

# INVESTIGATING COMMON CAUSES FOR DISPUTES IN CONSTRUCTION IN SRI LANKA

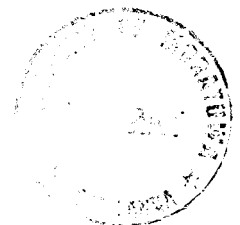


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**Dasanayake D M P R**

M.Sc. Dissertation

2010



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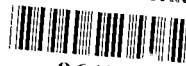
**Dasanayake Mudiyanseelage Prasad Rajitha Dasanayake**



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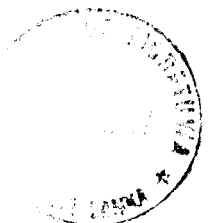


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Degree of Master of Science

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## LIST OF ABBREVIATIONS

ADR	:	Alternate Dispute Resolution
BOQ	:	Bill of Quantities
BTT	:	Business Turnover Tax
CQS	:	Chief Quantity Surveyor
DAB	:	Dispute Adjudication Board
FIDIC	:	Federation Internationale Des Ingenieurs – Conseils
ICC	:	International Chamber of Commerce
ICE	:	Institute of Civil Engineers
ICTAD	:	Institute for Construction Training & Development
LAD	:	Liquidated and Ascertained Damages
LD	:	Liquidated Damages
PAL	:	Port Authority Levy
QS	:	Quantity Surveyor
GST	:	Goods and Services Tax
VAT	:	Value Added Tax



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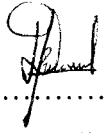
I would like to thank Mr. Indunil Seneviratne, Head of the Department of Building Economics, all other lecturers and administrative staff of the Master of Science Degree in Project Management for their help given during the research. I also like to extend my gratitude to many reviewers who have gone through my dissertation many times and have provided invaluable constructive criticisms through which I could develop it to the present level.


Finally I extend my special gratitude to my parents, family members and all other individuals who assisted and encouraged me in numerous ways towards the success of my research.

# **A Study Submitted in Partial Fulfillment of the Requirements of the Degree of Master of Science in Project Management**

## **Declaration**

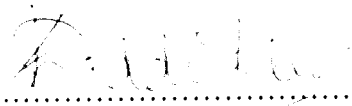
I hereby declare that this submission is my own work and that, it contains no materials previously published or written by another person nor material which, to a substantial extent, has been accepted for the award of any other degree or diploma of a University or other institution of higher learning, except where an acknowledgement is made in the text.

  
.....  
D.M.P.R Dasanayake

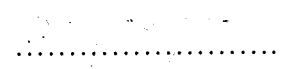
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*5<sup>th</sup> March 2010*

I hereby acknowledge that Mr. D.M.P.R. Dasanayake has followed the dissertation process set by the Department of Building Economics.



Prof. Chitra Weddikkara  
Dissertation Supervisor



Date

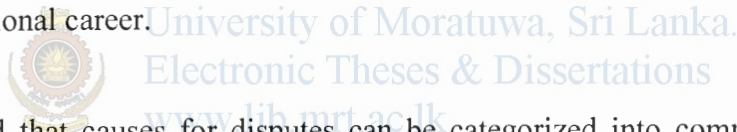


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## ABSTRACT

### INVESTIGATING COMMON CAUSES FOR DISPUTES IN CONSTRUCTION IN SRI LANKA

The objectives of the study were to examine the status of the construction industry in Sri Lanka to examine the common cause for disputes in the construction industry and establish a checklist to identify the types of disputes and their causes. This was examined by undertaking a literature review of the Sri Lankan construction industry and the construction industries of the countries of Asia Pacific region together with a questionnaire survey and interviews with wide cross section of the construction industry personnel in the Sri Lankan construction industry. 30 respondent through questionnaire survey and 15 interviews were carried out to analyze and identify the type of disputes that occurred in their projects or in their professional career.



It was found that causes for disputes can be categorized into common and uncommon causes. It was also found that around 70 -75 % of the causes arise due to common causes and balance arises due to uncommon causes. While common causes shows a similarity to the causes perceived by the other countries uncommon causes shows significance to the Sri Lankan Construction industry. Examining the respondents in an analytical format the common causes and uncommon causes of disputes were formed into a check list to be used by the professional specially who are responsible in documentation in the industry. Since information has been obtained for this research from a wide cross section of the construction industry, the results could be generalized without any significant limitation.

Keywords: *Common Causes of Dispute, Prevent Disputes, Sri Lanka*

# CHAPTER 1

## Introduction

Disputes inherent to the construction industry are studied through literature and today's industry survey to identify their causes in an attempt to develop a mechanism to overcome such causes at initial stages of projects. Identified causes for disputes were further analyzed and concluded in broader perspective to arrive at a dispute as a preventive mechanism for construction professionals in preparing documentations. Survey was carried out by way of questionnaire & interviews.

### 1.1 Background to the study

Construction industry is generally considered complex and issues immersing therein are complicated. Dispute is defined in oxford dictionary as "controversy, debate or difference of opinion." Dispute occurs when a claim is rejected in whole or in part or is ignored. It is essentially subjective in nature. Groton has identified five stages in construction claims; "a problem, a disagreement, a dispute, a conflict and a litigation". He further identified three categories which cause disputes such as Project Uncertainty, Process problem and People issues. It could be said that single cause of all disputes is a combination of uncertainty with the limited ability of those involved to think and communicate. Many disputes in the construction industry 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.

Although many have identified resolution mechanism for disputes, only few studies carried out to identify the causes for disputes and provide a mechanism for prevention. Although it is greatly a difficult task to avoid disputes in construction, there exists a possibility to minimize them, if stake holders were made effectively communicable. There are only few disputes that end up at litigation or arbitration in Sri Lanka. In some cases the clear disputes will not take off the ground due to the fear of breaking the relationship between

parties to the dispute. This situation is very common in the Sri Lankan construction industry. There are cases where Construction Company had to close down business merely due to continuing disputes. Clearly, it's not beneficial to the construction industry.

Going by the famous idiom "Prevention is better than cure." It was found important to devise a mechanism to reduce the risk of disputes rather than trying to find out mechanism to resolve disputes. Having identified the cause for disputes in the industry, one can use this as a preventive checklist before drafting documentation for construction projects. Thus, this check list plays a pivotal role in Quantity Surveyors' tasks as he's predominately involved in preparation of construction documentation. As improper documentation stems to disagreements, dispute preventative check list mitigates its causes. Hence, project managers will enjoy much relief when such check list pave way for proper construction documentation. Thus, facilitating dispute free projects and allowing core objectives of the employer to be met effectively, namely; time, cost and quality.

Therefore it is felt that the research should be carried out in the commonly found disputes and the causes for them in order to prepare a dispute preventive checklist to be used by all three parties (client, consultant & contractor) to prepare construction documentations to end with dispute free status. This can be a dynamic list that can be updated from time to time with the advancement of knowledge and practical experience.

This is a commercial world and the construction industry is managed by many commercial personalities rather than professionals. Professionals most of the time become their employees. Therefore it is difficult to be more technical and professional in any dealing in the industry since the commercial thinking pattern has a significant variation from the professional thinking and it is the commercial decision most of the time practically implemented in the industry rather than the professional thinking. Therefore it is essential to think how to avoid disputes rather than trying to resolve disputes.

The shifting of the construction activity to the Asian region has had an effect on the Sri Lankan construction industry in the last few years. It has launched a major investment promotion scheme to invite investors such as multinational corporations, single large investors, to invest their money in large scale manufacturing and production activities.

The incentive offered by the Government has been cheap labour, tax concessions, duty free import of goods and disbandment of exchange control. This has led to the commencement of large number of construction projects such as infrastructure projects, commercial complexes, large warehouses and factories. Examples of such projects are the “Tao Towers” constructed by Turner Steiner International, a multinational contractor from U.S.A. engaged in construction of the twin towers in the heart of Colombo, the capitol of Sri Lanka. The other is the “Crescat Towers” office and residential apartment complex awarded to the Singaporean contractor, Singapore Piling and Civil contractors. The design was completed by the American Architects Wimbley, Allison, Tong & Goo (WAT&G) from Hawaii. There are many similar projects in Sri Lanka that have completed in the last few years. As a result, a number of foreign contractors from various parts of the world such as Shimuzu Corporation, Kajima, Mitsui from Japan, John Holland, Clough Engineering from Australia, Zublin, Dumez from European countries, Econ piling, Singapore Piling and civil contractors from Singapore, have commenced construction, either in joint venture projects with Sri Lankan contractors or alone using local labour.

Similarly there are foreign consultants such as architects, engineers, quantity surveyors practicing singly and in collaboration with local practices. This has led to major construction activity although the Sri Lankan construction industry is not adequately prepared for such volume of construction, where standard contracting practices, documentation and management skills including dispute resolution skills are not as developed.

The disputes that occur in the construction industry are identified as traditionally matters arising out of the building contract. In construction contracts the primary concern of the parties to the contract is to complete the project on the on time and to make a financial gain. Dispute such as claim for time extension, variations, extra works, poor performance, termination of contract, fluctuations, liquidated damages are noted as common types of dispute, while particular causes such as adverse weather, delay in payment, inadequate site investigations and certain cultural aspects as uncommon types of disputes. These disputes have been identified the common causes for disputes in construction industry. One can use this as a checklist before doing any construction work or documentation.



## 1.2 Aim

The aim of this research is to investigate common causes for disputes in the construction in Sri Lanka and to prepare a check list to be used by the industry professionals as a preventive mechanism to reduce risk of disputes.

## 1.3 Objectives

In order to achieve above aim, followings are the set objectives;

- 1 Identify the common causes of disputes
- 2 Devise a check list to be used by the industry as a preventive mechanism to reduce risk of dispute in contracts.

## 1.4 Scope and Limitations

The study will be limited to the Sri Lankan construction industry. The selection of construction projects is limited to “building projects”.

## 1.5 Structure of the Report

The report is arranged as follows;

**Chapter One:** Chapter one will discuss the definition of disputes and background to the study and nature of disputes in the Sri Lankan Construction Industry and the significance of the study objective.

**Chapter Two:** Chapter two will concentrate on the literature available to identify common and uncommon causes of disputes in the construction industry.



**Chapter Three:** Chapter three will explain the research methodology adopted in this research to arrive at solutions elaborated in the chapter four.

**Chapter Four:** Chapter four deals with the research findings and critical analysis of the results obtained. It also explained and devises the check list to be used by the construction professionals for a dispute free construction industry.

**Chapter Five:** Chapter five will be the conclusions, recommendation, where possible further research tips are also revealed.



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## CHAPTER 2

### Literature Review

#### 2.1 Introduction

The disputes in the construction industry are normally those arising under contracts for the procurement of supplies and services, the construction of works and the installation of equipment. These are commonly categorized as construction disputes. The basis of many disputes in the construction industry has often evolved from un-clarified assumptions. The parties usually enter into a dispute as a result of differing expectation or misinterpretation of the contract documents. In general, it can be said that disputes and claims can be traced back to failure by one of the parties to the contract. If problems are not resolved promptly, they can cause delays in the project, harm corporative relationships, reduce efficiency, lead to claims and disputes. The latter part of the chapter analysis the nature of dispute and their common causes for disputes in the Construction industry.

According to Brown and Marriot (1993), "A dispute defined as a class or kind of conflict, which manifests itself in distinct, justifiable issues. It involves disagreement over issues capable of resolution by negotiation, mediation or third party adjudication"

A dispute is essentially a difference of opinion. It is synonymous with a conflict but the two are different and it is pertinent to raise the difference, since it is a conflict that causes a dispute. (Haines, 1991).

## 2.2 Causes for Dispute in Construction Projects

A survey of more than 300 construction disputes in the USA (H. Murray Hohns 1979) leads to the conclusion that their causes can be largely traced to five sources as follows:

1. Errors, defects or omissions in contract documents.
2. Underestimation of the cost – by the client, the contractor, or both
3. Changes in conditions, (e.g. unforeseen ground conditions)
4. Claims from end-users (legal rights of owners and tenants)
5. People involved in the construction process

In a Canadian study, Revay (1992) is of the view that the most frequent causes of claims, which can be traced back to clients' "misguided" desire to save money at the wrong "end" of the project, are as follows:

1. Inadequate site and/or soil investigation prior to starting the design
2. Starting design efforts too late and/or unduly limiting the cost of engineering / designs
3. Calling for bids with an incomplete set of drawings
4. Endeavouring to complete the design through shop drawing review
5. Introducing untimely design revisions without allowing commensurate time extension for the completion of the project or without recognizing the contractor's right to impact costs
6. Interfering both with the sequence and the timing of construction (e.g. to compensate for the delay in the delivery of owner-supplied equipment/ materials)
7. Continuing to introduce changes under the disguise of correcting deficiencies.

The Centre for Public Resources Inc. (1991) in its publication Preventing and Resolving Construction Disputes suggests that the ten most common specific causes of construction disputes are as follows:

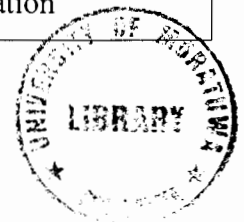
1. Contract provisions, which unrealistically shift project risks to parties who are unprepared to cover those risks

2. Unrealistic expectations of the parties, particularly employers who have insufficient financing to accomplish their objectives
3. Ambiguous contract documents
4. Contractors who bid too low
5. Poor communications between project participants
6. Inadequate contractor management, supervision and coordination
7. Failure of participants to deal promptly with changes and unexpected conditions
8. A lack of team spirit or collegiality among participants
9. A “macho” or litigious mind-set on the part of some or all project participants.
10. Contract administrators who prefer to buck a dispute to a higher level or to lawyers rather than take responsibility for resolving the problem at the source

Other attempts to categorise the causes of disputes are shown in Table 1.

Table 2.1 –Categorising Causes of Dispute adapted from Fenn, P. (1997) and Fenn, P. (2006) (*Adopted from Minimizing Construction Dispute Research Institute for the Built and Human Environment, University of Salford*)

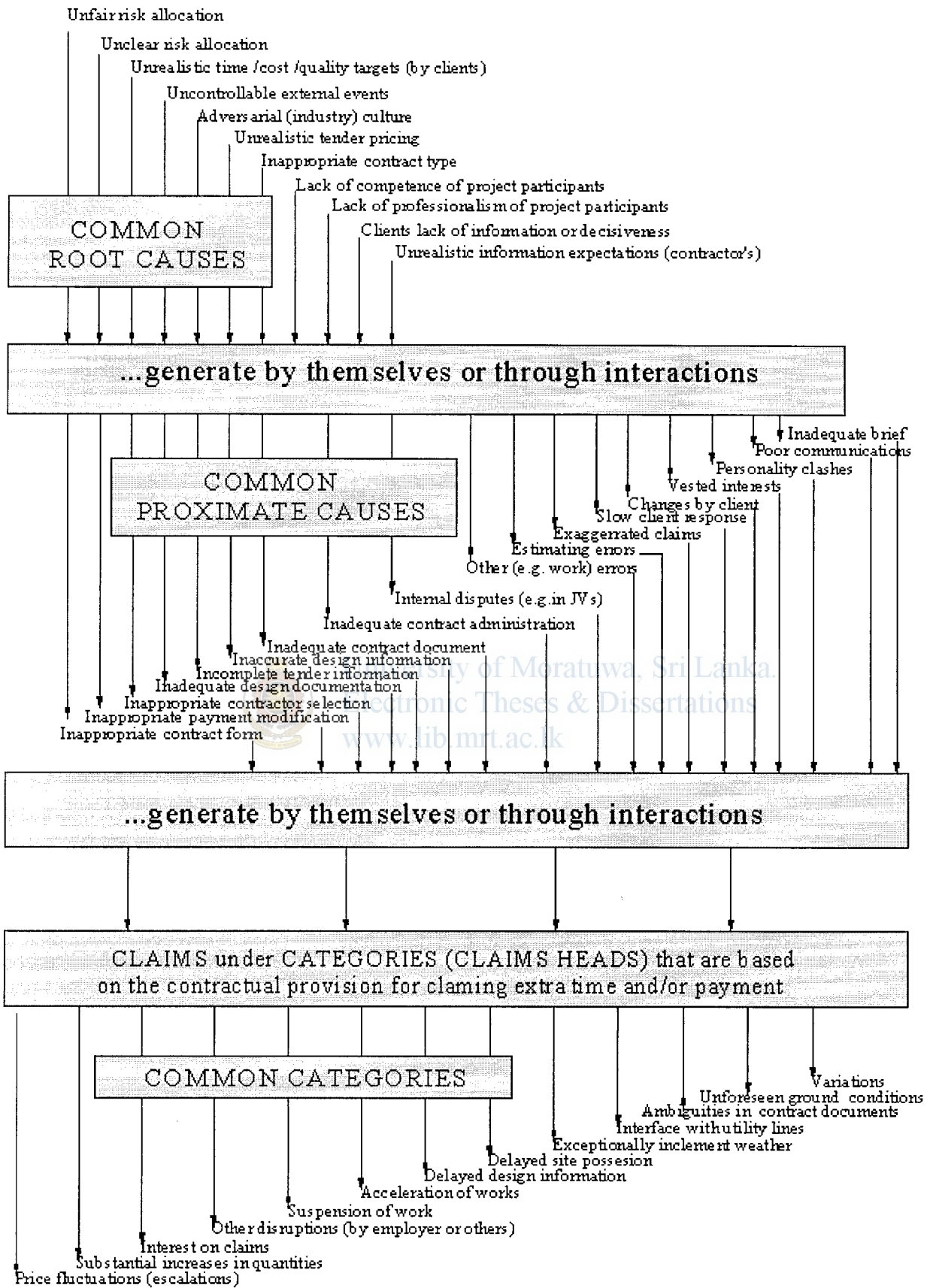
Al Momani [2000]	Causes of delay: poor design, change orders, weather, site conditions, late delivery, economic conditions, and increase in quantity
Alkass <i>et al.</i> [1996]	Seven areas: Strikes, rework, poor organization, material shortage, equipment failure, change orders, act of God
Bristow and Vasilopoulous [1995]	Five areas: unrealistic expectations, contract documents, communication, lack of team spirit and change
Colin <i>et al.</i> [1996]	Six areas: payment, performance, delay, negligence, quality and administration
Diekmann <i>et al.</i> [1994]	Three areas: people, process and product
Heath <i>et al.</i> [1994]	Seven areas: contract terms, payment, variation, time nomination, re-nomination and information



Hewit [1991]	Six areas: change of scope change conditions, delay, disruption, acceleration and termination
Kululanga <i>et al.</i> [2001]	Four sources of dispute: (1) errors, defects and omissions in the contract documents, (2) underestimating the real cost of the project in the beginning, (3) changed conditions and (4) stakeholders involved in the project
Madden [2005]	Three categories: legal, technical and quantum
Molenaar <i>et al.</i> [2000]	Three categories: people issue, process issue and project issues
Rhys Jones [1994]	Ten areas: management, culture, communications, design, economics, tendering pressures, lay, unrealistic expectations, contracts and workmanship
Semple <i>et al.</i> [1994]	Four areas: acceleration, access, weather, and changes
Sykes [1996]	Two areas: misunderstandings and unpredictability



Through a questionnaire survey conducted on 61 contemporary construction projects in Hong Kong Kumaraswamy attempts to better understand disputes; he identifies common root causes, proximate causes and confirms the need of further studies to isolate the real root causes of avoidable claims and disputes. A list of the root causes and the proximate causes is shown in **figure – 2.1** (Flow chart) has identified certain reasons for disputes.



**Figure 2.1:** Common sources of construction dispute (Kumaraswamy, 1997 cited Ranjithkumar, S. 2005)

Many studies were carried out by the authors such as H. Murray Hohns (1979), Revay (1992), Centre for Public Resources Inc. (1991), Fenn, P. (1997) and Fenn, P. (2006). Kumaraswamy (1997 & 1998) and etc. have showed and identified the causes of construction disputes that contributed by the various party in construction project. In this study, it's decided to classify the event of construction disputes into three categories; Clients, Consultant and Contractors. The causes for construction disputes listed below have been identified by range of party representatives and professionals working in the construction industry. The authors identified causes of construction disputes by client, consultant and contractor are as follows.

### **2.2.1 Causes for Dispute by Clients**

1. Failure to respond in timely manner
2. Inadequate tracing mechanisms for RFI (Request for information)
3. Reluctant to check for constructability, clarity and completeness
4. Discrepancies / ambiguities in contract documents
5. Poor communications between and among the parties involved in the project
6. Failure to appoint an overall project manager
7. Lowest price mentality in engagement of contractors and designers
8. The absence of "team spirit" among the participants
9. Deficient management, supervision and coordination efforts on the part of the project

### **2.2.2 Causes for Dispute by Consultants**

1. Failure to understand its responsibilities under design team contract
2. Over-design and underestimate the costs involve
3. Inadequate in open and factual communication
4. Late information issued and cumbersome approaches to RFIs
5. Design and specification oversights and errors or omissions resulting from uncoordinated civil, structural, architectural, mechanical and electrical designs
6. Incompleteness of drawing and specifications.

### **2.2.3 Causes for Dispute by Contractors**

1. Inadequate contractor management, supervision and coordination
2. Lack of understanding and agreement in contract procurement
3. Failure to understand and correctly bid or price the works
4. Reluctance to seek clarification
5. Failure to plan and execute the changes of works
6. Inadequate CPM Scheduling and update requirements
7. Delay/ suspension of works

According to the literature review [Weddikkara Chitra (1997) and Sundaramoorthi S. (1998)] disputes can categories into two main divisions such as

- 1) Common causes for disputes.
- 2) Uncommon causes for disputes.



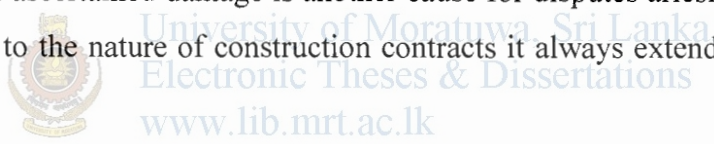
### **2.2.4 Common Causes for Disputes**

The common causes to leading the disputes are as follows.

- (a) Plans and specifications that contain error omissions, ambiguities or requirements that don't or won't fit the actual conditions.
- (b) Incomplete or inaccurate responses or non-responses to questions or resolutions of problems presented by one party to the contract to another party to the contract.
- (c) Inadequate administration of responsibilities by the owner, architect, engineer, contractor, sub-contractors or vendors.
- (d) Unwillingness or inability to comply with the intent of the contract or to adhere to industry standards in performance of the work.



- (e) Site conditions, which differ materially from those, describe in the contract documents.
- (f) Existing building conditions, which differ materially from those shown in the contract, documents.
- (g) Extra works or variations.
- (h) Breaches of contract by any party to the contract.
- (i) Disruptions, delays or acceleration to the work which causes the work to deviate from the normal prescheduled sequence.
- (j) Inadequate financial strength of any of the parties to the contract.
- (k) Attempting to fast track construction on a traditional lump sum fixed price contract.
- (l) Bill of quantities.
- (m) Termination of the contract can be occurred, due to non performance, bankruptcy and death by the one of party to the contract.
- (n) Liquidated and ascertained damage is another cause for disputes arising from time overruns. Due to the nature of construction contracts it always extends beyond the target time.
- (o) Fluctuations (rise and fall), This is the major problem in Sri Lanka due to the high inflationary status of the Sri Lankan currency with the rupee having no buying power against international currencies.



**2.2.5 Uncommon Causes for Disputes.**

To identify the uncommon sources of disputes in construction industry, according to the literature review identified that in the Sri Lanka construction industry, uncommon reasons as follows; [Weddikkara Chithra (1997) Sundaramoorthi S. (1998)]

- (a) Delays due to exceptional weather.

Sri Lanka being an island in the Indian Ocean has climatic conditions varying from hot dry, hot humid to cold. Coastal areas are prone to monsoon weather during two



periods of the year. (i.e. during October to mid December and April to June). The rainfall being the heaviest for these periods, the contractor has to often suspend the works at this time.

(b) Unexpected site conditions.

Similarly the island has varying, topography of flat land to mountainous areas. Soil investigations may not show the soil conditions which are faced by the contractors. Such unforeseen conditions lead to disputes arising out of delays in foundation works.

(c) Sudden tax increases.

Last 30 years the government of Sri Lanka was incurred high expenditure due to the civil war in the country. In order to overcome such expenditure the Government imposes sudden taxes from time to time to collect revenue. These are in the form of taxes and levies such as Business Turn over Tax (BTT), Good and Services Tax (GST), Value Added Tax (VAT), defense levy and port authority levy (PAL). In the last few years some taxes and levies increased more than 100%.

(d) Lack of productivity.

There are number of factors which affect productivity.

1) A large number of public holidays.

The population of Sri Lanka consists of Buddhists, Muslim, Hindus and Christians. The policy of the country emphasizes the rights of all the ethnic groups. Hence the major religious activities of each group are acknowledged resulting in an increased number of holidays in comparison to many other countries.

2) Civil commotion and trade union activities.

The political policies of Sri Lanka permits trade union activities. This has led to closure of construction sites, material manufacturing factories, shortages of materials and escalation of prices of materials particularly during last few years.

(e) Volatile political situation.

Large number of security issues, take into custody, sudden curfews, leading to closure of construction site and releasing the labour or providing for them until the situation improves. Due to sudden stoppage of work cost of idle labour, plant and equipment had to be borne by the contractor. This led to disputes due to proper financial allocations not been made by the contractor at the initial stage of tender.

(f) Inadequacy of skilled management.

One of the major problems for consulting and contracting firms and other implementation organizations is the lack of planning skills. Project Management is a new area that is being introduced into the construction industry. The absence and inadequacy of construction planning skills covering operational and financial resources planning, often results in project delays.

In reviewing the research, categorization of causes for construction dispute in general needs further investigation in Sri Lankan context. i.e categorization by client, consultant & contractor as opposed to common and uncommon causes. Hence, further study is done with weighted averages to establish the importance of these causes for dispute.

## CHAPTER 3

### Research Design (Methodology)

#### 3.1 Introduction

Having carried out an extensive review of existing literatures written in various parts of the world, the research question has been identified as “Investigating common causes for disputes in the construction industry in Sri Lanka”. The research has been designed to find out the answer for this question, particularly with regard to the Sri Lankan context.

Research design of any research shall consist of the process of identifying following three key factors.

1. Identifying **research philosophy** (on which the research premises)
2. Selecting appropriate **research approach** (for testing or building theories)
3. Select **research techniques** (for *data collection* and *data analysis*)

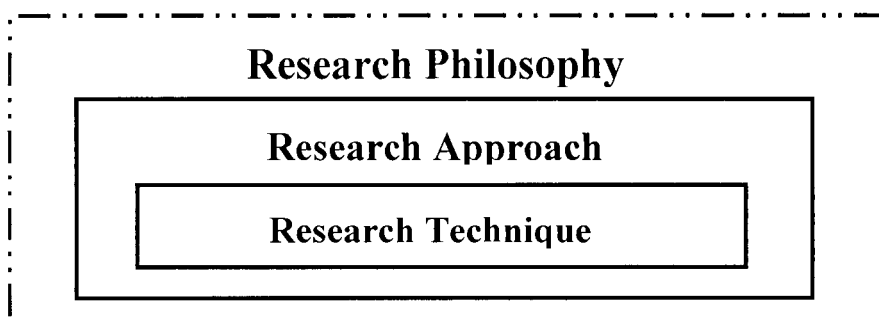
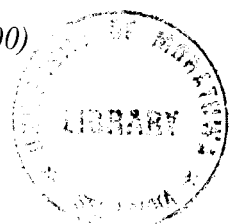


Figure 3.1: Nested Research Methodology (Kagioglou et al., 2000)



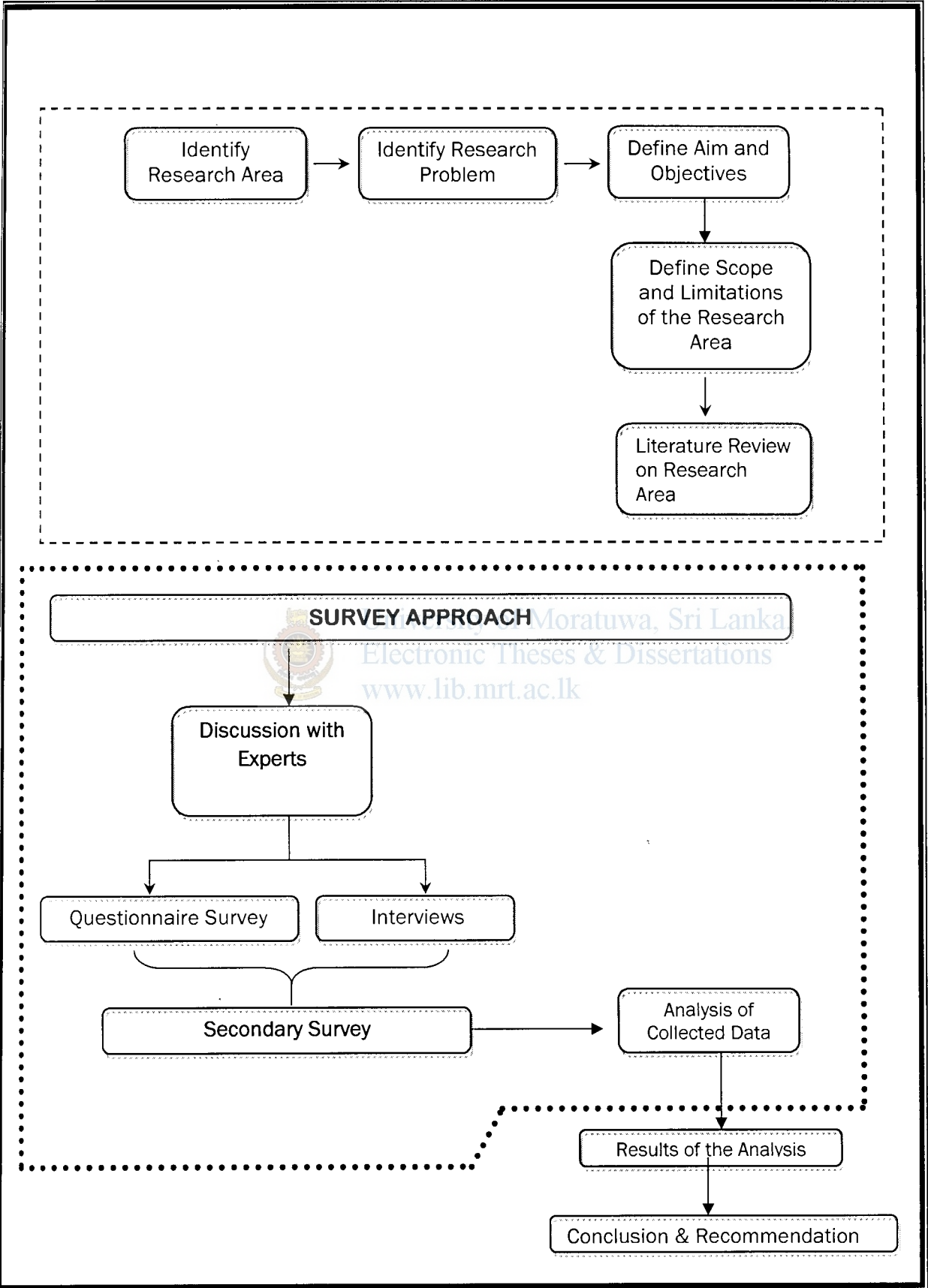


Figure 3.2: Research Process

## 3.2 Research Philosophy

A Research philosophy or a research paradigm is “the basic belief system or worldview that guide the investigator” (Guba and Lincoln, 2000, p105). Through the literature review, it was identified that the common causes of disputes are arising in construction industry in Sri Lanka. How it be investigated before design the type of contract what are the causes of disputes need to consider is lacking in the industry.

Therefore this research endeavor to concentrate on the problem and explore checklist of cases rising to disputes in Sri Lanka construction industry through identifying significant common factors researchers are identified.

## 3.3 Research Approach

Research approaches are classified mainly into two as Quantitative and Qualitative. Quantitative approach tend to relate to positivism and seek to gather factual data and to study relationships between facts and how such facts and relationships accord with theories and the findings of any research executed previously (Kraemer, 2002). Survey researches and experimental researches can be taken under quantitative approaches. By using a qualitative approach the researcher will study whole population as individuals or groups and could be able to identify beliefs, understandings, opinions and views of people (Fellows and Lui, 2003). Case study research, ethnography, action research and grounded theory approach are basically coming under qualitative approaches.

In this research **survey method** and **Interweaves** has been identified as the most appropriate approach.

### 3.4 Survey Research Approach

There is an important distinction between surveys and survey research. A survey is a means of "gathering information about the characteristics, actions, or opinions of a large group of people, referred to as a population". Surveys that are conducted to advance scientific knowledge are referred to as survey research (Kraemer, 2002).

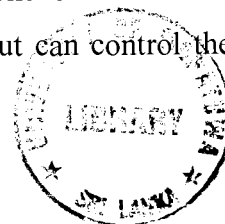
Study of (Kraemer, 2002) has identified that, Surveys conducted for research purposes have three distinct characteristics.

1. Survey research is a quantitative method, requiring standardized information from and/or about the subjects being studied. The subjects studied might be individuals, groups, organizations or communities; they also might be projects, applications, or systems.
2. Second, the main way of collecting information is by asking people structured and predefined questions. Their answers, which might refer to themselves or some other unit of analysis and constitute the data to be analyzed.
3. Third, information is generally collected about only a fraction of the study population, a sample, but it is collected in such a way as to be able to generalize the findings of the population. Usually, the sample is large enough to allow extensive statistical analysis.

### 3.5 Why Using Survey Approach for the Research

The nature of survey research can be best understood by comparing it with two other dominant research approaches. E.g.: Case studies and Experiments. However Case Studies and Experiments were not conducted in this exercise.

According to Kraemer, (2002) Case studies involve examination of a phenomenon in its natural setting. The researcher has no control over the phenomenon, but can control the



scope and time of the examination. The researcher may or may not have clearly defined independent and dependent variables. Case studies are most appropriate when the researcher is interested in the relation between context and the phenomenon of interest.

Experiments involve examination of a phenomenon in a controlled setting. The researcher manipulates the independent variables and observes their effects on the dependent variables. The researcher has direct control over the conditions and manipulation of the independent variables, but the researcher can only study phenomena in the present. Experiments are especially well-suited to research projects involving relatively limited and well-defined concepts and propositions that involve individuals or small groups (Kraemer, 2002). The researcher's expertise in the Construction industry involved for disputes and how those disputes are arising then what are the main causes was dependent.

In contrast to these two methods, survey research involves examination of a phenomenon in a wide variety of natural settings. The researcher has very clearly defined independent and dependent variables and a specific model of the expected relationships which is tested against observations of the phenomenon. A structured questionnaire was developed and it was field tested on 15 interviewees and 30 questionnaires were tested. The improved questionnaire used is provided in this document. Though most responses are qualitative a scale has been used to quantify the responses best suited for quantifications on the scale developed. Quantitative results have been obtained using this method



## **3.6 Research Technique**

### **3.6.1 Literature Review**

Literature survey began at the early stages of the research with the support of books, conference papers, journal articles and unpublished documents. The literature search is more specific on identified common causes for disputes related factors in construction industry internal and external factors. The yield upon this literature review is used to build up the background to the research problem.

### **3.6.2 Unit of Analysis**

The unit of analysis is a phenomenon of some sort occurring in a bounded context (Miles and Huberman, 1994 cited in Senaratne, 2005). The purpose of unit of analysis is to identify the 'focus' or the 'heart' of the study with its boundary. The unit of analysis selected for this study is 'Building construction projects' which are constructed or on going project in Sri Lankan construction industry. Further their construction period was more than 365 days.

## **3.7 Data Collection Technique**

A pilot study is the process of carrying out a preliminary study, going through the entire research procedure with a sample (Ann et al., 1991). Pilot study served as a trial run that allows us to identify the potential problems in the research area.

The simple questionnaire survey and opinion survey had been carried out as the pilot survey. With the feedback of pilot survey few amendments were made in the guideline of making interviews and original survey was carried out.

### 3.7.1 Questionnaire and Interview Survey

This detailed questionnaire survey and interview guideline is the most important part of this data collection. Through the literature survey, the questionnaire was prepared in order to investigate the common cases for disputes in the construction industry related to building construction projects.

### 3.7.2 Selection of the Samples

Sampling is concerned with drawing individuals or entities in a population in such a way as to permit generalization about the phenomena of interest from the sample to the population. The most critical element of the sampling procedures is the choice of the sample frame which constitutes a representative subset of the population from which the sample is drawn. The sample frame must adequately represent the unit of analysis (Kraemer, 2002).



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The sample was selected from the Client, Consultant and Contractor organizations who had implemented or implementing projects lasts more than 365 days.

It was observed that the dispute is a common element in any construction project. The extent of it will only vary depending on the type of dispute. Usage of different forms of contracts in construction industry leads to different forms of disputes though some similarity exists in the type of disputes. There were no limitations set out in the research in to a particular forms of contract or but the research was limited only to building projects. Different types of building projects namely Ware houses, Office Buildings, Apartment building, Individual housing projects etc were some of the types selected. Extensive survey of literature has been done in order to identify the common causes of disputes as identified by the different researches in different countries at the outset to form the base for the study. There were three categories of survey conducted with the aim of finding answers to the question concerned.



Table 3.1: Profile of the sample for Questionnaire - Organizations

<b>Organisations</b>	<b>Number of Responses</b>	<b>Percentage</b>
Employer Organization	10	33.33
Contractor Organization	10	33.33
Consultant Organization	10	33.33
Total	30	100.00

Table 3.2: Profile of the sample for Questionnaire- Professionals, Sri Lanka.



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<b>Professions</b>	<b>Number of Responses</b>	<b>Percentage</b>
Project manageress	6	20.00
Quantity Surveyors	8	26.67
Engineers	6	20.00
Architects	7	23.33
Lawyers	3	10.00
Total	30	100.00

Table 3.3: Profile of the sample for Interview - Organizations

<b>Organisations</b>	<b>Number of Responses</b>	<b>Percentage</b>
Employer Organization	5	33.33
Contractor Organization	5	33.33
Consultant Organization	5	33.33
Total	15	100.00

Table 3.4: Profile of the sample Interview – Professionals

<b>Professions</b>	<b>Number of Responses</b>	<b>Percentages</b>
Project manageress	3	20.00
Quantity Surveyors	5	33.34
Engineers	3	20.00
Architects	2	13.33
Lawyers	2	13.33
Total	15	100.00

## 3.8 Data Analysis Technique

### 3.8.1 Selection of the Interview Guideline

Factors identified through the literature survey was formed the basis for preparing the questionnaire.

To calculate the importance level of each factor the following procedure has been followed.

### 3.8.2 Rating of Samples

Following procedure has been adopted in rating the factors from the sample.

#### ***Procedure: 1***

List out the all literature review selected factors that were affecting or not to the respective organization if project runs more than 365 Days.

#### ***Procedure: 2***

Then allocate the marks say “1” those factors affecting Mark “0” those factors not relevant to respective organization Client, Consultant and Contracting. Continue the above process for all the factors and allocate the marks for every factor

Table 3.5 and Figure 3.3 shows the results obtained through the above method in analytical form.

#### ***Procedure: 3***

Add the marks of every organization and calculate the important percentage if depend on number of respondent.

The above process has been worked out as an arbitrary respondent’s result for easy understanding of below tables.



Table 3.5: Sample Page of Interview

No	Description	Employers (10Nos)										Consultants (10 Nos)										Contractors (10 Nos)										%
		A	B	C	D	E	F	G	H	I	J	A	B	C	D	E	F	G	H	I	J	A	B	C	D	E	F	G	H	I	J	
(a)	Reimbursement of time and cost arising from:																															
1	Delay in payments	1		1		1		1	1	1	1	1		1		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	73%
2	Delay in issue of instructions	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	80%	
3	Delay in approving materials	1	1				1		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	63%		
4	Delay of establish letters of credit	1		1				1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	47%		
5	Delay in clearing duty free materials	1		1				1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	43%		
6	Delay in appointing Nominated Sub Contractors or suppliers			1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	63%		
7	Vague brief		1		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	60%		
8	Recommending to award contracts to lowest tenderers	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	77%		
9	Suspension of work			1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	50%		
10	Late possession of site	1			1			1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	60%		
11	Late award of contract	1		1				1				1		1		1		1		1		1		1		1		1	1	33%		
12	Acceleration to the work		1			1		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	53%		

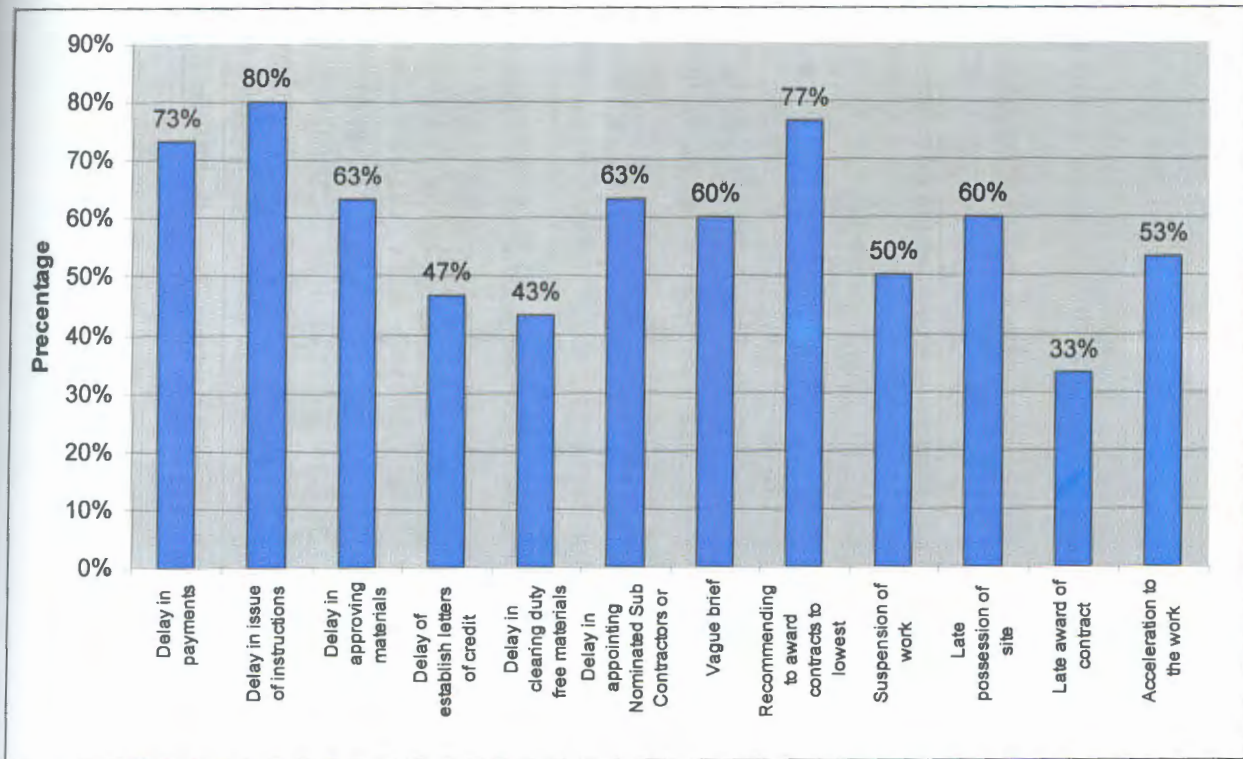


Figure 3.3: Sample page of Interview, Sri Lanka. Electronic Theses & Dissertations www.lib.mrt.ac.lk

### 3.9 Summary

This chapter has presented and justified the methodological approach used in this research study. Research design begins with the ‘nested approach’ explanation and followed with research process. The research process was explained through identify problem, literature review, problem statement, survey design, data collection and data analysis. The next chapter illustrates the analysis and findings from the research studies

## Research Findings

### 4.1 Introduction

It has been observed that the findings from this research were slightly differed from the common causes of disputes highlighted in the literatures reviewed. Questionnaire Survey and the interview process have shown following heads as the common causes for disputes in the Sri Lankan Construction Industry. Exceptionally the uncommon reasons for disputes show a significant variation with respect to the causes identified for same under literature survey. This chapter will pay emphasis for the common causes and uncommon causes identified through the research with their details.

These common and uncommon causes as identified by Client, Contractor and Consultant will need separate attention. Therefore these causes will be elaborated in this chapter in detail with special reference to the party generated the causes for dispute.

It is identified that some of these causes can be minimized or avoided by proper attention given in the stage of document preparation. But some of them are inherent to the contract and the risk attached to those need to be passed on to someone properly through the document so that the chance for a dispute is minimized. It is therefore thought important to devise a check list of the causes identified so that the party responsible for the formation of the contract will handle these probable causes intelligently and accommodate them in the document as appropriate.

Time factor in resolving a dispute is a major element to be considered. Therefore, as a preventive mechanism a check list is developed through the research, so that the party to the contract may pay attention at the document stage to cater for the cause. Hence a chance for a matter to become a dispute will become remote and the solution is clearly evident in



the document itself. But it is noted that the substantiating of the cause for the dispute is a must in any contract. This effort is not to educate the parties to how to behave in a dispute situation by giving evidence etc. but to provide a resolving mechanism in a clear manner in the document once the evidence is found to be concrete.

## **4.2 Common and Uncommon Causes for Disputes**

Research sample taken in survey is versatile in nature. They represent major Contractors, Clients of different nature involved in different types of building projects and Consultants involved with large scale building construction projects. Forms of contracts used had no bearing on the selection of the research sample. This was done in order to generalize the opinion on the disputes within the parties so that the research findings check list can be used by any construction company or professional involve in the construction business. Only restriction adopted here is that the research is limited only to building projects. In this connection the cause identified by more than 60% of the respondents were taken as common causes and the balance is taken as uncommon causes. It was though not advisable to go to a higher percentage than the 60% to be considered for common disputes due to the versatile nature of the parties selected for the research. Accordingly, common causes for disputes generated by Employers, Contractors as well as Consultants, which have been identified by each party, shall be described as follows;

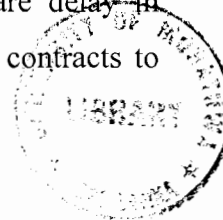
## 4.2.1 Common Causes for Disputes generated by the Client

Table 4.1 Common causes of disputes generated by the client

Nr.	Causes for Dispute
1	Cash flow problems
2	Extra works and Variations
3	Non payment of Advance and Delay in payments
4	Delay in appointing Nominated Sub Contractors or suppliers
5	Recommending to award contracts to lowest tenderers
6	Late possession of site
7	Inadequate financial strength of the parties to the contract
8	Delay in issue of instructions
9	Delay of establish letters of credit
10	Delay in clearing duty free materials
11	Delay in approving materials
12	Late award of contract

The analysis of the research findings revealed that there are twelve causes as listed above which have recorded more than 60% responses in this group. Out of all, cash flow problem has become the highest ranked cause for dispute believed to have been generated by the Client. There are two causes, i.e. extra works and variations, non payment of advance and delay in payments, which have been recognized by 87% and 83% of respondent respectively.

There are four causes recognized by 73% of the respondent and those are delay in appointing nominated sub contractors or suppliers, recommending to award contracts to



lowest tenderers, late possession of site and inadequate financial strength of the parties to the contract.

There are again three causes for disputes for which 67% of the respondent have given the recognition. Those are namely delay in issue of instructions, delay of establish letters of credit and delay in clearing duty free materials. The results of this is tabulated in figure 4.1

Delay in approving materials and late award of contract was recognized by 60% of the respondent and therefore, considered as common causes for dispute in Sri Lankan construction industry.

It was revealed that most of the cases, Contractor is claiming time and cost on following disputes.

Being an owner of the project client is the most concern party to the contract and generally not supposed to contribute to any delay or disruption into the progress of work. As identified in the above under contractor's perception on causes, client has exposed to disputes in a variety of cases. Client's perception into the causes of dispute appears to be focus on the failures of the contractor. Following were devised as common causes for disputes as identified by the client in the research.

Most of the causes identified by the client look like focusing of the poor management of the contractor. Proper management to exist it is evident that the contractor's organization shall be a sound entity. Some cases, employer admits that these disputes were encountered due to award of the contract to the lowest tenderer and not evaluating the responsiveness of the bid. When a contractor undertakes a job which is not up to his capacity there could exist poor planning, lack of diligence, and lack of competence staff. Proper understanding of the project and evaluating of contractor's capacity to undertake the nature of the job will minimize most of those causes identified.

But proper selection of the contractor will not resolve the problem entirely. There could be some other reasons for the employer to claim from contractor due to not fulfilling of contractual obligations. As an example if the contract requires a fully qualified chartered Engineer with 10 years post charter experience to the project, contractor not fulfilling the

obligation and employing under qualified staff will result in employer deducting his preliminary component. Another example could be not achieving the required turnover by the contractor monthly basis and thereby not achieving the programme. Employer can continue to warn the contractor and request revised programme time to time. But at the end employer can impose liquidated damages from the contractor. It is evident that charging the liquidated damages is not a common practice in Sri Lanka, further the damages so imposed shall be the actual loss incurred by the employer by not having the building in the stipulated time. If contested at the court of law employer need to show evidence to prove his loss of turnover. Many contracts only suggest an amount of LD and a limit to it, but the other repercussions were not addressed. In the event contractor not adhering to the request made by the employer to expedite the contract to avoid a possible LD situation will have no remedies stipulated in the contract. Therefore the parties to the document will need to pay attention in such situations to provide provisions in the documents stipulating the employer's possible action due to non compliance will lead to clear understating of the parties and the dispute situation therefore will not arise.



**4.2.2 Common Causes for Disputes generated by the Contractor**

*Table 4.2 Common causes of disputes generated by the contractor*

Nr.	Causes for Dispute
1	Lack of labour, plant and machinery
2	No proper consideration at tender stage
3	Lack of diligence on the part of the contractor
4	Lack of competence staff
5	Shortage of quantities
6	Inappropriate mobilization on site
7	Untimely presentation of claims

Nr.	Causes for Dispute
8	Delay in ordering materials
9	Negligence
10	Lack of sub contractors
11	Poor planning and inadequate organization and management
12	Lack of stores management

The research findings have shown that there are twelve causes as listed above which have recorded more than 60% responses in this category. There are two causes, i.e. lack of labour, plant and machinery, no proper consideration at tender stage, which have been recognized by 80% of respondent as the causes generated by the Employers.

There are five causes recognized by 73% of the respondent and those are lack of diligence on the part of the contractor, lack of competence staff, shortage of quantities, inappropriate mobilization on site, and untimely presentation of claims.

There are three causes for disputes for which 67% of the respondent have given the recognition. Those are namely delayed in ordering materials, negligence and lack of sub contractors.

Poor planning and inadequate organization and management as well as lack of stores management was recognized by 60% of the respondent and therefore, considered as common causes for dispute originated by the Employers in Sri Lankan construction industry. Outcome of this study is figured in figure 4.2

Lack of productivity becomes an issue in Sri Lankan construction industry. They are mainly due to lack of skill, vast number of holidays, unexpected weather, political situation etc.. These situations are sometime inherent to the country's culture. Lack of contractor knowledge in preparing the programme without paying attention to the Sinhalese new year holidays become an issue in a LD situation. Contractor not pays attention not become an

excuse in a delay situation for the client to claim. At the same time not properly defining the terms in the contract may lead to confusion and disputes in applying LD in projects.

If the days in the contract is not defined whether they mean calendar days or days excluding public and mercantile holidays will lead to a dispute as to how to apply LD. The checklist provide the opportunity for the parties to properly address them in the document when it is prepared so that disputes situation is minimized

### 4.2.3 Common Causes for Disputes due to the Consultant

Table 4.3 Common causes of disputes generated by the consultant

Nr.	Causes for Dispute
1	In adequate and insufficient details in the Drawings, Specification and Bill of Quantities
2	Incorrect tender/contract documents and data
3	Less supervision
4	Lack of proper coordination
5	Incorrect soil and site investigation
6	Incorrect tender evaluation
7	Adopting unsuitable conditions for contracts

The survey research has shown that there are seven causes for disputes that have been recognized by more than 60% of the respondents in this group. Out of which the highest numbers of recognition was received for “in adequate and insufficient details in the drawings, specification and bill of quantities” which is 87%. There are two causes, i.e. incorrect tender/contract documents and data, less supervision, which have been recognized by 73% of respondent as the causes generated by the Contractor. This is elaborated in Figure 4.3

Lack of proper coordination has been recognized by 67% of the respondents and there are three causes for disputes for which 60% of the respondent have given the recognition. Those are namely incorrect soil and site investigation, incorrect tender evaluation, adopting unsuitable conditions for contracts. Figure 4.8 shows the tabulated results of the consultant’s side in detail.

As an example, in a time and cost overrun situation due to late payment, the remedy shall be clearly indicated in the documents as to how the interest shall be claimed, in what rate, and what if in a situation of a non payment for a prolonged duration etc. Here it is clear the establishment of whether the payment has been delayed with clear evidence is a must to approve this claim. In another event of contractor claiming for delay in appointing Nominated Sub contractors will need to be established by contractor giving in his master schedule the miles stone dates of the each nominated Sub contract in site. And proper communication shall be shown that the contractor has adequately notified the employer the requirement of the appointment of nominated sub contractor. The remedial measure shall be shown in the document as to how the time and cost run is considered. If it is a critical path item the total programmed need to be extended and if not the float to be identified in order to provide for the extension. The delay beyond the reasons attributed to the contractor shall clearly be indicated that the cost of extension is reimbursable or not.

### 4.3 Uncommon causes of Disputes Identified by the Parties

Uncommon causes for disputes are significant to the country and the region of the research. Those identified by the literature has shown a difference from the research findings. Following were identified as uncommon cause for disputes derived through the questionnaire survey and interview.

Above all causes are considered uncommon since they have been fared at the survey below 60%. But it is not correct to leave them unconsidered. The reasons for uncommon disputes need to be studied in depth to form a as a preventive mechanism to be considered in documentation.

#### 4.3.1 Uncommon Causes for Disputes Generated by the Client

Table 4.4 Uncommon causes of disputes generated by the client

Nr.	Causes for Dispute
1	Vague brief
2	Suspension of work
3	Acceleration to the work

The analysis of the research findings shown to us that there are three causes as listed above which have recorded less than 60% responses in this group. So, therefore, those causes are recognized as uncommon causes of disputes generated by the client. The causes namely are vague brief by the client, suspension of work by the client and acceleration to the work instructed by the client. Results as per figure 4.1 where count below 60% categorized under this heading.



### 4.3.2 Uncommon Causes for Disputes Generated by the Contractor

Table 4.5 Uncommon causes of disputes generated by the Contractor

Nr.	Causes for Dispute
1	Disruption or delays to the work
2	Late in commencement of work

The findings of the research have shown that there are two causes as listed above which have recorded less than 60% responses in this category. These two causes are disruption or delays to the work and late in commencement of work for which the recognition has been given by the respondent as 47% and 27% respectively. Table 4.5 and Figure 4.2 shows the results of same in detailed manner.



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### 4.3.3 Uncommon Causes for Disputes Generated by the Consultants

The results have revealed that there are no uncommon causes for disputes as all the causes have been recognized by more than 60% respondents.

### 4.3.4 Others

Causes of disputes not attributable to any party to the contract has been categorised under others such as unforeseen weather, ground condition, curfew, strikes and reimbursement of increase of duty and taxes etc.

There were about 16 items in this category at the initial survey and items such as curfew, presidential elections etc. become not significant items and therefore they have been removed from the analysis. Thereby out of 14 categorised under above heading 11 has become common disputes as found out in the research. 3 items become uncommon causes. The elaborated version of this is found in the Figure 4.4.



Accordingly the final aggregate results of all these study categories can be summarised into a table where they are identified under the three sample division of Client, Contractor and Consultant and also with their weightings.

They are also categorised under common, Uncommon and Others categories as per the research norms. Table 4.6 and 4.7 shows these results under common and uncommon categories respectively. The percentages were obtained using the frequency of responses to the questionnaire survey. The ratio of entries for a particular dispute was divided by the total responses to obtain the percentages. Percentages over a 60% threshold were considered Common and those less than 60% as Uncommon.

*Table 4.6 Common causes of Disputes as a percentage of responses*

No	Description	%
<b>(a)</b>	<b>Causes of dispute - Client's side</b>	
1	Cash flow problems	93%
2	Extra works and Variations	87%
3	Non payment of Advance and Delay in payments	80%
4	Delay in appointing Nominated Sub Contractors or suppliers	73%
5	Recommending to award contracts to lowest tenderers	73%
6	Late possession of site	73%
7	Inadequate financial strength of the parties to the contract	73%
8	Delay in issue of instructions	67%
9	Delay of establish letters of credit	67%
10	Delay in clearing duty free materials	67%

No	Description	%
11	Delay in approving materials	60%
12	Late award of contract	60%

(b)	Causes of dispute - Contractor's side	
1	Lack of labour, plant and machinery	80%
2	No proper consideration at tender stage	80%
3	Lack of diligence on the part of the contractor	73%
4	Lack of competence staff	73%
5	Shortage of quantities	73%
6	Inappropriate mobilization on site	73%
7	Untimely presentation of claims	73%
8	Delay in ordering materials	67%
9	Negligence	67%
10	Lack of sub contractors	67%
11	Poor planning and inadequate organization and management	60%
12	Lack of stores management	60%

(c)	Causes of dispute - Consultant's side	
1	In adequate and insufficient details in the Drawings, Specification and Bill of Quantities	87%
2	Incorrect tender/contract documents and data	73%
3	Less supervision	73%
4	Lack of proper coordination	67%

5	Incorrect soil and site investigation	60%
6	Incorrect tender evaluation	60%
7	Adopting unsuitable conditions for contracts	60%

<b>(d)</b>	<b>Others</b>	
1	Unforeseen price variations	73%
2	Unforeseen quantity variations	73%
3	Large number of holidays	73%
4	Government policies and economic problems	73%
5	Unexpected site / ground condition	67%
6	Breaches of contract by any party to the contract	67%
7	Workmanship and materials	67%
8	Influence of Culture	67%
9	International contracting	67%
10	Influence of religion on productivity	67%
11	Reimbursement of increased of duty and taxes	60%

Table 4.7 Uncommon Causes of disputes with weightings

No	Description	%
<b>(a)</b>	<b>Causes of dispute - Client's side</b>	
1	Vague brief	40%
2	Suspension of work	40%
3	Acceleration to the work	40%

<b>(b)</b>	<b>Causes of dispute - Contractor's side</b>	
1	Disruption or delays to the work	47%
2	Late in commencement of work	27%

<b>(c)</b>	<b>Causes of dispute - Consultant's side</b>	
	All the cases have been recognized as common cases	

<b>(d)</b>	<b>Others</b>	
	Reimbursement of additional time and cost arising from delays & disruption of work due to?	
1	Presidential election	33%
2	Curfew	27%
3	Strikes	13%
4	Independence day celebrations	27%
5	Security arrangement for SAARC summit	13%
6	Road closers for VIP movements	13%
7	Adverse weather conditions	40%
8	Unforeseeable disruptions by bomb blast	13%
9	Civil commotion and trade union activities	27%
10	Unforeseen construction boom.	27%

Finally as identified under table 4.8 the Dispute Preventive Checklist is devised through the survey as categorized under Common causes uncommon causes for the use of the parties who involving in preparing the documents to consider taking preventive action at the relevant stage to avoid or minimize the dispute situation in the contract. Further the preventive action may not necessarily be to avoid the cause but it could be to clearly and precisely pass the risk to a party to the contract in the document so that the dispute resolving mechanism will not arise.

In this manner most of the time loss in the project in attending to letters, claim preparation, Submission, evaluating and also the time and money wasting resolution mechanisms will not come into picture. This check list will provide a mechanism if properly used a contract formation to minimize most of the disputes in contracts.

The main contribution this study is that even though many common disputes could be identified as a universal phenomena in the construction industry irrespective of a particular country concerned, few uncommon ones are very specific to the Sri Lankan context. These are for example, sudden increase of tax, a large number of national holidays, which are highly country specific and cannot be ignored in dispute mitigation planning.

## Dispute Preventive Checklist

Table 4.8 Dispute Preventive Checklist

No	Description	Checked
(a)	<b>Causes of dispute - Client's side</b>	
	<b>Common Causes</b>	
1	Cash flow problems	
2	Extra works and Variations	
3	Non payment of Advance and Delay in payments	
4	Delay in appointing Nominated Sub Contractors or suppliers	
5	Recommending to award contracts to lowest tenderers	
6	Late possession of site	
7	Inadequate financial strength of the parties to the contract	
8	Delay in issue of instructions	
9	Delay of establish letters of credit	
10	Delay in clearing duty free materials	
11	Delay in approving materials	
12	Late award of contract	
	<b>Uncommon Causes</b>	
13	Vague brief	
14	Suspension of work	
15	Acceleration to the work	

No	Description	Checked
<b>(b)</b>	<b>Causes of dispute - Contractor's side</b>	
	<b>Common Causes</b>	
1	Lack of labour, plant and machinery	
2	No proper consideration at tender stage	
3	Lack of diligence on the part of the contractor	
4	Lack of competence staff	
5	Shortage of quantities	
6	Inappropriate mobilization on site	
7	Untimely presentation of claims	
8	Delay in ordering materials	
9	Negligence	
10	Lack of sub contractors	
11	Poor planning and inadequate organization and management	
12	Lack of stores management	
	<b>Uncommon Causes</b>	
13	Late in commencement of work	
14	Disruption or delays to the work	
<b>(c)</b>	<b>Causes of dispute - Consultant's side</b>	
	<b>Common Causes</b>	
1	In adequate and insufficient details in the Drawings, Specification and Bill of Quantities	
2	Incorrect tender/contract documents and data	



No	Description	Checked
3	Less supervision	
4	Lack of proper coordination	
5	Incorrect soil and site investigation	
6	Incorrect tender evaluation	
7	Adopting unsuitable conditions for contracts	
<b>(d)</b>	<b>Others</b>	
	<b>Common Causes</b>	
1	Unforeseen price variations	
2	Unforeseen quantity variations	
3	Large number of holidays	
4	Government policies and economic problems	
5	Unexpected site / ground condition	
6	Breaches of contract by any party to the contract	
7	Workmanship and materials	
8	Influence of Culture	
9	International contracting	
10	Influence of religion on productivity	
11	Reimbursement of increased of duty and taxes	
	<b>Uncommon Causes</b>	
12	Adverse weather conditions	
13	Presidential election	
14	Curfew	



No	Description	Checked
15	Independence day celebrations	
16	Civil commotion and trade union activities	
17	Unforeseen construction boom.	
18	Strikes	
19	Security arrangement for SAARC summit	
20	Road closers for VIP movements	
21	Unforeseeable disruptions by bomb blast	



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## APPENDIX I – QUESTIONNAIRE

PROJECT TITLE : Investigating common cases for disputes in construction industry in Sri Lanka.

These details will be used only for the purpose of this research to study and to fulfill the requirement of Master of Science Degree in Project Management conducted by University of Moratuwa.

Details furnished below will only be used for the purpose of above mentioned research and will not be disclosed to others or used for any other purpose. (Specially information's from 3-6 will not be included in the research).



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Please tick off the correct statement/statements of these questions for a construction project having faced with disputes carried out by your firm.

- 1) How long have you worked in the construction industry?
  - a) Less than 5 years
  - b) More than 5 years, but less than 10 years
  - c) More than 10 years
  
- 2) What is your role in the construction industry?
  - a) Work as a Client
  - b) Work as a Consultant
  - c) Work as a Contractor

3) Name of the project?

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

4) Client?

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

5) Consultant?

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

6) Contractor?



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7) Type of contract?

- a) Measure & pay fixed price
- b) Measure & pay with price variation
- c) Lump sum fixed price
- d) Design & Build
- e) Management contract
- f) Other (Please specify) .....

8) Form of contract?

- a) ICTAD
- b) Modified ICTAD
- c) FIDIC
- d) Modified FIDIC
- e) JCT
- f) Modified JCT
- g) Other (Please specify) .....

9) Method of Tendering?

- a) Open tendering
- b) Selective tendering
- c) Negotiated tendering
- d) Other (Please specify) .....  


10) What are the sources of construction disputes that are prevailing/have arisen in the construction industry?

- a) Reimbursement of additional time and cost arising from delays & disruption of work due to
  - i. Presidential election
  - ii. Curfew
  - iii. Strikes
  - iv. Independence day celebrations
  - v. Disruption by security measures
    - a. Security arrangement for SAARC summit



b. Road closers for VIP movements

- vi. Adverse weather conditions
- vii. Other (Please specify)? .....
- .....

b) Reimbursement of increased of duty and taxes?

- i. PAL
- ii. CESS
- iii. VAT
- iv. BTT
- v. Other (Please specify)? .....
- .....



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c) Termination due to? [lib.mrt.ac.lk](http://lib.mrt.ac.lk)

- i. Very poor progress of Contractor
- ii. Non compliance with the instructions of the Engineer
- iii. Delay in payments
- iv. Suspension of work
- v. Terminate mutually preserving?
  - a. Contractors right
  - b. Employers right
- vi. Other (Please specify)? .....
- .....



d) Reimbursement of time and cost arising from?

- i. Delay in payments
- ii. Delay in issue of instructions
- iii. Delay in approving materials
- iv. Delay of establish letters of credit
- v. Delay in clearing duty free materials
- vi. Delay in appointing Nominated Sub Contractors or suppliers
- vii. Vague brief
- viii. Recommending to award contracts to lowest tenderers
- ix. Suspension of work
- x. Late possession of site
- xi. Late award of contract
- xii. Acceleration to the work
- xiii. Other (Please specify)? .....

.....

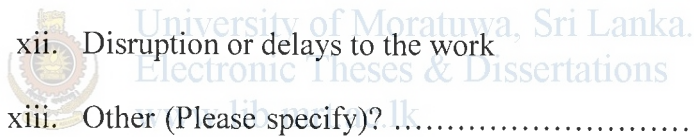
e) Time and cost variation due to unforeseen events?

- i. Unexpected site / ground condition
- ii. Unforeseen price variations
- iii. Unforeseen quantity variations
- iv. Unforeseeable disruptions by bomb blast
- v. Other (Please specify)? .....

.....

f) Liquidated damages / Liquidated and ascertained damages due to?

- i. Poor planning and inadequate organization and management
- ii. Lack of diligence on the part of the contractor
- iii. Lack of competence staff
- iv. Delay in ordering materials
- v. Shortage of quantities
- vi. Inappropriate mobilization on site
- vii. Lack of labour, plant and machinery
- viii. Negligence
- ix. Lack of stores management
- x. No proper consideration at tender stage
- xi. Untimely presentation of claims
- xii. Disruption or delays to the work
- xiii. Other (Please specify)? .....



.....

g) In adequate and insufficient details in the?

- i. Drawings
- ii. Specifications
- iii. Bill of Quantities
- iv. Incorrect site investigation
- v. Incorrect tender evaluation
- vi. Incorrect tender/contract documents and data
- vii. Adopting unsuitable conditions for contracts
- viii. Lack of proper coordination
- ix. Less supervision

- h) Inadequate financial strength of the parties to the contract?
  - i. Owner
  - ii. Contactor
  
- i) Breaches of contract by any party to the contract?
  - i. Owner
  - ii. Architect
  - iii. Engineer
  - iv. Contractor
  - v. Sub Contractor
  
- j) Incomplete or inaccurate responses or non responses to questions or resolutions of problems presented by one party to the contract to another party to the contract.
  
- k) Site conditions, which differ materially from those, describe in the contract documents.
  
- l) Existing building conditions, which differ materially from those shown in the contract documents.
  
- m) Extra works.
  
- n) Variations.
  
- o) Disruptions, delays or acceleration to the work which causes the work to deviate from the normal prescheduled sequence.
  
- p) Introduction of new taxes or duties to the construction industry.
  
- q) Large number of holidays.

- r) Civil commotion and trade union activities.
- s) Workmanship and materials.
- t) Cultural aspects.
- u) Government policies and economic problems.
- v) International contracting.
- w) Unforeseen construction boom.

11) Please give further particulars of the nature of the disputes?

.....

.....

.....

12) What are the factors would you like to propose to be used as a preventive mechanism by all three parties at the construction to avoid disputes irrespective of the type of conditions of contract?

.....

.....

.....

.....



**Questionnaires Summary**

No	Description	Employers (10Nos)										Consultants (10 Nos)										Contractors (10 Nos)										%	Status	Common = 1 Un common = 0	Total Respondants
		A	B	C	D	E	F	G	H	I	J	A	B	C	D	E	F	G	H	I	J	A	B	C	D	E	F	G	H	I	J				
9	Less supervision		1	1			1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	63%	COMMON	1	1				
(d)	Termination due to?																																		
1	Very poor progress of Contractor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	77%	COMMON	1	1				
2	Non compliance with the instructions of the Engineer	1		1			1		1		1		1		1		1		1		1		1		1		37%	0	0	1					
3	Delay in payments	1		1			1		1		1		1		1		1		1		1		1		1		47%	0	0	1					
4	Suspension of work	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	60%	COMMON	1	1				
5	Terminate mutually preserving Contractors and Employers right	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	67%	COMMON	1	1				
(e)	Time and cost variation due to unforeseen events?																																		
1	Unexpected site / ground condition	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	77%	COMMON	1	1				
2	Unforeseen price variations	1	1		1		1		1		1		1		1		1		1		1		1		1		60%	COMMON	1	1					
3	Unforeseen quantity variations	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	63%	COMMON	1	1				
4	Unforeseeable disruptions by bomb blast	1									1											1	1	1	1	1	23%	0	0	1					
(f)	Reimbursement of additional time and cost arising from delays & disruption of work due to?																																		
1	Presidential election	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	47%	0	0	1				
2	Curfew	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	63%	COMMON	1	1				
3	Strikes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	57%	0	0	1				
4	Independence day celebrations	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23%	0	0	1				
5	Security arrangement for SAARC summit	1	1								1											1						20%	0	0	1				
6	Road closers for VIP movements	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17%	0	0	1				
(g)	Inadequate financial strength of the parties to the contract	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	67%	COMMON	1	1				
(h)	Breaches of contract by any party to the contract	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	37%	0	0	1				
(i)	Incomplete or inaccurate responses or non responses to questions or resolutions of problems presented by one party to the contract to another party to the contract	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	63%	COMMON	1	1				
(j)	Site conditions, which differ materially from those, describe in the contract documents	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	63%	COMMON	1	1				
(k)	Existing building conditions, which differ materially from those shown in the contract documents	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	60%	COMMON	1	1				



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### Questionnaires Summary

No	Description	Employers (10Nos)										Consultants (10 Nos)										Contractors (10 Nos)										%	Status	Common = 1 Un common = 0	Total Respondants
		A	B	C	D	E	F	G	H	I	J	A	B	C	D	E	F	G	H	I	J	A	B	C	D	E	F	G	H	I	J				
(l)	Extra works and Variations	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	70%	COMMON	1	1			
(m)	Reimbursement of increased of duty and taxes			1		1		1		1		1		1		1		1		1		1		1		1		40%	0	0	1				
(n)	Disruptions, delays or acceleration to the work which causes the work to deviate from the normal pre scheduled sequence	1				1				1				1				1				1				1		40%	0	0	1				
(o)	Introduction of new taxes or duties to the construction industry	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	77%	COMMON	1	1			
(p)	Large number of holidays	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	77%	COMMON	1	1				
(q)	Civil commotion and trade union activities	1	1		1		1		1		1		1		1		1		1		1		1		1		77%	COMMON	1	1					
(r)	Workmanship and materials			1		1		1		1		1		1		1		1		1		1		1		1		63%	COMMON	1	1				
(s)	Cultural aspects	1		1		1		1		1		1		1		1		1		1		1		1		1		63%	COMMON	1	1				
(t)	Government policies and economic problems	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	73%	COMMON	1	1				
(u)	International contracting	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	70%	COMMON	1	1				
(v)	Unforeseen construction boom.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	77%	COMMON	1	1				



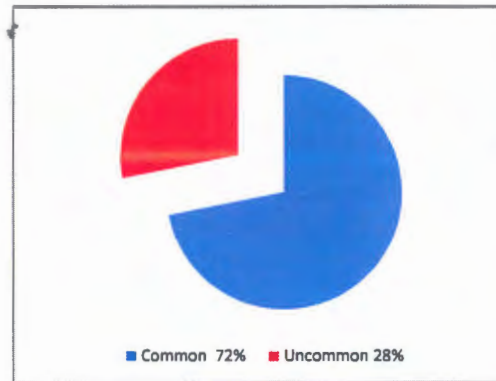
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Total Respondants 64

Total Common (1)	46
Total Uncommon (0)	18

Total common	46	Total uncommon	18
% of Common	$(46/64)*100$	72%	
% of Uncommon	$(18/64)*100$	28%	

Common 72% Uncommon 28%





## Interviews Summary

No	Description	Employers (5 Nos)					Consultants (5 Nos)					Contractors (5 Nos)					%	Status	Common = 1 Un common = 0	Total Respondants
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5				
<b>(a) Causes of dispute - Client's side</b>																				
1	Non payment of Advance and Delay in payments	1	1	1	1		1	1	1	1		1	1	1	1		80%	COMMON	1	1
2	Delay in issue of instructions		1	1		1	1	1	1			1	1	1	1	67%	COMMON	1	1	
3	Delay in approving materials	1	1		1		1	1		1		1		1	1	60%	COMMON	1	1	
4	Delay of establish letters of credit	1		1	1		1	1		1		1	1	1	1	67%	COMMON	1	1	
5	Delay in clearing duty free materials	1			1		1		1	1		1	1	1	1	67%	COMMON	1	1	
6	Delay in appointing Nominated Sub Contractors or suppliers	1	1		1		1	1	1	1		1	1	1	1	73%	COMMON	1	1	
7	Vague brief	1			1		1			1		1		1		40%	0	0	1	
8	Recommending to award contracts to lowest tenderers	1	1	1	1		1	1	1	1		1	1		1	73%	COMMON	1	1	
9	Suspension of work		1					1		1		1		1		40%	0	0	1	
10	Late possession of site	1		1	1		1		1	1		1	1	1	1	73%	COMMON	1	1	
11	Late award of contract	1			1		1		1	1		1	1		1	60%	COMMON	1	1	
12	Acceleration to the work	1					1		1	1		1	1	1	1	40%	0	0	1	
13	Inadequate financial strength of the parties to the contract	1		1	1		1		1	1		1	1	1	1	73%	COMMON	1	1	
14	Extra works and Variations	1	1		1		1	1	1	1		1	1	1	1	87%	COMMON	1	1	
15	Cash flow problems	1	1	1	1	1	1	1	1	1		1	1	1	1	93%	COMMON	1	1	
<b>(b) Causes of dispute - Contractor's side</b>																				
1	Poor planning and inadequate organization and management		1	1	1	1			1			1		1	1	60%	COMMON	1	1	
2	Lack of diligence on the part of the contractor	1		1	1	1	1	1	1	1		1		1	1	73%	COMMON	1	1	
3	Lack of competence staff	1	1	1	1		1	1	1	1		1		1	1	73%	COMMON	1	1	
4	Delay in ordering materials			1	1		1	1	1	1		1	1	1	1	67%	COMMON	1	1	
5	Shortage of quantities	1		1	1		1	1	1	1		1	1		1	73%	COMMON	1	1	
6	Inappropriate mobilization on site	1		1	1		1	1	1	1		1	1	1	1	73%	COMMON	1	1	
7	Lack of labour, plant and machinery	1	1	1	1		1	1	1	1		1		1	1	80%	COMMON	1	1	
8	Negligence	1	1		1		1		1	1		1	1	1	1	67%	COMMON	1	1	
9	Lack of stores management		1	1	1			1		1		1	1	1	1	60%	COMMON	1	1	
10	No proper consideration at tender stage	1	1	1	1		1	1	1	1		1	1	1	1	80%	COMMON	1	1	
11	Untimely presentation of claims	1	1	1	1	1	1	1	1	1		1		1		73%	COMMON	1	1	
12	Disruption or delays to the work	1	1		1		1		1			1		1		47%	0	0	1	

## Interviews Summary

No	Description	Employers (5 Nos)					Consultants (5 Nos)					Contractors (5 Nos)					%	Status	Common = 1 Un common = 0	Total Respondants
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5				
13	Lack of sub contractors	1	1	1	1		1	1	1			1					67%	COMMON	1	1
14	Late in commencement of work	1				1						1					27%	0	0	1
<b>(c) Causes of dispute - Consultant's side</b>																				
1	In adequate and insufficient details in the Drawings, Specification and Bill of Quantities	1	1	1	1	1	1	1			1	1	1	1	1	87%	COMMON	1	1	
2	Incorrect soil and site investigation	1	1	1		1		1			1	1	1	1		60%	COMMON	1	1	
3	Incorrect tender evaluation		1	1	1	1				1			1	1	1	60%	COMMON	1	1	
4	Incorrect tender/contract documents and data	1		1	1	1				1	1	1	1	1	1	73%	COMMON	1	1	
5	Adopting unsuitable conditions for contracts	1	1		1	1				1	1		1	1	1	60%	COMMON	1	1	
6	Lack of proper coordination		1	1		1	1	1	1	1	1	1	1			67%	COMMON	1	1	
7	Less supervision	1	1	1	1					1	1	1	1	1	1	73%	COMMON	1	1	
<b>(d) Others</b>																				
1	Reimbursement of additional time and cost arising from delays & disruption of work due to?																			
(i)	Presidential election		1	1		1				1		1				33%	0	0	1	
(ii)	Curfew		1					1				1	1			27%	0	0	1	
(iii)	Strikes		1									1				13%	0	0	1	
(iv)	Independence day celebrations	1							1				1	1		27%	0	0	1	
(v)	Security arrangement for SAARC summit		1									1				13%	0	0	1	
(vi)	Road closers for VIP movements		1									1				13%	0	0	1	
																0%	0	0	1	
2	Adverse weather conditions	1			1	1					1	1	1			40%	0	0	1	
3	Reimbursement of increased of duty and taxes	1		1	1	1		1	1	1	1	1	1	1	1	60%	COMMON	1	1	
4	Time and cost variation due to unforeseen events?																			
(i)	Unexpected site / ground condition		1	1	1		1	1	1	1	1				1	67%	COMMON	1	1	
(ii)	Unforeseen price variations	1	1	1	1		1	1	1	1			1	1	1	73%	COMMON	1	1	
(iii)	Unforeseen quantity variations		1	1		1	1	1		1	1	1	1	1	1	73%	COMMON	1	1	
(iv)	Unforeseeable disruptions by bomb blast	1											1			13%	0	0	1	

## Interviews Summary

No	Description	Employers (5 Nos)					Consultants (5 Nos)					Contractors (5 Nos)					%	Status	Common = 1 Un common = 0	Total Respondants
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5				
5	Breaches of contract by any party to the contract	1		1	1	1	1	1				1	1			1	67%	COMMON	1	1
6	Large number of holidays	1	1		1	1		1				1	1	1	1	1	73%	COMMON	1	1
7	Civil commotion and trade union activities		1			1					1				1	27%	0	0	1	
8	Workmanship and materials	1	1	1	1		1	1	1					1		1	67%	COMMON	1	1
9	Influence of Culture		1	1	1		1	1	1			1	1		1	1	67%	COMMON	1	1
10	Government policies and economic problems		1	1	1		1	1	1			1	1	1	1	1	73%	COMMON	1	1
11	International contracting	1	1		1		1	1	1	1	1			1		1	67%	COMMON	1	1
12	Unforeseen construction boom.		1					1						1		1	27%	0	0	1
13	Influence of religion on productivity	1		1	1		1		1			1	1	1	1	1	67%	COMMON	1	1

Total Respondants 58

Total Common (1) 42

Total Uncommon (0) 16



	Total common	Total uncommon
	42	16
% of Common	(42/58)*100	72%
% of Uncommon	(16/58)*100	28%

Common 72% Uncommon 28%