elements of theoretical framework discussed in chapter five. The elements considered for TCE theory are; governance structures, contractual incompleteness and consequent ex post adjustments, asset specificity and monopoly power, opportunism and credible commitments, and for systems theory the elements/concepts considered are: hierarchies of systems, interdependence of parts of the system, closed and open system concepts.

Governance structure (procurement system)

The engagement of consultants team was done through single source appointment and negotiation process. It was informed that, their offer to design the building at half of chargeable professional fees was one of the factors that influenced their appointment. The traditional procurement system as described in chapter 3 section 3.4 was used for this project. The design and preparation of bid documents including bills of quantities were first done by the consultants team, after which building contractors registered in class one by the Registration Board of Architects, Quantity Surveyors and Building Contractors (by then) were invited to tender on selective competitive basis. The nominated sub-contractors for electrical and plumbing installations were also engaged by selective competitive bidding process, and the nominated sub-contractors for lift and medical gas installations were engaged by single source negotiation process. Figure 7.2 shows the procurement process used.

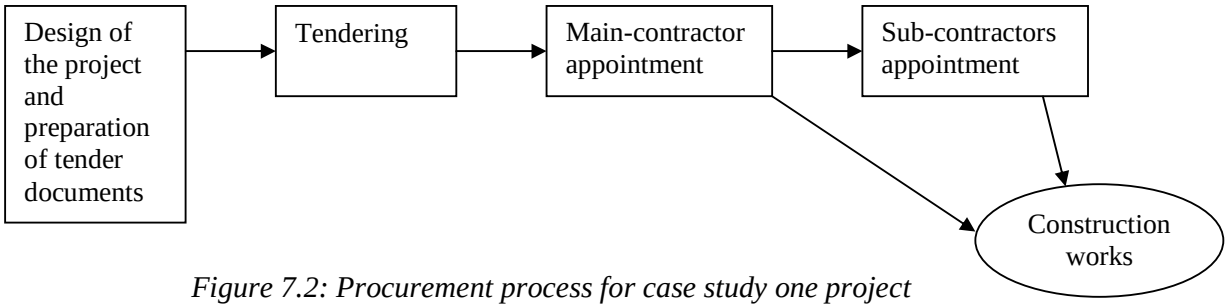

Figure 7.2: Procurement process for case study one project

Fundamentally there were three contracts for this project; the first contract was between the consultants team and the client for design and supervision of the project, the second was between the main contractor and the client for construction of the building, and third was between the main contractor and each nominated sub-contractor. Contractual and formal communication links among key members in the project were as shown in figure 7.3.

The contract between the main contractor and client was the EAIA Standard Agreement and Schedule of Conditions of Building Contract (with quantities), 1977 Edition. The contract was fully fluctuating allowing reimbursement of increase/decrease in prices of building materials and labour. Initially reimbursement was based on the "traditional" approach and latter was changed to the National Construction Council (NCC) prices fluctuation formula.
The NCC formula method was used until 2006 when the client and financier were concerned with the magnitude of fluctuations in comparison with the actual value of work done. This led to change the contract from fully fluctuating to a fixed price contract.

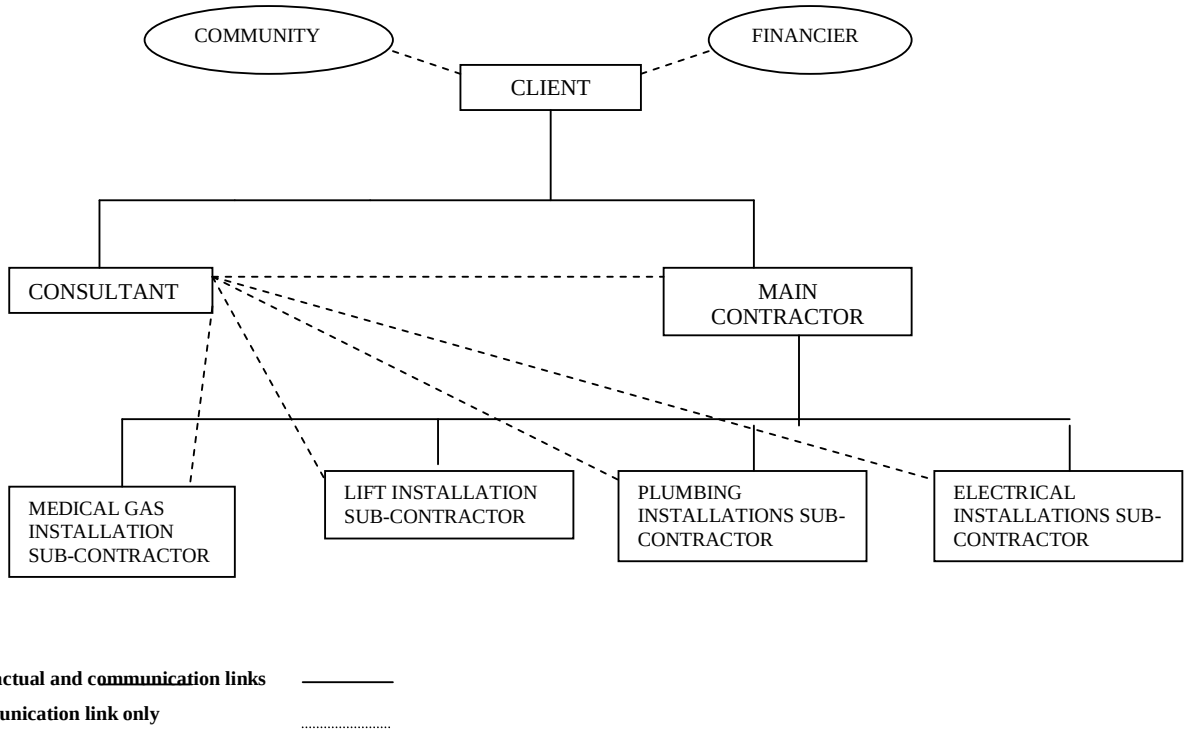

Figure 7.3: Contractual relationship and communication links among the project participants

Contractual incompleteness

The extent of contractual incompleteness for case study one was analysed in respect of original contract documents and subsequent major changes and revisions done and approved in 2002 and 2007. According to the consultants, the original design and contract documents were done to sufficient details covering all requirements of the client as were outlined in the brief. The analysis of the original contract bills of quantities indicates the contract sum of T.shs. 1,031,400,000 was made up as shown in table 7.1.

Table 7.1: General summary, original bills of quantities – case study one project (1991 prices.)Source: Project documents

• Preliminaries …….	26,500,000
• Measured works (firm quantities)……..	656,488,800
• Provisional quantities…….	116,400,000
• Prime cost sums…….	123,768,000
• Provisional sums…….	73,243,200
• Contingency sums…….	35,000,000
TOTAL T.SHS…….	1,031,400,000

The extent of contractual incompleteness ex ante is expressed by the percentage of total cost of provisional quantities, provisional sums and contingency sums, to the contract sum, which is approximately 22%. The provisional quantities were in respect of substructure works, which according to the consultants the design was complete save for changes, which were expected due to variation of soil condition and site levels. The provisional sums were in respect of the parking areas, footpaths, covered walk ways, underground water reserve tank, foul and surface water drainage systems (the design for all these works were not complete). The prime cost sums were in respect of specialist works including electrical, plumbing, lift and medical gas installations. Although it is a common practise to present such works in form of sums when they are to be done by nominated sub-contractors, it was confirmed by the consultants that, at the time of signing the contract, the designs were not complete. Generally the design of the project ex ante was not complete for 22% of the cost of the project.

The analysis of first revision of the contract sum of T.shs. 5,784,161,211 that followed design changes arising from changes introduced by the client and approved in 2002 is presented in table 7.2.

Table 7.2: General summary, revised bills of quantities – case study one project 2002 revision (2002 prices), Source: Project documents

- Preliminaries ……. 109,878,365
- Measured works (firm quantities)……. 1,802,709,455
- Prime cost sums…….. 1,520,313,822
- Provisional sums…… 250,915,500
- Allowance for fluctuations in prices…….. 1,886,438,135
- Contingency sums……. 213,905,934

TOTAL T.SHS…… 5,784,161,211

Provisional and contingency sums which express the extent of contractual incompleteness, was T.shs. 464,821,434 equivalent to 8% of the revised contract sum as reflected in table 7.2. The provisional sums were in respect of underground water storage tank, sun-breakers and general site works, otherwise the design and contract documents of other works were complete.

The analysis of second revision of the contract sum of T.shs. 7,760,160,142 approved in 2007 that involved mainly redesign of second and third floors back to hospital space for children is shown in table 7.3.

Table 7.3: General summary, revised bills of quantities – case study one project 2007 revision (2007 prices), Source: Project documents

• Preliminaries …….	163,878,364
• Measured works (firm quantities)…….	3,579,905,283
• Prime cost sums…….	1,975,532,423
• Provisional sums……	60,000,000
• Allowance for fluctuations in prices……..	1,920,844,072
• Contingency sums…….	60,000,000
TOTAL T.SHS……	**7,760,160,142**

The total amount of provisional and contingency sums was approximately 1.5% of the contract sum. This is a reflection that the design and other contract documents were complete and thus the degree of contractual incompleteness was very low at this stage. However, it is important to note that the cumulative allowance for fluctuations in prices was almost 25% of the contract sum. This amount is a reflection of increase in cost of construction works over a number of years included in the contract sum, which is the risk carried by the client.

Contractual incompleteness in building projects as contended by Yates and Hard castle (2003) may also be assessed by the extent and number of variations issued. A project with many variations and/or with high value of variations reflects contractual incompleteness ex ante. In this case study the records did not indicate the project to have many variations. However, it was noted that redesign work, which led to revision of the contract documents and contract sum, in particular those of 2002, were variations in reality which were beyond the normal "scope" of variations. For instance it was noted the major changes done in the first revision include; changing layout and use of some space, changing specification of all floor finishes from terrazzo to porcelain floor tiles, doors from ordinary flush doors to aluminium framed glazed doors in all dry areas and hardwood panelled doors in all wet areas, change of windows from glass louvers with aluminium louver carriers fixed to timber frames to aluminium framed glazed casement windows; all these in common construction practice are regarded as variations.

Generally there was a high degree of contractual incompleteness in this project, first it was expressed in the original design where the percentage of provisional and contingency sums was relatively high, implying incomplete design, and second was in respect of revisions of contract documents, which reflected extensive changes of design originating from the client. TCE theory cites out bounded rationality; risk and uncertainty; and complexity of the project

as the factors, which give rise to contractual incompleteness (Yates and Hardcastle, 2003). Each of these factors is analysed in the perspective of this project case study.

Bounded rationality is described as the cognitive constraints on human actors, which prevent the preparation of fully contingent contracts ex ante. The constraints are limits to knowledge, ability, experience and competence, which are exacerbated, on occasions by limited time. It was informed that the consultants team for the project comprised of qualified professionals, however, they admitted that, it was their first time to design a hospital building for children, which suggest that, they did not have much experience in that area. Nevertheless, they mentioned that lack of experience was not a problem as when the project was initiated they had sufficient time for consultation and design to offset that deficiency. Moreover, a participatory approach in the design process was adopted, first in the development of the brief upon which the original design was based and in the development of the design itself, as a number of presentation of preliminary and sketch designs to the end users were made before the final design was achieved.

Notwithstanding the above process adapted, some end users who mainly were medical personnel admitted that they were not conversant with design and drawings of buildings therefore, it was difficult for them to interpret and conceive what were presented in the drawings in physical terms. Citing an example of door openings to theatres, which the width had to be increased from 1200mm to 1800mm, the design approved by the client indicated door openings of 1200mm wide, but after construction and fitting some doors the end users found the doors to be too narrow to allow a stretcher to pass with a patient and two nurses, one on each side holding some life supporting equipment for a patient.

Notwithstanding the participatory approach used in the design process, lack of experience of the consultants team in design of hospital building for children and difficulty in understanding and interpreting the drawings by end users were noted as elements of bounded rationality attributable to contractual incompleteness of the project.

Risk and uncertainty: According to Clamp and Cox, (1989) uncertainty can influence the nature and extent of ex post adjustment whenever contingencies arise. Clamp and Cox categorized risks inherent in construction projects into three types;

i. Pure and particular risk which include injury to persons and damage to property due to fire, storm, typhoon, flooding, earthquake, aircraft, riot and civil commotion, collapse, subsidence, vibration, removal of support or lowering of ground water. Under the EAIA standard form of building contract used for this project the risks were covered under clause 18, 19 and 20. For the addendum to the contract these were covered under clause 13 in respect of both cases the contractor had all risk insurance cover for the risks.
ii. Fundamental risk, which includes damage due to war, nuclear explosion, supersonic bang there was no insurance cover for such risks therefore the client carried the liability.
iii. Speculative or commercial risk, these include; inflation, shortage of labour and material, adverse weather condition, unforeseen ground conditions and other similar matters which are wholly beyond the control of the parties, these were apportioned between the parties expressly or impliedly in the contract at the contract formation stage.

For case study one project, the above risks were apportioned as follows:

Inflation: The EAIA standard form of building contract, which was used up to 2006, clause 32 expressly provided adjustment of contract sum in respect of fluctuation in prices of materials and labour wages. First the traditional method was used and latter was changed to NCC formula method. The addendum to the contract which was made in respect of the second revision of the project in 2007, the fluctuation clause was deleted and the risk of increase in prices was transferred to the contractor who had to allow its probable cost in the revised construction cost.

The risk in respect of shortages of labour and materials was not covered in the contract therefore was to be borne by the contractor. For the risk associated with adverse weather conditions; the client / employer carried the risk for any time lost due to inclement weather under clause 23 for the EAIA standard form of building contract and clause 44 of the addendum to the contract. However, in turn the contractor was responsible for any cost effects of such time loss, for example, due to labour and plant standing idle. Unforeseen ground condition under the addendum to the contract was a compensation event with its risk carried by the client under clause 44.

Since the risk allocation between the parties was on the basis of standard forms of building contracts which have undergone rigorous tests in practice, it was considered that the allocation was fair and provided fair basis for ex post – adjustments in case of any

contingencies arising, therefore, risk and uncertainty was found not to be a factor of contractual incompleteness in this project.

Complexity: The building is of in-situ reinforced concrete frame, with block work infill walls, the roof is of aluminium sheets on steel roof structure, doors and windows are of aluminium frames with glass, which were common materials used for construction of buildings in Tanzania, moreover the construction technology used was also common in the country. The complexity of the project was in terms of working environment in particular when the lower floors of the building were occupied while some work was still going on to the second and third floors. The contractor was required to use methods of construction that could minimize noise and dust emissions on site. Nevertheless this was not considered to be a cause of contractual incompleteness as the contract had provisions for site safety and protection measures.

Credible commitments: Construction procurement systems and standard forms of contract according to Yates and Hardcastle (2003), recognise the realities of the construction process, that contracts are normally incomplete and therefore, clients need to be flexibility for ex post adjustments. There is also the possibility of technical breach of contract by one or both of the parties for example cases of defective work, late completion by the contractor, late information, ambiguities in documentation and variations arising from the employer. Most standard forms of contracts have appropriate provisions for the administration and resolution of such issues without the need for referring the issues to litigation, which is time consuming, expensive and often disabling. Such contractual provisions considered as safeguards, assurances and mechanisms ensures confidence between the contracting parties that the contractual relationship is not disabled whenever ex post adjustments or breaches occur, but is maintained until completion of the project.

Important credible commitments which were provided in the contract for case study one project include:

i. The use of third part (consultants) to administer the contract. The consultants from their professional ethics and code of conduct (AQRB, 1997) are supposed to be impartial and unbiased in the administration of the contract. Under the first contract - the EAIA standard form of building contract the architect was given power to administer the contract on behalf of

the client. As well as under the PPRA used for addendum to the contract the architect assumed the role of a project manager, with similar powers.

ii. The guarantee or surety bond provided by the contractor from an insurance company or bank for a sum equal to ten percent of the contract sum, guaranteeing the contractor's performance.

iii. The resolution of any disputes by an arbitrator or adjudicator selected by the parties as provided under clause 36 of the EAIA standard form of building contract and clause 25 of PPRA.

iv. Liquidated damages for delay caused by the contractor to complete the project within the agreed time. This is provided as a disincentive to the contractor so as to carry out and complete the project in time. Under the EAIA standard form of building contract clause 22 liquidated damages was T.shs. 250,000 (at 1991 prices) per calendar day or part thereof and for the addendum to the contract clause 49 was 0.05% of the contract sum per calendar day or part thereof. The PPRA standard form of contract upon which the addendum to the contract was based under clause 49 provides a bonus for early completion of work to give incentive to the contractor to speed-up the works. However, this clause was deleted in the addendum, apparently on the ground that early completion of the project was not critical.

v. Clause 30(1) of the EAIA standard form of building contract required the client to pay certified payments within 30 days from the date of certification failure to which the remedy was for the contractor to terminate the contract as was provided under clause 26(1) of the contract. The addendum to the contract - the PPRA standard form of contract amended this condition by extending the period to 45 days within which the client was required to pay and the remedy for failure, was the client to pay interest charges at commercial bank rate for the period delayed.

Opportunism and Asset specificity: TCE theory identifies contractual incompleteness as the key to opportunism. In this project there were elements expressing contractual incompleteness, which made contracting parties to development opportunistic behaviour. Based on interviews and various project correspondences, the following were noted as opportunistic behaviour developed by the contractor;

High prices when was asked to submit quotation for items, not in the original bill of quantities. This happened in particular when the project was redesigned in 2002 and when the addendum contract was negotiated in 2007. Table 7.4 shows one of the quotations submitted by the contractor when floor finish was changed from terrazzo to porcelain tiles and windows from glass louvers to aluminium framed glazed casement windows as a typical case of opportunism.

There is a big difference between the prices quoted by the contractor and those agreed after negotiations. This is a clear indication of opportunistic behaviour of the contractor. On enquiring why that was happening, the consultant mentioned that, *"Whenever the contractor was asked to submit a quotation on new items, always submitted prices that were above market prices"*. On the other hand the contractor when was asked why their prices were higher than the market prices, replied that, *"we have to inflate the prices so as to be on a safe side because the consultant/client always have a notion that, our prices are on a higher side and they tend to reduce them by some margin and by so doing the reduced prices get closer to realistic market prices"*.

Apparently it was noted that, the high quotations given by the contractor were caused by lack of competition, the contractor knowing that was the only one contesting for the work item, developed a kind of monopoly power and asset specificity altitude.

Table 7.4: Comparison of contractor's quotation against realistic prices – a typical case of opportunism in case study one project (2007 prices). Source: Project one documents

Item description	***Unit***	***Contractor's submitted quotation unit price (T.shs.)***	***Realistic and accepted unit price (T.shs.)***
300x300x9mm Thick antiseptic porcelain tiles to floor laid on screeded bed (measured separately)	*s.m*	*65,000*	*40,000*
Supply and fix 1.5mm thick anodised aluminium composite window frames complete with 6mm thick wired sheet glass	*s.m*	*225,000*	*150,000*

Systems theory concepts in this case study one project are used to express interrelationships among the project members and the environment in which the project was being undertaken. The concepts considered are the concept of hierarchies of systems, interdependence of

elements of a system, closed and open systems concepts. The hierarchies of systems concept as discussed in chapter 5 section 5.2.2 reflects on the level / position of the project as a system in relation to the environment or the broader system in which the project belongs. The focus is on the relationship between the project as a system and its supra-system on one hand, and the project as a system and its constituent parts as sub-systems on the other hand. The project as a system was part of various supra-systems depending on the setting of systems boundaries selected. One of the project's supra-systems was the construction industry in Tanzania. The project had to comply with various building regulations and approval systems as discussed in section 7.1.1. Moreover, the project belonged to a broader community as its supra-system which comprised of individuals, associations and donors who made contributions for the construction works, as such they had influence on some decisions made by the client. For instance the association of paediatricians and donors forced the client to revert to the original intended use of the building from a general hospital back to children hospital use.

The project team as a system comprised of sub-systems referred to as project participants in section 7.1.1. The project team comprised of the design team consisting of architects charged with design and supervision role in the project. The structural and services engineers tasked with the design of structural elements and services, and the quantity surveyor responsible for handling all cost aspects of the project. There was a close link among the members in the design team under the coordination of the architect who was the design team leader right from the design stage to the construction supervision stage. The contractor, client and financiers were other members in the project team as subsystems of the project. The contractor and client were closely linked through the contract which expressed various roles and obligations of each party. The entire project team was closely linked through regular site meetings which were held monthly to discuss and review progress of work and problems related to the project.

The project exemplified the concept of open system since it was adaptive to various events and occurrences outside the project. This is expressed in particular on how the project was being financed. The project was first financed through contributions from the community at large, the government through MHSW and various donor countries and organisations through a "basket fund". By that, the project expressed the concept of open systems which is based on the principle that, open systems are capable of admitting additional inputs from its environment. Moreover, the project was highly flexible in terms of design as it was changed

from children hospital to a general hospital and back to children hospital in response of conflicts and environmental factors which were happening.

7.1.3 Conflicts experienced in case study one

This part identifies and discusses specific conflicts which emerged in the project. For each conflict identified, the issue or area of conflict is discussed, it's causes, how it emerged and surfaced and how it was handled in terms of strategies and mechanisms employed in its management. A synthesis of conflicts phenomenon with reference to literature and theoretical framework is also presented for each conflict identified.

Conflict in delays of payments; conflict in this area was in respect of the time provided in the contract against the actual time when payments were made by the client as shown in table 7.5. According to the contract the payments were supposed to be made within 28 days after the certificate of payments had been issued by the consultants. However, for a number of certificates the payments were not made within that period. The main cause of delay in payments was lack of funds from the project financier(s).

Table 7.5: Schedule of some payments to the Contractor for case study one project (2006/07 prices), Source: Project one documents

Certificate number	Amount applied by Contractor for payment (T.shs.)	Date of submission	Amount certified by Consultant (T.shs.)	Date certified	Date supposed to be paid as per contract	Actual date paid
30	476,442,990	10-06-2006	366,494,612	09-10-2006	13-11-2006	15-03-2007
31	127,477,349	16-11-2006	101,981,879	30-01-2007	01-02-2007	18-05-2007
32	415,252,983	09-03-2007	324,416,393	18-06-2007	18-07-2007	12-02-2008

The EAIA standard form of building contract that was used at the beginning of the project did not have provision for dealing with delays in payment other than the provision for the contractor to terminate the contract as was provided under clause 26(1) of the contract. However it was informed that, the contractor did not attempt to terminate the contract for the reason of maintaining good business relationship with the client/financier that was a government ministry (the government is the client/financier of most big construction projects in Tanzania). It was informed that, when such delays occurred, the project members used to meet, discuss and reach a compromise whereby the contractor used to reduce labour, plant and materials resources on site for the time when he was waiting for payments.

The mechanism or remedy for dealing with delays in payments provided in the EAIA standard form of building contract was in conflict with the intensions of both parties to the project. The client on one hand expressed their commitment and responsibility to pay the contractor as required by the contract, but was constrained by lack of funds, while on the other hand the contractor had a commitment to carry-out the works as per contract but at same time maintaining good business relationship with the client. The converging intensions of the parties created trust and confidence between them, but lacked contractual enforcement. This was reflected in the addendum to the contract (PPRA) where the mechanism for dealing with delays in payments was changed by introducing a condition in the contract that required the client to pay interest on delayed certified payments at commercial bank borrowing rates for delayed days instead of the contractor terminating the contract. This was set as a credible commitment on the side of the client for the contractor to gain confidence that the client shall meet the payment commitment within 45 days after the consultant has issued a certificate of payment.

It was noted that right from the beginning of the project and throughout its implementation there were no sufficient funds for the project, which created a latent condition of conflict for the project. One of the conflicts that emerged as noted above was in respect of time within which payments were required to be made against the time when payments were actually made by the client as shown in table 7.5. This conflict was in a form of a task conflict, which as advocated by Jehn (1997) can improve decision-making outcomes and group productivity by increasing decision quality through incorporating devil's advocacy roles and constructive criticism. This was demonstrated in this project when project members instead of applying the contract provisions to resolve the conflict used to meet and discuss the problem with the view of generating a best solution at times disregarding the contract requirements. The approach used conform to the compromising mode of conflict management, which the theory suggest to be used when maintaining relationship between conflicting parties is important (Kerzner, 2003:293), which was noted to have been the spirit of the project members. This explains why the conflict did not give rise to any relationship conflicts among the project members, which as contended by Simons and Peterson (2000) is a common outcome of task conflict. However, the traditional procurement method used for this project did not yield good results, the changes and amendments made were in search of suitable conditions that would fulfil the desires of the parties to the project. In other words the attempts were in search of an

appropriate governance structure that would minimize the total cost of transaction and production of the project as advocated by the TCE theory.

Delays in issuing certificates by the consultant; The process of payment involved various stages as shown in figure 7.4. As reflected in table 7.5 delays were experienced over the entire process starting from evaluation of contractor's application to the payment stage. The assessment by the consultant of contractor's application to determine the amount for payment was the second stage in the payment process. The conflict at this stage was in respect of the time the consultant was spending to do the assessment that was seen by the contractor to be unreasonable and too long as reflected in table 7.5. However, there was no provision in the contract on the time limit within which the consultant was required to assess and issue certificates of payment. Clause 30 of the EAIA standard form of building contract required the consultant to assess and issue certificates for payment "within reasonable time". The conflict was in respect of what was considered as a "reasonable time". The contractor on one hand saw the consultant being irresponsible in discharging his services for taking unreasonable long time, while on the other hand the consultant blamed the contractor for exaggerating his claims, thus requiring more time for checking and verifying the applications.

Fundamentally there was a misunderstanding between each other's position on what was a reasonable time for the consultants to assess and issue certificates of payment. This was a task conflict involving differences between the consultant and the main contractor on the time required for assessment and issuing certificates of payments, which emerged at a perceived conflict stage. According to Vaaland and Häkansson (2003) such conflict can be handled by "semantic" model of conflict. The model advocates improved communication between the parties as a way of informing each other so as to understand other's position and consider the positions in resolving the difference. Since, there was no provision in the contract for dealing with such conflict, the consultant developed hold-up behaviour as was taking his time to assess and issue certificates of payments to the contractor.

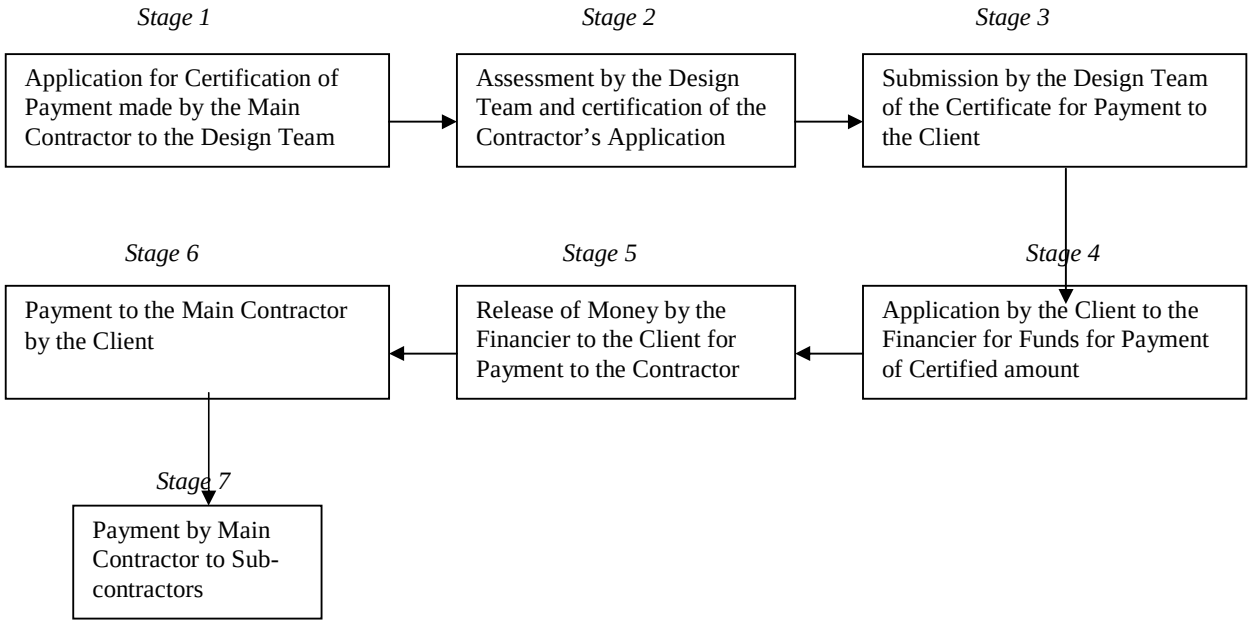

Figure 7.4: Payment Process for case study one project

Evaluation of contractor's claims; conflict in this area were in two folds, first was on the amount applied by the contractor against the amount certified by the consultants, and second was on the method of reimbursement of fluctuations. Table 7.5 shows a wide margin between the amounts applied by the contractor and the corresponding amounts certified by the consultants! In all cases the amounts certified by the consultants were less than the corresponding amounts claimed by the contractor. The contractor expressed dissatisfaction that, the consultants were undervaluing his claims by ignoring some of his financial rights, while on the other hand the consultant expressed that, the contractor at times was inflating and exaggerating his claims and was not able to substantiate them with sufficient documentary evidence.

This again was a task mode of conflict that arose from the difference between the contractor and consultant's viewpoints on what were genuine claims and the value that should be paid. That was an indication of distrust between the contractor on one side and the consultants and client/financier on the other side. According to Simons and Peterson (2000) this is one of the outcomes of the task conflicts that efforts to stimulate potentially beneficial task conflicts runs a substantial risk of triggering detrimental relationship conflict through a process of misattribution. This process entails the conflicting parties constantly interpreting each other's behaviour inferring each ones intentions, appraise whether the source of the behaviour seen is

internal or external, and assess the completeness and accuracy of the arguments made by others.

When misattribution process points towards personal attach or hidden agendas, as it happened in this project when on one hand the consultant/client saw the contractor trying to exaggerate his claims by demanding more than what was due, and on the other hand the contractor saw the consultants as if were attempting to make life difficult to him. The task conflict in such respect triggers further relationship conflict and that explains what was happening between the contractor and consultants in the assessment of contractor's applications for payments.

The mechanisms for evaluation of claims provided in the contract were subject to different interpretations and were not sufficient for resolving all areas of differences. That explains why some of the contractor's claims as it was informed were often being deferred on the pretext that there were no sufficient supporting documents. This approach compares with avoiding approach discussed in chapter 4 section 4.6.4. Deferring claims could be regarded as a way to unnerve the contractor as well as the client in-order to preserve neutrality or reputation of the consultant.

The second fold of conflict in evaluations was in the method of reimbursement of fluctuations. Under the EAIA standard form of building contract fluctuations were reimbursed by the "traditional" method by which the difference between basic and purchasing prices of materials and labour listed in the list of basic prices in the contract bills of quantities were considered. However, as a result of market reforms of 1995 in Tanzania allowing free trade and uncontrolled prices of materials and labour by the state, conflict arose on which prices and from which source should be used for reimbursement of fluctuations in prices of materials as illustrated in table 7.6 for cement which was one of key materials in the project.

Table 7.6: One of conflicts experienced in case study one on reimbursement of fluctuations using the traditional method. Sources: Project documents

- *Basic price of 50kg bag of cement was T.shs. 1,200 (Ex-Wazo cement factory)*
- *1995 the price increased to T.shs.2,520 per 50kg bag (Ex-Wazo cement factory)but difficult to get.*
- *1995 the price of cement from other sources in the market was T.shs.2,850 relatively easy to get.*
- *Contractor's claim for reimbursement of T.shs. 2,850 – 1,200 = 1,650*
- *Consultant's assessment; T.shs. 2,520 – 1,200 = 1,320*
- ***EACH SIDE MAINTAINED ITS POSITION LEADING TO CONFLICT***

After consultation among project members, it was resolved to use the National Construction Council (NCC) prices fluctuation formula for reimbursement of fluctuations instead of the traditional method, which was causing conflict. Nevertheless, the NCC formula method was used until 2006 when the client and financier were concerned with the magnitude of fluctuations, which were alarming compared to the actual value of work done in the certificates. It appeared the bigger component of payment certificates was made up of fluctuations as shown in table 7.7.

Nonetheless, both the consultant and contractor informed that, all calculations and payments of fluctuations were done according to the contract provisions, only that what appeared as "superficial" high amounts of fluctuations in certificates were caused by time overrun and high values of indices due to increase in prices of construction inputs over the years.
The client and financier expressed their resentment as quoted in one of the interviews that *"the contractor is getting free money, because for every piece of work he does is paid almost four times the value just for reimbursement of fluctuations, this is not conceivable we cannot continue like that"*. This resentment as mentioned by the consultant was one of the issues that led to drafting an addendum contract based on PPRA standard form of contract. Under the addendum to the contract the fluctuations clause was deleted and the contract was amended to a fixed price contract.

Table 7.7: Comparison of value of work done against amount of fluctuations paid based on formula method included in various interim certificates for payments to contractor. Source: Project one documents

Certificate nr	*Value of work done (T.shs.)*	*Amount for fluctuations in the valuation (T.shs.)*	*Percentage of fluctuation to the value of work-done*
29	4,822,445,041	2,075,651,368	43.0%
30	4,907,429,940	2,238,521,183	45.6%
31	5,177,776,934	2,304,906,820	44.5%

As noted earlier the contract had a provision for dealing with fluctuations ex ante, but still the conflict emerged because the contract had no provision to guide parties on which prices should be used in the calculations, as a result the contractor-developed opportunistic behaviour which was demonstrated by using higher purchasing prices while there were other sources with lower prices from which he could have purchased the materials. In the second instance when the client and financier were discontented due to high proportion of

fluctuations compared to the value of work done by using the formula method, demonstrates failure of the contract to live to the expectations of the parties.

This conflict was a task conflict, since was caused by differences in viewpoints between the contractor on one hand and the client and consultants on the other hand on how fluctuations should be reimbursed. The conflict however, influenced changes in the method of reimbursement of fluctuations from the traditional approach to the formula method and latter to a fixed price contract under the addendum to the contract. This demonstrates how the conflict facilitated improvement of the contract so as to match with the changes in the project environment in-order to meet the expectations of the parties to the contract. Moreover, the dynamics of this conflict exemplify the functional perspective of conflict phenomenon discussed in Chapter 4 section 4.4. Referring to figure 4.2, the degree of conflict in the first instance was in the "HOSTILE" quadrant but at the same time the degree of collaboration among project members was in the "NICE" quadrant, the resolution obtained shifted the conflict to a "WELL DEVELOPED" Quadrant with an outcome of a functional conflict, which was an addendum to the contract that all parties were satisfied with.

Delay in payment of nominated sub-contractors by the main contractor; the conflict in this area was between the main contractor and his sub-contractors in the payment process. Due to poor coordination between the main contractor and his sub-contractors there were times when the main contractor used to submit his applications without including the work done by his domestic sub-contractors. That was resolved by instructing the main contractor to include in his application for payments updated value of work done by all nominated sub-contractors without which his applications were not to be attended unless the sub-contractor had informed otherwise.

It was noted from interviews that, the main contractor at times was not paying his nominated sub-contractors within reasonable time, in particular when he was paid partial payments. The sub-contractors informed that, when they sought a dialogue with the main contractor to resolve the problem the contractor was adamant until when they resorted to request the client to pay them directly. However, the request was not honoured because the government financial regulations did not allow a government body to make any payment without a contract in place (there was no contract between the client and the sub-contractors). However, clause 28 of the contract had a provision allowing direct payments to nominated sub-

contractors if the main contractor was not paying them in time. Therefore, there was a conflict between the construction contract (signed by the client) and financial regulations governing payment procedures on the client's side. It was informed that the financial regulations were paramount to the construction contract therefore it was not possible to make direct payments to the nominated sub-contractors. As a way of resolving the conflict the main contractor was instructed by the consultants to abide by the agreement(s) with his nominated sub-contractors, otherwise the sub-contractors were advised to take legal action against the main contractor.

It was learned that the sub-contractors had legal rights to enforce payments by the contractor, but apparently they did not want to exercise it as it would have spoiled their good business relationship and harmony with the main contractor as was mentioned by one of the sub-contractors.

The act of the main contractor deal darling payments to his sub-contractors was a sign of dominance that main contractors tend to develop over their sub-contractors when there is no sufficient enforcement of the contract (Langford at el. in Fenn and Gameson 1992:65).

Design changes: the conflict in this area was between the client on one side and financiers in particular the donors and stakeholders on the other side in respect of changes in the design and use of the building from a hospital for children to a general hospital use.

The client informed that, was prompted to change the design and use of the building in response of reforms in health sector in Tanzania initiated by the government in 1995, which were promoting cost sharing scheme in health services. The client saw it as an opportunity to redesign the building so as to facilitate implementation of the scheme. This change angered the donors who decided to withdrawal their support, and some stakeholders in particular the association of paediatricians in Tanzania who raised their voice until when the client changed the use of the building at least for the second and third floors back to its original use (the basement, ground and first floors were already completed and being used as a general hospital facility).

Conflict arising from design changes was caused by changes of the purpose and use of the building introduced by the client. This was a task conflict as the viewpoints, ideas and opinion on the client were different from those of donors and some stakeholders. This was

resolved by a forcing approach, since withdrawal of support by the donors and the pressure from the association of paediatricians forced the client to change his new ideas back to the original idea of a hospital building for children at least for second and third floors. The conflict also appeared to be in a form of a bureaucratic conflict, where the financiers assumed a superior position while the client was in a subordinate position as discussed in section 4.2.2.

Poor communication: conflict in this area was experienced between the contractor and consultant in respect of instructions. The contractor informed that a number of instructions were issued verbally contrary to the contract requirements, which required all instructions to be issued in writing, and when issued verbally should be confirmed in writing within seven days as was provided in the contract. It was informed that verbal instructions caused problems in the assessment of work done, as there were no clear basis for verification of extent and quality of work done against what was intended by the consultant.

The contractor cited an example where the consultant issued a verbal instruction for painting walls along corridors and circulation areas with acrylic (washable) paint instead of emulsion (non washable) paint; the contractor went on painting the entire height of the wall (about 3.00meters high), after painting a substantial area the consultant gave a clarification to the contractor that was not supposed to paint the full height of wall, instead was only required to paint to the maximum height which a person could touch - approximately 2.40meters high. The consultant indicated that, the extra height painted was not to be certified and paid on the basis that an experienced contractor like him should have been able to interpret the height required. The contractor maintained that the verbal instruction required him to paint full height of the wall therefore, should be paid for the entire area painted. Since there was no written document to refer to, it was difficult to know what was the correct message conveyed through the verbal instruction. It was informed that the conflict was resolved in favour of the contractor after considering the contract provisions that required the consultant to issue instructions in writing or confirm a verbal instruction in writing within seven days, which was not done by the consultant.

The cause of the conflict was non-adherence of communication procedure for issuing instructions as was provided in the contract. Apparently that was regarded as an act of negligence because the consultant was aware of the procedure of issuing instructions to the contractor.

The conflict emerged from the latent condition that information was not communicated effectively as a result was not decoded correctly by the contractor. Fundamentally there was a contra-verse on the side of the consultant on issuing instructions/variations in a way that was not in line with contract requirements. The forcing approach was used to resolve the conflict since the contract provisions were employed in its resolution.

Errors or mistakes in the design: conflict in this area was in respect of facilities, which were necessary to be fitted in some places but were missing in the design and some were not suitable for the use and place intended. For instance users of the basement and ground floor and some parts of the first floor were complaining that, wash hand basins were missing in some doctor's consultation rooms, there were no sufficient electrical power points for incubators in neonatal rooms, there was no privacy in patients wards at basement and ground floors because the windows were fixed with clear sheet glass as a result people could easily see inside the building from outside. Aluminium framed glazed doors to wards and theatres were not ideal for such places as was mentioned by the users. The real and front sides of the building face the sun in the morning and evening hours respectively causing discomfort. It was further informed that driving rains get into the building through the bottom part of the doors along the corridors. These are some of the errors and design mistakes, which were noted to be in conflict with the use of the building.

The errors and mistakes noted express bounded rationality of the consultants' team, caused by limited knowledge, lack of experience and misunderstanding of the requirements of the client. It was informed that the client was considering approving additional cost for providing the missing facilities, which were crucial like the wash hand basins in doctor's consultation rooms.

On multiple meanings of specifications; conflicts in this area were in respect of new materials of which specification details were not covered in preambles (specifications) document of the project. The preambles were based on standard specifications of building works in Tanzania of 1970. Some materials used in the project such as antiseptic ceramic tiles, gypsum board ceiling sheets and aluminium framed windows and doors were relatively new materials not covered in the document. Specifications of the materials mentioned above were only given in the descriptions of respective items in the bill of quantities without sufficient details. One of the conflicts cited was in respect of thickness of aluminium sections

for windows and doors where the description given in the bills of quantities did not specify the thickness required. The contractor had used 1.5mm thick sections for the basement, ground and first floors but for the second floor left wing the contractor used 1.3mm thick sections, which were inferior and of lower quality compared to 1.5mm sections. The contractor maintained that, he was right to use 1.3mm sections because the thickness required was not indicated anywhere in the contract documents and yet 1.3mm sections were the sections commonly used for other similar works. Both the client and consultant objected the contractor's argument and maintained that the contractor should use 1.5mm sections, as was the case for basement and ground floors.

According to the consultant and contractor, the conflict was resolved after analysing the price given in the bills of quantities for windows and doors in comparison with the buying prices of 1.5mm and 1.3mm thick sections. The analysis revealed that the unit rate given by the contractor in the bills of quantities was comparable with 1.5mm thick sections and not 1.3mm.

Such errors were associated with negligence of the consultant on one hand for not issuing a clear instruction to the contractor when 1.5mm thick aluminium sections were approved for the basement and ground floor windows and doors. Under normal practice the consultant would have issued an instruction directing the use of 1.5mm sections for all doors and windows of the entire building, while on the contractor's side would have sought confirmation from the consultant before using 1.3mm sections. The fundamental cause of the conflict was the opportunistic behaviour of the contractor as was attempting to capitalize on the ambiguity of contract information by using inferior and less expensive sections.

Conflicts arising from public interruption; conflicts experienced in this area where in form of orders and instructions to contractor's workmen on site, which sometimes were given by users of the building without following the project communication procedure. It was informed that some senior staff members of the client at times used to give directions to workmen on site, some leading to suspension of some work activities in areas or during times when they felt the activities were causing disturbance to the users of the building. That was resolved by instructing the contractor to enhance safety and protection measures on the site, and adopt work schedules and methods that minimized dust and noise emissions and any other form of disturbance to the public. In turn the client was required to inform his staff to follow project communication procedure set, which required in case of any problem related to the project to

report to the “building manager” who was appointed by the client among his staff as a link between the client and the project operators on site on daily basis.

7.1.4 Summary and lessons learned from case study one project:

This section gives a summary of findings from case study one project in respect of conflicts identified, their causes, strategies and mechanisms employed in their management. A reflection on the findings from the survey presented in chapter six is also made in-order to compare the results so as to confirm and identify new emerging issues. The section also presents lessons learned from the case study.

Summary

Conflicts identified in case study one are related to:

- Delays in issuing certificates of payments to contractors by the consultant; this was found as one of the factors contributing to delays in payments in the project. It was caused by hold up tendency of the consultants exacerbated by lack of contractual mechanisms and strategies to enforce timely evaluation and issue of certificates. The resolution was sought through improved communication between the contractor and consultants. Delays in the evaluation process for issuing certificates of payments to the contractor by the consultants was found to be one of the causes of conflicts in delays of payments in the survey findings as shown in table 6.8.

- Delays in payments by the client; this was most crucial area of conflict in the case study, it was mainly caused by lack of funds, poor financial projections, bureaucracy in the payments process and inappropriate contract provisions for enforcement of timely payments as was found under the original contract. These findings correspond to the findings from the survey where delays in payments were ranked as number 1 area of conflicts with similar causes as presented in tables 6.4 and 6.8. Under the original contract the mechanism and strategies to deal with the conflict were not compatible with the intension of the parties, so they had to compromise their contractual rights in-order to get amicable solution to the conflict. This approach employed compares with the survey findings presented in table 6.18 where compromising was ranked as the second preferred approach of resolving conflicts related to delays in payments.

- Delays in payments by the contractor to nominated subcontractors; conflict in this area was caused by poor coordination and dominance tendency of the main contractor over the subcontractors. This compares with the findings from the survey (see table 6.17), which also indicate delays in payment to subcontractors to be one of the areas of conflict in building projects. However the mechanism to deal with the conflict provided in the contract was not applied because it was in conflict with the financial regulations of the client. Smoothing approach of conflict resolution was employed for the purpose of maintaining good business relationship, which was the third preferred approach as established from the survey as per table 6.18.

- Change in the design and use of building; the conflict in this area was between the client and financiers caused by change in the use of the building that led to design changes. Nevertheless, the conflict was resolved by the forcing approach when the financiers and other stakeholders influenced the client to resort back to the original idea of a hospital building for children.

- Poor communication of information; conflict in this area was caused by non-adherence to communication procedure set in the contract and negligence of the project members. The provisions of the contract were employed to resolve the conflict. The survey also identified communication as one of the areas of conflicts caused by similar causes identified in this case study (see table 6.9). The conflict was resolved by forcing since the contract provisions were employed to resolve it. However, this differs with the survey findings where forcing was found to be less preferred approach as shown in table 6.18.

- Design errors or mistakes; conflict in this area was fundamentally caused by bounded rationality caused by limited knowledge, lack of experience and misunderstandings of the requirements of the client by the consultants. These findings from the case study compares with the findings from the survey presented in table 6.5. However, the table indicates cheap design hired instead of quality ranked as number one among the causes of design errors. Although there were no evidence found from the case study, errors and mistakes noted could be associated with design fee discount of 50% (as cheap labour) that was offered by the consultants. A collaboration approach was used in resolving conflicts in this area and that compares with survey findings as reflected on table 6.18.

- Multiple meanings of specifications; conflict in this area were fundamentally caused by negligence using old standard specifications which did not include some new project materials. This is similar to the findings from the survey presented in table 6.7. The mechanism for dealing with conflict in this area was provided in the contract in form of provisions for approval of samples and pricing new items introduced. The conflict in this area was resolved by forcing approach since it was on factual matters.

- Public interruptions; conflicts in this area was caused partly by resistance of the occupants of the building to disturbance caused by work activities. The mechanisms and strategies set in the contract required the contractor to provide site safety and protection measures to the public. Furthermore, project members collaborated to set procedures for reporting and handling problems related to the project as a way of avoiding conflicts arising from public interruption.

Lessons learned from the case study

- The project expressed a high degree of contractual incompleteness, not only in terms of design and other contract documents, but was mainly expressed in terms of changes in the ideas of the client on the use of the building.
- Contracts can be a source of conflicts as was found in the case study when the contract failed to live to the expectations of the parties as a result the parties sought a redress through an addendum.
- Credible commitments and contract safe guards are as good as statements only if the parties to the project fail to honour them as was expressed in this project.
- Sub-contractors could forego some of their contractual rights on expense of maintenance of harmony and good business relationship with their main contractors. This expresses superior and inferior relationship between main contractors and sub-contractors existing in construction projects which could be suppressing conflicts between them.

7.2 Case study two

7.2.1 Description of the project

The project representing case study two is rehabilitation of staff houses, classrooms, office block and other buildings at Mkwawa University College of Education in Iringa. The campus was a high school before the government of Tanzania converted it into a college of University of Dar es Salaam. Most buildings were constructed in 1950s but were still structurally sound. Therefore, rehabilitation mainly involved replacing defective and malfunctioning parts and components of the buildings to bring them back to functional and habitable state. The team of consultants was appointed in August 2005 through single source selection method due to urgency of work. The consultants were required to prepare bid documents, the contractor be sourced out and rehabilitation work start as soon as possible, so as rehabilitation works be completed by May, 2006 before the beginning of the University academic year in August 2006.

All works were done on fast track basis. The tender documents were ready in mid September 2005 and contractors registered in class one with CRB were invited to bid for the project. There was no cost estimate of the project before tenders were invited. Rehabilitation works commenced in December 2005 and were scheduled for completion by 30th May 2006. However, due to delays the works were completed in July 2006.

7.2.2 Theoretical contextualization of case study two

This section presents findings from case study two project in the context of TCE and systems theoretical frameworks. The purpose as cited in case study one is to review the case study in the perspective of theoretical framework and to show how the case study illustrates the elements of theoretical framework discussed in chapter five. The elements of TCE theory discussed are; governance structures, contractual incompleteness and consequent ex post adjustments, asset specificity and monopoly power, opportunism and credible commitments, and for systems theory the elements/concepts discussed are: hierarchies of systems, interdependence of parts of the system, closed and open system concepts.

Governance structure (procurement system)

The appointment of consultants team was done through single source selection method in compliance with the requirements of the PPA of 2004 and PPR of 2005 that allow single source selection as discussed in chapter 3 section 3.7. The contractor was selected through

restricted tendering process in compliance with the requirements of the act and regulations mentioned above and as discussed in chapter 3 section 3.8. Six short-listed building contractors registered with the CRB were invited to submit their bids.

The traditional procurement system as discussed in chapter 3 section 3.4 was used for the project whereby condition survey, preparation of bid documents, bidding process, contractor selection and rehabilitation works were done in series as shown in figure 7.5.

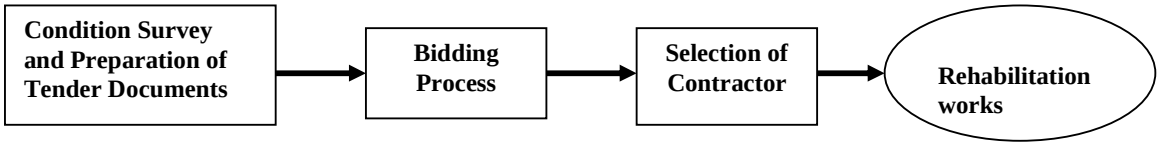

Figure 7.5: Procurement process for case study two project

The consultants team carried out condition survey of the buildings, prepared bid documents, which included drawings, specifications and bills of quantities before contractors were invited to bid. The client required the task to be done and completed within a period of two months, which according to the consultants was too short. The short listed contractors were required to prepare and submit their bids within a period of 30 days from the date of collecting the bid documents.

Mainly there were two contracts for this project; one was the contract between the client and consultants for preparation of tender documents and supervision of the works. This was a percentage contract by which the consultancy fee was based on the percentage of work executed by the contractor as explained in chapter 3 section 3.7. The second contract was between the main contractor and client, this was a fixed price contract based on priced bills of quantities and PPRA standard form of contract. The contractor had private agreements with a number of domestic subcontractors he engaged to execute various types of works. Figure 7.6 shows contractual relationships and communication links in the project. The client had a technical unit within his organisation which was providing advice on all technical matters related to the project, this unit had direct links with the consultants team.

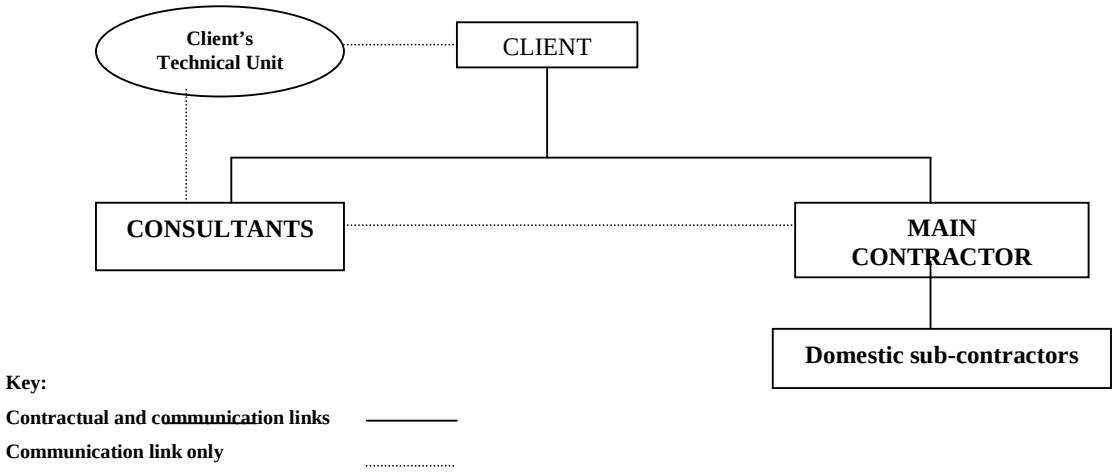

Figure 7.6: Contractual relationship and communication links in case study two project

Contractual incompleteness

The extent of contractual incompleteness in the project for case study two was analysed in respect of the composition of the contract sum and the extent of variations issued. The analysis of the contract bills of quantities indicates the contract sum of T.shs. 2,021,491,780 was made up as shown in table 7.8.

Table 7.8: General summary of bills of quantities – case study two project (2006 Prices), Source: Project documents

- Preliminaries.....120,000,000
- Measured works.....…….. 1,292,170,940
- Provisional sums.....…… 339,240,000
- Contingency sums……. 270,080,840
- TOTAL T.SHS…… 2,021,491,780

Contractual incompletedeness ex ante in this project was expressed by the percentage of provisional and contingency sums, which was approximately 30% of the contract sum. The provisional sums were mainly in respect of electrical installations, external works, replacement of additional defective items and plumbing installations. This is an indication that the contract was incomplete ex ante as 30% of the contract sum was in respect of work whose quantum and/or nature was not known at the time of signing the contract.

However, analysis of nature, number and value of variations issued in a project may also express contractual incompletedeness. One of the valuations that was done close to completion of the project indicates a total of 115 variations to have been issued with a net

additional value of T.shs.734,003,830 equivalent to 41% of the total value of work done as shown in table 7.9. This illustrates a high degree of contractual incompletedeness.

Table 7.9: An extract of a summary of one of the valuations of work done for case study two project showing the extent of variations (2005 Prices). Source: Project documents

Preliminaries.....	90,000,000
Insurance and Bonds.....	10,000,000
Measured work……..	718,155,614
Electrical installations……...	197,160,800
Variations…… ……	**734,003,830**
Work done on day work basis……	...6,255,900
Contractual claims……..	36,000,000
TOTAL VALUE OF WORK……..1,791,576,144	

As discussed in case study one contractual incompletedeness according to TCE theory is attributable to bounded rationality, risk and uncertainty, and complexity (Yates and Hardcastle, 2003). These factors are reviewed in light of the project so as to get an insight of what were possible causes of contractual incompleteness in the project.

Bounded rationality phenomenon is described in section 7.1.2. It was informed that the project team comprised of qualified professionals with long outstanding experience in projects of similar nature, therefore, limits to knowledge, ability, experience and competence would not have been the causes of bounded rationality to this project. As informed the major constraint was time that was too short to carry out condition survey, prepare the drawings and bills of quantities before the bidding process. Therefore, bounded rationality, which caused contractual incompleteness, was fundamentally exacerbated by limited time for preparation of bid documents prior to the bidding process.

Risk and uncertainty, as discussed in section 7.1.2., in this project were shared among the parties. Pure and particular risks as cited under section 7.1.2 were covered under clause 13 of the contract and the contractor had all risk insurance cover for the works. There was no insurance cover for fundamental risks, which include damages due to war, nuclear explosion, supersonic bang and the like, as these were liabilities of the client.

The speculative and commercial risks discussed under section 7.1.2, in case study two project were apportioned as follows: inflation risk was carried by the contractor as the contract was a fixed price and the risk on shortage of labour and material was also carried by the contractor.

The risk associated with adverse weather condition was carried by the client for time loss while the contractor carried the risk for cost arising from time loss. The client under clause 44 of the contract carried the risk for unforeseen ground condition. Given that risk and uncertainties were allocated on the basis of standard form of contract, which had undergone rigorous tests in practice, would not have caused contractual incompleteness to this project.

Complexity; the works mainly involved repair and replacing defective parts and restoration of the buildings to bring them back to a habitable state. Such works in the context of Tanzania construction industry was not a complicated project to cause contractual incompleteness. Moreover, it was informed that all buildings were vacant throughout the period of rehabilitation therefore the working environment was generally conducive.

Credible commitments; the rationale of providing credible commitments in the contract are discussed in section 7.1.2. The important credible commitments provided in the contract for case study two project included;

a. The use of third party as consultants to administer the contract. As described under section 7.1.2 professional ethics and code of conduct requires consultants to be impartial and unbiased in administration of contracts.
b. A performance bond equivalent to 10% of the contract sum guaranteeing the contractor to perform and professional indemnity insurance for the consultants to indemnify the client against any professional negligence, errors or omissions.
c. A provision for resolving of any dispute by an arbitrator or adjudicator selected by the parties.
d. A provision of liquidated damages for delays caused by the contractor to complete the project within the agreed completion time. This was set as T.shs.1,200,000 per calendar day or part thereof. The bonus clause for early completion of the works was deleted in this contract despite of urgency of completing the project, which would have been an incentive for early completion.
e. All certified payments to the contractor were required to be paid by the client within 28 days after certification, failure to which was attracting payment of interest charges at commercial bank rates for the period delayed.
f. A memorandum of understanding was signed requiring the consultant to prepare and issue certificate of payments to the contractor within 7 days after receiving contractor's claim.

Opportunism and asset specificity: the TCE theory identifies contractual incompleteness as the key to opportunism. As discussed above this project had a number of features expressing contractual incompleteness that made contracting parties to develop opportunistic behaviour such as; high prices submitted by the contractor when was asked to submit quotation for new items that were not in the bills of quantities.

Systems theory concepts in case study two project are used to express interrelationships among the project members and the environment in which the project was done. The concepts considered as for case study one project are the concept of hierarchies of systems, interdependence of elements of a system, closed and open systems concepts. The hierarchies of systems concept as discussed in case study one reflects on the level / position of the project as a system in relation to the environment or the broader system in which the project belongs. The focus is on the relationship between the project as a system and its supra-system, and on the project and its participants as its sub-systems. The project as a system belonged to two main supra-systems, which were the construction industry in Tanzania, and the universities system in Tanzania. As a system of the construction industry the project had to comply with all necessary building regulations and approval systems in particular on engagement of consultants and contractor, which were governed by the PPA, 2004 and PPR, 2005 requirements as discussed in chapter 3 sections 3.7 and 3.8. The project also belonged to a supra-system of universities in Tanzania. As such rehabilitation works were to be done to meet the standards required for universities in terms of space taking into account that the buildings were formally designed for secondary school use.

The project team comprised of the design team consisting of the project manager who was a design team leader charged with the coordination role and engineering services. The architect was charged with design of spaces and the quantity surveyor was responsible for cost matters related to the project. There was a close link among the members in the design team under the coordination of the project manager from the condition survey stage to the rehabilitation supervision stage. The entire project team including the client and contractor were closely linked mainly through regular site meetings which were held monthly to discuss and review progress of work and problems related to the project including consideration and approval of variations. The project manager was a hub for all communication and was responsible to ensure that all parties in the project were informed of all matters related to this project.

As discussed in chapter 5 section 5.2.2, a closed system is a system that does not respond to events and occurrences outside the system and as such cannot adapt to changes while an open system adapts to events and occurrences outside the system. This project was relatively open as it was receiving some inputs in terms of material, labour, plant and equipment from outside the project setup. Moreover, when the project team failed to connect electricity to the main supply in time before the beginning of new university academic year, the government intervened by ordering the public electricity power supply authority (TANESCO) to do the connection within a period of one week so as to meet the time for starting the new university academic year.

7.2.3 Conflicts experienced in case study two

Similar to case study one, this part identifies and discusses specific conflicts which emerged in the project. For each conflict identified the issue or area of conflict is discussed, it's causes, how it emerged and surfaced and how it was handled in terms of strategies and mechanisms employed in its management. A synthesis of conflict phenomenon with reference to literature and theoretical framework is also presented.

Delays in issuing certificates by the consultants; the payment process involved a number of stages as shown in figure 7.7. The process involved the contractor submitting to the consultant an application for certificate of payment, the consultant would assess the application and issue a certificate of payment to the contractor and the original submitted to the client for payment. However, the certificates submitted were re-examined by the client's technical team before payments were made. It was informed that in case of any mistake or anything doubtful found in the valuation certificate, the certificate was returned to the consultant for correction or adjustment. This process created a double-checking system of certificates of payment to ensure correctness in the certified payments although on the other hand it caused more bureaucracy in the payment process leading to delays in some payments.

The conflict in this area was in respect of time the consultant was spending to assess the contractor's applications for certificates. It was informed that before signing the contract it was negotiated and agreed by all members in the project that, in-order to achieve completion of the project within the given time schedule, preparation and issue of certificates of payment to the contractor were to be done within fourteen days after receiving contractor's application. However, it was informed that the agreement was only recorded in the minutes of the meeting

but was not incorporated in the contract, as a result the contractor on his claims for delays in certified payments considered the period from the date when the application was submitted to the consultant to the date when actual payments were made, less 28 days allowed in the contract for processing the payments, while the consultant considered the period from the date when the certificate was issued to the date of payment minus 28 days as provided in the contract.

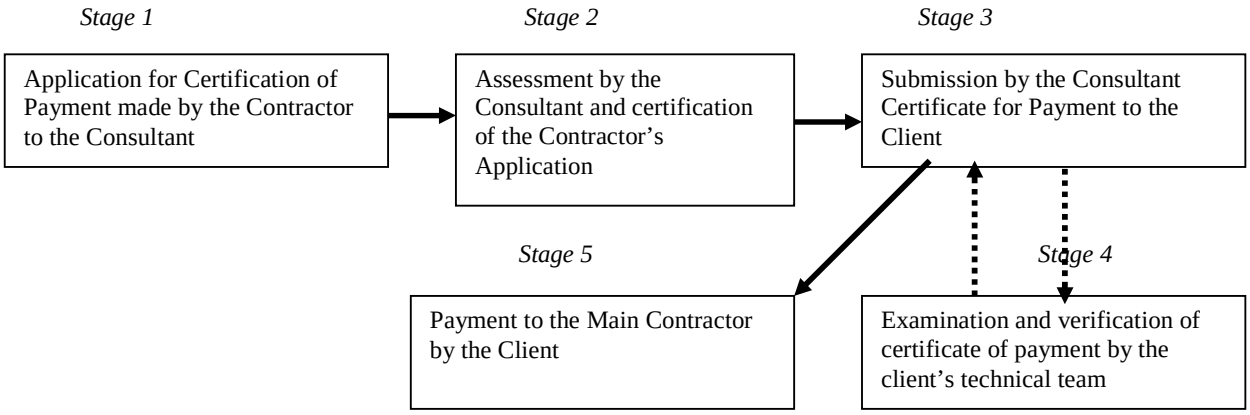

Figure 7.7: Payment Process for case study two project

Two conflicts emerged from the above conflict; one was on the time spent by the consultant to assess and issue certificates which the contractor considered being too long as shown in table 7.9 which indicates the assessment and issue of some certificates to have taken many days than what was considered reasonable. For instance 77 days were spent for certificate number 6 and 423 days for certificate number 7. When asked why it was taking too long to assess and issue some of the certificates, the consultants replied that some of the claims required careful assessment and verifications, and were scared with exaggerated claims from the contractor therefore one had to be thorough in evaluation.

The second conflict in this area was on the implication of the memorandum of understanding regarding the time required for assessment, issuing certificates and effecting payments. The contractor maintained that the negotiated and agreed time was contractually binding, while the consultant argued that, it was just a "good man's will" understanding, and since it was not incorporated in the signed contract, it was therefore not binding.

It was informed that the difference was discussed among project members and agreed that the provisions of the contract prevails and the memorandum of understanding between the parties was set for good will but did not have any contractual enforcement. It was further informed by the consultant that it was possible to process and issue the certificates within fourteen days for the first three certificates when the contractor's claims were straightforward and simple to evaluate. But as the work progressed the extent and nature of claims were getting complicated demanding more time to scrutinize and verify, and that was difficult to work and complete the evaluation within 14 days that were agreed in the memorandum of understanding. The consultant's feeling was that the contractor was exaggerating his claims intentionally knowing that with limited time the consultant would not be in a position to check each and every item claimed and that some dubious items claimed would sail through without being noted!

Conflict in delay of payments; conflict in this area was in respect of the time agreed for payment of certificates against the time when payments were actually made by the client. Table 7.10 indicates that, three out of seven certificates were paid within the agreed contract period while four certificates were delayed, with certificate number 7 being the worse case. Lack of money and bureaucracy involved in preparation of certificates and processing the payments were mentioned as the main causes of delays in payments.

Table 7.10: Schedule of certified payments to the contractor for case study two project (2006 Prices). Source: Project two documents

Certificate number	*Amount applied by Contractor for payment (T.shs.)*	*Date of submission*	*Amount certified by Consultant (T.shs.)*	*Date certified*	*Date supposed to be paid as per contract*	*Actual date paid*
1	*252,582,000*	*21-12-2005*	*210,485,764*	*04-01-2006*	*01-02-2006*	*17-12-2005*
2	*183,259,700*	*26-01-2006*	*130,899,084*	*15-02-2006*	*15-03-2006*	*09-03-2006*
3	*548,812,460*	*10-03-2006*	*406,527,748*	*08-04-2006*	*18-04-2006*	*27-04-2006*
4	*319,365,901*	*15-04-2006*	*247,570,466*	*25-05-2006*	*22-06-2006*	*08-06-2006*
5	*148,604,514*	*26-05-2006*	*104,651,066*	*04-07-2006*	*03-06-2006*	*25-07-2006*
6	*422,413,769*	*24-07-2006*	*308,331,218*	*09-10-2006*	*06-11-2006*	*24-11-2006*
7	*531,041,360*	*01-02.2007*	*354,027,573*	*31-03-2008*	*28-04-2008*	-

As shown in table 7.10 the client failed to honour credible commitment provided in the contract on effecting certified payments within 28 days while knowing that failure to that would require him to pay the contractor interest on all delayed payments over the period delayed at commercial bank rate.

The mechanism for dealing with delayed payments was provided in the contract in form of credible commitment cited above and as discussed in section 7.2.2 under item (e) of credible commitments. Although that seemed to be a fair compensation for delayed payment, the contractor still complained on the time of payments of the interest charges which were supposed to be paid in subsequent interim certificates as was provided in the contract. It was informed that the interest charges claims were to be considered and paid in the final account certificate centrally to the contract provisions. This according to the project members interviewed developed into another dimension of conflict that was in respect of time for payment of interest charges. The contractor informed that was intending to claim accrued interest on delayed payment of interest charges from the date when they were supposed to have been certified and paid. The consultants on the other hand argued that interest are charged on the amounts already certified as due for payment, therefore, since the interest charges were not included in any of interim certificates issued before could not be considered as delayed payments. At the time of research they had not reached any resolution although the dialogue was still going on among the project members.

Excess variations: conflict in this area was in respect of extent and nature of changes and additional works compared to what was projected ex ante in the contract. Table 7.9 shows the extent of variations in one of the certificates of payments prepared close to completion of the project. It was noted the total number of variations issued had reached 115 with total net additional of T.shs. 734,003,830 accounting for 40% of the total value of work done. That implies many changes were introduced ex post the contract, contrary to what was expected ex ante since the amount of provisional sums and contingency allowed in the contract for such changes was T.shs.609,320,840 in total as shown in table 7.8.

It was informed that the main cause of variations was misconception of the intended scope of rehabilitation works. The client's intention was to restore the buildings and other facilities to achieve a functional state at a minimum possible cost and the scope of works in the contract was done within those limitations. However, during implementation a number of changes and additional works were found inevitable in-order for the buildings to be functional. The procedure for dealing with variations and additional works required the consultant to inform the client on cost implication of any variation required and seek approval before could be implemented. Nevertheless it was informed that this procedure was difficult to follow due to urgency of completing the work and the extent of variations involved. Therefore, according to

the consultants, some of the variations were issued and implemented before getting the necessary approval of the client in-order to catch up with time. However, it was informed that when a list of variations with cost implications was submitted to the client, the client objected and demanded explanation as to why the procedure was not followed in the first place, and was more concerned with the extent of additional cost involved, since there was no more contingency money left in the budget. That was another dimension of conflict that developed between the consultants and the client. This as discussed in section 4.3.3 was a conflict related to the role assumed by the consultant, which the client saw as a violation of the roles model set in the project. This was resolved after the client's technical unit was involved in the verification of the variations, and as a strategy it was agreed for any variation proposed in future should be submitted for consideration in site meetings, which were being held on monthly basis.

Different meanings; conflict in this area was between the consultants and contractor in respect of different meanings assigned to some items of work described in the contract. One of the cases cited was replacement of defective floor tiles. In the contract bills of quantities it was described as *"replace defective floor tiles with new including preparation of the base to receive new tiles"*. It was informed in execution of the work, the contractor had to remove old defective tiles, hack off the base and provide new cement and sand screed before laying new tiles. The contractor claimed for additional work for hacking and providing new screed on the ground that, hacking and re-screeding were not included in the bill item. The consultant on the other hand argued that, hacking and re-screeding were part of preparation work referred in the BOQ item description. The conflict rose due to unclear and ambiguous item description as to what "preparation of the base" meant.

It was informed that the conflict was resolved by using the contract documents. The contractor was asked to justify the price quoted for the item in the bills of quantities by providing a breakdown of the price in-order to confirm whether or not the cost of hacking and re-screeding were included in the unit price of the item. The analysis revealed that the price of removing defective tiles and replacing with new was much lower than the price quoted for the item in the BOQ. According to the consultant that implied the cost of hacking and re-screeding were parts of the unit price for the item in the bills of quantities. Nevertheless, the contractor informed that he chose to accept the decision on account of maintaining good

business relationship with the client, otherwise he still believed contractually was right to claim the cost for additional work of hacking and re-screeding.

It was noted that the consultants attempted to resolve by using the using the contract provisions based on technical facts to prove or disapprove the matter in contention, which in that respect was synonymous to the forcing approach of conflict management discussed in section 4.5.5. However, the contractor-expressed dissatisfaction with the approach, he decided to accept the decision unwillingly. By that the contractor expressed a smoothing approach of conflict management as discussed in section 4.6.3. Apparently that can be explained by the fact that on the contractor's side there was low stake involved since even without being paid for hacking and re-screeding works still with his quotation was not at a loss. The management of this conflict was noted as a special case when two conflicting parties assumed different conflict management approaches to resolve the conflict in hand.

Differences in evaluation: conflict in this area was on the amounts claimed by the contractor against actual amounts certified by the consultant. As shown in table 7.10, the amounts certified by the consultant for all certificates were lower than the corresponding amounts applied for payment by the contractor. The main cause for the differences as informed by the consultant was contractor's tendency of submitting exaggerated claims, for instance the contractor used to claim same prices in the bills of quantities for items which were replaced with inferior items costing much less than the prices in the BOQ. Citing an example shown in table 7.11 where item A in the BOQ was "*WC suite Armitage shanks or any other equal and approved type"* with a unit price of T.shs.250,000 but instead the contractor supplied and installed *"Unique vitreous Sanit type"* which according to the consultant was inferior costing much less than Armitage shanks type. But the contractor still claimed payment of T.shs. 250,000 per unit while the consultant's assessment was T.shs. 130,000 per unit. On the other hand the contractor informed that the difference in evaluation was due to the tendency of the consultant under-valuing and sometimes deliberately ignoring some of the claims submitted by the contractor, or using different method of pricing. The contractor cited a case where he used day work rates to value additional works (that was earning him more money) while the consultant used pro-rate prices for such items (resulting into lower value). The method of pricing in such cases was not clear, thus giving rise to conflict in evaluations. The resolution of the differences according to the project members was sought through verification of such claims with supporting documents.

Table 7.11: Items with prices in the contract against items supplied and fixed with corresponding prices as evaluated by the consultant for case study two project (2005/06 prices). Source: Project documents

	Description /Specification in the BOQ	Contract price in Tshs.	Supplied and fixed by the Contractor	Actual price paid in Tshs.
A	W.C. suite complete with all accessories as per **Armitage Shanks** or any other equal and approved type	250,000	W.C. suite complete with all accessories as per **Uniqe vitreous Sanit** type	130,000
B	Bath tub complete with all accessories as per **Amitage Shanks** or any other equal and approved type	450,000	Bath tub complete with all accessories as per **Ariston** type	310,000
C	1200mm Long twin type fluorescent tube light fittings as per **Thorn** manufacturers	85,000	1200mm Long twin type fluorescent tube lights fittings	35,000

None adherence to specifications; conflict in this area was in respect of materials specified in the contract against what was actually supplied and installed by the contractor. It was informed that some sanitary appliances, electrical fittings and door locks supplied and fixed by the contractor did not conform to contract specifications. The contractor claimed that the items before fixing were approved by the consultant and client's technical unit, while the client and consultants argued that some of the items supplied and fixed were not the same as the samples approved. The client and consultants instructed the contractor to remove and replace such items with the appropriate ones as per contract specifications. It was informed that, the problem was noted when the project was close to completion time, which meant replacing the items under contention would have caused further delay to completion of the project and subsequent delay to the start of the college new academic year as was directed by the government. This was another dimension of conflict, which emerged. The client was subjected to conflicting decisions to make. On one hand if the client was to ask the contractor to replace all items in controversy to comply with the contract, that would have caused delay in starting the University new academic year, while on the other hand if the client was to achieve completion of the project in time for the start of new University academic year was compelled to accept the sub-standard items fixed.

The mechanism provided in the contract to deal with such conflict was for the contractor to remove and replace all items, which did not conform to the specifications. But according to the consultants and client, that was not enforced since its consequences were more disastrous than accepting the substandard items fixed. Therefore, it was decided and agreed to compromise on the quality of appliances and fittings fixed and review the cost of the items involved in-order to pay realistic cost for the work done. However, the act of the contractor

using substandard materials was considered by the client and consultants as an act of cheating intended to make super profits. That indeed demonstrated opportunistic behaviour of the contractor. Nevertheless, that could have been avoided if there was close site supervision and monitoring in additional to approvals of the samples made.

Errors in project documents; conflict in this area was in respect of items of same/similar kind and nature priced differently in the BOQ. That caused conflict when pricing variations and additional works of similar kind and nature. One of the examples cited was "plaster to walls internally" some items were priced at T.shs. 4,500 per square meter while others were priced at T.shs.3,600 per square meter". It was informed that the contractor was using higher prices while the consultant was using lower prices resulting into conflict. According to general practice, such errors were supposed to have been noted at bids evaluation stage and addressed before signing the contract. However, the consultants informed that those were "overlooked" apparently due to time constraint and urgency of work during the evaluation process.

It was informed that conflicts of that nature were resolved by establishing realistic prices from basic principles of estimating instead of adopting those, which were contentious. That approach matches with compromising approach of conflict management discussed in section 4.6.2, which is a give and take approach to conflict management.

Excessive quotation for additional works: conflict in this area was in respect of quotations submitted by the contractor for new work items. The quotation for installation of gas system in laboratories was cited as one of the cases that caused conflict among project members. It was informed that the client asked the consultants to prepare documents for the contractor to give his quotation for installation of gas system in laboratories. However before submission of the quotation, the consultant instructed the contractor to proceed with the works because laying of gas pipes under floors was preventing other works to floors included in the contract to be done. The contractor in response to that engaged a gas installation specialist as a domestic subcontractor to undertake the works. After carrying out substantial amount of work the contractor submitted his quotation, but was found unrealistic and too high beyond the expectations of the client and consultants. The contractor was asked to review his quotation but was adamant and maintained that was a fair price. The client and consultant on the other

hand refused to pay at the price quoted and ordered the contractor to stop doing any further gas installation work.

In turn the specialist subcontractor complained to the client that, he was the one being affected most by the suspension and none payment of gas work than the contractor himself. The specialist requested the client and consultants to consider his case. It was informed that after several correspondences it was agreed the gas installations work to be removed from the contractors' work package and instead the specialist contractor was asked to submit his quotation for the work (including the work he did under the main contractor). His quotation as shown in table 7.12 was much lower than that of the contractor and was accepted and engaged as a "stand-alone" contractor for gas installation. In turn it was agreed that the contractor may be paid a fee for attendance and profit on the value of work done by the gas specialist when was working as his domestic subcontractor. It was informed that the contractor demanded a fee equivalent of 10% of the value of work for attendance and 10% for profit, but was negotiated and agreed to 7.5% for attendance and 5.0% for profit.

The fact that the consultant issued instruction to the contractor to proceed with the work before submitting his quotation and the contractor knowing that there was no competition in the submission, created according to TCE theory ground for asset specificity and monopoly power for both parties to the contract and thus nurturing the potential for opportunistic behaviour by both parties. The contractor demonstrated opportunism by his quotation, which was too high compared to the estimate of the consultant and the quotation of the specialist as shown in table 7.12. On the other hand the consultant and client knowing that the specialist contractor had already done some substantial work before approval and was indeed desperate in need of money, kept the specialist contractor to a hostage position in the negotiations.

Table 7.12: Quotation of gas installation for case study two (2006 Prices). Source: project documents

Consultant's estimate	*T.shs. 250,000,000*
Quotation submitted by the contractor for gas installation	*T.shs. 350,000,000*
Quotation submitted by the specialist for gas installation as a stand-alone contractor	*T.shs. 273,616,812*

The above conflict was resolved by a win–win approach as discussed in section 4.6.1 where the client finally received relatively a reasonable quotation from the specialist contractor, and the contractor got a realistic compensation for attendance and profit to offset the missed

opportunity for the gas installation gas work that originally was instructed to undertake, and the specialist gas contractor was paid a fair price for the work he did.

7.2.4 Summary and lessons learned from case study two project

This section gives a summary of findings from case study two project in respect of conflicts identified, their causes, strategies and mechanisms employed in their management. A triangulation with the findings from the survey presented in chapter 6 is also made in-order to compare results so as to confirm and identify new emerging issues. The section also presents lessons learned from the case study.

Summary

Conflicts identified in case study two are those related to:

- Delays in issuing interim payment certificates by consultant; this was one of the causes of delays of certified payments to the contractor. Bureaucracy involved in the verifications of claims, hold up tendency of the consultant and exaggerated claims from the contractor requiring more time to verify were noted as fundamental causes of delays in issuing interim certificates. The resolution was sought by referring to the period agreed for processing and payment in the memorandum of understanding, but that was erroneously not incorporated in the contract and therefore to the detriment of the contractor was not contractually enforceable. In the survey findings delays in issuing certificates by the consultants was found to be one of causes of conflicts in delays in payments as shown in table 6.8.

- Delays of payment; this was crucial in case study two. It was mainly caused by lack of money and bureaucracy in preparation and processing the payments. Although the mechanism was provided in the contract through credible commitments requiring the client to pay interest charges on delayed payments, the client did not comply with that. The finding in this case study compares with the survey results where delay in payments was ranked as first area of conflict as shown in tables 6.4 and 6.8.

- Excess variations; conflict in this area was caused by misconception of the intended scope of work and nature of work. However in implementation of the variations, the conflict developed into a role conflict, which was resolved by improving information flow process by setting a reporting strategy where the variations proposed were presented by the consultants in monthly site meetings for consideration and approval by the client. The

findings in this case study compares with the survey findings as shown in tables 6.4 and 6.10, where excessive variations was ranked as third area of conflicts mainly caused by changes of scope of works arising from changes in client's requirements. Collaboration was found to be most preferred approach of resolving conflicts related to excessive variations, which also compares with the verification process that was adopted in case study two project.

- Different meanings; conflict in this area was between the consultants and contractor on assigning different meanings to work items due to unclear and ambiguous description of work items. This was resolved by establishing a correct interpretation and implication of the item description using contract documents. The findings from this case study could be compared with multiple meaning of specifications area of conflict identified in the survey as shown in table 6.4. The consultants used forcing approach while the contractor assumed smoothing approach in resolving the conflict. That demonstrated two different approaches assumed by conflicting parties to resolve a conflict in hand.

- Differences in evaluations; the conflict was in respect of the difference between the amounts claimed by the contractor against the actual amounts certified by the consultants. The main causes were; exaggerated claims by the contractor, undervaluing tendency of the consultant, ignoring deliberately contractor's claims and different methods of valuations. These findings conform to the findings from the survey presented in tables 6.4 and 6.11, which show differences in evaluation as one of the areas of conflicts caused by similar factors found from the case study.

- None adherence to specifications; conflict in this area was between the consultants and client on one side and the contractor and consultants on the other side. It was caused by opportunistic behaviour of the contractor driven by super profits making tendency. It was resolved by compromising the quality of the items fixed due to time constraints, which was more crucial to the client. This nature of conflict was not found in the survey.

- Errors in project documents; conflict in this area was on items of same/similar kind and nature with different prices. This gave rise to conflict in pricing variations and additional works of same/similar kind and nature. Apparently that was caused by negligence at the

time of bids evaluation exacerbated by lack of time and urgency of work. Conflicts in this area were resolved by compromise among the project members by establishing realistic prices from basic principles for the contentious items. These findings are comparable to the survey findings presented in tables 6.4 and 6.13, where errors in project documents was found to be one of the areas of conflict, caused by inadequate time for preparation of tender documents.

- Excessive quotation for additional works; this was a special case conflict, which developed various conflict dimensions ranging from trust and good-will. The consultant with trust and good will issued instruction to the contractor to proceed with gas installation work before receiving a quotation from the contractor. However, the contractor in turn developed opportunistic behaviour by submitting exaggerated quotation which was rejected by the consultant and client. Nonetheless due to cooperation spirit, the members to the project were able to resolve the various dimensions of conflicts which emerged by a win-win solution.

Lessons learned from the case study

- Decisions and conflict management approach adopted in conflict resolution can be influenced by external factors that are not part of the conflict. This was demonstrated in this case study when urgency in completion of the project to meet the date for starting the new University academic year influenced the resolution of conflict related to supply and fixing substandard items.

- Some contracts are signed without the parties appreciating its contents and implications. This was demonstrated by the conflict in delays in certifying payments by the consultant, when the contractor considered the memorandum of understanding setting time for processing certificates of payments to be part of the contract agreement while it was not.

- Lack of total quality control can be a source of conflicts in building projects as was demonstrated by a number of substandard items which were supplied and fixed by the contractor contrary to the contract specifications.

7.3 Case study three

7.3.1 Description of the project

The project representing case study three is the construction of buildings and infrastructure for the special economic zone in Dar es Salaam Tanzania. The project mainly involved construction of administration, canteen, shops, fire station, customs and dispensary buildings and the associated infrastructure works including; roads, electricity, water storage tank and supply system, drainage system, gas network and landscaping. The purpose of the project was to provide all basic facilities required for manufacturing light industry products mainly for export.

The basic design of the project was done by a foreign architect based on his experience of other similar projects done in far eastern countries. However, a team of local consultants was appointed through single source method. The team adopted the design but was required to amend and improve it in-order to suit and comply with the local requirements in Tanzania. The local consultants were engaged in the project in May 2005 and were required by the client to review the design drawings and prepare tender documents within a period of one-month. The tender documents were prepared on fast track basis, and the tenders were invited from short-listed buildings / civil contractors registered in class one with CRB. Construction works started in October 2005 and were to be completed by April 2007. However, as to the date when this research was being carried out the works were still going on although they were in the final completion stage.

The key participants in this project were; the client who was also the financier - the ministry of Planning and economic empowerment and latter the project was transferred to the ministry of Finance. Other project members were the design team (consultants), general contractor and approved domestic sub-contractors for electrical installation, glazing and mechanical installation.

7.3.2 Theoretical contextualization of case study three

This section presents findings from case study three in the context of TCE and systems theoretical frameworks. The purpose as cited in the previous two case studies is to review the case study in the perspective of theoretical framework and to show how the case study illustrates the elements of theoretical framework discussed in chapter five.

Governance structure (procurement system)

The appointment of consultants team was done through single source due to urgency of commencement of the project under the guidelines of the PPRA as discussed in chapter 3 section 3.7. The contractor was selected through a restricted tendering process in line with the requirements of the act and regulations mentioned above and as discussed in chapter 3 section 3.8. Six short-listed building / civil engineering contractors registered with CRB were invited to submit their bids.

The traditional procurement system discussed in chapter 3 section 3.4 was used for this project where design by the foreign consultant, revision of the design and preparation of bid documents by the local consultants, bidding process, contractor selection and construction works were done in series as illustrated in figure 7.8.

The consultants' team reviewed the basic designs prepared by the foreign architect and prepared the bid documents, which included drawings and bills of quantities before contractors were invited to bid. The client required the task to be done and completed within a period of one month, which according to the consultants was too short. The bidders were required to prepare and submit their bids within a period of 45 days from the date of collecting the bid documents. The bids received were evaluated and the contract was awarded to the bidder who submitted a lowest evaluated bid of T.shs.14,146,456,332 equivalent to USD 10,478,867 (at 2005 prices).

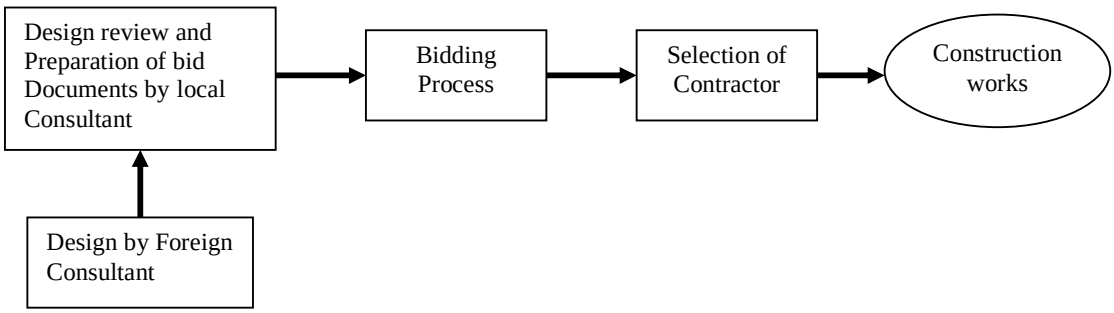

Figure 7.8: Procurement process for case study three project

There were mainly two contracts for this project; one was the contract between the client and consultants which was a percentage contract whereby the consultancy fee was based on the percentage of work executed by the contractor as explained in chapter 3 section 3.7. The second contract was between the main contractor and client, which was a fixed price contract

based on priced approximate BOQ and PPRA standard form of contract. The contractor in turn had a number of separate contracts with his domestic subcontractors he engaged to execute specialist's works. Figure 7.9 shows contractual relationships and communication links in the project.

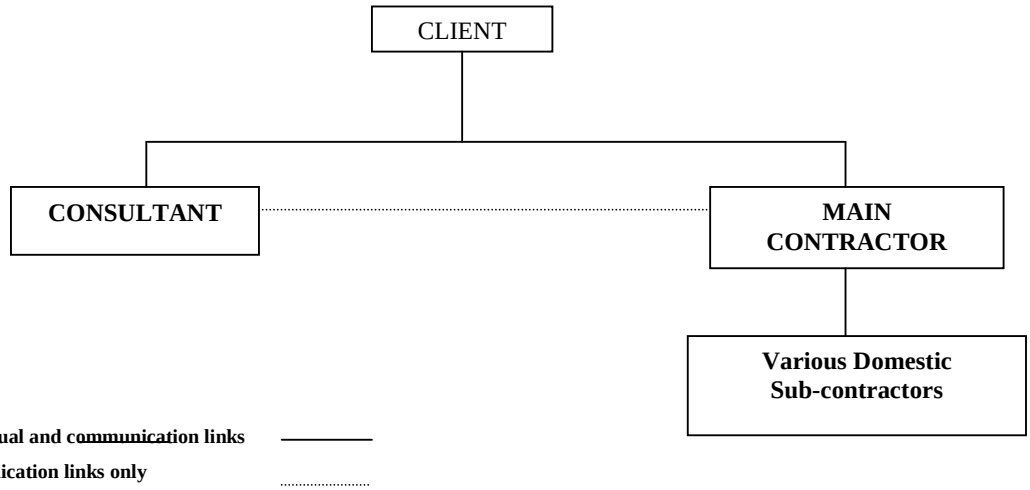

Figure 7.9: Contractual relationship and communication links in case study three project

Contractual incompleteness

The extent of contractual incompleteness in this project was assessed in light of completeness of the bid documents. It was informed that design of some structures and details were not in place at the time when the bids were called in and the BOQ prepared as one of the key bidding documents was a bill of approximate quantities. This indicates that the contract was incomplete ex ante. As cited in previous case studies contractual incompleteness according to TCE theory is attributable to bounded rationality, risk, uncertainty and complexity of the project. These factors are considered below to assess if they were causes of contractual incompletedeness to this project:

Bounded rationality is described in section 7.1.2. It was informed that the members in the design team were professionally qualified with long outstanding experience in building and civil works. Therefore lack of knowledge, ability, experience and competence of the consultants team were not constraints to preparation of a fully contingent contract, rather bounded rationality was caused by limited time for preparation of the bidding documents.

Risk and uncertainty in this project were fairly shared among the parties to the contract. Pure and particular risks as cited in section 7.1.2 were covered by clause 13 of the contract and the contractor had insurance covering all risks for the works. The fundamental risks as discussed in section 7.1.2 were the liability of the client, and there was no insurance cover for that. The speculative and commercial risks were apportioned as follows: the contractor carried risk on inflation, as the contract was a fixed price contract, the contractor also carried the risk of shortage of labour and material. For the risk associated with adverse weather condition, the client carried the risk for any time lost while the contractor was responsible for any cost effects of such time loss. The client also carried the risk for unforeseen ground condition as was provided under clause 44 of the contract. Nevertheless as noted in the previous case studies, the risk allocation was based on standard form of contract therefore, risk and uncertainty would not have been the cause of contractual incompleteness.

Complexity; the works mainly involved construction of single storey buildings, road works, sewerage line, water supply pipes and gas pipe-work. With exception of pipe-work for gas reticulation, to a large extent the works were of common nature and not complex to cause contractual incompleteness to the project.

Credible commitments; the rationale of providing credible commitments in the contract are discussed in section 7.1.2. The important credible commitments provided in the contract for case study three project included;

a. The use of third party (consultants) to administer the contract. As described under section 7.1.2 professional ethics and code of conduct required consultants to be impartial and unbiased in the administration of any contract.
b. A performance bond equivalent to 10% of the contract sum as a surety for contractor's performance and the professional indemnity insurance for the consultants to indemnify the professionals against professional negligence, errors or omissions.
c. The resolution of any dispute by an arbitrator or adjudicator selected by the parties as was provided under clause 25 of the PPRA standard form of contract.
d. Liquidated damages for delays caused by the contractor to complete the project within the agreed completion time was 0.5% of the final contract price per calendar day or part thereof and the maximum was 10% of the final contract sum as was provided under clause 49 of the contract. The bonus clause for early completion of the works in the PPRA standard form of contract was deleted in this contract.

e. All certified payments to the contractor were required to be paid by the client within 28 days after certification, failure to that was attracting payment of interest charges at commercial bank rates for the period delayed.
f. Defects liability period was twelve months as was provided under clause 35 of the contract
g. Proportion of payments retained was 10% of the value of work done with a maximum limit of 5% of the contract sum as was provided under clause 49 of the contract.
h. Submission of as built drawings for services installation, operating and maintenance manual by the contractor to the consultant was set to be on the date of practical completion of the works, failure to which was attracting retention equivalent to 0.5% of the final contract sum.

Opportunism and asset specificity: as noted in the previous two case studies, the TCE theory identifies contractual incompleteness as the key to opportunism. As discussed above, at the time of bidding the design and associated detailed drawings were not fully complete, and the quantities of the works were approximate quantities subject to re-measurement after completion of detailed design in-order to establish firm quantities. Therefore, the contract was incomplete ex ante. However, according to the consultants, on preparation of the bills of approximate quantities provision was made to include all possible items of works in-order to have at least unit prices in the contract for most items of work likely to be included in the project. According to the consultants, that strategy minimized to a larger extent the problem of having new items, which the contractor would have been required to give quotation, and hence create grounds for opportunism and asset specificity ex post. Therefore, grounds for opportunism, assets specificity and monopoly power were minimized ex-ante in this project.

Systems theory concepts in this case study three project are used to express interrelationships among the project members and the environment in which the project was undertaken. The concepts considered as for the previous case studies are the concept of hierarchies of systems, interdependence of elements of a system, closed and open systems concepts. The hierarchies of systems concept as discussed in the previous cases reflects on the level / position of the project as a system in relation to its supra system and its sub-systems. The focus is on the relationship between the project as a system and its supra-system and its subsystems. The project as a system belonged to the construction industry in Tanzania supra-system and as such the project had to comply with all necessary building regulations and requirement of the

PPA, 2004 and PPR, 2005 as discussed in chapter 3 sections 3.7 and 3.8. The project also belonged to a supra-system of the central government system since the client and financier were ministries of the central government. At various times the project was very much affected by government decisions in particular on project financing. At some stage of the project the money allocated to the project in the government budget was not sufficient to the extent of causing delays in completion of the project as discussed in section 7.3.3.

The project team as a system comprised of sub-systems referred to as project participants in section 7.3.1. The project team comprised of design team consisting of a team leader charged with the coordination role, architect responsible for design and supervision of the project. Structural and services engineers tasked with the design of structural and services elements and the quantity surveyor responsible for all matters related to the project cost. There was a close link among the members in the design team under the coordination of the team leader. The contractor and client were other members in the project team as subsystems of the project. The contractor and client were closely linked through the contract which expressed various roles and obligations of each party. The entire project team was closely linked through regular site meetings which were held monthly to discuss and review progress of work and problems related to the project.

As discussed in the previous cases this project exemplified the concept of open system since it was adaptive to various events and occurrences outside the project. The project was subjected to political influence as it was part of the Tanzania government strategy to meet the millennium strategy for employment creation and improvement of the economy.

7.3.3 Conflicts experienced in case study three

Similar to case study one and two, this part identifies and discusses specific conflicts, which emerged in the project. For each conflict identified the issue or area of conflict, it's causes, how it emerged and surfaced and how it was handled in terms of strategies and mechanisms employed in its management are discussed. A synthesis of conflict phenomenon with reference to literature and theoretical framework is also presented.

Conflict in delays of payments certified; conflict in this area was in respect of the time agreed in the contract for payment of certificates against the time when payments were

actually made by the client. Table 7.13 shows the schedule of some certified payments to the contractor.

The information shows out of ten certified payments, payments of seven certificates were delayed. Lack of money and bureaucracy involved in processing payments were mentioned as the main causes of delays in payment of the certificates. It was informed that despite credible commitment by the client to effect payments within 28 days failure to which was obliged to pay interest at commercial bank rate over the period delayed, still the client was not able to fulfil his obligations due to lack of money.

It was informed that payment of interest charges on delayed payments were worked out and included in respective interim certificates in accordance to the contract requirements. Therefore, the conflict was resolved by using the mechanisms provided in the contract that was synonymous to the forcing approach of conflict management discussed in section 4.6.5.

Table 7.13: Schedule of some certified payments to the contractor for case study three project (2007/2008 Prices). Source: Project documents

Certificate number	Amount applied by Contractor for payment (T.shs.)	Date of submission	Amount certified by Consultant (T.shs.)	Date certified	Date supposed to be paid as per contract	Actual date paid
7	1,561,501,322	15-12-2006	1,369,738,002	31-01-2007	28-02-2007	20-02-2007
8	1,310,506,126	20-02-2007	1,092,088,438	14-03-2007	11-04-2007	06-04-2007
9	2,280,569,736	05-03-2007	1,754,284,412	28-03-2007	25-04-2007	05-09-2007
10	1,055,409,789	23-04-2007	851,136,927	09-05-2007	06-06-2007	05-09-2007
11	975,356,890	06-06-2007	814,099,264	03-08-2007	31-09-2007	30-11-2007
12	876,264,099	12-10-2007	773,586,930	03-11-2007	01-11-2007	29-12-2007
13	832,345,950	16-12-2007	617,604,053	19-01-2008	16-02-2008	30-03-2008
14	2,470,397,032	25-01-2008	1,432,756,768	01-02-2008	29-02-2008	28-08-2008
15	4,016,330,186	05-03-2008	1,792,319,683	01-04-2008	29-04-2008	28-08-2008
16	1,422,775,048	16-08-2008	635,727,109	12-09-2008	10-10-2008	06-10-2008

Delay in payments of domestic subcontractors by the contractor; the contractor had a number of domestic subcontractors engaged to execute different types of work. As domestic subcontractors, they had separate contracts with the contractor and there was no any contractual or formal communication between the domestic sub-contractors and other members within the project setup. Nevertheless for credibility and capacity reasons the specialist domestic subcontractors were first approved by the consultants before were allowed to work on site.

The conflict in this area was between the contractor and his domestic subcontractors in respect of payments. It was informed that, the contractor was not paying his subcontractors in time contrary to their agreements. The sub-contractors in retaliation used to stage a “go slow” at work that was affecting the work progress. The client as a project financier using his “dominant” position in the project, had to intervene and it was informed that rules outside the formal contract were instituted that enforced the contractor to pay his domestic subcontractors. One of the rules was to report all payments made to the contractor in every site meeting and the domestic subcontractors were required to report if they have or have not received their respective payments from the contractor. It was further informed that, for electrical specialist domestic subcontractor whose work had a big component in the project, the client with the concession of the contractor agreed to make direct payments.

However, when the domestic subcontractors were asked why they did not take legal action against the contractor, their response was that they did not want to spoil their business relationship with the contractor, since they were expecting more jobs from the same contractor in future, otherwise they can easily be dropped from his list of associates and it was difficult to get other big contractors to associate with. This expresses the typical nature of construction industry in Tanzania as discussed in section 3.2 where it was noted that most of big projects in Tanzania are done by few big construction firms (those registered in class I & II) leaving small contractors with few or no projects at all. Therefore, when small contractors get opportunity to work as sub-contractors with a big contractor, they tend to take a weak position and behave in a way that does not jeopardise the opportunity. Nevertheless, capitalising on that the big contractors as demonstrated in this case study tend to develop a dominance attitude over the sub-contractors, which as described by Langford et al in Fenn and Gameson (1992:66) is a way of suppressing a weaker party to a conflict as it was happening in this case study.

Excessive variations and additional works; conflict in this area was in respect of extent of variations, which the client did not anticipate. The client had to review the project budget so as to meet the additional cost the process, which took almost six months. During that period the works almost came to a standstill as the contractor was not paid a number of certified payments as shown in table 7.13.

Excessive variations and additional works as noted before were mainly caused by incomplete design due to time limitation for carrying out a comprehensive design before the bidding process. Moreover, it was informed that, at the beginning of the project the local consultants had limited authority to change the design to suite local conditions. Citing an example, the local consultants advised to change the design of roofs of all buildings from concrete flat roofs to pitched roofs due to problems of roof drainage and water proofing concrete flat roofs in coastal area due to high temperatures and heavy rains, but the idea was not accepted by the foreign consultant as a result they had to use an expensive roofing felt material. It was further informed that, some important infrastructure works such as roads and surface water drainage, sewerage treatment plant, and gas distribution system were not in the original contract but were necessary for the project to be functional, and were included in the project at additional cost.

The conflict was resolved through collaboration among the project members. The procedure was set whereby first the design of a proposed additional work was made after that the contractor was asked to give his quotation, which was assessed by the consultants. The assessed and established cost was then submitted to the client for consideration and approval before the contractor was instructed to execute the work.

Differing site conditions; It was informed that detailed site investigation was not done before the design. This caused a number of conflicts between the design and actual site conditions. The conflict cited includes; the sewerage invert levels designed did not match with the site levels as a result the depth of sewers had to be increased to attain the required self cleansing slope. The designed layout of surface water drainage had to be changed because it was running uphill, unsuitable spongy soils was found at various places in road construction causing extensive excavation and replacing the soil with suitable “imported” soil that led to unexpected additional cost to the project. The allowance which was provided in the contract for sewerage disposal was for connection to the existing nearby sewerage point, but contrary to what was expected the capacity of existing sewer was too low to receive another connection. Therefore, a separate sewerage line including a treatment plant had to be constructed. The above-cited additional works could have been foreseen and considered in the design and contract if detailed site investigation had been done ex ante the design.

The cause for not carrying out detailed site investigation before the design was noted to be the tendency of project members down grading the importance of site investigation, which however for this project was also exacerbated by urgency of starting up the project. Since the conflicts were on technical aspects the resolutions were also based on technical solutions, which correspond to forcing approach.

Public interruption; conflict in this area was between the people living in the neighbourhood of the project site and the project team. This happened when surface water drainage system was designed to run through the neighbourhood area down to the nearby stream. This was apparently caused by the conflict in difference in site conditions discussed above. The residents in the neighbourhood resisted the drain to run through their area for two reasons; first the drain was to be constructed along a narrow path which is used as access road, the residents feared that the drain was going to reduce further the width of the path and take-up part of their houses plots without any compensation. Second, they feared that during heavy rains, the drain could overflow and cause floods in their area and the nearby stream.

It was informed that, the neighbourhood was unplanned areas such the residents had no legal right of ownership of the path and the plots. Therefore the project team could have decided to construct the drain in that area without the consent of the residents but they did not do that to avoid antagonism with the residents. At the time of data collection the conflict was yet to be resolved, however the approach that was being used by the project members was to discuss with the residents through their community leaders, so as to get a solution that would address some of their demands. The initial idea according to the consultants was to design a covered drain that would not reduce the width of the path and size of the house plots. That solution was more expensive to the project than an open drain envisaged earlier. This was a collaboration approach to conflict resolution which according to the theory is appropriate approach when the attitudes of parties to a conflict aims to generate the best solution even though the original views of either or both parties may need to be modified or discarded (Cheung and Chun, 1999), which was found to be the spirit of both sides to the conflict.

7.3.4: Summary and lessons learned from case study three project:

This section gives a summary of findings of conflicts identified, their causes, strategies and mechanisms employed in their management for case study three project. A triangulation of the findings with survey findings presented in chapter 6 is also done in-order to compare

results so as to confirm and identify new issues emerging. The section also presents lessons learned from the case study.

Summary

Conflicts identified in case study three were related to:

- Delays in payments; this was one of crucial areas of conflicts in case study three. It was mainly caused by lack of money and bureaucracy in processing the payments. The mechanism for dealing with the conflict was provided in the contract in form of credible commitments, that required the client to make payments within 28 days after the consultant has issued the payment certificate and failure to which was attracting a payment of interest charges for the period delayed. The findings from this case study compares with the survey findings where delay in payments was ranked as the first area of conflict as shown in table 6.4 and 6.8. Resolution of the conflict by means of contract provisions corresponds with the forcing approach of conflict management as discussed in section 4.6.5. The theory suggests that, this approach is appropriate when important principals of the contract are at stake, and the stake involved in the conflict are high as it was the case for this project since the contractor's cash flow was adversely affected by delays in payments.

- Delay in payment of domestic subcontractors by the contractor; contrary to the agreements, the contractor was not paying his domestic subcontractors in time. This was caused by dominance attitude of the contractor over his domestic subcontractors. Nevertheless the conflict was managed by intervention of the client when the procedure of reporting payments received by each domestic subcontractor was instituted. The findings from this case study correspond to the survey findings presented in table 6.16, where delays in payments from the contractor to subcontractors were also found crucial.

- Excess variations and additional works; conflict in this area was caused by incomplete design of the project due to time limitation for carrying out comprehensive design before the bidding process. The procedure for dealing with excess variations and additional works was established, that expressed a collaboration approach to conflict management as discussed in section 4.6.1 as a way of resolving the differences. These findings compares with the findings of the survey presented in table 6.4 where excessive variations was ranked as third area of conflicts in building projects in Tanzania.

- Differing site conditions; conflict in this area was in respect of differences between the design and the actual site condition. This was caused by lack of detailed knowledge of site condition since no detailed site investigation was done before design. The differences were resolved on technical basis that compares with forcing approach to conflict management. This was also identified as one of the areas of conflict in the survey as presented in table 6.4 and 6.12, which lack of knowledge of site condition was ranked as number three cause of conflict in that area.

- Public interruption; conflict in this area was between the residents in the neighbourhood of the project site and the project team in respect of surface water drainage system that was designed to run through the neighbourhood. The residents feared that the drain could reduce the width of the access road and sizes of plots without any compensation and would cause there are more prone to floods. This conflict was in the process of being resolved through collaboration between the project members and the community members to find a best solution expressing collaborating approach of conflict management discussed in section 4.6.1.

Lessons learned

- Credible commitments set in contracts are as good as obligations, but do not necessarily enforce someone to perform if he has no capacity to act. This was demonstrated by failure of the client to live to the commitment of effecting payments within the period given in the contract, despite of its consequences.
- Lack of construction works for small contractors cause them to be weak parties to the contracts.

7.4 Case study four

7.4.1 Description of the project

The project representing case study four is construction of Temeke Municipal head office block and assembly hall including the associated external works in Dar-es-Salaam. The office block is a three storeys building comprising of ground, first, second and third floors with approximately 3500 square meters total build-up floor area. The assembly hall is a single storey building with approximately 450 square meters total build-up floor area. External works involved construction of concrete parking areas, fencing wall in concrete blocks with metal decorative grills, surface and foul water drainage systems and soft landscaping.

The idea of constructing a municipal office block and municipal hall was conceived in 1998 when the Temeke municipal council was formed as a result of splitting the Dar es Salaam municipal council into three independent municipalities.

The design and preparation of bid documents was done in the first quarter of 2000. The initial estimate for the project was T.shs.530,000,000 equivalent to USD 706,667 (at 2000 prices) and the amount was set aside in the budget of the client. Bids from short-listed building contractors registered in class three and above were invited. The bid was awarded to the lowest submitted bid that was T.shs. 360,000,000 equivalent to USD 480,000 (at 2000 prices), which was much lower than the cost estimated by the consultant. It was informed that, both the client and consultant were sceptical on the capacity of the contractor to complete the project at the price quoted. Before awarding the contract the contractor was asked by the client and consultants to explain how he was going to undertake and complete the project at the price quoted, which in their opinion was too low and unrealistic. It was informed that, the contractor managed to convince them and was awarded the contract at the price quoted and the works were to be completed within 26 weeks.

After award of the contract the works commenced in the last quarter of 2000 and were to be completed by May 2001. The progress of works during the initial stages was good, but after casting the first floor slab of the office block and construction of block work walls for the assembly hall, the contractor started to raise unnecessary claims for increase in prices of materials and labour, although the contract was a fixed price contract. The client and consultant did not accept that, as a result the contractor failed to proceed with the work and

was terminated on the ground of failure to perform in March 2001 when the construction works were hardly 30% done.

New bid documents for remaining and additional works were prepared. Bids were called from contractors registered in class one and two. The cost estimated for remaining works plus additional works was T.shs. 430,000,000 equivalent to USD 539,523 (at 2002 prices). The bid was awarded to the contractor (a Chinese foreign construction firm) which submitted the lowest evaluated tender of T.shs.480,000,000 equivalent to USD 602,258 (at 2002 prices). The construction works on site resumed in April 2002 and were to be completed by August 2003. The new contractor completed the works in October 2003 including several additional works that were added to the original contract by the client.

The key participants in this project were; the client who was also the financier - the Temeke municipal council, the consultants team, general contractor and a nominated sub-contractor for electrical installation.

7.4.2 Theoretical contextualization of case study four

This section presents findings from case study four in the context of TCE and systems theoretical frameworks. The purpose as cited in the previous case studies is to review the case study in the perspective of theoretical framework and to show how the case study illustrates the elements of theoretical framework discussed in chapter five.

Governance structure (procurement system)

The consultants team was composed of architect from the in-house architectural unit of the Temeke municipal council, and a team of structural/civil, service engineers and quantity surveyors from private practice, which was appointed through financial proposals competition from three short-listed teams. The first contractor and second contractor were both selected through restricted competitive bidding from five short-listed building contractors registered in class three and above with CRB in Tanzania. The traditional procurement system discussed in chapter 3 section 3.4 was used for this project where design and preparation of tender documents, bidding process, contractor selection and construction works were done in series as shown in figure 7.10. After selection of the first contractor the subcontractor for electrical installation was selected through a restricted competitive bidding from five short-listed electrical contractors registered in class three and above with CRB in Tanzania. The selected

sub-contractor was engaged as a nominated subcontractor. After the first main contractor was terminated the consultants prepared bid documents for completion of the remaining works. The bidding process as shown in figure 7.10 was initiated and the second main contractor was selected. However, the electrical nominated subcontractor was not changed, when the second contractor was appointed.

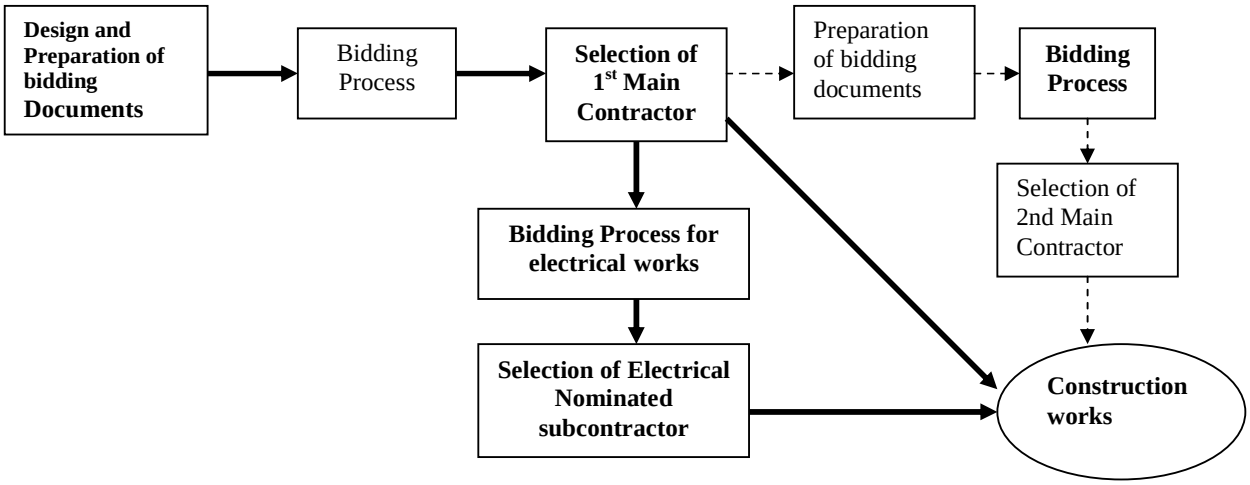

Figure 7.10: Procurement process for case study four project

There were three forms of contracts for this project; one was the contract between the client and consultants, which was a lump sum contract for design and supervision of construction works.

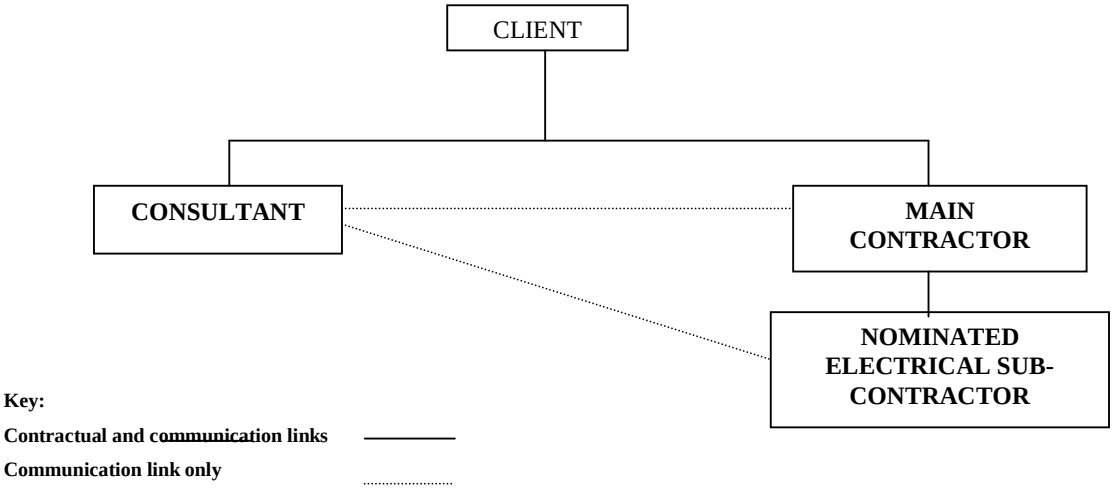

Figure 7.11: Contractual relationship and communication links in case study four project

The second contract was between the first main contractor and client and latter the second main contractor and client. Both contracts were fixed price contracts based on the NCC standard form of Agreement and Schedule of Conditions of Building Contract (With Quantities) 2000 edition. The third form of contract was between the first main contractor and latter the second main contractor with the nominated sub-contractor for electrical installation. Contractual and formal communication relationships among the key project members were as shown in figure 7.11.

Contractual incompleteness

Contractual incompleteness in the project for case study four was assessed in respect of completeness of the bid documents. It was informed that the design including all important details were complete before the bidding process and the bills of quantities was based on firm quantities. The analysis of bills of quantities for the first contractor indicates the contract sum of T.shs.360,000,000 was made up as shown in table 7.14. The extent of contractual incompleteness ex ante is reflected by the percentage of the provisional and contingency sums, which in total were 12% of the contract sum. The provisional sums were in respect of landscaping, surface water drainage and paved areas. In general terms the design of the project was complete ex ante except for external works.

Table 7.14: General summary of bills of quantities – case study four project (2000 Prices)

- Preliminaries.....….27,000,000
- Measured work (firm quantities).....…….233,000,000
- Prime cost sums……..57,000,000
- Provisional sums……....18,000,000
- Contingency sums……..25,000,000

TOTAL T.SHS……...360,000,000

Bounded rationality, risk, uncertainty and complexity of the project as discussed in the previous case studies are factors causing contractual incompleteness. These factors are discussed in the context of this case study project in-order to establish whether or not they might have caused contractual incompleteness to the project;

Bounded rationality could not have caused contractual incompleteness to this project for both contracts, because the team of consultants comprised of professionals with long outstanding experience and yet the time for preparation of bidding documents was sufficient.

Risk and uncertainty in this project were shared among the parties to the contract. Pure and particular risks as cited in section 7.1.2 were covered by clause 23 of the contract and main contractors had all risk insurance covers for the works. The fundamental risks as discussed in section 7.1.2 were client's liability. The speculative and commercial risks in this case study project were apportioned as follows; both contractors carried the risks of inflation as both contracts were fixed price contracts, the contractors also carried the risks of shortage of labour and material. The client carried the risk for time loss due to adverse weather condition while the contractor was responsible for any cost effects of time loss. The client under clause 22 of the contract carried the risk for unforeseen ground condition. As noted in the previous cases, risk allocation was based on standard form of contract therefore risk and uncertainty could not have caused contractual incompleteness in this project.

Complexity; the project mainly involved construction of three storeys offices building and a single storey multipurpose hall building. The buildings are constructed in reinforced concrete frame structure with block-work infill walls, resin coated metal roofing sheets on timber roof structure, and in general the works were not complex to cause any contractual incompleteness.

Credible commitments; the rationale of providing credible commitments in the contract are discussed in section 7.1.2. The important credible commitments provided in the contract for case study four project were as follows;

a. It was noted that the project architect who was the lead consultant although the architect was from the client's organisation was required as described under section 7.1.2, to be impartial and unbiased in the administration of the contract.
b. A performance bond equivalent to 10% of the contract sum as a surety for contractor's performance and professional indemnity insurance for the consultants to indemnify the professionals against professional negligence, errors or omissions.
c. The resolution of any dispute by an arbitrator or adjudicator selected by the parties as was provided under clause 40 of the NCC standard form of contract.
d. Liquidated damages for delays caused by the contractor to complete the project within the agreed completion time was T.shs. 150,000 for the first contractor and T.shs.200,000 for the second contractor per calendar day or part thereof as was provided under clause 25.2 of the contract.

e. All certified payments to the contractor were to be paid by the client within 30 days after certification, failure to which was attracting payment of interest charges at commercial bank rates for the period delayed as was provided under clause 34.1 of the contract.
f. Defects liability period was twelve months as was provided under clause 17 of the contract.
g. Proportion of payments retained was 10% of the amount with a maximum of 5% of the contract sum as was provided under clause 35.1 of the contract.

Opportunism and asset specificity: the TCE theory identifies contractual incompleteness as the key to opportunism. At the time of bidding the design was complete, and the quantities were firm quantities for most of the items. Therefore, the contract was relatively complete ex ante and minimized the possibility of the parties to the project to develop opportunistic behaviour.

Systems theory concepts in this case study four project are used to express interrelationships among the project members and the environment in which the project was done. The concepts considered as for the previous cases are the concept of hierarchies of systems, interdependence of elements of a system, closed and open systems concepts. The hierarchies of systems concept as discussed in the previous projects reflects the level / position of the project as a system in its supra system to which it belongs. The focus is on the relationship between the project as a system and its supra-system as well as the project as a system and its constituent parts as sub-systems. The project as a system was part of the construction industry in Tanzania as its supra system. The project had to comply with various building regulations and approval systems as discussed in chapter 3 sections 3.7 and 3.8 for appointment of consultants and contractor respectively. Moreover, the project belonged to the local government supra-system particularly for financing.

The project team comprised of the design team consisting of architects charged with design and supervision of construction works. The structural and services engineers who were responsible for design of structural elements and services and the quantity surveyor responsible for handling all cost aspects of the project. There was a close link among the members in the design team under coordination of the architect who was the design team leader. The contractor and client were other members in the project team as subsystems of the

project. The entire project team was closely linked through regular site meetings which were held monthly to discuss and review progress of work and problems related to the project.

As discussed in previous cases a closed system is a system that does not respond to events and occurrences outside the system and as such cannot adapt to changes while an open system adapts to events and occurrences outside the system. This project was relatively open as it was receiving some inputs in terms of material, labour, plant and equipment from outside the project setup. Moreover, the community through councillors used to demand progress and financial reports as a way of monitoring how the money allocated for the project was being spent. It was informed that those reports were crucial when the first contractor was terminated as a comprehensive report was demanded before they could approve the process of engaging the second contractor.

7.4.3 Conflicts experienced in case study four

Similar to the previous three case studies, this part identifies and discusses specific conflicts that emerged in the project. For each conflict identified the issue or area of conflict is discussed, it's causes, how it emerged and surfaced and how it was handled in terms of strategies and mechanisms employed in its management. A synthesis of conflict phenomenon with reference to literature and theoretical framework is also presented.

Excessive contractor's claims; under the first main contractor the conflict experienced in this area was in respect of claims for additional cost due to increase in prices of materials and labour. It was informed that the contractor's claims were based on the increase of wages, prices of building materials which normally happens at the beginning of each government financial year (the government financial year in Tanzania starts on 1st July). The consultant and client rejected the claims on the ground that such increases in prices of materials and labour cost were predictable and the contractor should have considered and allowed them in his fixed price quotation. Furthermore, it was informed that, the client and consultant were suspicious that the contractor was trying to offset his lower tender by making uncalled for and dubious claims. Apparently following rejection of the contractor's claims, the progress of works on site dwindled due to poor financing by the contractor, and eventually the contractor was terminated due to failure to proceed regularly and diligently with the works as was provided in the contract under clause 28.1(b).

The conflict mentioned above was caused by the contractor submitting claims, which were considered by the client and consultants as a way of offsetting his unrealistic low bid price. It was evident right from the contract awarding stage the client and consultants had no trust and confidence in the capacity of the contractor to carry out and complete the project at the price tendered. Therefore as informed they were always cautious on contractor's actions and claims. Since the conflict was involving additional cost to the client and yet it was perceived that, the contractor was trying to play a game, the client using the contract provisions terminated the contractor's employment using the contract provisions which is a forcing approach of conflict resolution.

Incompatibility between the main contractor and nominated subcontractor; the conflict in this area was between the second main contractor and the nominated subcontractor in respect of working norms. The second main contractor was a foreign Chinese construction company, while the subcontractor was a local firm. It was informed that in the first instance the main contractor resisted to work with the nominated subcontractor and requested to do the electrical works himself at the same price quoted by the nominated subcontractor if the subcontractor was to be removed from the project team. However, the request was turned down because it was against the contract. Nevertheless, when the work started the nominated subcontractor was not getting good cooperation from the main contractor to the extent that, the consultant had to intervene to facilitate even drafting and signing of the nominated subcontract agreement between them. It was informed that generally their cooperation at work was not good throughout the contract execution to the extent that at times the main contractor used to accuse the nominated subcontractor to be the source of various problems the project was facing. For example when there were delays in completion of plaster and final coat of paint to walls and ceiling, the main contractor blamed the subcontractor for his inefficiency in laying conduits and fixing the electrical fittings, which according to the consultants that was not true. According to consultants the uncooperative nature between the contractor and his sub-contractor was caused by different working norms arising from different cultural backgrounds.

The above conflict was a relationship conflict, which surfaced in form of interpersonal incompatibility between the main contractor, a Chinese foreign company and the nominated sub-contractor, a local company. According to the theory, such conflict results into tension, annoyance, and animosity among the parties with antagonism or sinister attributions for other

group members' behaviour outcomes, this can create a self-fulfilling prophecy of mutual hostility and conflict escalation (Simmons and Peterson, 2000). This explains what was happening between the main contractor and the nominated subcontractor in particular when the main contractor was accusing the subcontractor to be the source of problems the project was facing on site. Lateral relationships conflicts as suggested by Vaaland (2004) can be reduced if alternative relationships for satisfying needs are available by providing channels of work and information flow in the project. This was emulated in this case study when regular site meetings involving all project members were called to discuss and resolve jointly problems including differences between the main contractor and the nominated subcontractor. Fundamentally their differences were being resolved by collaboration conflict management approach.

7.4.4 Summary and lessons learned from case study four project

This section gives a summary of findings from case study four project in respect of conflicts identified, their causes, strategies and mechanisms employed in their management. A triangulation of the findings with survey findings presented in chapter 6 is also done in-order to compare results so as to confirm and identify new issues emerging. The section also presents lessons learned from the case study.

Summary

There was no contractual incompleteness expressed in this project because the design and contract documents were complete ex ante before the tender process in both cases, furthermore there was no conflict related to payments noted in this case study. However, the few conflicts noted, were those related to the following areas;

- Excessive contractor's claims; the conflict was in respect of additional cost due to increase in prices of labour and material exacerbated by distrust between the main contractor on one side and the consultants and client on the other side. It was fundamentally caused by the perception of the client and consultant that the contractor was trying to offset the low priced bid through dubious claims. The conflict was resolution by terminating the contractor's employment. This was a forcing approach to conflict management as discussed in section 4.5.5. The findings from the case study compares with the survey findings where excessive claims as shown in table 6.4 was found to be one of the areas of conflicts caused by a number of factors as shown in table 6.6, where offsetting unrealistic tender price is one of the factors.

- Incompatibility between the main contractor and nominated subcontractor; the conflict was in respect of relationship that was expressed in form of tension, animosity and antagonism between the two parties. The conflict was resolved by improving channels of work and information flow through regular site meetings. This approach compares with the collaborating approach to conflict management discussed in section 4.6.1.

Lessons learned

- Proper budget and availability of funds could avoid conflicts related to payments as was demonstrated in this case study project where there was no conflicts related to delays in payments.
- When contracts are based on relatively complete designs the chances of opportunisms are reduced to a great extent as was demonstrated in this project where no conflicts arising from opportunistic behaviour were found.
- Cooperation among companies in construction projects working together to achieve a common purpose is influenced by the background and nationality of companies. This was expressed in this project when a Chinese construction company as a main contractor was not willing to cooperate with a local company working as a nominated sub-contractor in the project.

7.5 Cross case analysis

In this section theoretical context of the case studies, areas / issues on which conflicts were experienced, causes of conflicts, how the conflicts emerged/surfaced and how were handled and managed are pooled and compared. However, the aim is not to draw generalised conclusion but the results from the case studies are re-interpreted to establish whether the conflicts experienced, their causes and management in each case can be related to other cases.

7.5.1 Theoretical contextualization of the case studies

The elements considered for TCE theory are; governance structures, contractual incompletedeness and consequent ex post adjustments, asset specificity and monopoly power, opportunism and credible commitments. For systems theory the elements considered are; hierarchies of systems, interdependence of parts of the system, closed and open system concepts.

Governance structures / procurement system

The design team for case studies one, two and three were engaged through single source appointment and for case study four was on limited competition. The contractors for all four case studies projects were appointed through limited competition. The contracts used for all four case studies were based on standard forms of contracts commonly used in Tanzania, although for case study one a number of changes were made including an addendum to the contract to address issues which were in conflict with the interests of the contractor and client as discussed in section 7.1.1. The governance structure for all four projects was based on the traditional procurement system.

Contractual incompletedeness

There was a high degree of contractual incompleteness for case study one, two and three projects. Contractual incompleteness for case study one project was caused by bounded rationality due to inadequate experience of the design team and for case study two and three was caused by bounded rationality due to limited time for preparation of bid documents. Case study four was relatively contractually complete before bids were invited. However risk, uncertainty and complexity of the project were not found to cause incomplete contracts in any of the four case studies.

Credible commitments

For all four case studies the contracts were based on standard forms of contracts with safeguards, assurances and mechanisms ensuring confidence to the contracting parties, (client and contractor) that their contractual relationship is not disabled whenever ex-post adjustment or breach of the contract happens. Important credible commitments that were provided in the contracts of all four case studies were; the use of third party (consultant) to administer the contract, the guarantee or surety bond guaranteeing the contractor's performance, the resolution of any dispute by an arbitrator or adjudicator, liquidated damages for delay in completion of the works by the contractor and payment of interest on delayed certified payments to the contractor by the client. It was found in all four case studies all above credible commitments were complied with by the parties.

Opportunism and asset specificity

It was noted in case studies one and two contractors developed opportunistic behaviour when were asked to give quotations for items which were not in the contract. In both case studies contractors were submitting exaggerated prices apparently due to lack of competition expressing asset specificity nature. However, such behaviour was not found in case studies three and four. For case study four the contracts were relatively complete as such there were no new items which the contractor was asked to give his quotation. For case study three although the contract was incomplete such opportunistic behaviour of contractors was mitigated by having prices of all possible items in the project which were used in pricing the items which were introduced after signing the contract.

Project participants interrelationships

Hierarchies of systems, interdependence of elements, closed and open systems theory concepts were used to express interrelationships among the project members and the environment in which the projects were done. All four projects considered as systems had the construction industry in Tanzania as a common supra-system. Given that the projects had to comply with various regulations and approval systems required by various institutions regulating construction activities in Tanzania as discussed in chapter 3. However in additional to that, each project had other different supra-systems based on the environment in which the project belongs. Case study one project belonged to a supra system of the community at large in respect of financing, as well as the medical community supra system through the association of paediatricians which had influence in the management of conflict in the project. Case study two project belonged to the supra system of universities which also had influence in handling some conflicts which emerged in the project. Case study three belonged to a supra system of central government in respect of financing and economic planning in the Tanzania and case study four belonged to a supra system of local government particularly in financing.

All four case studies projects as systems each had its subsystems in form of project participants who were closely linked through their respective contracts of engagement. The contracts expressed roles and duties of each member in the projects. The links were also made stronger through site meetings which were held regularly to review progress and discuss problem pertaining to the projects. All four case studies projects exemplified the concept of open rather than closed system in various forms and were adaptive to various events and occurrences outside the project.

7.5.2 Conflicts experienced

The conflicts identified in the four case studies are pooled, compared and re-interpreted to establish whether the conflicts experienced, their causes and management in each case can be related to other cases.

Conflict in issuing certificates of payments to contractors by consultants

These are conflicts related to time the consultants were taking to assess contractor's claims which contractors considered to be too long. This was found in case studies one and two projects. Hold up tendency of the consultants, exaggerated contractor's claims demanding more time by consultants to assess, and lack of contractual mechanisms to enforce timely evaluation and issue of certificates were found to be the causes of the conflict in both projects. Such conflicts were resolved by improving communication between the contractor and consultant. Conflict of this nature however, was not found in case studies three and four. This could be explained by the fact that when there is no contractual mechanism to enforce timely issuing of the certificate, the time remains at the discretion of the consultant, therefore if the consultant is efficient such conflict can be avoided.

Conflict in delays of payments to the contractor by the client

The conflict was in failure of the client to pay the contractor within the time stipulated in the contract. It was experienced in case studies one, two and three projects. Lack of funds and bureaucracy in payment process were found to be the causes of the conflict in all three projects. The strategy used to resolve the conflict was to provide a condition in the contract requiring the client to pay the contractor interest on the amount due for payment over the period delayed. However, that was not effective for the three cases, since the crucial problem was lack of funds. Such conflict was not experienced in case study four apparently due to availability of sufficient funds budgeted for the project.

Evaluation of contractor's claims

The conflict was in respect of differences between the amount claimed by the contractor against the amount valued and certified by the consultant. This was experienced in case studies one and two projects. The causes were exaggerated claims made by contractors, different methods of valuation used by consultants compared to those used by contractors and the tendency of consultants under-valuing contractor's claims. Such conflicts were resolved

by contractors submitting supporting documents to substantiate their claims. Conflicts of this nature were not experienced in case studies three and four. This can be explained by the fact that case study four project was based on relatively complete contract, therefore there was no much room for the contractor to come up with dubious claims. The same explanation applies for case study three project which was relatively complete as to the level of description of the nature of work items involved in the project.

Delay in payment of sub-contractors by main contractors

Conflicts in this area were experienced in case studies one and three projects. They were caused by dominance tendency of main contractors over their subcontractors. However, the sub-contractors had legal rights against the contractors they did not exercise it for interest of maintaing good working relationship with their contractors. Such conflict was not found in case studies two and four projects. This could be explained by individual or personal character of the contractors as dominance tendency is more to do with personal character than contractual relationship. Therefore, it could be suggested that the contractors for case studies two and four did not have such dominance character rather behaved rationally.

Design changes

Conflict in this area was in respect of changes in the use of the building which were in conflict with the interest of financiers. This was experienced in case study one project only. It was resolved by the client complying with the requirements of the financiers.

Poor communication

Conflict in this area was experienced between the consultant and contractor in case study one project due to non-adherence of communication procedure set in the contract. Apparently conflicts in this area were not experienced in other three case studies projects which were found to adhere to communication procedures set in the contract.

Errors or mistakes in the design

Conflict in this area was on some facilities spaces designed which did not meet the user's requirements as was experienced in case study one project. This was caused by bounded rationality of the consultants due to limited knowledge and misunderstanding of the requirements of the client. Such conflicts were not experienced in other case studies.

Multiple and different meanings of specifications

Conflicts in this area were caused by inadequate and unclear specifications. These were experienced in case studies one and two projects. These case studies expressed a high degree of contractual incompleteness and that can be associated with inadequate and unclear specifications given in the contracts.

Conflict arising from public interruption

Conflicts in this area were experienced in case studies one and three arising from different causes. In case study one project was caused by misunderstanding of communication procedure between the project members and other persons who are not part of the project team but are project stakeholders. This conflict was resolved by setting a communication system that took into account the interests of the stakeholders. While for case study three project the conflict was between the residents living near the project site and the project team. In both cases the conflicts were resolved through collaboration by seeking an amicable solution to both sides. There were no such conflicts in the other two case studies projects since there were minimum contacts between the project and other members outside the project team. In nature building projects are carried out in a limited and confined space as such conflicts arising from public interruption could be minimized.

Incompatibility between the contractor and nominated sub-contractor

A relationship conflict due to different working norms was experienced in case study four project between the contractor (a foreign company) and his sub-contractor (a local company). Such conflict was not found in other three cases which all contractors and their sub-contractors were local based companies. Nonetheless, the conflict was resolved by improving channels of work and information flow between the two conflicting parties facilitated by the consultants who were acting as intermediaries whenever such conflict arose.

7.6 Summary

This chapter has analysed conflicts situation in building projects in Tanzania whereby the areas / issues of conflicts, the causes of conflicts, how conflicts emerged / surfaced and how they are managed in a real project setting have been identified through four building projects case studies. The analysis has been made in view of conflict phenomenon discussed in literature, systems theory concepts and TCE theoretical framework. A cross case analysis of the four case studies has been made so as to pool, compare and re-interpret the findings to

establish whether the conflicts experienced, their causes and management in each case can be related to other cases. From the analysis the conclusion and recommendation is given in the next chapter.

CHAPTER EIGHT
CONCLUSION AND RECOMMENDATION

8.0 Introduction

This chapter finalises the study on causes and management of conflicts in building projects in Tanzania. The study commenced with chapter one where the profile of the problem studied is given, chapter two provides the research methodology which was adopted in the study. The nature of construction industry in Tanzania in the context of conflicts is reviewed and given in chapter three, and chapter four is literature review of conflicts. Theoretical framework used in the analysis of the findings is given in chapter five. Chapter six gives empirical survey findings and case studies are given in chapter seven. This chapter now discusses and concludes on: the study's propositions and objectives, specific contribution to knowledge achieved by the study, recommendations and lastly implications for further research.

8.1 Testing of the study's propositions

According to Yin (1994) testing of study's proposition is a fundamental approach in case study and it is based on testing what has been theorised. In this section replication logic has been used to test the propositions set in chapter two. Each building project is tested to establish to what extent a posited proposition is demonstrated (literal replication) or not demonstrated (theoretical replication).

8.1.1 Proposition 1

Contractual incompleteness and consequent post contract adjustments and opportunistic behaviour of some project participants are root causes of conflicts in building projects in Tanzania.

There was a high degree of contractual incompleteness for the proposed construction of paediatric ward complex for MNH project case study one. That was caused by bounded rationality due to inadequate experience of the design team and changing goals of client. This was expressed in form of design changes and variations which were made after signing the contract. Prices which were given by the contractor when was asked to give quotations for new items introduced were too high and unrealistic compared to the prices which eventually were agreed. This expresses opportunistic behaviour of the contractor that was apparently

caused by lack of competition arising from monopoly power and asset specificity altitude of the contractor.

For case study two project which was rehabilitation of staff houses, classrooms, office block and other buildings at Mkwawa University College of Education (DUCE) in Iringa, also expressed a high degree of contractual incompleteness caused by bounded rationality of the design team which was exacerbate by limited time for preparation of bid documents prior to the bidding process. This was reflected in conflicts related to excess variations caused by misconception of the intended nature and scope of work between the client and the design team, different meanings of some work items due to unclear and ambiguous descriptions of work items, errors in project documents caused by negligence at tenders evaluation stage and excess prices quoted by the contractor for new additional items. The above conflicts emerged when the contractor submitted claims which were excessive and unrealistic, by that the contractor expressed opportunistic behaviour.

Case study three project, the construction of buildings and infrastructure for the special economic zone in Dar es Salaam is similar to case studies one and two and also expressed a high degree of contractual incompleteness. This was caused by limited time for preparation of bid documents due to urgency of starting the construction works. Conflicts experienced due to incomplete design were those related to excessive variations and additional works beyond the client's expectation and budget and differing site conditions since detailed site investigation was not done. However, opportunistic behaviour of the contractor was not experienced in this case study due to provision made in the contract of providing unit prices of all possible items of work which were used for pricing additional works. Therefore, although the contract was incomplete the opportunistic behaviour of the contractor was mitigated by drawing a contract which had unit prices of all possible work items in the project.

Case study four project which was construction of Temeke Municipal head office block and assembly hall was relatively complete in terms of design before signing the contract. There was no conflict related to contractual incompleteness experienced and consequently there was no opportunistic behaviour developed from post contract adjustments in this case study.

Conclusive remark for proposition 1

The case studies one and two projects demonstrate that contractual incompleteness and consequent post contract adjustments and opportunistic behaviour of some project participants are root causes of conflicts in building projects in Tanzania. However, case study three project do not replicate the proposition since the project expressed a high degree of contractual incompleteness, but there were no opportunistic behaviour which developed due to availability of appropriate provisions for post contract adjustments which were set in the contract. Apparently case study four project was relatively contractually complete, and no opportunistic behaviour was experienced and therefore replicates the proposition in a negative form.

8.1.2 Proposition 2

There are in-sufficient mechanisms and strategies to deal with conflicts in building projects in Tanzania.

Mechanisms and strategies to deal with conflicts in building projects in Tanzania were considered in respect of the safeguards, assurances and approaches that were provided in the contracts and the general strategic practise for handling conflicts in the projects.

The four case studies projects used different standard forms of contracts which provided the necessary safeguards and assurances to ensure confidence between the contracting parties. These were in form of; using a third party – consultants / design team to administer the contract between the client and contractor, guarantee or surety bond guaranteeing contractor's performance, intention to resolve any dispute by an arbitrator or adjudicator, liquidated damages for delays caused by the contractor to complete the project within the agreed time frame and payment of interest on delayed payments to the contractor by the client. All the above were covered in the contracts of all four projects.

Notwithstanding the above there were conflicts caused by none adherence to some safeguards and assurances provided in the contracts. Conflicts in delays of payments to contractor by client was experienced in three case study projects although there was a penalty to the client to pay interest on delayed payments to the contractor over the number of days delayed. It was expected that the penalty would have pushed the client to pay in time so as to avoid losses, but that did not happen due to lack of funds. Therefore, although the payment of interest for

delayed payments was set as a safeguard and assurance to the contractor to be paid in time that did not work due to lack of funds. This was demonstrated in case study projects one, two and three.

For case study one project the conflicts experienced which were resolved using provisions in the contracts were; delays in payment to contractors by client, evaluation of contractor's claims which were considered to be exaggerated, poor communication in issuing instructions to the contractor by the consultant, errors or mistakes in the design made by the design team and multiple meanings of specifications. While conflicts which were resolved using approaches outside the contract provisions include; delays in issuing payment certificates to the contractor by consultants, method of reimbursement of fluctuations which was provided in the contract but the client found it unfair, delay in payment of sub-contractors by the main contractor. Those conflicts were resolved by means of improved communication among conflicting parties through meetings and dialogues whereby smoothing, collaboration, compromising and avoiding approaches were employed. Therefore, case study one project does not replicate the study's proposition that there are in-sufficient mechanisms and strategies to deal with conflicts in building projects in Tanzania.

Conflicts experienced in case study two which were resolved by using provisions in the contract include; those related to delays in payments to the contractor by the client, different meanings as a result of unclear and ambiguous item descriptions, differences in evaluation of contractors claims, none adherence to specifications by the contractor, errors in project documents and excessive quotation for additional works. Apparently all conflicts in case study two were resolved using contract provisions that compares with the forcing approach of conflict resolution. One conflict which was related to delay in issuing interim payment certificates to the contractor by the consultant was the only conflict which was resolved by compromise that was outside the contract provisions. Therefore, case study two project do not replicate the study's proposition that there are in-sufficient mechanisms and strategies to deal with conflicts in building projects in Tanzania.

Case study three project experienced a number of conflicts which were resolved using the provisions of contract. These were conflicts in delays of certified payments to contractor by the client, excessive variations and additional works, and differing site conditions. The only conflict which was resolved by collaboration approach other than the contract provisions was

the conflict due to public interruption. Therefore, this project also does not replicate the study's proposition that there are in-sufficient mechanisms and strategies to deal with conflicts in building projects in Tanzania.

Case study four project experienced relatively fewer conflicts compared to the other three projects. The conflict related to excessive contractor's claims was resolved by using contract provisions and the conflict related to incompatibility between the main contractor and nominated subcontractor on differences in working norms was resolved by providing channels of work and information flow in the projects through increased collaboration of project members. This project does not replicate the study's proposition that there are in-sufficient mechanisms and strategies to deal with conflicts in building projects in Tanzania.

Conclusive remark for proposition 2:

All four case studies projects do not replicate the proposition that there are insufficient mechanisms and strategies to deal with conflicts in building projects in Tanzania. However, what has been noted is that, the standard forms of contracts have provisions which are applied in resolving some conflicts, but when such provisions are against the interest of both parties to the contract, the parties resort to other resolution approaches which could even differ with the contracts provisions, leading to amendment of the contract so as meet the interests of the parties. This was demonstrated in case study one project when the contract was changed and amended in-order to fulfil the interests of the parties.

8.2 Concluding remark on research objectives

The main objective of the study as set in chapter one was to identify issues on which conflicts occur in building projects, factors causing conflicts and how conflicts are managed. In conclusion there are a number of issues and areas on which conflicts do occur in building projects in Tanzania. The most prominent areas of conflict include delays of payments to the contractor by the client, issuing certificates of payments to the contractor by the consultants, evaluation of contractor's claims, design changes, poor communication, errors and mistakes in the design, multiple and different meanings of specifications, incompatibility between the contractor and nominated subcontractors and evaluation of contractor's claims.

Factors causing the conflicts are in several forms. There are those which are related to the nature of contracts, where the contracts are unclear and ambiguous this gives room for contracting parties to develop opportunistic behaviour when post adjustments are needed. There are those factors which are related to role functions, when the parties fail to perform as expected, like failure of the consultant to evaluate the contractor's claims in good time.

Based on findings from empirical investigations presented in chapter six and case studies presented in chapter seven, it is concluded that there are sufficient mechanisms and approaches for management of conflicts in building projects in Tanzania. The approaches used include those provided in the contracts where resolutions are determined from contract provisions. Such resolutions fundamentally are based on the forcing approach which is appropriate for resolution of conflicts where important principles for instance those related to technical issues like when specifications are being compromised. However, when there was no provision in the contract or when the contract provision was against the interests of the parties to the contract, negotiations were mostly used to seek agreeable solution to the conflicting parties by employing collaboration, compromising, smoothing and avoiding approaches.

On the basis of empirical investigation survey for the intensity of conflicts at various stages of project life it is concluded that there are more conflicts during the construction stage of the projects compared to pre-design, design and post-construction stages. On the intensity of conflicts between project members it is concluded that there are more conflicts between the client and general contractor, followed by conflicts between the design team and general contractor, and the design team and the client and least is conflicts between the general contractor and sub-contractors.

8.3 Recommendations

The success of a building project depends on many variables, one of which according to Diekman, et al (1994) is how the project participants approach conflicts facing the project. Conflicts can create adverse environment in a project, perpetrate distrust, and undermine the cooperative nature of members in a building team, which is importation in a building process for proper management and coordination of resources, time and communication. Conflicts in a project environment as contended by a number of authors cited in chapter one is an

inevitable by-product of project activities therefore, it is important to acknowledge and plan ahead for conflicts in a project environment.

This study has identified a number of areas / issue that are prone to conflicts, the various causes of conflict in those areas and how they are managed. The study has also established that there are sufficient mechanisms and strategies to deal with conflicts in building projects in Tanzania. However, the effects of conflicts in terms of time and cost overruns to the projects studied in chapter seven, limit the projects successes. Therefore, it is important to setup strategies and mechanisms for management and prevention of conflicts in a timely and cost effective manner if building projects are to be successful.

The strategies and mechanisms for management and prevention of conflicts in building projects should be considered in light of the causes of conflicts and management strategies identified in chapters six and seven. Therefore, a proposed framework for effective management of conflicts in building projects in Tanzania should consider the following:

- The client / employer should have a clear mind of the project in terms of requirements and scope. This could be done with an assistance of a design team by preparing a project brief. This will reduce unnecessary changes brought up when the project is at implementation stage.
- A realistic budget and financial projection of the project should be prepared so as to know the financial commitment before the start of a project. This will reduce uncalled for lack of funds for the project.
- Sufficient time should be allowed for preparation of tender documents to avoid mistakes and lack of clarity in the tender documents. The tender documents should be complete in terms of scope and quality of project works to enable the tenderers to come up with realistic prices reflecting the cost of the project. Attempts should be made to include in the tenders the provision of getting unit prices from the tenderers for all possible work items in the project which could be used to price new work items that could be introduced after signing the contract (provision of schedule of rates in the tender documents could be very useful as was found in case study three project). This will reduce opportunistic behaviour when ex-post adjustments are needed and when there are no sufficient bases for pricing new items of work.

- The contracts of engagements should be clear and specific on the roles and duties of each party in a contract and should cite out remedies for failure to perform. This will reduce conflicts related to negligence, delays in payments and communication.
- The contracts should provide some economic incentives, safeguards and guarantees and sureties so as to give trust and confidence to each party in the contract. This will reduce the risk of opportunistic behaviour.
- The selection of design team and contractors should base on ability and capacity to undertake the assignment. This could be achieved if the selection criteria are well set and the assessment is properly done. This will reduce conflicts arising from bounded rationality of the design team and contractors.
- There have to be at all project stages mutual trust and understanding among all project participants. This could be achieved if there are relationship building activities such as openness and regular meetings in the project. This will create a forum for discussions and resolving conflicts at an early stage.

8.4 Specific contribution to knowledge achieved by the study

The contribution to knowledge made by this study is as follows:

- The identification of issues / areas prone to conflicts and their causes in building projects in Tanzania.
- The analysis of conflict management approaches used in building projects in Tanzania.
- Suggestion for more effective conflict management in building projects in Tanzania.
- The use of mixed research methodology; quantitative (empirical investigation) and qualitative (case studies) in studies of conflicts in construction industry in Tanzania.

8.5: Implications for further research

A building project team, as discussed in chapter seven is regarded as a system of several broader supra-systems depending on the boundaries one may like to draw. Moreover a project team comprise of sub-systems in terms of project participants who come together on a temporary basis to form a team to execute a project in hand while at the same time the same project participants as firms and individuals are sub-systems of other systems. Indeed there is a complex interrelationship if one is to analyse comprehensively conflicts as a factor of success or failure of building projects in Tanzania. However, this study was limited to

conflicts among the project participants within a project team regarded as internal conflicts. Therefore, further research could be directed to:

i. Identification of causes and management of external conflicts; the conflicts between the project as a team and its supra-systems to which the project belongs.
ii. How conflicts at individual level (personal conflicts) influence conflicts at project level.
iii. Effects of conflicts in building projects. It would be important to investigate changes to a building project brought about by conflict resolutions in order to assess functional and dysfunctional conflicts in building projects.

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APPENDICES

Appendix A – Questionnaire on causes and management of conflicts in building projects in Tanzania

QUESTIONNAIRE TO (Please tick your designation):

Client/Employer		**Structural / Civil Engineer**		**Sub-Contractor**	
Architect		**Services Engineer**			
Quantity Surveyor		**General Contractor**			

Name (Optional) ……

Class of registration (for contractors)……

Years of experience in building industry:……

Introduction

Conflict is a state of opposition, disagreement, or incompatibility between persons or a group of persons over ideas, interest, beliefs, feelings, behavior or goals. In building projects a number of participants team up together to form a project team for implementation of a project in hand. However, conflicts (as defined above) do happen between various members in a team. Based on your experience in various building projects,

1. How do you rate the following as areas of conflict in building projects.
The rating should be as follows: 0 = not applicable, 1= very low, 2 = low, 3 = moderate, 4 = high, 5 = very high.

1.1. Design errors …….. ☐

1.2. Contractual claims (on extension of time and financial claims)…… ☐

1.3. Multiple meanings of specifications …….. ☐

1.4. Delays in payments …… ☐

1.5. Poor communication ……... ☐

1.6. Excessive contract variations …… ☐

1.7. Differences in evaluation …… ☐

1.8. Differing site condition …….. ☐

1.9. Errors in project documents …….. ☐

1.10.Public interruption …….. ☐

1.11.Cultural differences …… ☐

Please you may add more areas in the space provided below:

……

……

2.0. For each of the above areas of conflicts, how do you rate the following as the cause of conflict.

The rating should be as follows: 0 = not applicable, 1= very low, 2 = low, 3 = moderate, 4 = high, 5 = very high.

2.1.Design errors

2.1.1. Misinterpretation of client's requirements by the designer…….. ☐

2.1.2. Inexperience of the designer ……. ☐

2.1.3. Incompetent designer …….. ☐

2.1.4. Inadequate time for design …… ☐

2.1.5. Wrong design data …….. ☐

2.1.6. In-adequate brief …….. ☐

2.1.7. Cheap design hired instead of quality ……. ☐

Please you may add more causes in the space provided below:

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……

2.2. Contractual claims (on extension of time and financial claims)

2.2.1. Incomplete tender information ……. ☐

2.2.2. Inadequate contract documents …… ☐

2.2.3. To offset unrealistic tender price …… ☐

2.2.4. In-adequate contract administration …… ☐

2.2.5. In-appropriate contract type …… ☐

2.2.6. Unclear risk allocation …… ☐

Please you may add more causes in the space provided below:

……
……

2.3. Multiple meanings of specifications

2.3.1. Negligence…… ☐

2.3.2. Inexperience of specification writer ……..…… ☐

2.3.3. Cut and paste tendency ……. ☐

2.3.4. Use of outdated specifications……..… ☐

2.3.5. Peculiar / complicated project…… ☐

2.3.6. Vested interest…… ☐

Please you may add more areas in the space provided below:

……

2.4. Delays in payments

2.4.1. Lack of funds…… ☐

2.4.2. Poor financial projections on the client's side …… ☐

2.4.3. Excessive claims made by the contractor beyond client's financial projections…… ☐

2.4.4. Unnecessary bureaucracy in the payment process on the client's side…….. ☐

2.4.5. Delays originating from evaluation process of the contractor's by the consultants……... ☐

2.4.6. Inadequate contract provisions for enforcement of timely payments……. ☐

Please you may add more causes in the space provided below:

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……

2.5. Poor communication

2.5.1 Lack of communication procedures……. ☐

2.5.2. Non adherence of communication procedures set…… ☐

2.5.3. In effective means of communication …….. ☐

2.5.4. Negligence…… ☐

2.5.5. Poor feedback system……. ☐

2.5.6. Deliberate blockage of information flow…… ☐

Please you may add more causes in the space provided below:

……

……

2.6. Excessive contract variations

2.6.1. Change of scope of works as a result of changes in requirements ordered by the client…… ☐

2.6.2.Change of scope of works as a result of design errors…… ☐

2.6.3. Errors in bill of quantities …… ☐

2.6.4. Errors in drawings……. ☐

2.6.5. Errors in specifications……. ☐

2.6.6. Misinterpretation of contract information…….. ☐

Please you may add more causes in the space provided below:

2.7. Differences in evaluation

2.7.1. Unclear method of pricing in the contract…….. ☐

2.7.2.Tendency of contractor claiming high prices …… ☐

2.7.3. Dubious claims by contractors …… ☐

2.7.4. Tendency of consultants / clients under-valuing…….. ☐

2.7.5. Profit making or loss balancing approach of the contractors by using inferior items in lieu of the ones specified in the contract…… ☐

Please you may add more causes in the space provided below:

……

……

2.8. Differing site condition and limitations

2.8.1. Lack of money, time, experts in site investigation…… ☐

2.8.2. Lack of knowledge of site conditions …… ☐

2.8.3. Carelessness of site investigator…… ☐

2.8.4. Superficial investigation of site conditions…… ☐

2.8.5. Wrong interpretation of site investigation…….. ☐

2.8.6. Ignorance of client and consultants on the importance of site investigation……. ☐

2.8.7. Lack of necessary building permit from regulatory authorities…….. ☐

Please you may add more causes in the space provided below:

……

……

2.9. Errors in project documents

2.9.1. Inadequate time for document preparation…….. ☐

2.9.2.Incompetent personnel in preparation of project documents ……. ☐

2.9.3. Inexperience of personnel involved in preparation of documents….. ☐

2.8.4. Low consultancy fee…….. ☐

2.9.5. Negligence…… ☐

Please you may add more causes in the space provided below:

……

……

2.10. Public interruption

2.10.1. Public resistance due to pollution of the environment to be caused by the project…… ☐

2.10.2.The project involves displacement of people ……. ☐

2.10.3.Unfair compensation for displaced people…… ☐

2.10.4.Poor public relationship between the project people and the public…… ☐

2.10.5.Non adherence to public authorities (Municipal councils, DAWASCO, TANESCO etc)…… ☐

Please you may add more causes in the space provided below:

……

……

2.11. Cultural differences

2.11.1.Language problem…… ☐

2.11.2.Working norms problem…….. ☐

2.11.3.Professional culture problems …….. ☐

2.11.4.Adversarial industry culture…….. ☐

Please you may add more causes in the space provided below:

……

……

3. At what stage of building project life are conflicts experienced.

Indicate the stage by rating as follows: 0 = not applicable, 1 = very low, 2 = low, 3 = moderate, 4 = high, 5 = very high.

3.1 Conflicts related to design problems – during;
- **A. Pre-design stage** …….
- **B. Design stage** …….
- **C. Construction stage** …….
- **D. Post construction stage** …….

3.2 Conflicts related to contractual claims – during;
- **A. Pre-design stage** …….
- **B. Design stage** …….
- **C. Construction stage** …….
- **D. Post construction stage** …….

3.3 Conflicts related to multiple meanings of specifications – during;
- **A. Pre-design stage** …….
- **B. Design stage** …….
- **C. Construction stage** …….
- **D. Post construction stage** …….

3.4 Conflicts related to delays in payments – during;
- **A. Pre-design stage** …….
- **B. Design stage** …….
- **C. Construction stage** …….
- **D. Post construction stage** …….

3.5 Conflicts related to communication – during;
- **A. Pre-design stage** …….
- **B. Design stage** …….
- **C. Construction stage** …….
- **D. Post construction stage** …….

3.6 Conflicts related to excessive contract variations – during;
- **A. Pre-design stage** …….
- **B. Design stage** …….
- **C. Construction stage** …….
- **D. Post construction stage** …….

3.7 Conflicts related to evaluation – during;
- **A. Pre-design stage** …….
- **B. Design stage** …….
- **C. Construction stage** …….
- **D. Post construction stage** …….

3.8 Conflicts related to site conditions and limitations – during;
- **A. Pre-design stage** …….
- **B. Design stage** …….
- **C. Construction stage** …….
- **D. Post construction stage** …….

3.9 Conflicts related to errors in project documentation – during;
- **A. Pre-design stage** …….
- **B. Design stage** …….
- **C. Construction stage** …….
- **D. Post construction stage** …….

3.10 Conflicts related to public interruption – during;
- **A. Pre-design stage** …….
- **B. Design stage** …….
- **C. Construction stage** …….
- **D. Post construction stage** …….

3.11 Conflicts related to cultural difference – during;

A. Pre-design stage …….
B. Design stage …….
C. Construction stage …….
D. Post construction stage …….

4. Among which members in a project team do conflicts occur?

Indicate the pair of members in a project team among which conflicts do occur by rating as follows: 0 = not applicable, 1 = very low, 2 = low, 3 = moderate, 4 = high, 5 = very high.

4.1 Conflicts related to design problems – between;

A. Design team and Contractor …….
B. Design team and Client …….
C. Client and Contractor …….
D. Contractor and sub-contractors …….

4.2 Conflicts related to contractual claims – between;

A. Design team and Contractor …….
B. Design team and Client …….
C. Client and Contractor …….
D. Contractor and sub-contractors …….

4.3 Conflicts related to multiple meanings of specifications – between;

A. Design team and Contractor …….
B. Design team and Client …….
C. Client and Contractor …….
D. Contractor and sub-contractors …….

4.4 Conflicts related to delays in payments – between;

A. Design team and Contractor …….
B. Design team and Client …….
C. Client and Contractor …….
D. Contractor and sub-contractors …….

4.5 Conflicts related to communication – between;

A. Design team and Contractor …….
B. Design team and Client …….
C. Client and Contractor …….
D. Contractor and sub-contractors …….

4.6 Conflicts related to excessive contract variations – between;

A. Design team and Contractor …….
B. Design team and Client …….
C. Client and Contractor …….
D. Contractor and sub-contractors …….

4.7 Conflicts related to evaluation – between;

A. Design team and Contractor …….
B. Design team and Client …….
C. Client and Contractor …….
D. Contractor and sub-contractors …….

4.8 Conflicts related to site conditions and limitations – between;

A. Design team and Contractor …….
B. Design team and Client …….
C. Client and Contractor …….
D. Contractor and sub-contractors …….

4.9 Conflicts related to errors in project documentation – between;

A. Design team and Contractor …….
B. Design team and Client …….
C. Client and Contractor …….
D. Contractor and sub-contractors …….

4.10 Conflicts related to public interruption – between;

A. Design team and Contractor …….
B. Design team and Client …….

C. Client and Contractor …….
D. Contractor and sub-contractors …….

4.11 Conflicts related to cultural difference – between;
A. Design team and Contractor …….
B. Design team and Client …….
C. Client and Contractor …….
D. Contractor and sub-contractors …….

5.0: CONFLICT RESOLUTION APPROACHES:

- *Collaboration;* ***is the conflict resolution approach involving parties meeting face to face and collaborating to reach an agreement that satisfies the concerns of both parties; win – win style.***
- *Compromising****; is the conflict resolution approach by which conflicting parties bargain to reach a mutually acceptable solution. Both parties give up something in-order to reach a decision and leave with some degree of satisfaction; give and take style.***
- *Smoothing;* ***is the conflict resolution approach by which conflicting parties emphasize the areas of agreement. A party may sacrifice it's own concerns or goals in-order to satisfy the concerns or goals of the other party.***
- *Avoiding;* ***is a conflict resolution approach by which conflicting parties tend to postpone an issue for later or withdrawing from the situation altogether.***
- *Forcing;* ***is the conflict resolution approach by which one party goes all out to win it's position while ignoring the needs and concerns of the other party; win – lose situation.***

Given the conflict areas mentioned above which resolution approaches do you or would you apply. ***Indicate the approaches by raking from 1 for the most used and preferred to 5 the least used and preferred one***

5.1. Design errors

A. Collaboration …….
B. Compromising …….
C. Smoothing …….
D. Avoiding …….
E. Forcing …….

Please indicate any other approach you may be using in the space provided below

……

5.2. Contractual claims (on extension of time and financial claims)

A. Collaboration …….
B. Compromising …….
C. Smoothing …….
D. Avoiding …….
E. Forcing …….

Please indicate any other approach you may be using in the space provided below

……

5.3. Multiple meanings of specifications

A. Collaboration …….
B. Compromising …….
C. Smoothing …….
D. Avoiding …….

E. Forcing ……

Please indicate any other approach you may be using in the space provided below

……

5.4. Delays in payments

A. Collaboration ……

B. Compromising ……

C. Smoothing ……

D. Avoiding ……

E. Forcing ……

Please indicate any other approach you may be using in the space provided below

……

5.5. Poor communication

A. Collaboration ……

B. Compromising ……

C. Smoothing ……

D. Avoiding ……

E. Forcing ……

Please indicate any other approach you may be using in the space provided below

……

5.6. Excessive contract variations

A. Collaboration ……

B. Compromising ……

C. Smoothing ……

D. Avoiding ……

E. Forcing ……

Please indicate any other approach you may be using in the space provided below

……

5.7. Differences in evaluation

A. Collaboration ……

B. Compromising ……

C. Smoothing ……

D. Avoiding ……

E. Forcing ……

Please indicate any other approach you may be using in the space provided below

……

5.8. Differing site condition and limitations

A. Collaboration ……

B. Compromising ……

C. Smoothing ……

D. Avoiding ……

E. Forcing ……

Please indicate any other approach you may be using in the space provided below

……

5.9. Errors in project documents

A. Collaboration ……

B. Compromising ……

C. Smoothing ……

D. Avoiding ……

E. Forcing ……

Please indicate any other approach you may be using in the space provided below

……

5.10. Public interruption

A. Collaboration ……

B. Compromising ……

C. Smoothing ……

D. Avoiding ……

E. Forcing ……

Please indicate any other approach you may be using in the space provided below

……

5.11. Cultural differences

A. Collaboration ……

B. Compromising ……

C. Smoothing ……

D. Avoiding ……

E. Forcing ……

Please indicate any other approach you may be using in the space provided below

……

6.0: Kindly in the space below you may give remarks and comments on conflicts situation in building projects in Tanzania:

Appendix B – Case study protocol

Case study Nr: .....

1. Project contract particulars

Evidence	**Source of evidence**
i. Project participants directly involved in the project	Contract documents, interview
ii. Location of the project	Observation
iii. Contract information: - Project description - Type of contract used - Programme of works - Project cost (initial estimate, contract sum and revised contract sum(s)	Contract documents, interview

2. Areas/issues of conflicts experienced in the project

Evidence	**Source of evidence**
i. Mode of payments to consultants and contractor (to check for delays)	Contract documents, payments applications, payments certificates, interview
ii. Changes in the design and their effects	Original design drawings, revisions made, interview
iii. Comparison of Contractor's claims against the actual amounts certified by consultants	Contractor's claims, certificates issued, interview
iv. Communication procedures	Project organisation structure, interview
v. Errors and mistakes in the design	Site instructions, correspondences, interview
vi. Errors in project documents	Contract documents, site instructions, correspondences, interview
vii. Different meanings of specifications	Contract specifications, site instructions, correspondences, interview
viii. Site condition	Site investigation report, original site layout, observation, interview
x. Public interruption	Interview of project members and residents in the neighbourhood
xi. Culture – professional culture, working norms, Language problem.	Interview the professionals and site workmen

3. Factors causing conflicts on:

i. Payments

Evidence	**Source of evidence**
i. Bureaucracy in payments	Payment process / procedure
ii. Financial projection	Project budget
iii. Evaluation process of contractor's claims	Contract provisions, time for processing
iv. Excessive claims	Comparison of claims and certificates issued

ii. Contractual claims

Evidence	**Source of evidence**
i. Incomplete information at tender stage	Information provided in the tender documents eg. Provisional and contingency sums, level of design attained.
ii. Contract administration	Interview members of the project team
iii. Unclear risk allocation	Contract used and risks embodied in the project
iv. Unrealistic low tender price	Comparison of tender/contract figure with cost estimate prepared by the consultant

iii. Excessive variations

Evidence	**Source of evidence**
i. Changes of scope of works due to client's changes in ideas, errors in contract documents, misinterpretation of contract information	Drawings, BOQ, site instruction, variations

iv. Differences in evaluation

Evidence	Source of evidence
i. Tendency of clients/consultants under-valuing	Comparison of claims and certificates issued, interview
ii. Profit making or loss balancing approach of contractors	Comparison of claims and certificates issued, interview
iii. Dubious claims by contractors	Comparison of claims and certificates issued, interview

v. Communication

Evidence	Source of evidence
i. Feedback	Means and procedure of information exchange, interview
ii. Negligence	Interview
iii. Ineffective means of communication	Means and procedure of information exchange, interview

vi. Design errors

Evidence	Source of evidence
i. Cheap design hired instead of quality (competency and experience)	Design fees, qualification and experience of the personnel in the design team, interview
ii. Time for design and preparation of tender documents	Project programme / actual time spent, interview
iii. Misinterpretation of client's requirements	Changes made to the design, interview

vii. Errors in project documents

Evidence	Source of evidence
i. Time for design and preparation of tender documents	Project programme / actual time spent, interview
ii. Competency and experience of design team	Qualifications and experience of personnel in the design team
iii. Negligence	Interview

viii. Different meanings of specifications

Evidence	Source of evidence
i. Use of outdated specifications	Contract documents, interview
ii. Cut and paste tendency	Preparation procedure, interview
iii. Vested interest	Interview

ix. Differences in site conditions

Evidence	Source of evidence
i. Lack of money	Project budget, interview
ii. Ignorance	Interview
iii. Lack of knowledge of site conditions	Interview
iv. Superficial investigation	Interview

x. Public interruption

Evidence	Source of evidence
i. Poor public relationship	Interview
ii. Unfair compensation for people affected	Interview
iii. Non-adherence to public authorities regulations	Interview
iv. Pollution of the environment caused	Interview

xi. Cultural difference

Evidence	Source of evidence
i. Professional culture problem	Interview
ii. Working norms	Interview
iii. Language problem	Interview
iv. Adversarial industry culture	Interview

4. The intensity of conflicts at various stages of project life

Evidence	Source of evidence
The stage of project life during which most conflicts are experienced	Interview

5. Among which members in a project team do conflicts occur?

Evidence	Source of evidence
Members among which do conflicts occur	Interview, correspondences

6. How are the conflicts managed?

Evidence	Source of evidence
Approaches used in resolving differences arising within the project	Interview, correspondences
Provisions provided in the contract for resolving differences arising among project members	Contract documents, interview