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A Study on the Difficulties Faced by the Contractors due to the Payment Related Issues in Sri Lankan Construction Industry

Deepthi Perera Mallawarachchige

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ABSTRACT

Delay of due payments from the client to the main contractor and the subcontractors have been a significant concern in the building and other construction industry. Main contractor's payment is always set out from the client's account, whereas subcontractors' payment goes through the main contractors.

In any evet the time taken to make the payment and the amount of the payment can be affected by the up-stream payment practices by all the related parties in a contract. This research aims to study, investigate, the issues related to payments with the main focus of identifying the avenues to minimize the consequences faced by the contractors and others on the downstream in Sri Lankan construction Industry.

The data collection to the report was done by a survey approach using a semi structured interviews with the industry related personal. 30 Number of people were interviewed and sought their views on nature, effects, problems faces by the related people due to the delay and non-payment to the contractors.

The research findings exhibit that government funded projects are highly exposed to delay in payments when comparing to foreign funded or privately funded projects. At the time of the final payment to the main contractor the payment is always delayed more than obtaining the retention and the interim payments. While there were less issues when obtaining the advance payments. It is also noticed that the main factor to delay the final payment is the problems and disputes arising due to the variations and extra work not being evaluated properly during the interim payment application.

The research also revealed the three main reasons for the payment delays are the paymaster's poor financial management, delays of certification of the bills by the consultants, and the improper bills and documents from the contractors. Due to these delays contractors and sub-contractors face difficulties in managing their cash flows which has a significant impact to the payment chain. Eventually ending with poor quality construction and delay in the completion of the project.

Research further evaluate and investigate the strategies adopted by the contractors to mitigate the problems stated above by way of adopting contractual bindings and provisions such as claiming interests to the delayed payments and reducing the speed of the construction to reduce the cash outflows during the delay payment periods. It was also revealed that other than the contractual bindings, contractors use their own strategies such as obtaining bank loans, infuse more equity funding and requesting on account payments from the clients in order to minimize the problems.

The research there for recommend that each party in the chain of construction need to procure necessary security for the payments from each higher tier, and a separate form of a binging contract to all subcontractors and construction contracts law. This will ensure the contractors will get paid on time.

***Keywords*:-** *Sri Lanka, Construction Industry, Payment Issues, Main Contractor, Subcontractor.*

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LIST OF ABBREVIATIONS

Abbreviation	Description
FIDIC	International Federation of Consulting Engineers
ICTAD	Institute for Construction Training and Development
MBAM	Master Builders Association Malaysia
QSR	Qualitative Solutions and Research Ltd
RICS	Royal Institution of Chartered Surveyors
RMB	Ren Min Bi
SBD	Standard Bidding Document

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CHAPTER ONE
INTRODUCTION

- *Background*

The client and the contractor are legally bound by the terms and a condition in a construction contract where payment is made on time is the liability of the client (Balamuralithara, Chong, & Chong, 2011). From the contractor's perspective, payment is the most important aspect of any construction project. However, from the owner's perspective, payment is the ultimate leverage to compel contractor's performance (Hussin & Omran, 2009).

Payments can be categorised as advance payment, interim payment, final payment and retention payment (Kaka & Motawa, 2008). The advance payment can help the contractor to relieve the financing problem during commencement of construction work (Hussin & Omran, 2009). According to Jayalath (2013), the purpose of interim payment is to ensure that the contractor is regularly paid throughout the progress of works, which leads to maintain cash-flow, thus minimizing any deficit which may otherwise affect the smooth running of the project.

Delayed and non-payment risk is primarily due to counterpart's 'cannot', 'would not' pay attitude or both. It is evidenced in large number of construction projects where the owners simply refuse to pay the contractors once the project is completed (Meng, 2002). Further, Meng (2002) stated that for some projects sufficient funding sources are not secured before project start and the contractors often agree to be paid after the work is fully or partly completed.

Khosrowshahi (2000) stated that the chain payment culture within the construction industry where payment flows from the upper to lower levels makes the payment to lower levels depend on the upper levels. Therefore, when there is a payment issue at upper level it affects the lower level too. For example, if the client late to pay the main contractor, main contractor delays to pay the sub-contractor, then sub-contractor also fails to pay his supplier. Thus, Payment issues may cause series of effects in the payment chain.

Hence, payment issue is a serious problem in the construction industry of many countries and this could be attributed to the nature, consequences and risk associated with the industry (Ramachandra & Rotimi, 2012b). Majority of contractors reported that delay payment situation in government funded projects was commonly experienced whilst more of them affirmed the same situation in private funded projects (Hasmori, Ismail, & Said, 2012). In Sri Lanka, the issue of delay payment has been considered one of the utmost important to all contractors (National Construction Association of Sri Lanka, 2008). Accordingly, payment issues are common situation to construction industry and thus, it should be carefully deal by all relevant stakeholders.

- *Problem Statement*

There are mechanisms provided in standard forms of construction contracts regarding payment and delayed payment, yet there remain payment issues around Sri Lankan construction industry. An important factor which impedes the capabilities of contractors is payment issues: delays, loses and non-payments. This situation has resulted in high cost of capital from banks, delay completion of projects, poor quality works, increase in project cost, disputes, bankruptcy of construction firms and loss of productivity (Amoaka, 2011). Thus, the effects of payment issues have attracted wide concern of the construction industry.

The effects of payment issues and means of minimizing effects of payment issues have not been analyzed in detail under Sri Lankan context and there is a necessity to fill this research gap.

- *Aim of the Study*

The aim of this research is to; investigate the reasons and impact of payment delays and, recommend solutions to the Construction Companies in Sri Lanka.

- *Objectives of the Study*

The following objectives are set out to achieve the aim of this research.

- Investigate the existing payment practices and related issues within the construction industry
- Identify the contractual provisions enabling proper payment practices and identify the effectiveness of such provisions
- Identify the causes of payment issues prevailing within the Sri Lankan construction industry
- Identify the effects of payment issues prevailing within the Sri Lankan construction industry
- Suggest the ways of minimizing the effects of payment issues faced by constructors in the Sri Lankan construction industry

- *Research Methodology Adopted for the Study*

A comprehensive literature survey was carried out to explore theoretical and research concern on payment issues to constructors in the Sri Lankan construction industry. A survey approach consists of semi structured face-to-face interviews was adopted in investigating the above research problem. Thus, it facilitated an in-depth study on the payment issues within the Sri

Lankan construction industry with the main focus of investigating the ways to minimize the effects of payment issues to constructors in the Sri Lankan construction industry.

- *Scope and Limitations of the Study*

Based on the following scope and limitations the research was carried out.

- This research considered the payment issues to main contractors and subcontractors within the Sri Lankan construction industry. This study has not considered the payment issues to consultants.
- The research was carried out based on the opinions and experiences of consultants, main contractors and subcontractors. The research has not considered the views of the client.
- The research provides equal importance to main contractors and subcontractors. However, the research fails to collect payment details from subcontractors because of constrains and unavailability of data.
- The study accounted only Standard Bidding Document (SBD) published by Institute for Construction Training and Development (ICTAD) and International Federation of Consulting Engineers (FIDIC), as the standard forms of contract which applied widely in Sri Lanka.

- *Chapter Breakdown*

The following Fig 1 illustrates the chapter breakdown.

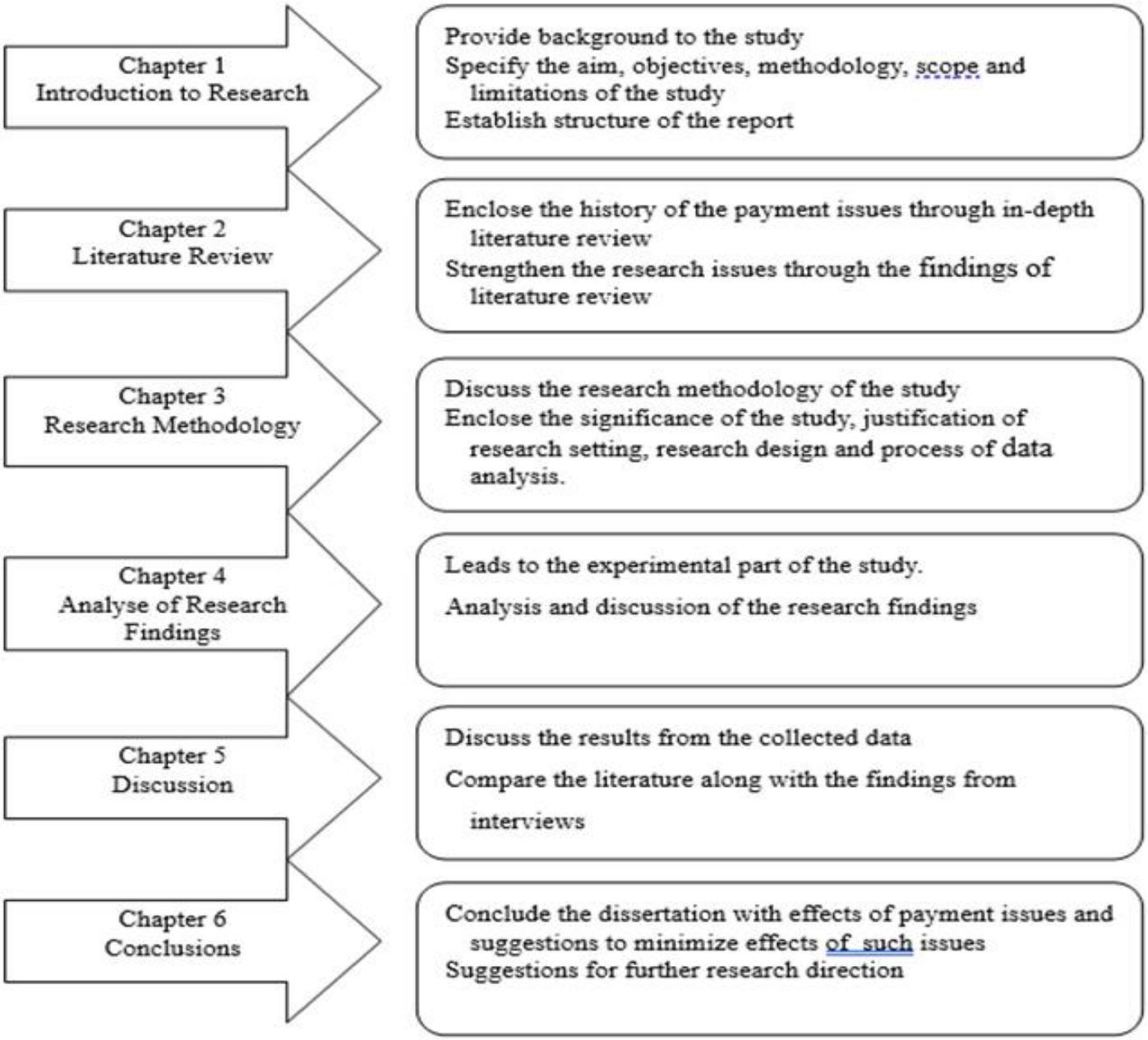

Fig 1 Chapter Breakdown

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CHAPTER TWO
LITERATURE REVIEW

➢ *Introduction*

A brief introduction to the research was given in chapter one. Accordingly, this chapter aims to synthesize the current knowledge level regarding the research area. This chapter is structured under several topics namely; payment in construction industry, types of payment, issues associated with different types of payments, contractual provisions enabling proper payment practices, causes and effects of payment issues and finally, summarizing the literature findings.

➢ *Payments in Construction Industry*

Construction industry is a sector of the economy which plans, designs, constructs, alters, maintains, repairs and eventually demolishes building and all kind of civil engineering works, mechanical and electrical engineering structures and other similar works (Hildebrandt, 1985). The construction industry has unique characteristics such as huge capital involvement, many parties' involvement, long duration, long lasting products, immobile products and complex process (Ofori, 1990). One main characteristic which sharply distinguish it from other sectors is its involvement of huge capital (Al-Hallaq, Enshassi, & Mohamed, 2006).

Ameer (2005) mentioned that payment is considered as lifeblood of the construction industry because constructions often involve very large capital outlay and take a considerable time to complete. Construction industry and payments have a strong relationship in a construction contract (Hasmori et al., 2012). Ansah (2011) stated that payment is the sum of money to be paid to the contractors after their certain works for the project has been successfully completed. In a construction contract client and the contractor are legally bound by terms and conditions where payment considered as reward for the work performed (Balamuralithara et al., 2011).

➢ *Types of Payment*

In general practice, four types of payments that a client has to pay the contractor in different stages of a project could be identified as advance payment, interim payment, final payment and retention payment (Kaka & Motawa, 2008). Each and every type is discussed in next sub sections.

- *Advance Payment*

Advance payments are advances of money paid by the client of any project to a prime contractor before, in anticipation of, and for the purpose of complete performance under one or more contracts (Hussin & Omran, 2009). According to Jayalath (2013), advance payment is needed by the contractor to get relief from their cash flow difficulties during commencement of constructions works.

- *Interim Payment*

Interim payment is a sum of money that can be agreed in advance and paid in a periodic manner based on the value of work which has been completed including variations and extra works (Mitchell, 2013). The purpose of interim payment is to ensure that the contractor is regularly paid throughout the progress of the work which leads to maintain cash flow, thus minimizing any deficit which may otherwise affect the smooth running of the project (Jayalath, 2013).

- *Final Payment*

Final account is the sum agreed to be paid at the end of the contract by the owner to the contractor and final payment is done upon the submission of final account and the issuance of final certificate (Ismail, Yusof, & Zakaria, 2012). The final certificate is intended to be conclusive evidence that where and to what extent the quality of materials or the standard of workmanship is to be the reasonable satisfaction of the architect, the same is to such satisfaction (The Aqua Group, 1996).

- *Retention Payment*

Retention is a sum of outstanding money after the release of final payment (Ang, 2006). In general, retention sum is deducted at each monthly payment, to provide the client with some security that the contractor will return to repair any defects during the defects liability period (Royal Institution of Chartered Surveyors [RICS], 2012). In practice, the owner retains 10% of the completed work from each payment until the withheld amount reaches 5% of the contract amount (Chen et al., 2011). Koksal (2009) stated that the retention money is retained against the risk of non-compliance of work on time of the contractor. Hence, if the contractor fails to correct the defects then the retention held may be used to fund the payment of others to correct the defects (RICS, 2006).

➢ *Payment Issues in Construction Industry*

Construction payment issues have attracted wide concerns in the industry for many years in both developing and developed countries (Chen et al., 2011). Payment has been an issue of major concern in the construction industry and majority of contractors reported that they have went through such issues in government funded projects whilst more of them affirmed the same situation in private funded projects (Hasmori et al., 2012). Rahman and Ye (2011) stated that payment issue is endemic in construction and

needs to be explicitly recognized as this problem recurs from project after project. Further, Rahman and Ye (2011) mentioned that payment issues can be either delayed or lost or incomplete. In short, issues related to payment range from:

- Failure to pay
- Refusal to pay
- Setting-off from sums certified or due
- Allegations of under and over certifications and failure to certify
- Delayed payments
- Associated problems of getting paid even with certificates in hand including significant delays in enforcing rights to payment

- *Issues in Advance Payment*

Generally contractor will need a large amount of money at the beginning of project to purchase the construction plant and equipment or pay for the rental and also buying materials (Hussin & Omran, 2009). In addition, if the advance payment is offered by the client during the construction period it will assist them relive from the financial difficulties. Further, Hussin and Omran (2009) pointed out common issue related to advance payment is delay in realising such payment.

- *Issues in Interim Payment*

With regards to the interim payment, the contractor will only receive the payment after completed the progress of works. In other words, the contractor has to use his own money at the moment of construction works commence (Judi & Rashid, 2010). Further, Judi and Rashid (2010) stated that the contractor has to pay for his sub-contractors after they have completed their works during the construction period. At the same time, they also have to pay for their management, labours and other expenses as long as the construction work is running.

- *Issues in Final Payment*

The rapid increase of the delays and losses in the closing of final accounts nowadays have gone to the point that it tends to decrease the good image of the construction industry in many countries (Ismail et al., 2012). Issues in closing of final accounts occur during rationalization of rates as well as due to the ignorance of contract administrator staffs in rationalizing the rates on time (Sambasivan & Soon, 2007). Another factor contributed by contractors to the issues in the final accounts closing is the contractors fail to agree with the valuation of work (Battaineh & Odeh, 2002). Problems to settle the final account will leads to delays and losses in final payment.

- *Issues in Retention Payment*

RICS (2012) mentioned that retention will protect the contractor in the event of insolvency of the employer, if the money is actually set aside in a separate marked account or fund, rather than just held in a regular client account. Further, it is noted that if the retention is not set aside in a separate marked account, this is likely to lead to delay or default in such payment. Chen et al. (2011) stated that the retention money will be later paid to the contractor if the project is finally accepted by the owner or guarantee expired. So it seems in any case there is a delay before the contractor receives the retention money. Ramachandra and Rotimi (2012a) found that in New Zealand, retention payment is very often delayed while final and interim payments are delayed less than often.

➢ *Contractual Provisions for better Payment Practices*

Contractually the conditions of contract probably constitute the heart of the documentation whereas the drawings, specification and bill of quantities are essentially practical tools in virtually every day use. The conditions of contract are more often referred to where a difference of opinion or potential dispute arises. In Sri Lanka commonly used forms of contract are Standard Bidding Document published by ICTAD and FIDIC. In such forms of contract, the payment procedures and provisions to save the contractor from payment issues have been clearly mentioned.

➢ *Causes for Payment Issues*

Payment issues attract the construction industry widely for many decades (Chen et al., 2011). There are many factors that contributing to payment issues and most of them fall into three categories namely; due to client, due to contractor and due to consultant (Hasmori et al., 2012). Based on the literature review the following factors have been identified as some of the potential causes of payment issues in construction industry.

- *Paymaster's Poor Financial Management*

Qualified contractors are often unwilling to bid on projects for employers whose financial capacity and credit rating are not widely known (The Associated General Contractors of America, 2003). Thus, it is extremely important for the employer to manage his financial aspect in a good manner as it is a major factor in determining the project's success. It is anticipated that paymasters' poor financial management could cause contractors insufficient operating funds when the latter are obliged to pay the payees (Danuri et al., 2012). Further, it is emphasized that the late payment or even non-payment therefore could arise.

- *Paymaster's Withholding of Payment*

As provided in many standard forms of contract, the client may withhold payment to the main contractor or sub-contractor for a many reasons (SBD, 2007). Such reasons are defective construction work, disputed work and failure to comply with any material provision of the contract, third party claims filed or reasonable evidence that a claim will be filed and failure to make timely payments for project resources (Gentry & Rourke, 2002). These reasons may cause the employer or paymaster to refuse in making payments which will result in delays and losses of payment. Rahman and Ye (2010) mentioned that client's deliberate delay for their own financial advantage, delay in releasing of the retention monies to contractor and wilful withholding of payment for personal reasons leads to paymaster's withholding of payment.

- *Local Culture*

An attitude is commonly accepted by the industry or society in general can become a culture (Danuri et al., 2012). Clients assume contractors will finance the project in advance for any payment problems (Hasmori et al., 2012). Thus, this could be due to the inherent culture of payment issues in the construction industry that the contractors perceived such issues for a few days were acceptable. However, the contractors do not want negative attitude to be accepted as a culture in the industry.

- *Conflicts and Disputes*

The conflicts and dispute are co-related where the dispute occurs when the contracting parties failed to manage the problems and dissolve the conflict Carmicheal (2000, 2002). Payment not unexpectedly, has always been the main subject of disputes (Steyn, 2009). It is anticipated that conflict if unsettle will escalate into dispute which can also cause late and non-payment. Battanieh and Odeh (2002) found that difficulties in reaching settlement among the parties, disagreement of the valuation of the work, client's lack of trust with the consultant in certification of contractor's progress claim and variation order and lake of understanding on client's requirement for variation work are considered as such conflicts among parties which cause payment issues. Ellis and Thomas (2007) stated that the contracting parties' controversy and adversary would be increased together with the consumption of cost and time once higher stage of dispute resolution applied. Carmicheal (2000, 2002) also identified that the case where contractor does not receive the payment as a cause of escalated disputes.

- *Delay in Certification*

According to Rahman and Ye (2010), delay in certification by parties involve, may also cause of payment issues. The parties involve may delay in approving the application for payment claim due to certain reasons which may arise because of his own or other parties' involvement. According to Ayudhya (2012), there were often complains from main contractors to consultants and owners that the evaluation of both quality and quantity of completed work was caused in payment issues. This was due to difference on aspect of quality and measurement of quantity of completed works. Presently, the quality control was responsible by the main contractor's side whereas the acceptance testing responsibility falls into the consultant's hand. Danuri et al. (2012) noted that consultants have an attitude of delaying any certifications to the contractor. Therefore, it is clear that delay in certification will directly affects the timely payment.

- *Errors in Bill*

Ismail et al. (2012) stated that the main reason for payment issues is errors in the claims submitted. This includes claims without adequate supporting documents, wrongly calculated claims and those submitted without using the right procedures and when this happens, contractors need to resubmit the claims and repeat the whole process after making necessary corrections. The contractors need to submit the progress billing attached with the approved percentage of completion by the authorized person in charge. Most of the problems occur when contractors missing some necessary documents required. According to Ayudhya (2012), in order to avoid payment issues, the quantity surveyor has to make sure that documentations are complete and accurate. Further Ayudhya (2012) stated that payment is only made to main contractor when all required documents are verified otherwise it leads to payment delays and losses.

➢ *Effects of Payment Issues*

Payment issue is a serious problem in the construction industry of many countries and this could be attributed to the nature, consequences and risk associated with the industry (Ramachandra & Rotimi, 2012b). Ang (2006) stated that all the problems in the construction industry begin when payment in the exact amount due by the date shown on the statement is not received. Payment delays and losses create cash flow difficulties, financial hardship, negative chain effect, delay in completion of project, insolvency, abandonment of project and dispute resolution (Ang, 2006; Danuri et al., 2012; Ramachandra & Rotimi, 2012b; Rumais, 2003). Such effects are described in the following sections.

- *Cash Flow Difficulties*

Construction project cash flow is a subset of cash flow for the organization (Kenley, 2003). Further Kenley (2003) described that cash flow is the inflow of cash to the contractor from the client and also the outflow of cash to the suppliers, sub-contractors and to direct costs. Hyung, Seung and Jeffrey (2005) emphasised that many construction projects have negative net cash flows until the very end of construction when the final payment is received or advanced payment is received before starting the project. It is evidenced that payment problems will directly impact on contractor's cash flow (Danuri et al., 2012; Rahman & Ye, 2010;

Chen et al., 2011). Therefore, any deviation due to either project delays or cash flow delays and losses can have major impact on the project progress (Ameer, 2006).

- *Financial Hardship*

It is anticipated that not paid and less paid can create undue financial hardships to the contractor (Chen et al., 2011). For instance, the main contractor is still obliged to pay the sub-contractor or supplier for their work done even though he is not being paid under the main contract. This causes financial hardship to the contractor as he is not supposed to self-finance the job for his client (Danuri et al., 2012). Further, Ansah (2011) emphasized that issues associated with payment creates financial hardship for the construction companies and its impacts are sometimes so harsh that some companies have to close down.

- *Negative Chain Effects on Other Parties*

The chain payment culture within the construction industry where payment flows from the upper to lower tiers makes the payment to lower tiers dependent on the upper tiers. Therefore, late and non-payment issues influence in payment chain (Khosrowshahi, 2000). It is clear that the payment issues to the main contractor by the client lead the delay or loss in payment from main contractor to sub-contractor.

The following diagram (Fig 2) shows how the payment goes through parties in the payment chain. Firstly, the payment goes from the client to the main contractor. Secondly, main contractor to sub-contractor and then to the suppliers.

Fig 2 Four Components of Payment Chain System
Source: (Charmichael and Tran, 2012)

- *Delay in Completion of Project*

Issues of payment delays and losses cause delay in completion of project (Bibi, Dyian, Haseeb, Lu, & Rabbani, 2011; Isha & Mohammed, 2012; Sambasivan & Soon, 2006). Sambasivan and Soon described that construction works involve huge amounts of money and most of the contractors find it very difficult to bear the heavy daily construction expenses when the payments are not made or delayed. Work progress can be delayed because there is inadequate cash flow to support construction expenses especially for those contractors who are not financially fit. Atout, Jones, and Ren (2008) explained that delay in monthly payment from the client significantly disturbs the contractor's cash flow. Thus, it will be reflected in the work progress and it can cause major delay to the project.

- *Insolvency*

A failure on the part of the employer to pay the contractor in an efficient and timely manner may affect the contractor's original financial plan. This could affect contractor's cash flow which in turn, might lead to contractor's insolvency due to unpredicted cash flow problems (Amoaka, 2011). The cascade system of payment starts from the client to main contractor to sub-contractor and so on down the chain (Carmichael & Tran, 2012). The insolvency of one party in the payment chain could cause severe impacts to parties down the contractual chain (Ansah, 2011). The main contractor at the apex of the procurement structure is the conduit for significant sums of money delayed from the client to those below them in the supply chain. The insolvency of main contractors pushes other parts of the project chain into insolvency (Ang, 2006).

- *Abandonment of Project*

Delayed payment and especially non-payment may cause abandonment of projects (Amoako, 2011; Ansah, 2011). This is due to no sources of money to pay for the labours, materials, plants and equipment involved in the project. Until certain stage, the main contractor will not be able to cope with the problems and will normally take action to stop work until the employer paid them the payment due. Worse still, the contractor may go into liquidation due to the failure on his part to meet the claims substantiated by his bankers, subcontractors and suppliers. This will surely lead to the abandonment of project (Amoako, 2011).

- *Dispute Resolution*

A failure of timely payment and non-payment could possibly lead to formal dispute resolution. The common mechanisms for dispute resolution in construction industry are presently by way of arbitration and litigation (Bob, 2005). On the other hand, arbitration is faster but it is expensive. In any case, both modes will still take a considerable length of time as the disputes will have to be determined and disposed in accordance with the law, which must amongst others, require affording the disputant natural justice in the presentation of their respective case (Ellis & Thomas, 2007). Further, Ellis and Thomas (2007) described that critics have also lambasted the construction industry for its out-dated and inefficient payment practices resulting from an undesirable culmination of disputed and delay payments and the uncertainty on when payment is due.

➢ *Summary of Literature Findings*

After identifying contractual provisions for payment and delayed payment, payment issues within construction industry, causes for payment issues and effects of payment issues, following Fig 3 was established describing the summary of literature findings.

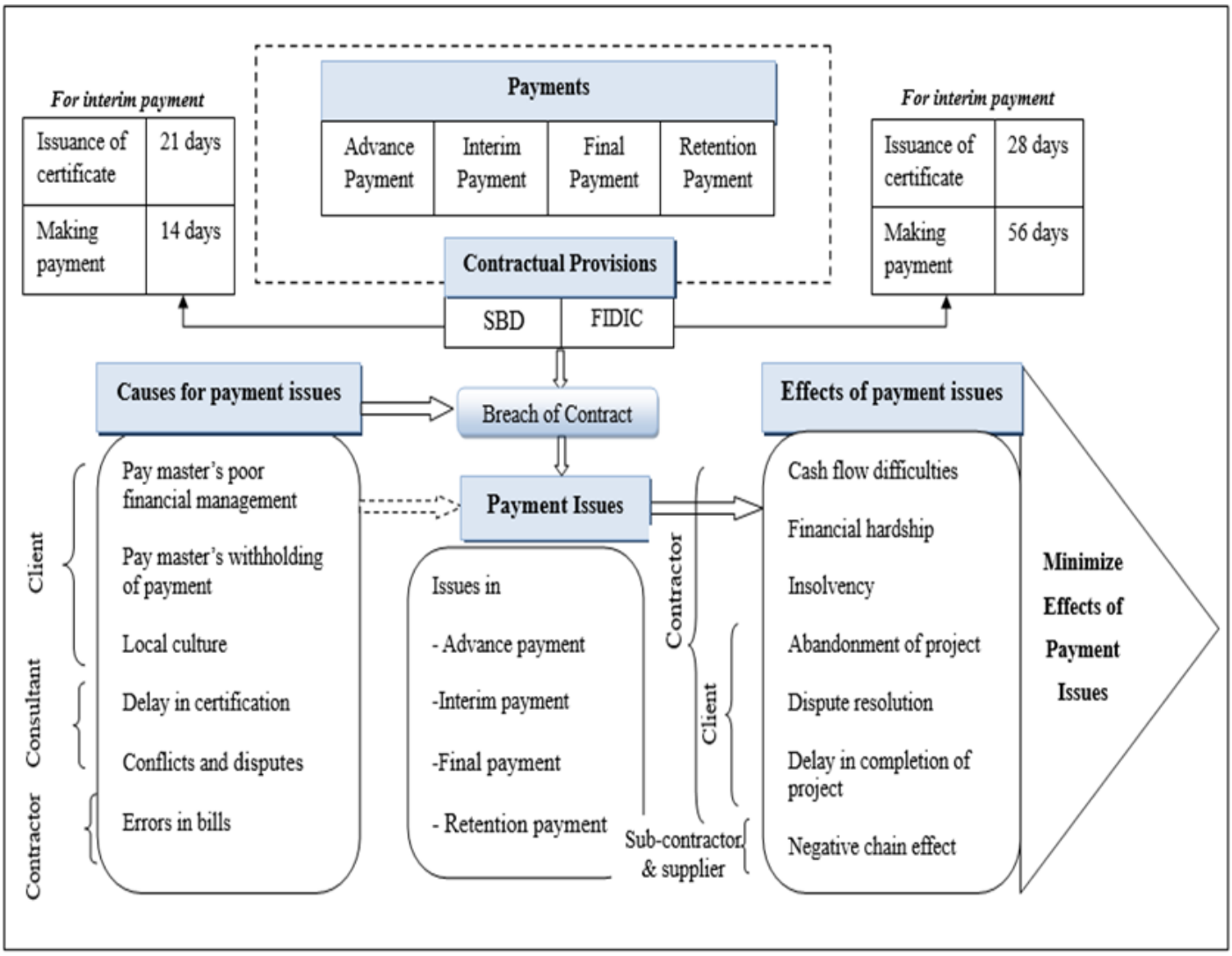

Fig 3 Summary - Payment Issues within Construction Industry

The above Fig 3 reveals the summary of literature findings which includes contractual provisions for payment, payment issues, causes and effects of payment issues. The dotted line rectangular indicates that payments are governed by contractual provisions. Downward arrows shows that when there is a breach of contract, it will leads to payment issues either delay or incomplete or default. Within the left hand side rectangular, "causes of payment issues" are shown which includes paymaster's poor financial management, pay master's withholding of payment, local culture, conflicts and disputes, delay in certification and errors in bills. These causes lead to payment breach of contract and give roots to many payment issues. Payment issues itself gives more subsequent effects. Hence, right hand side rectangular consists with "effects of payment issues" namely; cash flow difficulties, financial hardship, delay in completion of project, insolvency, abandonment of project, dispute resolution and negative chain effect. Finally, the triangle indicates that there will be a necessity to find the ways to minimize the effects of payment issues within construction industry.

➢ *Summary*

This chapter was looked into the topics: payment in construction industry, types of payment issues associated with payment in construction industry, contractual provisions for better payment practices, causes and effects of payment issues and finally, summarize the findings of literature. After identifying the types of payment and contractual provisions, the associated issues with payment have been identified in relation to types of payment. Then, the causes and effects of such issues have been identified and discussed. As the last part of literature review a model was established to summarise the findings of literature. Accordingly, the first two objectives were achieved to a certain extent based on the above literature findings. The next chapter describes research methodology of this study.

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CHAPTER THREE
RESEARCH METHODOLOGY

A. *Introduction*

Following the review of relevant literature concerning the current research phenomena in chapter two; this chapter explains the methodological framework adopted in achieving the aims and objective of the study.

B. *Research Process*

The following Figure 4 illustrates the research process.

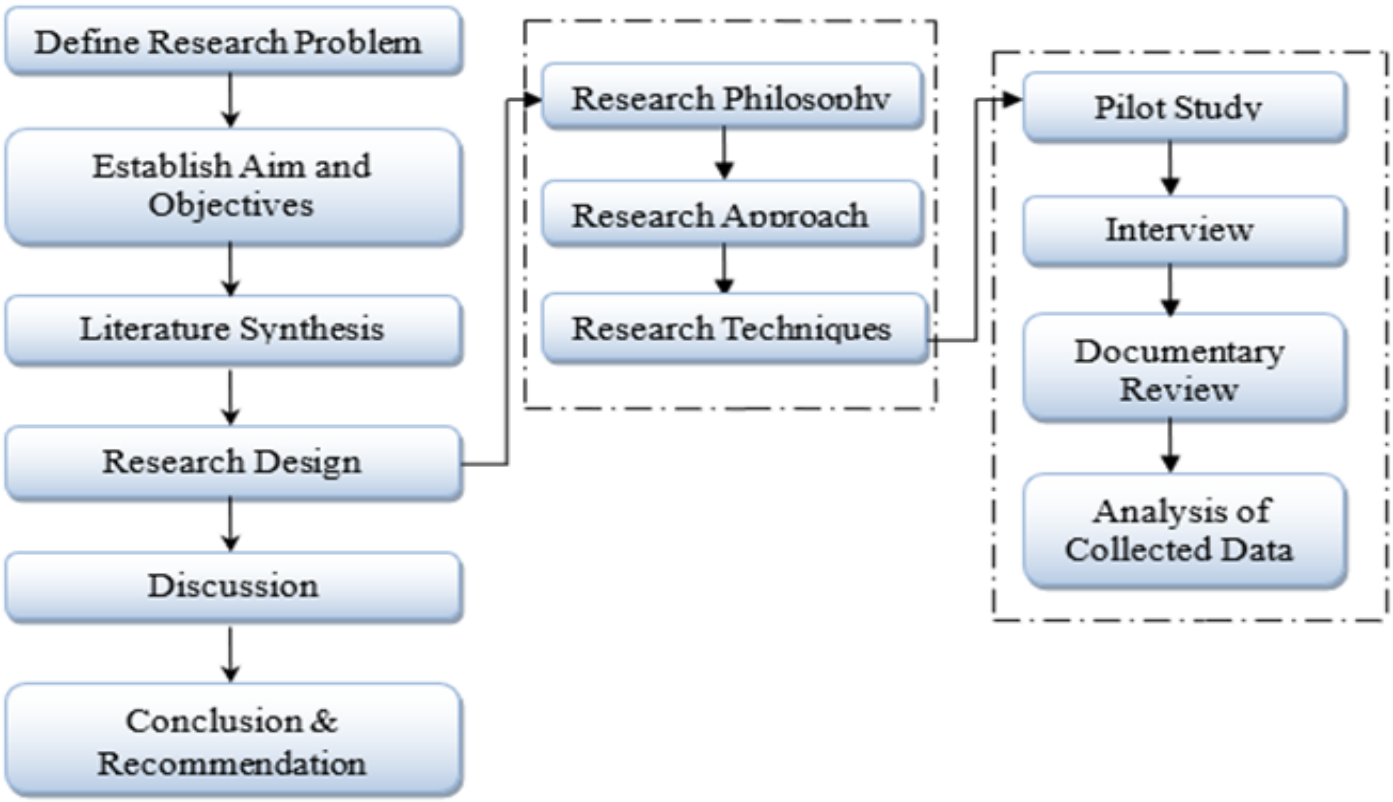

Fig 4 Research Process
Source: (Kothari, 2004)

C. *Research Design*

The "Nested" research model (Lu and Sexton, 2004) will be adapted for the research. The model illustrates the method of study contains of research techniques which are selected based on the research approach and, research approach is selected based on the philosophical stand of the research. Figure 5 illustrates the 'Nested' research model.

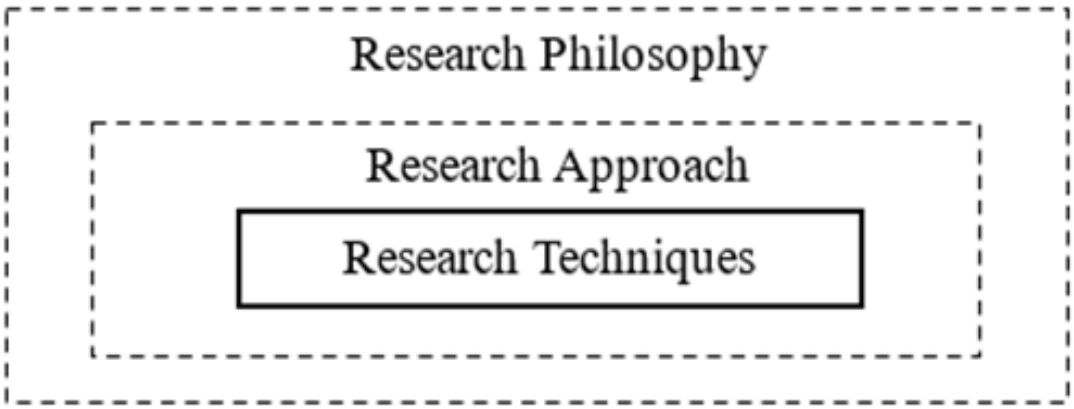

Fig 5 The "Nested" research model
Source: (Lu & Sexton, 2004)

➢ *Research Approach*

➢ *Research Strategy*

Survey provides a relatively quick and efficient method of assessing information about the population (Kelley *et al*., 2003). Unlike a case study, the purpose of a survey is not to consider a specific case in depth but to capture the main characteristics of the population at any instant or monitor changes over time (Kraemer, 2002). However, case studies are most appropriate when the researcher is interested in the relation between context and the phenomenon of interest.

Semi structured interview was adopted as primary data collection tool whereas documentary review was carried out as secondary data collection tool in the current research. Content analysis was used as the data analysis techniques.

➢ *Data Collection Technique*

- *Pilot Survey*

The simple opinion survey was conducted as the pilot survey with three professionals from the industry to ensure the feasibility of the survey. The feedback and opinions obtained from the pilot survey is used to develop the interview guideline and go in depth of the research area. (Questioner)

- *Interview*

This research focuses on getting the views of the different disciplinary practitioners who have experienced in payment issues. Therefore, face-to-face interviews were conducted with consultants, main contractors, and subcontractors.

✓ *Unit of Analysis*

The researcher fixes the boundary of the study which helps the researcher to identify the scope of the study including the limits of the data collection. Therefore, the unit of analysis for this research is the views of different practitioners who experienced payment issues in construction projects.

✓ *Selection of the Sample*

Purposive sampling technique was adapted to this research. Sample was selected from major industrial groups: main contractor, subcontractor and consultant and from those who have experienced payment issues in Sri Lankan construction industry. Sandelowski (1995) indicated that adequacy of sample size in qualitative research is relative, a matter of judging a sample neither small nor large. Further, Sandelowski (1995) suggested that a sample size of 10 can be judged as adequate for a certain category of participants. Accordingly, all together 30 interviews were conducted for collecting data for the research.

✓ *Saturation of Data Collection*

Wolf *et al*. (2010) indicated that in an interview survey, saturation occurs when the theme tends to be repeated. The researcher has to keep interviewing participants until data reach saturation. After saturation there is no room for more interviews. Therefore, the study interviewed all together 30 participants from the Sri Lankan construction industry.

- *Documentary Review*

Documentary review is a method of data collection for archival research approach, which incorporates the historical data to support the arguments in a research (Bowen, 2009).

➢ *Data Analysis*

Cognitive mapping is a technique used to structure, analyse and make sense of accounts of problems and managing large amounts of qualitative data from documents (Budhwar, 1996). Thus, content analysis was adopted to this research.

- *Content Analysis*

This study selected the software program NVivo 7, produced by QSR (Qualitative Solutions and Research Ltd.) for coding function to simplify the works relating to content analysis.

D. Summary

This chapter discussed and justified the research process adapted to the current study, the payment issues to the constructors in Sri Lankan construction industry. The survey method was adopted for the purpose of achieving the aims and objectives of the research. The literature survey was carried out to explore the payment issues in construction industry around other countries. Semi-structured face-to-face interviews were conducted with different practitioners in construction projects who experienced with payment issues. Apart from the interviews, documentary review also adopted as the secondary data collection technique to achieve the effectiveness of contractual provisions related to payment. Content analysis technique was adopted as data analysis technique. Finally, validity and reliability of the research design is ensured by taking proper measures. The next chapter explains the findings of the survey.

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CHAPTER FOUR
ANALYSES OF RESEARCH FINDINGS

➢ *Introduction*

Following the methodology chapter, this chapter explains responses to questions from the interview participants. Participants for the interviews are taken from the major industry groups: consultants, main contractors and subcontractors who have experienced payment issues. Different views of the interview participants are explained and analysed in a detailed manner in this chapter.

The results from the survey are elaborated to give consequential outcomes as listed below to achieve the objectives of the research study.

- *Identify and explain the nature of payment issues in relation to types of payment issues, types of clients, types of payments and types of industry group*
- *Identify the causes for payment issues*
- *Identify the effects of payment issues*
- *Investigate the ways of minimizing effects of payment issues in the Sri Lankan construction industry*
- *Identify the effectiveness of contractual provisions for payment and delayed payment*

➢ *Participants Profile*

The research participants are selected from major industry groups: consultants and main contractors who have experienced payment issues in Sri Lankan construction industry. The following Table 1 shows the profile of participants of this research.

Table 1 Profile of Research Participants – Consultants and Main Contractor

Interviewee Code	Designation	Years of experience	Nature of the work provided by the organization	ICTAD grade	Number of employees
Consultants					
C-I01	Director	20	Consultancy services	-	20
C-I02	Director	20	Cost, project, claim, disputes management	-	25
C-I03	Director	25	Cost, project, claim, disputes management	-	25
C-I04	Director	40	Quantity surveying, post contract cost management	-	30
C-I05	Senior Quantity Surveyor	20	Quantity surveying, post contract cost management	-	25
C-I06	Director	20	Consultancy services	-	7
C-I07	Senior Quantity Surveyor	10	Consultancy services	-	43
C-I08	Senior Quantity Surveyor	15	Consultancy services	-	50
C-I09	Senior Quantity Surveyor	19	Roads & infrastructure projects	-	35
C-I10	Senior Quantity Surveyor	19	Consultancy services	-	20
Main Contractors					
MC-I01	Chief Quantity Surveyor	21	Construction of buildings and infrastructure projects	C1	500
MC-I02	Chief Quantity Surveyor	20	Construction of buildings and infrastructure projects	C1	500
MC-I03	Project Manager	23	Construction of infrastructure projects	C2	350
MC-I04	General Manager	42	Construction of infrastructure facilities	C3	150
MC-I05	Director	20	Construction of infrastructure projects	C4	75
MC-I06	Director	20	Construction of building projects	C5	50
MC-I07	Owner	8	Constructions building projects	C6	20
MC-I08	Owner	9	Construction of building projects	C7	10
MC-I09	Owner	12	Construction of building, roads and culverts	C8	4
MC-I10	Owner	10	Construction of roads and culverts	C9	4

➢ *Nature of Payment Issues*

The views of participants were collected from the consultants and main contractors on the nature of payment issues under Sri Lankan context.

- *Types of Payment Issues*

The empirical data disclose payment issues can be either delays or losses or non-payments.

Table 2 Types of Payment Issues

Interview	Findings
C-104	losses of payment occur when it is reasonably proved by consultant.
MC-I04 MC-101	At the final payment, the contract price would be fully paid to the contractor
MC-I03	contractors experience losses of payment in variation works and this could be resolved in final payment certificate.
95% Responds	payment delays occur very often than losses and non-payment.
90% Responds	non-payment is rarely experienced by the contractors.

As per most of the response, the research investigates particularly the payment delays.

- *Types of Clients*

Survey findings indicate that there are four types of client: local government, foreign government, corporate and individuals operating within the construction industry.

Table 3 Types of Clients

Interview	Findings
85% Responds	private clients are good paymasters comparing to local government.
C-I07 MC-I02 MC-I06	corporate clients are stable in their financial aspects because they establish a proper budget initially and source the funding prior to initiate the project.

According to the empirical findings, foreign government client and corporate clients are considered as good paymasters whereas local government client always delays the payment and individual client delays the payment at the end of the project.

- *Types of Payment*

The literature synthesis revealed that there are four types of payment available within the construction industry namely, advance payment, interim payment, final payment, retention payment. According to the empirical findings, the degree of payment delays differs according to the types of payments.

✓ *Advance Payment*

According to the literature review, advance payment is an interest free loan from the client to facilitate the contractor's cash flow.

Table 4 Advance Payment

Interview	Findings
55% Responds	there is no delay in advance payment at all as the project will not be commenced without advance payment.
95% Responds	the client is not responsible for delay in advance payment
C-I01	delay in advance payment occurs when client's financial arrangements mainly depend on the bank loans
MC-I07 MC-I08	Some contractors do not have enough financial capacity to get the bank bonds and guarantees to all the projects
MC-I09 MC-I10	they don't go for advance payment as they are not in a position to get proper advance payment guarantee.

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✓ *Interim Payment*

Table 5 Interim Payment

Interview	Findings
75% Responds	there are delays in interim payments.
C-I04 C-I06	Poor performance of the contractors and improper payment applications lead to delayed payments
90% Responds	delays in interim payments do not occur at the initial stages and it gradually delayed as the work progresses due to cash flow difficulties of client.
70% Responds	The client reluctant to pay for the poor-quality work of the contractor and consultant delays the certification of improper bills
MC-I04	more trades are occurring during the middle stage of the project. Therefore, the value of interim payment application is considerably high during middle of the project.

✓ *Final Payment*

Table 6 Final Payment

Interview	Findings
50% Responds	there is always delays in final payments as the contractor included all the variations and the disputed quantities
20% Responds	that delays in final payments occur because of client's cash flow difficulties at the end of the project
C-I03	client reluctant to pay when the project finished
C-I09	there is a long procedure to be followed in final payments.
60% Responds	final payment is mostly delayed than interim payments.

✓ *Retention Payment*

Table 7 Retention Payment

Interview	Findings
65% Responds	retention payments are made on time when there are no defects.
C-I07	client delays the retention payment as because of his financial problems
30% Responds	clients are reluctant to pay the retention payment as the project completed
C-I03	client tries to get undue advantage by without paying the retention payment.

- *Types of Industrial Group*

The literature synthesis revealed that there are four types of payment available within the construction industry namely, Main Contractor, Sub Contractor, Consultant and Client.

Table 8 Types of Industrial Group

Interview	Findings
75% Responds	subcontractors are mostly suffered by the payment delays.
C-I02	there is a back to back arrangement irrespective of "pay when paid" clauses included or not.
30% Responds	there is no proper form of contract for the subcontracting works in the Sri Lankan and the main contractor establish the subcontracting document fair with biasness
MC-I03 MC-I05	main contractor's cash flow is so critical, and the payment values are considerably high

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Since the evidences revealed both the main contractor and the subcontractor are suffered by the delayed payments, the mostly affected party is the subcontractors in Sri Lankan construction industry. Therefore, the current research focused on the subcontractors' payment in construction industry separately in section 4.8. The next section explains the results from the survey on causes for payment delays.

- *Causes for Payment Delays*

The research participants are required to indicate the causes of delayed payments within the Sri Lankan construction industry. The collected views are clustered under subheadings: due to clients, consultants, contractors, and other factors. The following Figure 6 shows the NVivo outcomes respective of frequency (source).

Table 9 Causes for Payment Delays

Interview	Findings
70% Responds	paymaster's poor financial management is the key factor contributing to payment delays to contractors
60% Responds	delay in certification of payment application. It is often because of the construction workload and the existing measure and pay system
50% Responds	improper bills submitted by the contractors (inaccurate quantities and without all supporting documents)
45% Responds	cost of the project increases the set budget in almost all projects because of the variations and extra works
40% Responds	failure to source the funding prior to initiate the project

Name	Sources
Causes for Delay Payments	0
Due to clients	0
Paymaster's poor financial management	14
Cost overrun	9
Failure to source the funding prior to initiate the project	8
Local culture or attributes	5
Paymaster's with holding of payment	4
Trustworthiness between parties	2
Client's unawareness on repercussions of payment delays	1
Due to consultants	0
Delay in certification	12
Cost overrun	9
Local culture or attributes	5
Trustworthiness between parties	2
Exploitation	1
Frequent design changes	1
Poor preliminary estimates	1
Due to contractors	0
Improper bills from contractor	10
Cost overrun	9
Poor quality of work	2
Trustworthiness between parties	2
Due to other factors	0
Procedural delays	4
Procurement system	4

Fig 6 Causes for Payment Delays

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➢ *Effects of Payment Delays*

The research participants were required to specify the effects of payment delays in construction industry. Figure 7 shows the outcomes of collected views on effects of payment delays using NVivo are structured under subheadings: to clients, consultants, contractors and subcontractors and suppliers.

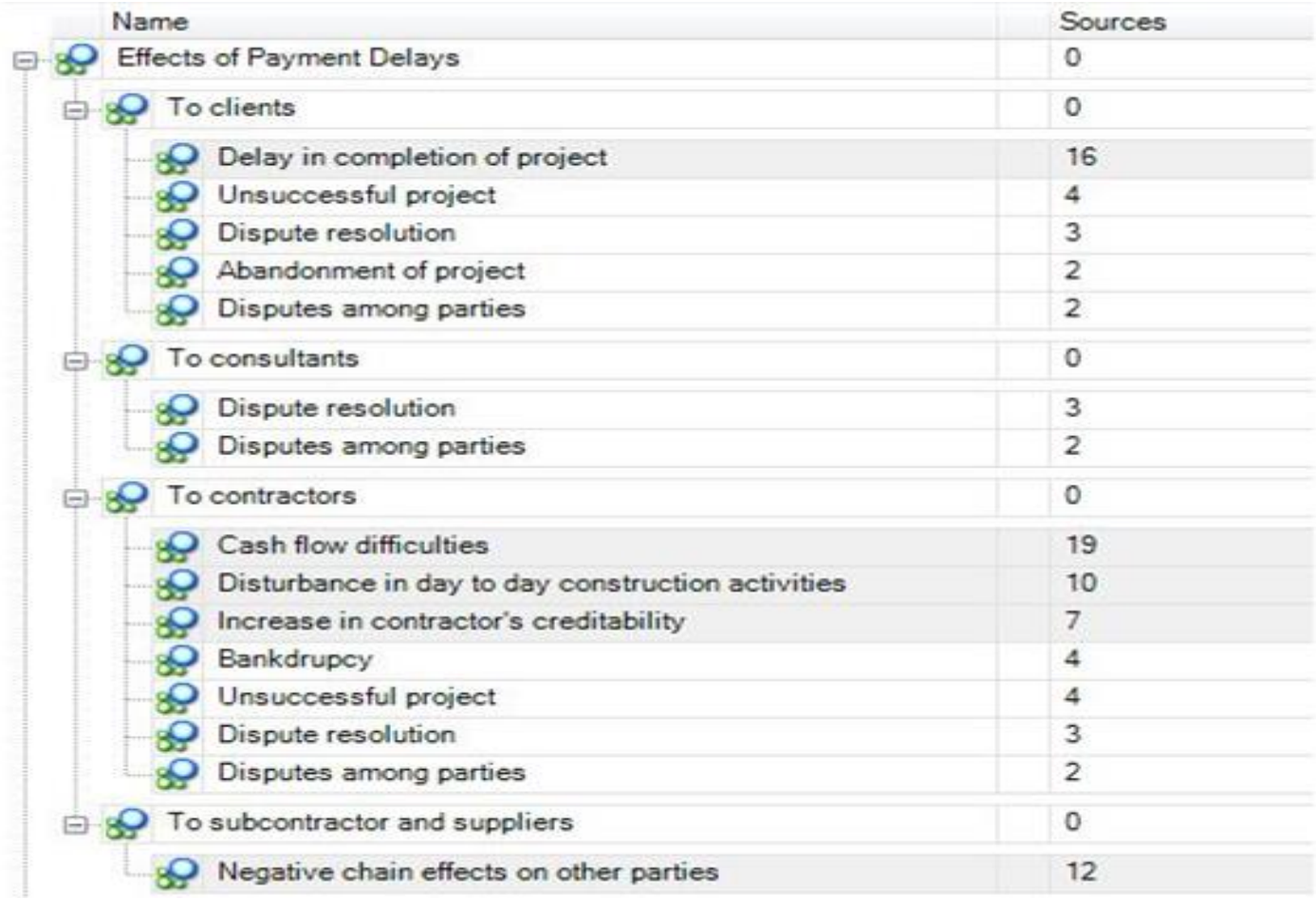

Fig 7 Effects of Payment Delays

Table 10 Effects of Payment Delays

Interview	Findings
95% Responds	major repercussion of delay payment is cash flow difficulties to contractors
80% Responds	delay in completion of project
60% Responds	negative impact in payment chain. the upper tier keeps back to back arrangement in payment to the lower tier. Therefore, payment delay to main contractor will reflect the payment to subcontractors and suppliers.
50% Responds	effect on construction activities. supply of materials for construction activities will be delayed the project will not move further until payment will be made.
35% Responds	increase in contractor's creditability. Delay payment leads the contractors to go for bank loans C2 contractors purchase materials from creditors and they depend on the payment from client to honour the creditors.

The above table reflect the main five effects of payment delays as per the study.

➢ *Ways of Minimizing Effects of Delay Payments*

The selected participants from major industry groups: consultants and main contractors were required to indicate the ways of minimizing the effects of payment delays. The findings from interviews revealed that contractors utilize the contractual provisions and employ own strategies in tackling payment delays. Using the NVivo with respective of frequency (source) the strategies are structured under major divisions: as per contractual provisions and as own strategies. Figure 8 shows the outcomes of collected views on the ways of minimizing the effects of payment delays.

Name	Sources
Ways of Minimising Effects of Payment Delays	0
As per contractual provisions	0
Slow down the work	9
Claim interest	6
Suspend the work until get paid	1
As per own stratergies	0
Bank loan	16
On account payment	12
Use own money	10
Conduct meeting with client	9
Use money from other projects	4
Material supplied by client	2
Dispute resolution	2
Contractor fund the project	2

Fig 8 Ways of Minimizing Effects of Delay Payments

Table 11 Ways of Minimizing Effects of Delay Payments

Interview	Findings
80% Responds	contractors utilize from bank loans to continue the construction process in delayed payments. Contractors have the opinion of, go for bank loans is profitable rather than using own money in the same project as he can invest in other project to increase profitability.
60% Responds	on account payment by client. When there is delay in certification of payment application by the consultant, the consultant suggests for on account payment
50% Responds	contractors use own money. Majority of the consultants (80%) are with the same opinion of the contractor has to fund the project to a certain extend and the contractor cannot rely on client's money all the times.
45% Responds	Slow down the work progress and conducting meeting with client. it is considered as a better way to conduct meetings among the parties in construction projects and solves the problems mutually.
40% Responds	claiming interest for delay payment. contractors are used to include the interest claim in the final bill not through the interim payment application. The majority of the contractors consider that will antagonise the client.

Following the description of how the contractors minimize the effects of payment delays within Sri Lankan construction industry.

➢ *Effectiveness of Contractual Provisions for Payment and Delayed Payment*

There are provisions for payment and delayed payment included in standard forms of contract which is practiced by the industry to a certain extent. Thus, this section tends to explain the findings of empirical data collected from interview survey regarding the applicability and effectiveness of the existing contractual provisions for payment and delayed payment. To reach the effectiveness, the participants are required to answer questions under contractual provisions with the options of very frequently, frequently and rarely.

- *Claiming Interest*

The empirical findings disclosed that 90% of the research participants from consultant representatives suggested that claiming interest is practiced frequently by the industry contractually whereas 30% of the interviewees from main contractor group only in lined with consultants. Most of the consultant participants confirmed that contractors are very frequently claiming interest through the final bills as claiming interest through the interim payment application antagonise the client and the consultant.

As per MC-I01 and MC-I02, the top-level contractors are claiming interest through the interim payment applications and client honour accordingly. MC-I03 reported that they utilize this provision in a critical situation only. MC-I09 and MC-I10 are not even aware of the provisions for the delayed payments as they are having lower grading in ICTAD registration. The contractors with ICTAD grade C3-C8 are aware of these provisions; however, they are not wish to claim interest for delay payment so as to keep a good relationship with the client and to get more jobs in future.

80% of the respondents disclosed the interest rate mentioned in forms of contract is enough adequate for the contractor to reimburse the expense. An interviewee (MC-I01) explained that the contractor go for bank loans when there are payment delays. The borrowing rate of bank is higher than the lending rate. The interest provisions are based on the lending rate of central bank. Therefore, it is not adequate to refund what is spent by the contractor.

- *Slow Down the Work*

The research findings revealed that 90% of the respondents reported slow down the work process is utilized by the construction industry in wide range. Majority of the consultant expressed the contractors don't tend to slow down the work process contractually. Without a prior notice of knowing the situation to employer, the contractors slow down the work. An interviewee (C-I03) supported that the contractors ultimately slow down the work without knowing what is mentioned in the conditions of contract. However, C-I07 expressed that the contract is awarded to a reputed contractor considering the financial capacity. Hence, contractor is expected to bear the risk of delay payment to a certain extent.

Most of the contractors responded that they used to slow down the work when necessary only. If the contractors tend to slow down the work all the times, that will cost to the contractor. 90% of the respondents are satisfied with the provision slowdown the work until get paid. Only two participants from main contractor group are not lined with above statement as they are not aware of provision.

- *Termination of Work*

As per the data collected through the interview survey revealed, 95% of the respondents expressed termination of work is not practiced for payment delays in the industry. Termination for delay payment happens rarely. Even though termination of work is a strong provision for delayed payments, industry does not wish to utilize this. Actually, this provision does not make any sense in a construction contract. Majority of the respondents (95%) are in lined with the above statement.

Following the explanation of the findings on effectiveness of contractual provisions, the next section explains the findings on subcontractor's payments in construction industry.

➢ *Subcontractor's Payment in the Construction Industry*

The empirical data collected through the interviews from consultants and main contractors revealed that subcontractors are affected mostly because of delayed payments in Sri Lankan construction industry. Therefore, this section tends to explain the views of subcontractors from the data collected through interviews conducted with the nominated subcontractors and domestic subcontractors.

- *Participants Profile*

Prior to collects views for questions the participants are required to indicate their background information which includes designation, years of experience, nature of the work provided by the organization, ICTAD grading of the organisation and number of employees. The research participants are selected from domestic subcontractors and nominated subcontractor who have experienced payment issues in Sri Lankan construction industry. The following Table 4.2 shows the profile of participants of this research.

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Table 12 Profile of Research Participants – Domestic subcontractors and nominated subcontractors

Interviewee Code	Designation	Years of experience	Nature of the work provided by the organization	ICTAD grade	Number of employees
Domestic Subcontractors					
SC-I01	Project Manager	15	Aluminium fabrication and installation	F1	22
SC-I02	Senior Quantity Surveyor	10	Plumbing, fire, electrical works	EM1	130
SC-I03	Head of Quantity Surveyor	10	Electrical installation	EM1	120
SC-I04	Cost and management consultant	35	Construction of infrastructure facilities	-	50
SC-I05	Senior Quantity Surveyor	20	Water proofing works	SP-2	70
Nominated Subcontractors					
SC-I06	Director Operations	14	Glass works	-	50
SC-I07	Senior Quantity Surveyor	12	Plumbing, fire, electrical works	EM1	130
SC-I08	Head of Quantity Surveyor	8	Electrical installation	EM1	120
SC-I09	Senior Quantity Surveyor	10	Water proofing works	SP-2	60
SC-I10	Senior Quantity Surveyor	15	Lift installation	EM1	75

According to the Table 12 the research has collected the views of domestic subcontractors and nominated subcontractors. Among the research participants majority of them are senior quantity surveyors who are directly dealing with the payment issues. Most of the participants are having more than 10 years' experience. Therefore, those will make sure the reliability of the research outputs. The research intends to collect the data from the subcontractors of all major building trades. However, it was possible to collect data from the trades of aluminium fabrication, plumbing, fire, electrical installation, glass work, water proofing and lift installation. Thus, the research has considered the views of subcontractors from different trades in the industry.

The next section explains the responses to questions under nature of payment issues to subcontractor's payment within the Sri Lankan construction industry.

- *Nature of Payment Issues in Subcontractor's Payment*

According to interview survey, nominated subcontractors confirmed that nominated subcontractors are not experiencing payment issues like domestic subcontractors. The representatives from domestic subcontractors also in lined with the nominated subcontractors' opinion. Nominated subcontractor's payment directly comes from client and sometimes through main contractor as per SC-I06 and SC-I07. If the main contractor tends to delay nominated subcontractor's payment, the client shall directly make the payment and deduct that amount from main contractor's payment according to the conditions of contract. Therefore, nominated subcontractor's payment follows smoothly and domestic subcontractor's payment is crucial in the construction industry.

100% of the respondents from domestic subcontractors confirmed that there are delays occur whereas two of the interviewees (SC-I03 and SC-I04) expressed that losses of payments occur particularly with the variations. Majority of the participants from domestic subcontractors confirmed that final payment very frequently delays than interim payments and there is no problem with the advance payment and retention payment. However, an interviewee (SC-I05) suggested that retention payment delays frequently as the work has completed already and the main contractor takes undue advantages without paying. Thus, the subcontractors face payment issues in the construction industry. The next section explains the findings on causes of payment delays in subcontractor's payment.

- *Causes for Delays in Subcontractor's Payment*

The empirical findings revealed the causes for delays in subcontractors' payments as follows.

- ✓ There is no proper form of contract for subcontract work established by ICTAD
- ✓ Including of "pay when paid" clauses in subcontract document
- ✓ Main contractor's aptitude or culture
- ✓ The subcontract document doesn't contain the payment terms and provisions for delay payments
- ✓ Poor communication between parties
- ✓ Assigned professionals of main contractor are reluctant to approve the payment as they feel taking risk
- ✓ Lack of knowledge of the subcontractor in contractual matters
- ✓ Subcontract document more favourable to main contractor

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100% of the subcontractors reported that the main contractor transfers all the risk to subcontractor. Therefore, subcontractors are suffered a lot. However, they absorb the situation and survive in the industry.

- *Effects of Delays in Subcontractor's Payment*

According to the collected data, delays in subcontractor's payment not only affect the subcontractors but also the success of the project. The effects of payment delays are listed as follows,

- ✓ Subcontractor's cash flow is disturbed
- ✓ Material supply gets delayed
- ✓ Construction process gets slow down
- ✓ Delay in completion of project
- ✓ The parties below the subcontractor in the supply chain get affected
- ✓ Unsuccessful project
- ✓ Bankruptcy of the subcontractor

SC-I03 reported that the worst effect is bankruptcy and there are many bankruptcy cases in subcontractors' ground. C-I03 also in lined with SC-I03. Further C-I03 reported that the subcontractors absorb their position in the industry and finally produce low quality product.

- *Ways of Minimizing the Effects of Payment Delays*

Subcontractors are aware of the payment behaviour of the main contractors for many decades. Therefore, while pricing the tender document there is an allocation for the risk of delay payments as per SC-I01 and SC-I03. The experienced subcontractors utilize their own strategies to safeguard in delay payment situation. However, the growing subcontractors suffer a lot in the industry.

60% of the representatives of domestic subcontractors revealed that they used to get bank loans and finish the work whenever payment gets delayed. However, SC-I03 and SC-I04 reported that they slow down or stop the work until they get paid as they are no financially stable to get bank loans. Proper communication with consultant and client will be a better option that is practiced by most of the subcontractors as per SC-I03.

However, the survey reveals that there is no proper contractual ways of minimizing the effects of delayed payments to subcontractors in the Sri Lankan construction industry.

- *Contractual Provisions of Subcontract Works*

Majority of the respondents confirmed that the main contractor establish the subcontract document with biasness. Provisions for delay payment are not included in the subcontract document as per 100% of the subcontractor representatives. There are certain payment terms included in the subcontract document however those are fair to the main contractor. SC-I01 confirmed that most of the time defect notification period for the subcontract work starts from the completion of main contract work. Further, SC-I04 pointed that in the subcontract agreement it is mentioned that, *"variation is to be paid when the client approved only"*. But main contractor order the subcontractor start such variation before getting any approval from the client. Hence, subcontractor suffers at the end. Most of the subcontractors revealed that there is a subcontract agreement instead of a proper subcontract document. Anyhow the industry moves with available provisions for performing subcontract works.

- *Summary*

This chapter addresses the principal findings of the study, from the analysed research findings. Firstly, it analysed the nature of payment issues in Sri Lankan construction industry with the focus of type of payment issue, type of client, type of payment and the type of industrial group. Secondly, it explained the causes of payment delays and then, effects from such payment delays in detailed. Then, it described ways of minimizing the effects of payment delays practiced by the contractors. This chapter further discussed the nature of subcontractors' payment in Sri Lankan construction industry. Then next chapter discusses the findings of the survey.

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CHAPTER FIVE
DISCUSSION

- *Introduction*

Following the analyses of research findings, this chapter discusses the outcomes from the interviews conducted with the selected participants from major industry groups: consultants, main contractors and subcontractors with reference to literature where possible. Similar and dissimilar views of participants and the reasons behind such opinions have been discussed in detail.

This chapter starts with the discussion of findings on nature of payment issues. Then, it compares the summary of the literature findings and the framework developed using empirical data collected through semi structured interviews with the main focus on causes for payment delays, effects of payment delays, ways of minimizing effects of payment delays and effectiveness of contractual provisions related to payment and delayed payment.

- *Nature of Payment Issues*

According to the research findings, payment issues are identified as delays, losses and non-payments. Among these three types of issues, payment delays are critical in Sri Lankan construction industry. Payment delays are more frequent than losses (Ramachandra & Rotimi, 2012a). Therefore, this seems the findings of the survey are in lined with the existing literature. Further, the empirical data disclosed that the concept "losses of payment" is not accepted by the practitioners in the industry as the contract price is paid to the contractor at the end of the project anyway. Therefore, both contractors and consultants have same opinion that losses of payment happen rarely. The participants selected for this study have not experienced non-payment and they have not encountered any non-payments in the industry. Therefore, this research particularly focused on delay payments.

Hasmori, Ismail, and Said (2012) suggested that delayed payment situation in government funded projects was commonly experienced whilst more of them affirmed the same situation in private funded projects. However, the current study indicates that payment delays are mostly experienced in the projects which are purely funded by local government as the government fails to source the funding prior to commence the project and existing lengthy procedures in government sectors. Generally, the payment issues are very less with the foreign funded projects as the fund is available before award the contract to particular contractor while corporate clients also considered as good paymasters as they have some sort of separate financial department to deal with financial matters. The payment delays with the individual client vary according to time and each individual. In the early stages, payments made on time and latter stages payment delays occur because individual clients start the projects without sourcing the complete budget before initiate the project.

The extent of the payment delays differs according to the types of payment. Advance payment very rarely delayed as the client tends to provide the advance payment on time to commence the project. Retention sums are very often delayed while final and interim payments are delayed less than often (Ramachandra & Rotimi, 2012a). However, the findings of current research indicates that final payments are delayed very often compare to interim and retention payment as final statement contains all the disputed items and quantities of previous interim bills, particularly variations. The client faces financial difficulties at the end of the project. Therefore, interim payments during the end of the project are delayed. The paymasters take undue advantages by delaying retention payments as the project has finished already. However, the retention payments are not delayed often.

Carmichael and Tran (2012) stated that the uncertainty in subcontractors' payments is increased because of the payment behaviour of clients and contractors. According to the survey, it was identified that the subcontractors are the mostly affected party in the payment chain comparing to the main contractors. There is no protection for the subcontractor's payment in their contract document. The subcontractors are entering into contract with a few pages subcontract agreement in spite of subcontract document with a set of terms and conditions. Most of the time subcontract agreement contains "pay when paid" clauses. Main contractors have always transferred all the risks to subcontractors. The subcontractors are financially not stable and they are in the bottom of payment chain therefore, subcontractor's status is critical in construction industry. However, the main contractors with lower ICTAD grading are also suffering a lot as their financial instability. To sustain in the construction industry, subcontractors and the small sector contractors are absorbing the situation and remain. Thus, the construction industry operates.

- *Framework – Payment Issues in the Sri Lankan Construction Industry*

According to the findings from the survey, framework for payment issues in the Sri Lankan construction industry was developed. Figure 9 illustrates the framework.

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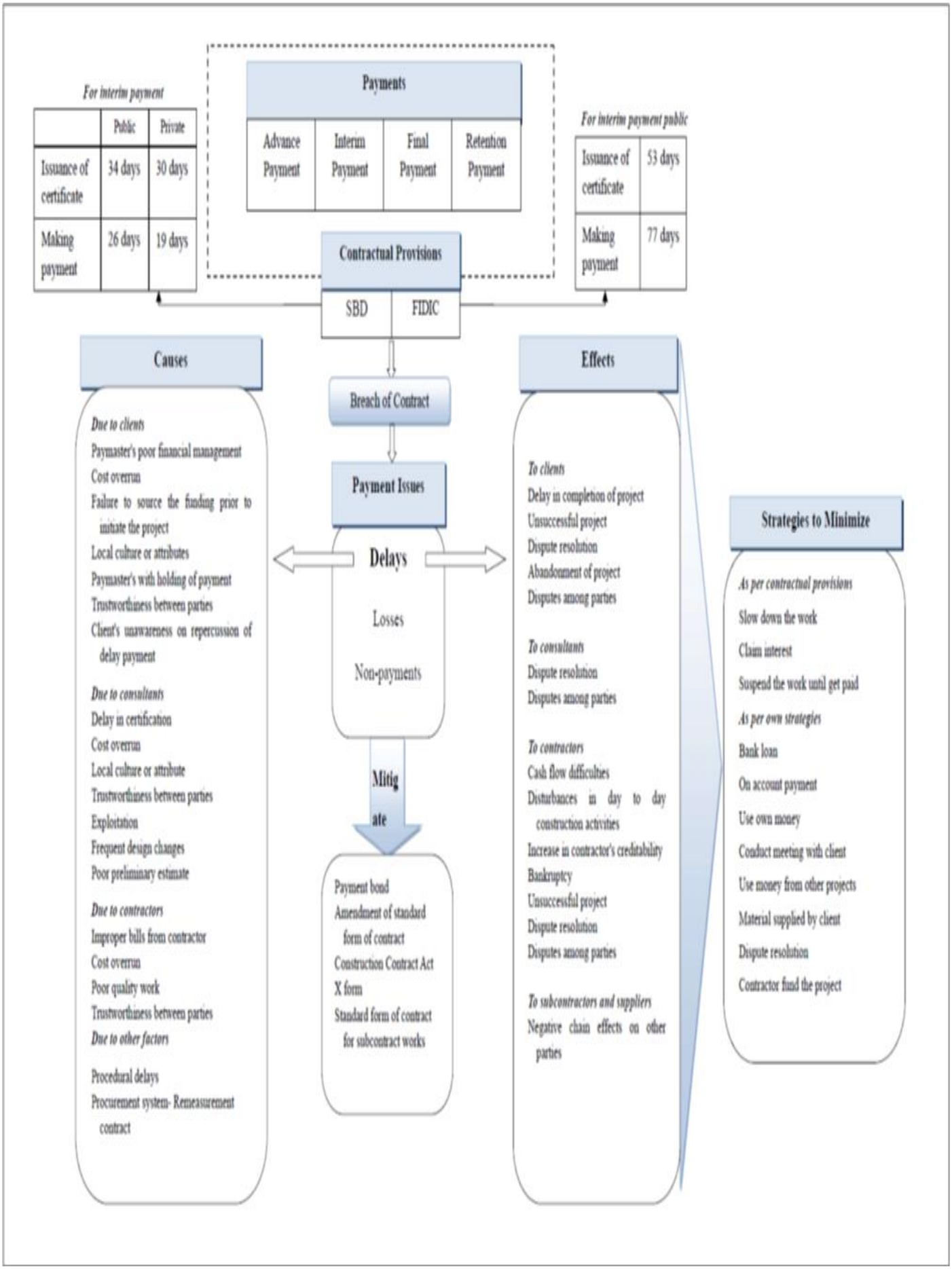

Fig 9 Framework - Payment Issues in the Sri Lankan Construction Industry

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The above Figure 9 reveals the framework of payment issues in the Sri Lankan construction industry developed from the findings of the interviews conducted with selected practitioners from the industry and the documentary review of payment data of projects which experienced payment issues. The framework focuses the main sections: causes, effects, ways of minimizing the effects of delay payments and effectiveness of contractual provisions.

- *Causes of Delayed Payments*

According to the views of research participants, the causes of delayed payments are attributed to clients, consultants, contractors and other factors. The top three causes of delayed payments are identified as client's poor financial management, delay in certification of payment application by the consultant and improper payment application from contractor. This seems all three parties are contributing to payment delays. Further, the research indicates that cost overruns and failure to source the fund prior to initiate the project are some other important causes contributing to delayed payments. Most of the current research findings are in lined with the existing literature. However, there are certain new causes to existing literature have been identified: trustworthiness between parties, failure to source the fund prior to initiate the project, cost overrun, poor preliminary estimate, exploitation, frequent design changes and poor quality of work, procedural delays and procurement system.

Cost overrun is identified as significant cause contributing to delayed payments. Most of the time client's requirements increase when the time moves. Further, there are variations arise with the construction process because of several reasons. Therefore, these will leads to cost overruns. Then, the contract price exceeds the client's budget, the client faces difficulties to source the exceed amount. Thus, there are more payment delays at the end of the project.

Failure to source the fund prior to initiate the project is recognized as the next important cause of delayed payments. The local government is often practicing in such a way. Government has to show the country's development through the construction of buildings and infrastructure projects. Therefore, government start the projects before arrange the adequate fund. Even, individual clients also start the project with the available fund not with the arrangement of complete fund. Therefore, payment delays occur.

- *Effects of Delayed Payments*

The effects of delayed payments are recognised under the subheadings: to clients, contractors, subcontractors and suppliers. Unlike previous researches the findings of the current research shows that there are some additional causes which attribute to payment delays: affect day to day construction activities, unsuccessful project, disputes among parties and increase in contractor's creditability. The findings from interviews and literature indicate that the most critical effect is contractor's cash flow difficulties. It is anticipated that cash flow difficulties to the contractor would have a devastating knock-on effect down the payment chain.

Delay in project completion is the next critical effect of delayed payments. The contractor tends to slow down or suspend the project during the payment delays. Therefore, the project gets delayed. The next significant effect is negative chain effect on the parties in the payment chain. The uncertainty in payment of lower tiers is increased because of the payment behaviour of clients and contractors. Therefore, a continuous effect is created in the payment chain.

The next crucial repercussion of delayed payments is affect day to day construction activities. The day to day activities will be disturbed because of inadequate money. The material purchase gets delayed. Therefore, the project activities slow down. Another important effect is increase in contractor's creditability. The contractor who completes the project on time is considered as a successful contractor and gets more jobs. Therefore, the contractor arranges the money through bank loans and completes the projects. Hence, contractor's creditability increases.

- *Ways of Minimizing Effects of Delayed Payments*

According to the current study, the contractors utilize the contractual provisions for delayed payments: slow down the work, claim interest and suspend the work. Apart from the contractual provisions the contractors are utilizing own strategies: seeking bank loan facilities, on account payment, ensuring adequate equity funding, conduct meeting with the clients, utilise money from other projects, materials supplied by clients, dispute resolution and contractor fund the project.

Among the above mentioned ways, most of the contractors use seeking bank loan facilities to proceed with the construction process. Investing the contractors' own money for the same project will be considered as loss of profit. However, other than C1 and C2 contractors do not have excess money. Therefore, the contractors chose bank loan as the first option to remedying the repercussions of payment delays. The second best option is on account payments. The industry practicing on account payments when there are delays in certification of payment application. Around 75% of bill value will be paid through on account payments. On account payment helps to facilitates the contractor's cash flow to a certain extent. The third way is utilize the adequate equity funding. Client and consultant expect that the contractor has to bear the payment delays up to a certain extent and the contractor cannot rely on client's money all the times. In addition to these conducting meeting with the client and slow down the work are also followed by the industry to minimize the effects of payment delays.

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- *Contractual Provisions for Delay Payments*

According to the standard forms of contract, time frames are provided for certification of payment application and making payment. However, the documentary review of the current study indicates the actual time frame is higher than comparing to standard forms of contract (see Figure 5.1).

According to the findings from interviews, the contractors are rarely utilizing the available provisions: claim interest, slow down the work and termination as to sustain in the industry. If it is a long delay only the contractors particularly the C1 and C2 are utilising the provision claiming interest. Interest charges for delayed payments shall be claimed through the following interim payment applications contractually. However, the contractor includes this claim in the final bill as the contractor feel if interest is claimed through the interim payment applications that will antagonise the client and consultant. However, small and medium sector contractors are not claiming for the financial charges at any time. In addition to this, the survey findings indicate that the interest rate provided in the forms of contract is not adequate to reimburse the cost spend during the period the payment delayed.

Slow down the work is practiced by the contractors contractually. Some contractors slow down the work without giving proper notice. Therefore, the contractor is unable to claim for extension of time for the period of slow down of the work. The provision termination is not practiced by the industry. Termination of the project never considered as a better option for delayed payment. If there are no other options then only it is used. This seems the available provisions for payments and delayed payments are not satisfactory to the contractors. Hence, amendment to the contract conditions to address this issue becomes an urgent necessity.

- *Summary*

This chapter discussed the outcomes from the interviews conducted with the selected participants from major industry groups: consultants, main contractor and subcontractors with reference to literature where possible. The similar and dissimilar views of participants and existing literature and the reasons behind such opinions have been discussed in detailed using the developed framework of payment issues to the Sri Lankan construction industry. The next chapter will conclude the research investigated.

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CHAPTER SIX
CONCLUSIONS AND RECOMMENDATIONS

A. *Introduction*

This chapter concludes the research based on the research findings and synthesise from the literature review, interview survey conducted with the selected participants who have experienced in payment issues and documentary review of payment data. Thus, this chapter emphasizes on how the research objectives were achieved as the conclusions of this study. Subsequently, recommendations are provided based on the findings of this study in order to suggest mechanisms to mitigate the payment issues in the Sri Lankan construction industry. Finally, the new research directions emerging from this study are elaborated.

B. *Achievement of Research Objectives*

The prime aim of this study is to investigate the ways of minimizing the effects of payment delays to constructors in the Sri Lankan construction industry. The literature survey gave a clear picture on payment issues with the main focus of causes, effects and contractual provisions enabling better payment practices are discovered. However, the literature suggested a gap in research area. Hence, the current research focused on the payment issues to the constructors in the Sri Lankan construction industry.

- *Objective 1 - Investigate the existing payment practices and related issues within the construction industry*

Firstly, this current research is aimed at investigating the existing payment practices and related issues within the construction industry. This was achieved from the existing literature survey and interview survey. There are three types of payment issues prevailing in the construction industry: delays, losses and non-payments. Among these three issues the Sri Lankan construction industry suffers widely by the delay payments. Losses of payment are not applicable because at the end of the project the contract price is paid and the deductions made in the interim bills are reasonable deductions. Non-payment is not a common issue under Sri Lankan context. The projects funded by local government face more delays comparing to private and foreign funded project. Final payment delays very often than retention and interim payments whereas advance payment very rarely delayed. The subcontractors are mostly affected party in the payment chain than the main contractors. The uncertainty in the subcontractor's payment is increased because of the combined uncertainty in payment behaviour of client and main contractor. Further, the subcontractors are in the bottom of payment chain and financially instable. Therefore, subcontractors are mostly affected party in construction industry.

The study concluded that payment delay is most significant issue in construction industry; delays are critical in the projects purely funded by the local government; final payments are very often delayed; and subcontractors are the mostly suffering party in the Sri Lankan construction industry.

- *Objective 2 - Identify the contractual provisions enabling proper payment practices and identify its effectiveness*

Secondly, the research aimed at identifying the contractual provisions enabling proper payment practices and its effectiveness, was achieved through both literature survey and interview survey. The contractual provisions for payments and delayed payments were explored from FIDIC and SBD which are commonly practiced in the Sri Lankan construction industry. Further, effectiveness of contractual provisions for payment is achieved through documentary review of payment summary of completed projects. The average time frames for certifying the interim payment application using ICTAD/SBD/02 for public project and private project are 34 days and 30 days respectively whereas time frames for making payment are 26 days and 19 days. Average time frame for certifying the interim payment application using FIDIC 1999 Redbook for public project is 53 days and for making payment is 77 days. This reveals that the allocated time frames in standard forms of contract are not adequate.

The effectiveness of contractual provisions for delayed payments was achieved through interviews conducted with the practitioners in the industry. The study concluded that the provision claiming interest is not enough to reimburse the cost incurred to contractor whereas slow down the work and termination are satisfied to contractors and acceptable to consultants. However, the provision termination is not utilized and claim interest is used for long delays only.

- *Objective 3 - Identify the causes of payment issues prevailing in Sri Lankan construction industry*

Following the second objective this objective aimed at identifying the causes of payment issues prevailing in Sri Lankan construction industry. This was achieved through the interviews. The causes were identified under the subheadings: due to clients, consultants, contractors and other factors as shown in Figure 4.1. The clients, consultants and the contractors are contributing to top three causes: clients' poor financial management, delay in certification by the consultants and improper bills from contractors. Cost overrun and clients' failure to source the adequate funding prior to initiate the project were also recognised as significant causes contributing to delayed payments.

The study concluded that the C.

- *Objective 4 - Identify the effects of payment issues prevailing in Sri Lankan construction industry*

Following the third objective this objective aimed at identifying the effects of payment issues prevailing in the Sri Lankan construction industry. This was achieved through interviews. The effects of payment delays were recognised under subheadings:

to clients, contractors, consultants, subcontractors and suppliers as shown in Figure 4.2. It is anticipated that delay payment incidences have caused undue cash flow difficulties to the contractor and this would have a devastating knock-on effect down the payment chain. The research concluded that the most significant effects of payment delays are cash flow difficulties to contractors, delay in completion of project, negative effects on other parties in payment chain, disturbances in construction activities and increase in contractor's creditability.

- *Objective 5- Investigate the ways of minimizing the effects of payment issues faced by constructors in the Sri Lankan construction industry*

Finally, the current study aimed at investigating the ways of minimizing the effects of payment issues to constructors in the Sri Lankan construction industry, achieved through the collected views of research participants from major industrial groups: consultants, main contractors and subcontractors. The contractors adopt the contractual provisions and own strategies to minimize the effects of payment delays (See Figure 4.3 in chapter 4). The study concluded that contractors utilize the claim interest, slow down and suspend the work as per contractual provisions. Apart from the contractual provisions, the contractors adopt own strategies: seeking bank loan facilities, ensuring adequate equity funding, on account payment, dispute resolution, material supplied by client, contractor fund the project and use the money gained from other projects.

Thus, the objectives of the current research were achieved through literature survey, interview survey and documentary review. According to the findings from the views of interview participants recommendations are suggested in the next section.

C. Recommendations

Considering the findings of the research, following suggestions are recommended as implications to theory and to be practiced within the construction industry. The implications to the construction industry emanates from the mechanisms suggested by the interviewees to mitigate payment issues within the Sri Lankan construction industry.

- *Implications to Theory*

This study provided a conceptual framework towards minimising the effects of payment issues in the Sri Lankan construction industry as represented in Figure 5.1. This has been developed based on literature and compared with the survey findings. The research was done with major industry groups: consultants, main contractors and subcontractors. Consultant is considered as proxy to client. Therefore, the research was carried out under the perspective of all three parties: client, consultant and contractor involve in a construction project.

The study indicated that payment delays occur due to clients, consultants, contractors and other factors. The contractor need to check the possibility of the particular causes when enter into the contract. The client could know that if there is a delay in payment that will directly affect the project success. However, the study revealed that the most critical effect is cash flow difficulties to contractor. The contractor has to seek better options to facilitate the cash flow during payment delays. Thus, the research grounds for implication to theory.

- *Implications to Construction Industry*

The research outcomes confirm that delay payments are prevailing in the Sri Lankan construction industry. Both main contractors and the subcontractors are affected by the delayed payments. Although there are contractual provisions available for the delay payments in the form of contract, the contractors are not satisfied with the available provisions and the industry is reluctant to practise such provisions. The contractor who follows such provisions will lose both future projects and good name in the industry. However, the construction industry continues to operate without any amendments or implications to the payment provisions. The research therefore, suggests the following list of recommendations to mitigate the payment issues in the construction industry.

- *Payment Bond*

The research suggests that the payment bond is the best way to mitigate payment issues in construction industry. The payment bond is a straight forward devise, basically requires a third party such as bank or an insurance company to guarantee payment in the event of default on the part of the paying party. In effect, it requires the party awarding a construction contract to provide payment bond for the projects which exceed certain amount (10Mn). The concept is similar to performance bond. The bond is readily encashable like on demand bond and the liquidity need to be like a cheque. Therefore, payment bond is considered as a better solution to avoid and mitigate payment issues.

- *Amendment of Existing Standard form of Contract*

The current study suggests the existing standard forms of contract need to be amended. The professional bodies and government agencies need to study and amend the existing standard forms of contract to provide protection and promote a balanced allocation of risk and fair contract to all related parties in a construction contract. Promptness of submitting, processing, issuing payment certificate and honouring the certificate are extremely important aspects in relation to payment. This includes enforcing clauses of delay payment in contracts. This could be done by applying charges to delay payments in the same way as

liquidated damages have been applied. In addition to that payment schedule should be included in the form of contract. In such a way the standard forms of contract could be changed to mitigate payment issues.

- *Construction Contract Act*

Construction Contract Act mainly deals with payments due under construction contracts. The purpose of the Act is to provide a process for deciding what payments have to be made under a construction contract and when they are due. Therefore, the government which is the main employer needs to make necessary steps in order to pass the Construction Contract Act which is being submitted for the approval. The Act will help to minimize the payment issues in construction industry and to resolve the payment disputes through adjudication.

- *Standard form of Contract for Subcontract Works*

The subcontractors are affected mostly by the delayed payments in the Sri Lankan construction industry. However, the subcontractors are the people actually doing the work at site. Thus, the effects of payment delays to subcontractors could directly reflect on the quality of the work. Subcontractors therefore need to be safeguarded by establishing a separate standard form of contract for subcontract works. The form of contract could provide strong provisions for claiming payment and mitigating delayed payment.

- *X Form*

Traditional practice of X Form could be used as one of the way to mitigate payment delays. This is a kind of check list prepared by the client departments, includes the project details, contract price, availability of fund, availability of site and so on. The X Form provides the information about the project feasibility and the X Form need to be satisfied before launch the project. X Form facilitates the contractor to check whether client sources the adequate funding prior to the commencement of the project. However, the practice of X Form is lacked from the industry. The research therefore suggests practicing X Form and including it in the standard form of contract.

Thus, the payment issues in Sri Lankan construction industry could be avoided and minimized by implementing the above suggestions.

D. Further Research

The research suggests that there is a room for the followings to be considered in further research,

➢ *An Investigation of Consultant's Payment in Sri Lankan Construction Industry*

The research has limited to contractor's payment issues and it has not focused the area consultant's payment from client. Contract is formed between the client and the consultants and payment goes from client to consultants. Since the contract is not significant in terms of fee and duration as the contract between client and contractor, there could be payment issues to consultants. Further, client is the paymaster in both cases and the working environment is same. Therefore, this could be considered as a further research to this current study.

➢ *Likelihood of Subcontractor's Payment in Sri Lankan Construction Industry*

According to the findings of this research, the subcontractors are mostly affected party in the payment chain than the main contractor. The current research gives equal chance to main contractors and subcontractors. However, the payment data was unable to be collected from the subcontractors due to constrains and unavailability of the data. The subcontractors are in the bottom of supply chain and mostly affected party by the payment issues. Therefore, it is suggested to study the behaviour of subcontractor's payment pattern in construction industry.

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APPENDICES

A Study of Payment Issues to Constructors in the Sri Lankan Construction Industry

Interview Guidelines

Dear Sir/ Madam,

I am Deepthi Perera, a Master of Science undergraduate University of Bedfordshire As a part of my degree programme, I am required to undertake a research and produce a dissertation at the end of the course. My research investigates the payment issues to constructors in the Sri Lankan construction industry with the main focus of quantifying the effects of payment issues. Within the scope of the research, the following objectives are addressed.

- *Explore the payment issues faced by Sri Lankan construction industry*
- *Investigate the effects of payment issues which include quantifying such effects.*
- *Develop a mechanism to minimize the payment issues*

This research intends to collect views of main contractors, sub-contractors and consultants who have exposed to payment issues within the industry. I have identified you/your organization as a potential participant who could provide me valuable information to this research. Therefore, I would like to interview you for approximately 30-45 minutes in this regard. I strongly believe that you would support to my research by providing your views related to my research topic.

The information collected through this interview will be kept strictly confidential and should be used only for the purpose of the dissertation. Any of your personnel information will not be disclosed within the research.

➢ *Please Provide the following Background Information*

- Your Designation : ……..…..
- Years of experience in the industry : …..……...
- Nature of the work your company provides : ……

➢ *Type of industry group (main contractor, domestic sub-contractor, specialist sub-contractor or consultant)*

- ICTAD grade of your company (If any) : ……....
- Number of employees (approximately) : ……....

➢ *Payment Issues in Construction Industry*

- Comment on what is exactly happening to the payment from client to main contractor and/or main contractor to sub-contractor.
- If so who is the reason behind such situations and why the party do so?
- What are the common effects with the payment issues?
- How you are tackling in payment delays or losses situation?

➢ *Contractual Provisions in Relation to Payment*

- Which form of contract you are using in your contracts?
- Are you actually practicing the provisions given in the particular form of contract in any payment delays or losses situation and explain how you are proceeding.
- Are you satisfied with the existing provisions, if not give your suggestions what you prefer to be included in the contract forms.

➢ *Mitigating Payment Issues*

- What are the mitigating ways you are practising in payment delays or losses situations?
- Please give your suggestions for mitigating payment issues.

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➢ *Please Provide Me With The Following Project Information In Accordance With The Project Which Experienced In Payment Delays Or Losses Situations.*

- Type of Client :……..
- Project Duration :……
- Contract Price :……
- Type of Project :……..
- Form of Contract :……

	Bill 01	**Bill 02**	**Bill 03**	**Bill 04**	**Bill 05**	**Bill 06**	**Bill 07**	**Bill 08**	**Bill 09**	**Bill 10**	**Bill 11**	**Bill 12**
Date of Claim submission												
Due date for payment certification												
Actual date of payment certificate issued												
Due date for receipt of payment as per contract												
Actual date of payment received												

I would like to thank you for the information given and time you have dedicated to this research. If you are interested to know the outcome of this research, it would be my pleasure to share it with you.

Yours faithfully,

Deepthi Perera
Student – MSc in Project Management
University of Bedfordshire
United Kingdom

➢ *Project data: Project 1*

- Type of Client : State Corporation
- Project Duration : 18 months
- Contract Price : Rs. 175 Mn
- Type of Project : Water Supply
- Form of Contract : ICTAD/SBD/02

Bill No	**Date submitted**	**Due date for certification**	**Date certified**	**Due date for payment**	**Payment received by**	**Delay in certification**	**Delay in payment**
Bill No 01	7-Oct-17	28-Oct-17	28-Oct 17	11-Nov-17	4-Nov-17	0	-7
Bill No 02	8-Nov-17	29-Nov-17	29-Nov-17	13-Dec-17	19-Dec-17	0	6
Bill No 03	8-Dec-17	29-Dec-17	11-Jan-18	12-Jan-18	30-Jan-18	13	18
Bill No 04	9-Jan-18	30-Jan-18	3-Feb-18	13-Feb-18	16-Feb-18	4	3
Bill No 05	10-Feb-18	2-Mar-18	8-Mar-18	16-Mar-18	14-Mar-18	6	-2
Bill No 06	9-Mar-18	30-Mar-18	4-Apr-18	13-Apr-18	25-Apr-18	5	12
Bill No 07	9-Apr-18	30-Apr-18	23-May-18	14-May-18	28-May-18	23	14
Bill No 08	31-May-18	21-Jun-18	19-Jun-18	5-Jul-18	28-Jun-18	-2	-7
Bill No 09	11-Jun-18	2-Jul-18	16-Jul-18	16-Jul-18	27-Jul-18	14	11
Bill No 10	10-Jul-18	31-Jul-18	17-Aug-18	14-Aug-18	4-Sep-18	17	21
Bill No 11	10-Aug-18	31-Aug-18	11-Oct-18	14-Sep-18	18-Oct-18	41	34
Bill No 12	10-Sep-18	1-Oct-18	22-Oct-18	15-Oct-18	7-Nov-18	21	23
Bill No 13	11-Oct-18	1-Nov-18	28-Nov-18	15-Nov-18	11-Dec-18	27	26
Bill No 14	7-Dec-18	28-Dec-18	18-Jan-19	11-Jan-19	1-Feb-19	21	21
Bill No 15	2-Mar-19	23-Mar-19	2-Apr-19	6-Apr-19	9-Apr-19	10	3

- Average delay for certification : 13 days
- Average delay for making payment : 12 days
- Average duration for certification : 34 days
- Average duration for making payment : 26 days

➢ *Project Data: Project 2*

- Type of Client : Private client
- Project Duration : 15 months
- Contract Price : Rs. 120 Mn
- Type of Project : Building
- Form of Contract : ICTAD/SBD/02

Bill No	Date submitted	Due date for certification	Date certified	Due date for payment	Payment received by	Delay in certification	Delay in payment
Bill No 01	25-Oct-17	15-Nov-17	16-Nov-17	7-Dec-17	13-Dec-17	1	6
Bill No 02	9-Dec-17	30-Dec-17	29-Dec-17	19-Jan-18	11-Jan-18	-1	-8
Bill No 03	3-Feb-18	24-Feb-18	2-Mar-18	23-Mar-18	9-Mar-18	7	-14
Bill No 04	14-Mar-18	4-Apr-18	3-Apr-18	24-Apr-18	25-Apr-18	-1	1
Bill No 05	11-May-18	1-Jun-18	16-Jun-18	7-Jul-18	20-Jul-18	15	13
Bill No 06	08/20/18	10-Sep-18	23-Aug-18	13-Sep-18	6-Sep-18	-18	-7
Bill No 07	21-Sep-18	12-Oct-18	1-Nov-18	22-Nov-18	21-Nov-18	20	-1
Bill No 08	20-Dec-18	10-Jan-19	14-Feb-19	7-Mar-19	19-Mar-19	35	12
Bill No 09	4-Mar-19	25-Mar-19	8-Apr-19	29-Apr-19	15-May-19	14	16
Bill No 10	10-Apr-19	1-May-19	22-May-19	12-Jun-19	18-Jul-19	21	36

- Average delay for certification : 9 days
- Average delay for making payment : 5 days
- Average duration for certification : 30 days
- Average duration for making payment : 19 days

➢ *Project data: Project 3*

- Type of Client : Provincial Department
- Project Duration : 22 months
- Contract Price : Rs. 150 Mn
- Type of Project : Road
- Form of Contract : FIDIC

Bill No	Date submitted	Date certified	Due date for certification	Payment received by	Due date for payment	Delay in certification	Delay in payment
Bill No 01	6-Sep-18	29-Sep-18	4-Oct-18	10-Nov-18	1-Nov-18	-5	9
Bill No 02	25-Sep-18	30-Oct-18	23-Oct-18	8-Dec-18	20-Nov-18	7	18
Bill No 03	31-Oct-18	1-Dec-18	28-Nov-18	17-Jan-19	26-Dec-18	3	22
Bill No 04	7-Dec-18	14-Dec-18	4-Jan-19	25-Feb-19	1-Feb-19	-21	24
Bill No 05	31-Dec-18	5-Mar-19	28-Jan-19	31-Mar-19	25-Feb-19	36	34
Bill No 06	2-Feb-19	28-Mar-19	2-Mar-19	31-Mar-19	30-Mar-19	26	1
Bill No 07	2-Mar-19	22-Apr-19	30-Mar-19	14-Jun-19	27-Apr-19	23	48
Bill No 08	22-Apr-19	23-Jun-19	20-May-19	4-Jul-19	17-Jun-19	34	17
Bill No 09	27-Apr-19	23-Jun-19	25-May-19	26-Jul-19	22-Jun-19	29	34
Bill No 10	29-May-19	17-Aug-19	26-Jun-19	19-Aug-19	24-Jul-19	52	26
Bill No 11	29-Jun-19	2-Sep-19	27-Jul-19	23-Sep-19	24-Aug-19	37	30
Bill No 12	4-Aug-19	17-Sep-19	1-Sep-19	10-Oct-19	29-Sep-19	16	11
Bill No 13	19-Aug-19	22-Aug-19	16-Sep-19	24-Aug-19	14-Oct-19	-25	-51
Bill No 14	3-Sep-19	7-Nov-19	1-Oct-19	16-Nov-19	29-Oct-19	37	18
Bill No 15	3-Oct-19	30-Nov-19	31-Oct-19	7-Dec-19	28-Nov-19	30	9
Bill No 16	2-Nov-19	27-Dec-19	30-Nov-19	11-Jan-20	28-Dec-19	27	14
Bill No	**Date submitted**	**Date certified**	**Due date for certification**	**Payment received by**	**Due date for payment**	**Delay in certification**	**Delay in payment**

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Bill No 17	15-Dec-19	15-Feb-20	12-Jan-20	22-Feb-20	9-Feb-20	34	13
Bill No 18	2-Jan-120	27-Jan-20	30-Jan-20	20-Feb-20	27-Feb-20	-3	-7
Bill No 19	30-Jan-20	5-Apr-20	27-Feb-20	9-Apr-20	26-Mar-20	38	14

- Average delay for certification : 25 days
- Average delay for making payment : 21 days
- Average duration for certification : 53 days
- Average duration for making payment : 77 days