ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY

SCHOOL OF ENGINEERING & ARCHITECTURE

DEPARTMENT OF CIVIL ENGINEERING

CAUSES AND EFFECTS OF LATE PAYMENT AND ITS MINIMIZATION METHOD IN OROMIA PUBLIC BUILDING PROJECTS

A Thesis submitted in partial fulfillment of the requirements for the Degree of Master of Science in Civil Engineering (Construction Management)

By

Dechasa Dirirsa

April 2017@ Adama

ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY
SCHOOL OF ENGINEERING & ARCHITECTURE
DEPARTMENT OF CIVIL ENGINEERING

CAUSES AND EFFECTS OF LATE PAYMENT AND ITS MINIMIZATION METHOD IN OROMIA PUBLIC BUILDING PROJECTS

A Thesis submitted in partial fulfillment of the requirements for the Degree of Master of Science in Civil Engineering (Construction Management)

By
Dechasa Dirirsa

Advisor
Wubishet Jekale (Dr.-Ing)

April 2017@Adama

CAUSES AND EFFECTS OF LATE PAYMENT AND ITS MINIMIZATION METHOD IN OROMIA PUBLIC BUILDING PROJECTS

A Thesis submitted in partial fulfillment of the requirements for the Degree of Master of Science in civil Engineering (Construction management)

By Dechasa Dirirsa

Approved by Board of Examiners

Wubishet Jekale (Dr. Eng)	_____	_____
Advisor	**Signature**	**Date**
Dr. Girmay Kahssay	_____	_____
External Examiner	**Signature**	**Date**
Prof. Shashi Gupta	_____	_____
Internal Examiner	**Signature**	**Date**
_____	_____	_____
Chairman	**Signature**	**Date**
_____	_____	_____
Department Head	**Signature**	**Date**
_____	_____	_____
School Head	**Signature**	**Date**

DECLARATION

I hereby declare that this thesis entitled **"Cause & Effects of Late Payment and Method of Minimization"** in Public building Projects in Oromia Region is my original work. This thesis has not been submitted in candidature for a degree/diploma of this or any other university, references to other people's works, opinions and observations have been duly acknowledged.

Candidate: Dechasa Dirirsa

Signature: _____

Date: _____

ACKNOWLEDGMENT

First of all, praise to be the almighty God our father and Lord Jesus Christ the reason behind my strength to complete this research. Next, I would like to express my heartfelt thanks to Wubishet Jekale (Dr.-Ing), the advisor of this thesis, for his valuable comments, suggestions, advises and for all necessary guidance not only to complete this thesis but also to complete the MSc program.

I would like also thank public Employers in Oromia region, from which I received invaluable information and data to produce this thesis. In addition, many thanks and gratitude goes to Contractors and Consultants who assisted me by filling out the questionnaires and take part in interview.

I would like again to use this opportunity to express my appreciation to my wife and Children whose patience, encouragement and love enabled me complete this thesis.

Finally, my special thanks go to my five brothers (Engineers), who contributed much effort, specially my young brother Daniel Dirirsa, who dedicated his valuable time during data collection for this study.

TABLE OF CONTENTS

TITLE **Page No.**

DECLARATION ..... **IV**

ACKNOWLEDGMENT ..... **V**

TABLE OF CONTENTS ..... **VI**

LIST OF TABLES ..... **IX**

LIST OF FIGURES ..... **X**

ACRONYMS ..... **XI**

ABSTRACT ..... **XII**

CHAPTER ONE **1**

1. INTRODUCTION **1**

1.1 Background 1

1.2 Statement of the Problem 2

1.3 Research Questions 3

1.4 Purpose of the Study 3

1.5 Objectives of the Research 3

1.5.1 General Objectives 3

1.5.2 Specific objectives: 4

1.6 Significance of the Research 4

1.7 Scope of the Study 4

CHAPTER TWO **6**

2 LITREATURE REVIEW **6**

2.1 Payment in Construction Contract 6

2.2 Types of Construction Payment 7

2.2.1 Advance payment 7

2.2.1.1 Advance Payment Recovery 9

2.2.2 Interim Payment 10

2.2.2.1 Importance of interim payments 11

2.2.2.2 Interim payment certification process 12

2.2.3 Final Payment /Payment after certificate of completion/ 13
2.2.4 Retention Payment 14
2.2.4.1 Retention Money Release process 15
2.2.5 Final Account 16
2.2.6 Payment after Termination 18
2.3 Late Payment 19
2.3.1 Factors for late payment 24
2.3.1.1 Late Payment caused by Contractors 28
2.3.1.2 Late payment caused by Employers 29
2.3.1.3 Late payment caused by Consultant 29
2.3.1.4 Late payment caused by Contractual Matters 30
2.3.2 Effects of Late Payment 31
2.3.3 Contractual Remedies and minimization methods of late payments 37
2.3.3.1 Contractual Remedies 37
2.3.3.2 Methods to minimize late payment 41

CHAPTER THREE 46

3 RESEARCH METHODS & PROCEDURES 46
3.1 Introduction 46
3.2 Research Approach and Design 46
3.3 Sampling Technique 47
3.4 Instrumentation 48
3.5 Data collection 48
3.6 Data Analysis 49
3.6.1 Relative Importance Index (RII) 50
3.6.2 Measurement of Association of Ranks 51
3.7 Ethical Consideration 52

CHAPTER FOUR 53

4 RESULT AND DISCUSSION 53
4.1 Introduction 53
4.2 Organization and Response Rate 53
4.3 Type of payment and frequency of delay 54
4.4 Causes of Late Payment 54

4.4.1 Employer Related causes 56
4.4.2 Contractor Related Causes 59
4.4.3 Consultant Related Causes 61
4.4.4 Causes related to Contractual matters 62
4.4.5 Summary to Causes of late Payment 63
4.4.6 Agreement test between the respondents on the causes of late payment 65
4.5 Effects of Late Payment 66
4.5.1 Effects of late Payment on Contractor 67
4.5.1.1 Delay in completion of the project 68
4.5.1.2 Cash flow Problem 69
4.5.2 Effects of late Payment on Employer 69
4.5.3 Effects of late Payment on Consultant 71
4.5.4 Summary on Effects of late Payment 72
4.5.5 Correlation Measurement for Effects of late Payment 74
4.6 Methods for Minimization of late Payment 75

CHAPTER FIVE 78

5 CONCLUSION AND RECOMMENDATIONS 78

5.1 Conclusions 78
5.2 Recommendations 80

BIBILIOGRAPPHY 81

APENDIX-I 88

QUESTIONNAIRE 88

APENDIX-II 93

SPEARMAN'S RANK CORRELATION COEFFICIENT DETERMINATION 93

APENDIX-III 96

VALUES FOR SPEARMAN'S RANK CORRELATION COEFFICIENT (R) 96

LIST OF TABLES

Table 2.1 List of countries enacted Security of payment legislation..... 23
Table 2.2: Some general Causes of late payment..... 26
Table 2.3: Minimization methods of late payment per literature review..... 42
Table 3.1: Relative Importance Index and average score strength Range..... 50
Table 4.1: Response rate and organization of respondents..... 53
Table 4.2: Respondents result on type of payment and frequency of delay..... 54
Table 4.3: Causes of Late Payment..... 55
Table 4.4: Relative Importance Index (RII) and Ranking (R) of Employer related Causes..... 56
Table 4.5: Aggregate Relative Index (RII) and Ranking(R) for employer Related causes..... 57
Table 4.6: (RII) and Rank (R) values for Causes of late payment due to contractor..... 60
Table 4.7: Aggregate RII & Rank result of causes of late payment due to Contractor..... 60
Table 4.8: (RII) & Rank (R) result for Consultant related causes..... 61
Table 4.9: Importance index (RII) & Rank (R) for Contractual related causes..... 62
Table 4.10: Summary of causes of late payment by category..... 64
Table 4.11: Values of Spearman rank Correlation for the causes of late payment..... 66
Table 4.12: Rank of Effects of Late Payment on Contractor based on RII value..... 67
Table 4.13: RII value & Rank on Effects of Late Payment on Employer..... 71
Table 4.14: RII value & Rank on Effects of Late Payment on Consultant..... 72
Table 4.15: Summarized RII and Rank of effects of late payment by Group..... 73
Table 4.16: Summary of correlation test on the ranking of effects of late payment..... 74
Table 4.17: Proposed Solutions to minimize late payment..... 76

LIST OF FIGURES

Figure 4.1: Severity of cause of late Payment by category. 64
Figure 4.2: Comparison of Effects of Late payment on targeted stakeholders.....73

ABREVATIONS

CIDB	Construction Industry Development Board
CII	Construction Industry Indicator
ICE	Institute of Civil Engineering
CIC	Construction Industry Council
CCA	Construction Contract Act
DEVB	Development Bureau
IPC	Interim Payment Certificate
DLP	Defect liability Period
APG	Advance Payment Guarantee
PPA	Public Procurement Agency
MoWUD	Ministry of Works and Urban Development
MOFED	Ministry of Finance and Economic Development
MDB	Multi Lateral Development Bank
FIDIC	Federation International Design Ingenieurs Consells
BOQ	Bill of Quantities
RII	Relative Importance Index
SOPL	Security of Payment Legislation
HGRA	Housing Grants and Regeneration Act
EU	European Union
USA	United States of America
SME	Small Micro Enterprise
CIPAA	Construction Industry Payment Adjudication Act

ABSTRACT

Late payment problem is a serious issue worsening the construction industry at large. It affects the time, cost, and quality of a construction project, which ultimately causing dispute, arbitration or litigation, total abandonment and liquidation of a construction firm anywhere in the supply chain. Therefore, this study was conducted with the aim to investigate the causes of late payment and its subsequent effects and also seeking the methods for minimization in public building projects in Oromia region. Accordingly, questionnaire survey together with interview of senior professionals was used to collect the data. The total population for the research was public building projects in Oromia regional level constructed from 2004 to 2008 EC. The respondent groups were the major stakeholders in the project such as; Contractors, consultants and public Employers corresponding to the selected buildings. Hence, the research finding revealed that among all the identified causes examined; Employer related causes become the top serious for late payment to happen. The study also revealed that the effect of late payment is more severe on contractor than other stakeholders of the project. Finally, in order to avoid or minimize the late payment Provision of well defined clauses in the contract related to managing time of payment and introducing construction payment security act/Legislation were found to be the two top methods recognized in this study.

Key words: *Construction, Late payment, cause, effect, minimization method.*

CHAPTER ONE

1. INTRODUCTION

1.1 Background

Construction industry plays a decisive role in the overall economic growth of a certain country through provision of economic and social infrastructure like, schools, hospitals, roads, rail ways, water supplies, business and commercial buildings. These are linked to the whole triangulated sector of the economy and have a manifold effect that enables other industries expand and grow alongside.

In Ethiopia, construction is a fundamental economic sector which leak into most of the other sectors as it transforms various resources into constructed physical economic and social infrastructure necessary for socio-economic development. It includes the process by which the physical infrastructure are planned, designed, procured, constructed or produced, altered, repaired, maintained, and demolished. Hence, significant amount of the country's budget is allocated to economic and social infrastructure development projects (Construction Industry policy 2012). Therefore, it is paramount important to see intentionally whether the sector or the industry is moving effectively and efficiently.

As per Samuel (2011) one of the problems facing the construction industry worldwide is late payment. For instance, the rapid increase of delayed or late payment issues nowadays have gone to the point that it tends to decrease the good image of construction industry in Ghana and these are considered as a factor of significant concern to all the players in the industry. Similarly, late payment to Contractors has been a major issue in the Malaysian Construction Industry. It has affected the performance of Contractors and has caused several of them not being able to complete the work on time thus causing delay in the completion of the project (Judi and Rashid, 2010). In addition to this countries like UK, Australia, Singapore, New Zealand and Ireland are among the others facing late construction payment problem (Ramachandra et al., 2015). Likewise, in Ethiopia, Abubeker (2015) conducted a research on time and cost overrun of construction projects

in Addis Ababa. According to his finding, problems related with late payment is one of the significant factors contributing to time and cost overrun.

This research was, therefore, conducted to determine the causes & effects and to establish methods to resolve or mitigate the problems regarding late payment in Oromia region public building projects.

1.2 Statement of the Problem

The construction industry is distinct from other industries. This is because more amount of money is involved there, the project durations are very long, Payment terms are on credit rather than on delivery basis, interim payments are made after the work has been done (Mohamed et al. 2012). Thus, due to such circumstances, failure of the contractor in getting regular and timely payment leads to serious consequence such as severe cash flow problem, delay in completion of the project and finally leads to dispute. Moreover, late payment could have a knock-on-effect on the entire construction value chain, that means, when employer does not pay the main contractor on time, the sub-contractors, suppliers, permanent and temporary workers, and everyone in the construction payment chain will be affected.

The issue of late payment is becoming great challenge worldwide even including the developed countries like Australia and UK. For instance, in Malaysian Construction industry, late payment affected the performance of Contractors and caused several of them not being able to complete the work on time thus causing delay in the completion of the project. In the worst scenario, they were forced to abandon their projects for lack of fund and some were on the brink of bankruptcy (Judi and Rashid, 2010).

According to Davenport (2010), the Construction Industry Development Board's Construction Industry Indicators (CII) had conducted a survey in Cape Town in 2009. The survey indicated that only 42% of contractors were paid on time and 58% of payments to contractor were made more than 30 days after invoicing. In the same manner, majority of contractors in Ethiopia in general and Oromia region in particular reported that they have went through late payment situation especially in government funded projects. In addition to this, the research conducted by Fisseha (2015) in Addis Ababa revealed that the public building projects are suffering payment problems

and he also identified that, late payment is the most common among the three different problems examined.

Therefore, in order to avoid or minimize the late payment in public building projects in Oromia region, it is imperative to investigate the causes & effects and suggesting methods for improving payment administration system of the sector.

1.3 Research Questions

The research is aimed to address the following questions;

1. What are the causes that lead to late payment?
2. What are the effects of late payment on contractors, employers and consultants?
3. What are the remedies and/or methods to minimize the causes of late payment?

1.4 Purpose of the Study

The main purpose of this study is to find out the causes of late payment and its consequent effects in public building construction projects in Oromia region and also to search the method of minimization or avoidance of late payment. Finally, the study will provide possible recommendations based on the findings so that parties in the construction such as; contractors, sub contractors, employers, consultants and other related stakeholders will get awareness and understanding from the recommendations thereby plan and work for its implementation.

1.5 Objectives of the Research

1.5.1 General Objectives

The main objective of this research is to investigate the causes and effects of late payment and find out minimization methods of the late payment problem in Oromia region public building projects and finally to deliver recommendations based on the finding results.

1.5.2 Specific objectives:

- To investigate the major causes or factors for late payment in public building construction projects in Oromia region.
- To analyze the effects of late payment on contractors, employers and consultants.
- To discuss on the method of minimization of the causes of late payments.

1.6 Significance of the Research

This research is of significant for Employers, Contractors and Consultants and other relevant parties to increase their awareness and understanding on the impacts of delayed payments. This study addresses the current problems in relation to late payment issues in the local construction industry of Oromia region. Findings of this study may assist the relevant parties in addressing problems associated to late payment in an effective and timely manner to create a win-win situation for all parties in the industry. Furthermore, it is expected that, the recommendations of the research assist the parties to adopt and implement plan of action in order to minimize disputes on payment in construction projects, thereby create a friendly and conducive working environment across the board. The result of this research is also of worthwhile to government bodies (policy & strategy makers) to revise the contractual documents, in a way that avoid the late payment issues. Finally, it will also be a source of knowledge and used as input for further study.

1.7 Scope of the Study

This research focused on late payment in public building projects in Oromia regional state. The intension is to identify the causes of late payment and its subsequent effects on contractor, employer and consultant and also search the remedies or solutions for its minimization.

The lists of projects for the study were obtained from Oromia regional government offices including, Educational and health institution buildings, office and housing projects which are completed or under construction between 2004 to 2008 EC. Employers, Contractors and Consultants corresponding to the selected projects were considered as the respondent group for the research. However, the target contractors are limited to class five, four and three. The reason to select these classes is primarily to bring the number of projects to an affordable size for the study

and the second major reason is that, these category contractors have relatively low financial reserve, so that they usually use the profit from ongoing projects to finance their next project. Therefore, payment delay in one project ultimately leads to cash problem and eventually affect the other project, and then finally leads to contractor's insolvency due to cash flow deterioration. In addition to this, due to low financial reserve these category contractors may take money out of the business for personal spending which further can worsen the contractor's cash flow during late payment. Therefore, in order to see clearly the impact of late payment on contractor's side it is very ideal to focus on these categories.

CHAPTER TWO

2 LITREATURE REVIEW

2.1 Payment in Construction Contract

In construction industry, payment is the sum of money paid to contractors, consultants, subcontractors and suppliers after their works, service or materials has been successfully realized or accepted (Nazir, 2006). As per Samuel (2011), Payment is the sum of money paid to someone in return for goods, work done or services rendered. According to the definitions of Judi and Rashid (2010), payment is the value of any work, materials or goods comprised in the contract. In other words, payment is the consideration, in term of money, for the work that a contractor has carried out in accordance with the contract plus the materials delivered to the site. Contractually, the said money must be paid promptly and fully unless there are specific reasons for delaying or withholding it.

Payment is considered as the life blood of the construction industry because construction projects often involve very large capital outlay (Ameer, 2005). It is very obvious that a healthy and consistent disbursement of money is a critical point in determining contractor performance. In a typical engineering and construction contract, it is apparent that the contractor has promised to carry out all the works under the contracts. On the other hand, the employer must keep his side of the promise by giving necessary consideration to payment when due which in most cases comes in monetary form (Samuel, 2011).

It is beyond the means or capacity of most domestic contractors to complete the whole of the construction work before they get paid. They need some form of regular or periodic financial injection (interim payment) to maintain their cash-flow to continue with their work in a diligent manner (Hasmori et al., 2012). It is a common arrangement under most contracts for contractors to be paid progressively at regular intervals. Any delay to such an arrangement could bring a crisis, not only for the contractor but also to the owner and the project itself. A failure of the contractor getting regular and timely interim payment could result in project delay, reduced profitability and to the worst case the company may go into liquidation (Mohamed et al., 2012). It will also have a

knocking effect on the whole of construction supply chain because the contractor will not be able to pay his banks, his sub-contractors, suppliers, and workers on time thus causing everyone to suffer. In the same way, if the projects get delay due to late payment the employer would be subjected to extra cost and loss in financial return or benefit from the project and again the contractor's overhead cost increased (Ang, 2006).

2.2 Types of Construction Payment

According to the provisions of condition of contract by MoWUD 1994 and PPA 2006 there are about six types of construction payments being in practice. Such as;

- Advance payment
- Interim payment
- Final payment/payment after certificate of completion/
- Retention release payment
- Final account/payment after expiration of DLP/
- Payment after Termination

2.2.1 Advance payment

This is the sum of money paid to the contractor by the employer well before the work involved is executed. This practice is usually done in public works contracts. The main purpose of implementing this scheme is to assist the contractor to start up and finance the contract without having to resort to unnecessary and costly external borrowings (Nazir, 2006).

It is difficult for a contractor to finance a project from his own funds for a project that extends over a certain period of time. He will generally have to borrow money. All or part of the interest on this borrowed money will be added into the contractor's estimated costs and will be included on his tender. Therefore, the employer will ultimately have to pay the contractor's borrowing expense. To avoid the above situation, it is customary and good practice to arrange advance and interim payments to the contractor during the course of the job (Kaseim, 2008).

According to Clause 51 of PPA, 2006 explanation; "the Employer shall make advance payment to the contractor the amounts stated in the Special conditions of contract by the date stated in the Special conditions of contract, against provision by the contractor of an Unconditional Bank

guarantee in a form and by a bank acceptable to the Employer in amounts and currencies equal to the advance payment. The guarantee shall remain effective until the advance payment has been repaid", but the amount of the guarantee shall be progressively reduced by the amounts repaid by the contractor. Interest will not be charged on the advance payment. The contractor is to use the advance payment only to pay for Equipment, Plant, Materials, and mobilization expenses required specifically for execution of the contract. The contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the Engineer accordingly.

Likewise, harmonized MDB FIDIC 2006, of clause 14.2, an advance payment is an interest free mobilization loan from the Employer to the Contractor. It can either be paid in one instalment or multiple instalments to the Contractor. Where multiple instalments are intended, it is mandatory to state it in the contract data, and specifying the number of instalments, and the time to pay the instalment to the contractor. Also the applicable currencies and proportions in case of multiple currencies must be stated in the contract data.

The Advance payment to be applicable the following things must be established;

- The employer must have received a guarantee covering the Advance payment from the contractor, i.e. an APG (Advance Payment guarantee) must be provided by the Contractor.
- The total advance payment sum must be stated in the contract or Appendix to Tender.

These criteria are mandatory before the consultant Engineer can issue a payment certificate to cover the advance payment. However, the Ethiopian procurement directives stated in clause 16.26.1 in any public procurement, advance may be paid in an amount not exceeding 30% of the total contract price. However, the usual advance payment amount being used in public building projects is 20% of the contract price. The amount to be paid in advance shall be stated in the instruction to bidders. Advance payment promotes early mobilization of materials and machineries to start work on the project sites and if a project delays at the start of the project, it would be difficult to manage the progress of the works at latter stages of the project. That means when advance payment is delayed it affects the schedule or the program for materials and equipment mobilization which in turn affects the accomplishment time of activities which finally would

result in delayed delivery of public projects. Moreover, since delay of projects almost always incurs extra costs to the contractors as well, there would be a possibility of quality problem on the built up facilities to recoup the financial losses that the contractor suffers (Fisseha, 2015).

2.2.1.1 Advance Payment Recovery

According to PPA (2006), the advance payment shall be repaid by deducting proportionate amounts from payments otherwise due to the Contractor following the schedule of completed percentages of the works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, Variations, price adjustments, Compensation events, Bonuses, or Liquidated Damages. MDB FIDIC (2006) similarly explains, unless stated otherwise in the Contract data, the advance payment shall be repaid through percentage deductions from the interim payments determined by the Engineer in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates] of MDB FIDIC 2006, as follows:

- "Deductions shall commence in the next interim Payment Certificate following that in which the total of all certified interim payments (excluding the advance payment and deductions and repayments of retention) exceeds 30 percent (30%) of the Accepted Contract Amount less Provisional Sums," and,
- "Deductions shall be made at the amortization rate stated in the Contract data of the amount of each Interim Payment Certificate (excluding the advance payment and deductions for its repayments as well as deductions for retention money) in the currencies and proportions of the advance payment until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid prior to the time when 90 percent (90%) of the accepted contract amount has been certified for payment".

If the advance payment has not been repaid prior to the issue of the Taking-Over Certificate for the Works or prior to termination under Clause 15 [Termination by Employer], Clause 16 [Suspension and Termination by Contractor] or Clause 19.6 [Force Majeure] (as the case may be), the whole of the balance then outstanding shall immediately become due and in case of termination under Clause 15 [Termination by Employer] and Sub-clause 19.6 [Optional Termination, Payment and Release], payable by the Contractor to the Employer.

In some countries the law of the country requests that the advance payment is to be paid in more than one installment, actually one advance payment in each of the construction years and each such annually advance payment should be recovered by the end of that year. The advance payment paid in each year represents a certain percentage (for example 30%) of the cash flow of each year. The recovery of the advance payment is made by retaining the whole amount certified, up until the whole advance payment is recovered, and then the Contractor starts to receive money.

However, in a certain jurisdiction or countries the advance payment is recovered from each interim payment certificate (IPC), starting with the first IPC issued after the advance payment certificate, and the whole amount of each of the IPCs is retained, up until the whole amount representing the advance payment is recovered.

In all cases, the advance payment is to be made only after the Contractor submits an advance payment guarantee to the Employer. After recovery of the advance payment, the advance payment guarantee will be released to the Contractor. The advance payment guarantee can be reduced after the recovery of each portion of the advance payment

2.2.2 Interim Payment

The word "interim" means temporary, provisional or short term. For that, it can be said that "Interim Payments" are provisional or short-term payments made progressively to a Contractor (Judi and Rashid, 2010). Interim payment is a partial amount of money that is paid to the contractor for all the partial works he executed. During contract periods, the most common method used is interim payments or the so-called progress payments.

In Standard forms, the interim or progress payments are done by the issuance of interim certificates. An interim certificate is actually the periodic certification for the payment due to contractor. The failure of the certifier to issue the relevant interim certificates in line with the stipulation of the contract can expose his employer to a possible claim of breach of contract by the contractor (Singh, 2003). Most standard forms of construction contract state an entitlement on the part of the Contractor to receive interim payments.

According to Standard conditions of contracts by MoWUD (1994), clause 60(2) provision for interim payment, the Contractor will be paid monthly, within 30 days of the presentation of the Engineer's Interim Payment Certificate to the Employer, 100% of the estimated value of the work executed up to the end of the previous month, together with the value of materials on Site intended to form part of the permanent work as and from such time as they are reasonably, properly and not prematurely brought upon the Site but only if adequately stored and/or protected against weather or damage.

2.2.2.1 Importance of interim payments

The purpose of interim payment is to ensure that the Contractor is regularly paid throughout the progress of the works. It is to maintain the Contractor's cash-flow and thus minimizing any deficit which may affect the smooth running of the project (Judi and Rashid, 2010). Interim payments are crucial for the cash flow of contractors and if they are delayed the Contractor can be vulnerable to unreasonable costs without income, which can potentially impact a Contractor's profitability and ultimately solvency. Because of the importance of interim payments, failure to comply with clauses which set out the obligations of the Employer in respect of interim certificates is likely to amount to a fundamental breach of contract. In contrary, timely effect of interim payment can justify the employer is discharging its obligations. It is therefore, imperative for the Engineers to account themselves and strictly observe the timing and the contract rules under which valuations for interim payments are to be conducted (Singh, 2003).

John Murdoch and Will Hughes (2000) justify that, interim certificates exist simply as a mechanism for confirming that an installment of the consideration is due to the contractor. Whichever method is used to calculate the amount of money due, an interim certificate is not conclusive about anything. It says nothing about quality of materials or workmanship, nor does it indicate satisfaction with the work done to date. Anything included in such a certificate may yet be the subject of a later certificate. It is only the final certificate that is ever conclusive which signifies the Engineer satisfaction with the work, or the amount that is finally due to the contractor, or both of these things. As a result, the only obligation arising from an interim certificate is an obligation on the employer to make a payment within the stated time. Failure to do so is a serious breach of contract. But, the practice in our country Ethiopia is contrary to this idea.

That means interim payment exist if and only if all the works are accomplished as per the given design, specifications and to the required quality and standard.

2.2.2.2 Interim payment certification process

The regular flow of cash is very critical to a contractor's survival. As a result, interim certificates are issued at intervals as the work proceeds. Under a construction contract, there is usually a prescribed time for the engineer to issue a progress certificate and the issue of such a certificate by the engineer imposes upon the employer a strict obligation to make payment (Fisseha, 2015).

Under the ICE (Institution of civil Engineering) conditions (1991), regular payments based on the quantity of work done during the previous month must be made by the employer to the contractor at monthly intervals. The amount of work done is measured by the engineer under the contract and valued in accordance with the terms of the contract. The engineer then issues a certificate of payment showing the amount which the employer must pay to the contractor. Occasionally other intervals for payment may be agreed to suit accounting periods, for example, payments at 4 weekly intervals. Sometimes it is agreed that two out of every 3 monthly payments are approximate valuations of work done, thus only the quarterly payments are based on a detailed measurement of work done (Twort and Gordon, 2004)

Interim payment certification process as per PPA clause (42); the contractor shall submit to the Engineer monthly statements of the estimated value of the work executed less the cumulative amount certified previously. Consequently, the Engineer shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor. The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed in the case of admeasurements contracts. The Engineer may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information. Whereas MoWUD clause 60 (1) provision follows the under steps;
The Contractor shall submit to the Engineer after the end of each month, statements signed by the Contractor showing: -

a) The quantities and value of the permanent work executed on Site.
b) The value of materials on Site intended to form part of the permanent work together with supporting invoices.
c) The value of temporary work, as included in the Bill of Quantities and completed on Site.
d) An amount reflecting any changes in cost pursuant to Clause 70.
e) Amounts approved in respect of day works executed up to the end of the month in question.
f) The monthly statements shall be in an approved form and shall comprise one original and one copy, each duly signed by the contractor.
    i. The Engineer shall, after checking and agreeing to the contents attach the statements to the Interim Payment Certificate.
    ii. The rates and prices, used to ascertain the values of permanent works, in such monthly statements shall be those in the priced Bills of Quantities, in so far as such rates and prices are in the opinion of the Engineer applicable.
    iii. if the said Bill of Quantities do not, in the opinion of the Engineer, contain any rates or prices applicable to some or any part of the work executed and there has not been a rate or price fixed at the time when the statement is prepared, then temporary rates or prices shall be assigned thereto by the Engineer.
    iv. Neither the temporary rates or prices assigned under paragraph (iii) of this sub clause nor the Quantities mentioned in the statement submitted under paragraph (i) of this sub clause shall be binding on the Employer or the Contractor.

2.2.3 Final Payment /Payment after certificate of completion/

This is the method of payment to contractor triggered by the achievement of the contract milestone of practical or substantial completion or the so-called handing over of the works to the employer. Hence, unless such stage is reached and certified by the Engineer, the contractor is not entitled to such payment (Samuel, 2011).

As per the condition of contract by MoWUD (1994) clause 60(3), the Engineer shall issue Certificates of Completion for the whole of the Works under the contract, after allowing for the

amount of all previous payments and after determining and allowing for any sum due to the Employer from the Contractor and certify as payable to the Contractor such a sum out of the balance so calculated as remaining due to the Contractor as will leave to be retained by the employer a sum equal to 5% of the value of work executed of the complete sections of the Works.

2.2.4 Retention Payment

The main purpose of withholding retention is to insure that the contractor properly completed the activities required of them under the contract. Retention is intended to be available to the employer for the purposes of underpinning contractual performance, in particular rectifying, or inducing the contractor to rectify any defects in the work appearing during the defects liability period. It is common practice in civil engineering constructions to withhold a small percentage of the interim payment certificate until the whole work has been completed effectively as per the terms and conditions of the contract. In construction contracts, a provision is made for the client to retain a certain percentage of the money paid to the contractor. This retention money ranges from three to ten percent. Obviously this has the tendency to increase the debtor's account especially as the money can only be released to the contractor after practical completion of the project. This reduces the contractor's working capital, and so puts pressure on him to source funds from other sources to finance his working capital requirement (David, 2006).

Clause 48.1 of PPA 2006 states that the Employer shall retain from each payment due to the Contractor the proportion stated in the Special Conditions of contract which is usually 5% until Completion of the whole of the Works. Similarly, as MoWUD clause 60(2) provisions interim payment shall be subject to retention in the sum of 10% of value certified until completion of the Works. The amount shall be reduced to 5% at completion, which sum shall be retained until the expiration of the maintenance period. Likewise, clause 14.3 (c) of MDB FIDIC revealed that any amount to be deducted for retention, calculated by applying the percentage of retention stated in the Contract data. Here there is difference in retention amount which is 5% in PPA and 10% in MoWUD.

The retention money as stated in the ICE contract (usually 5 per cent in the UK), must be deducted from the total amount calculated as due to the contractor in interim certificates for work done.

When a substantial completion certificate is issued, the retention held is halved for that portion or whole of the works to which the certificate applies, the amount so released being paid to the contractor. During the defects correction period (often termed the maintenance period) which is stipulated in the contract, the contractor undertakes to correct all matters listed by the engineer as needing remedial action. At the end of this period the remainder of the retention is to be released to the contractor (Twort and Gordon, 2004).

2.2.4.1 Retention Money Release process

When work is substantially complete, 50% of the retention will be released which is 2.5% of the executed work the rest half (2.5%) being withheld as security for making good of defects that may be found necessary within the defects liability period. According to MDB FIDIC clause 14.9 the first half of the retention money shall be certified by the Engineer for payment to the contractor when the taking-Over Certificate has been issued for the Works. If a Taking-Over Certificate is issued for a Section or part of the Works, a proportion of the retention money shall be certified and paid. This proportion shall be half (50%) of the proportion calculated by dividing the estimated contract value of the Section or part, by the estimated final Contract Price. Promptly, after the latest of the expiry dates of the defects Notification Periods, the outstanding balance of the retention Money shall be certified by the Engineer for payment to the Contractor. If a Taking-Over Certificate was issued for a Section, a Proportion of the second half of the retention money shall be certified and paid promptly after the expiry date of the defects notification Period for the Section. This proportion shall be half (50%) of the proportion calculated by dividing the estimated contract value of the Section by the estimated final Contract Price.

As per the MoWUD clause (60.2), payment shall be subject to retention in the sum of 10% of value certified until completion of the Works. The amount shall be reduced to 5% at completion, which sum shall be retained until the expiration of the maintenance period. Similarly the public procurement directives of Ethiopia clause 28.5 (b) in all construction works, 5% shall be retained from payment indicated in each interim payment certificate. Hence, 50% of the amount retained up on completion of the works and issuance of provisional acceptance certificate. The remaining 50% shall continue to be retained for one year period of warranty. However, such sum may be released on condition that the suppliers submits unconditional guarantee valid for 12 month.

Similarly, PPA (48.2) stated that on completion of the whole of the Works, half the total amount retained shall be repaid to the Contractor and half when the Defects Liability Period has passed and the Engineer has certified that all defects notified by the Engineer to the Contractor before the end of this period have been corrected. PPA (48.3) again stated, on completion of the whole Works, the Contractor may substitute retention money with an "on demand" Bank guarantee.

2.2.5 Final Account

MoWUD clause 60(6) states that, not later than 30 days after the date of issue of the maintenance Certificate the Contractor shall submit to the Engineer a statement of final account with supporting documents showing in detail the value of the work done in accordance with the Contract together with all further sums which the contractor considers to be due to him under the Contract. Within 30 days after receipt of this final account and of all information reasonably required for its verification, or after the issue of the Maintenance Certificate, whichever is the later, the Engineer shall issue a final certificate stating:-

- The amount which is in his opinion is finally due under the Contract and after giving credit to the Employer for all amounts previously paid by the Employer and for all sums to which the Employer is entitled under the Contract.
- The balance, if any, due from the Employer to the Contractor or from the Contractor to the Employer as the case may be. Such balance shall be, subject to Clause 47 hereof, be paid to or by the Contractor as the case may require within thirty days from the date of the Certificate.

In accordance to clause 57.1 of PPA 2006, the Contractor shall supply the Engineer with a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the defects liability period. The Engineer shall issue defects liability certificate and certify any final payment that is due to the Contractor within 60 days of receiving the Contractor's account if it is correct and complete. If it is not, the Engineer shall issue within 60 days a schedule that states the scope of the corrections or additions that are necessary. If the final account is still unsatisfactory after it has been resubmitted, the Engineer shall decide on the amount payable to the Contractor and issue a payment certificate. According to Clause (14.11) of MDB FIDIC (2006) illustration; within 56 days after receiving the Performance Certificate, the Contractor shall

submit, to the Engineer, six copies of a draft final statement with supporting documents showing in detail in a form approved by the Engineer:

(a) The value of all work done in accordance with the Contract, and
(b) Any further sums which the Contractor considers to be due to him under the Contract or otherwise. If the Engineer disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Engineer may reasonably require within 28 days from receipt of said draft and shall make such changes in the draft as may be agreed between them. The Contractor shall then prepare and submit to the Engineer the final statement as agreed. This agreed statement is referred to in these Conditions as the "Final Statement". However if, following discussions between the Engineer and the Contractor and any changes to the draft final statement which are agreed, it becomes evident that a dispute exists, the Engineer shall deliver to the Employer (with a copy to the Contractor) an Interim Payment Certificate for the agreed parts of the draft final statement. Thereafter, if the dispute is finally resolved under Sub-Clause 20.4 [Obtaining Dispute Board's Decision] or Sub-Clause 20.5 [Amicable Settlement], the Contractor shall then prepare and submit to the Employer (with a copy to the Engineer) a Final Statement.

The final certificate or final account is the certification by the engineer that the contract has been fully completed. It is issued at the end of the defect liability period and has the effect of releasing all remaining money due to the contractor including any remaining retention.

According to David et al. (2000), final certificate is the last certificate issued by the Engineer in connection with a contract. The effects of the final certificate vary according to the form of contract being used. For instance, Joint contract tribunal, JCT 98, clause (30.8) stipulates that the final certificate must be issued not later than two months from the latest of the following events:

- The end of the defects liability period (DLP).
- The date of issue of the certificate of completion of making good of defects.
- The date the Engineer sent to the contractor a copy of the adjusted contract sum.

Failure to issue the final certificate in due time is a breach of contract for which the employer is liable. The contractor will often demand the final certificate during the earliest two months, i.e. from the end of the DLP. As it is virtually unknown for there to be no defects during the DLP, the

earliest possible period will be two months from the completion of making good of defects. In practice, the period often commences with the sending of the final account to the contractor.

David et al, (2000) also noted that, Engineers have traditionally delayed issuing a final certificate until the last possible moment for fear of the effects noted below. The final certificate must state:

- The total amounts already stated as due (note: not paid) in previous interim certificates plus any advance payments.
- The contract sum adjusted as provided in the contract (clause 30.6.2).
- To what the amount relates and the basis of calculation of the statement.
- The difference between the above two sums shown as a balance due to the contractor from the employer or vice versa.

The balance will be a debt from one to the other as appropriate and the final date for payment will be 28 days after the date of issue of the final certificate. The conclusiveness of the final certificate has been the subject of much debate. The current position is that the final certificate is conclusive (David et al., 2000).

2.2.6 Payment after Termination

Termination is the ultimate threat in construction industry. The employer threaten termination of a contractor who fails to perform, conversely a contractor who is not being paid in accordance with the contract documents may threaten termination. In most case, termination is a losing proposition for both parties. If there is termination it will most likely cost money whatever the case it may be. Therefore, it is vitally important to understand when and how a termination can contractually and legally occur and how to handle such termination threats.

PPA clause 60.1 & 60.2 states that; if the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Engineer shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as indicated in the Special Conditions of Contract. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable to the Employer. Accordingly, if the Contract is terminated for the Employer's convenience or

because of a fundamental breach of Contract by the Employer, the Engineer shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works, and less advance payments received up to the date of the certificate

2.3 Late Payment

Late payment is the failure by the Employer to pay the Contractor within the time stated in the contract agreement (Ameer, 2005). Accordingly, in Clause 69 of general condition of contract which says, if the employer fails to pay to the Contractor the amount due under any certificate of the Engineer within thirty days after the same shall have become due under the terms of the contract it is considered as default of Employer. Therefore, if the interim payment would not be paid within 30 days after the approval of the Engineer it is considered as late payment according to (MoWUD 1994). Similarly PPA (2006) clause 43.1 explains that, the Employer shall pay the Contractor the amounts certified by the Engineer within 30 days of the date of each certificate. If the Employer makes a late payment which is more than 30 days, the Contractor shall be paid interest on the late payment in the next payment. Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made at the prevailing rate of interest for commercial borrowing for each of the currencies in which payments are made.

As per Ye and Abdul Rahman (2010), late payment problem is endemic in construction and needs to be explicitly recognized as this problem recurs from project after project. Payments are needed to pay for materials, labor, plant, subcontractors and general overheads during the progress of the work. When the flow of money into a business is delayed, the net cash flow will become negative. When this happens, the contractor would require immediate funding to overcome the cash deficit. Therefore, late payment affects time, cost and quality. Good quality construction requires prompt payment, so that progress would not be affected. Late payment will affect cash flow of a contractor and may eventually lead to company's insolvency.

Therefore, timeliness of payment is important to avoid the risk of late payment problem. Once a payment problem starts to expand, it typically gets worse over time and will shift the financial burdens from one participant to other participant and create cash flow problem. It is normal practice for some clients to shift some risks to other parties further down the chain by reducing their financing costs through delaying of payments. This will shift the financial burden to the contractors who may not have large capital assets and large amounts of credit available to cover payment delays.

Davis and Seha (1999) claimed that the motto of strategic cash flow is to "collect early and pay late". This has created a dilemma in which delayed of payment is a two-edged sword. This will also create serious problem while contributing to the large number of insolvencies in the construction industry. A common scenario is for clients to hold back the money as long as possible whereas contractors wish to obtain their money as soon as possible. Hence, late payment is a predicament which is difficult to be dealt with due to different interests of the parties involved. The identification of the underlying causes of late payment and the recommendations for effective solutions is essential to mitigate this problem. Late payment problem is a serious issue worsening the construction industry worldwide. For instance, late payment was an issue in the following countries;

i. **Late Payment issue in Malaysia:** Judi and Rashid (2010) conducted a research on contractor's right of action for late or nonpayment by employer in Malaysia. According to their research, Payment problems are old age issues that permeate the Malaysian construction industry over the years. It is usual to hear of Contractors complaining of either not getting paid or the payments have been unduly delayed by the Employer. In fact a study which was carried out recently showed that most construction disputes which have been brought to court were mainly concerning payment, either late payment or nonpayment by the Employers to the Contractors. Therefore, Late or non-payment to Contractors is a major issue in the Malaysian Construction Industry. It affected the performance of Contractors and caused several of them not being able to complete the work on time thus causing delay in the completion of the project. In the worst scenario, they are forced to abandon their projects for lack of fund and some were on the brink of bankruptcy.

ii. **Late payment issue in Kenya**: Maurice et al. (2015) conducted a research on Sondu-Miriu hydropower (SMHP) project in Kisumu, Kenya which experienced delay for about five years. Hence, one of the major contributing factors for such time delay was late payment of the contractor, with ripples effect extending down the contractual hierarchy. The study was further assessed the effects of late payment of the contractor on the completion of SMHP project. Accordingly, late payment of the contractor affected the project by causing, loss of productivity and efficiency (71.8%), re-scheduling and re-sequencing of works (69.2%), extension of time and acceleration (69.2%), as well as prevention of early completion (53.8%). Finally, the researcher concluded that timely payment of contractors is crucial for ensuring the continuity of works and completion of infrastructural projects within time, budget, and quality specifications. The study also recommends the need for appropriate mitigation measures against potential risks, such as delayed disbursement of funds by external financiers, delayed approval of contractors' payment requests, as well as community participation and involvement of civil society to influence accountability in the management of project funds and expedite disbursement of funds for subsequent project phases.

iii. **Late payment issue in Canada, USA and Others:** Payment delay in the construction industry is not unique to Canada. However, other jurisdictions have enacted legislation to counter delays in making payments to contractors and sub-contractors. For instance, all U.S. jurisdictions, including the federal government, have adopted Prompt Payment legislation in the public sector projects. The United Kingdom, Ireland, Australia and New Zealand as discussed earlier have also enacted Prompt Payment legislation in order to curb the prevailing late payment in the countries. The European Union has also adopted a Prompt Payment directive which all of its member states are required to translate into domestic law. These examples will show that Prompt Payment legislation is the norm, not the exception. It is Canada that is the outlier in introducing the construction act so far. Canada is one of the few remaining jurisdictions that still relies on the nineteenth century system of liens to secure and enforce lawfully due payments in the construction industry (The need for prompt payment, 2015).

iv. **Late payment issue in Ghana:** The rapid increase of delayed or late payment issues nowadays have gone to the point that it tends to decrease the good image of construction industry in Ghana, and these are considered as a factor of significant concern to all the players in the industry (Samuel, 2011). According to him, delayed payments of work done by clients on construction projects in the Ghanaian construction industry are considered to be a factor of significant concern. It causes severe cash-flow problems to contractors and this can have a devastating effect down the contractual payment chain. It is not uncommon to find a contractor or sub-contractor who has not been paid what is due to him threatening to suspend work under the contract until the balance due to him is paid in full. In addition to this, Kwame (2011) forwarded that, Problem of delayed payment is still a serious issue in Gahanna even though the employer and other stakeholders in the road construction industry continue to complain about the industry's inability to deliver projects within the scheduled project duration, budgeted project cost and acceptable project quality.

v. **Late payment issue in Hong Kong:** Hong Kong has a large and diverse construction industry undertaking a wide spectrum of work including delivery of some of the World's largest and most complex building and infrastructure projects. A wide variety of local and overseas entities operate in Hong Kong ranging from small and medium sized enterprises to multi-disciplined international contractors and consultants. In order to ascertain the scale of payment problems in the local construction industry, the Development Bureau (DEVB) of the Hong Kong Special Administrative Region Government together with the Construction Industry Council (CIC) conducted a comprehensive and industry wide survey in 2011 (DEVB Survey) on payment practices in the local construction industry. Therefore, the survey has tried to gauge the overall perception of the seriousness of payment problems in the local construction industry. Hence, the survey finding showed that the following percentages of different stakeholder groups considered payment problems in the local industry very serious, 45% of main contractors, 57% of sub-contractors, 37% of consultants, 49% of suppliers and 8% of Employers. The Hong Kong Special administrative Region Government therefore considers it necessary to adopt a legislative approach to address payment problems (www.devb.gov.hk/sop**).** Some other countries, which had similar industry practices to Hong Kong, recognized the vulnerability of the construction industry (and especially the smaller

sub-contractors, consultants and suppliers) to disputes and payment delays and responded through introduction of security of payment type legislation. SOPL in the construction industry is to help contractors, sub-contractors, consultants and suppliers in the supply chain to receive payments on time and in full for work done and services provided. As per the development Bureau (DEVB) of Hong Kong displayed on its website (www.devb.gov.hk/sop) the following countries have already enacted SOPL; United Kingdom, Australia (in 6 different states and 2 territories), New Zealand, Singapore, Malaysia and Ireland. A list of their enacted SOPL depicted in the table 2.1 below.

Table 2.1 List of countries enacted Security of payment legislation

Jurisdiction	Title
UK, England	Housing Grants, Construction and Regeneration Act 1996 - UK, England.
Australia (Various states	Building and Construction Industry Security of Payment Acts 1999-2009 (various states) - Australia.
New Zealand	Construction Contracts Act 2002 - New Zealand.
Singapore	Building and Construction Security of Payment Act 2004 - Singapore.
Hong-kong	Security of Payment Legislation (SOPL) Act 2015-Hong Kong.
USA, different states	Prompt payment act in different states of USA.
Canada	Prompt payment act in Canada.
Ireland	Prompt Payment of Accounts Act 1997-Ireland.
Ireland	Construction contract Act 2011-Ireland.
Malaysia	Construction Industry Payment and Adjudication Act 2012-Malaysia

2.3.1 Factors for late payment

Contractors, consultants, employers, sub contractors and other related stakeholders in the construction industry point out different causes which may result in late payments from their experience.

According to Ramachandra and Rotimi (2015), the causes for late payments are diverse and vary across countries. Some are largely attitudinal while others relate to inadequate processes that could ensure smooth cash flow within construction contracts. Ye and Rahman (2010) listed out the following factors for late payment; cash flow problems due to clients' poor financial management, ineffective utilization of funds, lack of capital to finance projects, failure to source money from banks in times of reduced sales, delay in releasing retention monies to contractors, and delay in evaluation and certification of interim and final payments were found to be the top five factors responsible for late payments in Malaysia construction industry.

Borvorn (2012) conducted a research on factors Causing Delay in Payment of Residential Building Projects in Thailand. According to his finding, the following are the top six major causes of late payment; Client financial problem, unexpected social event, supervisor incompetence, delay in work approval, insufficient working drawing, slow making decision.

Abdul Rahman et al. (2008) also studied issues affecting payments in the construction industry and found that the perspectives of consultants and contractors differ on the causes of late payments. According to contractors; delay in certification, clients' poor financial management, local culture/attitude, clients' failure to implement good governance in business and underpayment of certified amounts by the clients are the most frequent causes of payment delays. However, consultants identified that local culture/attitude, delays in approval of claims by the client, and underpayment by the client as the top causes of payment delays. In summary the problems are traceable to clients' poor financial management. Other causes of payment issues, according to contractors and consultants in Malaysia include: the use of pay-when-paid clauses, disagreements on the valuation of work done, deliberate withholding of payments by clients, budget deficits for the year, poor communication and conflict between parties, delays in submitting contractors' payment claims, and general lack of understanding of contract provisions (Danuri et al., 2006).

Similarly, Ramachandra & Rotimi (2015) and also Fisseha (2015) determined the following factors as the causes for payment problems and other related issues in construction projects.

- Too many officials should sign on payment document.
- Extended and unwanted time for checking up.
- Lack of good administration.
- Financial constraint of the client.
- Bureaucratic payment system of the employer.
- Budget deficit.
- Underestimating the budget.
- Including works not completed.
- Submitting a payment request with exceeding or less the estimated cost.
- The payment requested and the work executed are not the same, this is a situation where the contractor's payment request includes amounts of works not executed.
- Interest of the contractor to get more payment than actually executed, this refers to a situation where the contractor tries to cheat in order to get extra amount of money.
- Proper data recording problems especially in substructure works.
- Withholding payment certificates wrongly.
- Unnecessary dispute with contractor and client finance office.
- Corruption practices.
- Lack of knowledge of the construction industry, this is to the different individuals who may participate in one way or the other.
- Payments are required to meet the minimum percentage of the contract amount this is to say; as long as the stated percentage is not achieved the contractor will not be paid and may face financial difficulty.

The nature of the construction process is complex. Payments can be delayed at any stage for a variety of reasons (Megan, 2015). In previous research, Yao (2014) compiled a comprehensive list of reasons why payments may be delayed:

- Due to poor financial management: owner lacks cash to pay the contractor.

- Owner withholds payment due to misinterpretation of change orders or arguments over amounts to be paid for work completed.
- Delays in certifications: inaccurate evaluation of work done, defects in work, verbal instructions/changes are not clarified in writing, miscommunications.
- Contractual provisions.
- Technical problems: delayed processing for approvals, errors in submitting claims, failure to identify technical problems, inexperienced site supervisors.

In addition to this, the following table shows some causes of late payment in construction industry as reviewed from different literature.

Table 2.2: Some general Causes of late payment

Causes	Description	Source
Employer's Poor Financial Management	➢ Cash flow problems because of deficiencies in client's management capacity. ➢ Client's ineffective utilization of funds. ➢ Scarcity of capital to finance the project. ➢ Lack of proper process implementation. ➢ Overlook the ripple effect of cash flow. ➢ Client's poor financial and business management.	Abdul-Rahman et al. (2011), Hasmori et al. (2012)
Conflict among the Parties Involve	➢ Contractor's misinterpretation of client's requirement of variation order ➢ Heavy work load of consultant to do evaluation for variation order. ➢ Argument of the amount to be paid ➢ Non-payment for certified sums	Abdul-Rahman et al. (2011)
The Use of Pay When Paid Clause	➢ The sub-contractor will only be paid after the main contractor himself has received payment from the employer	Abdul-Rahman et al. (2009)

Delay in certification	➢ Delay in valuation and certification of interim payment by consultant ➢ Involvement of too many parties in the process of honoring certificates.	Hamzah Abdul - Rahman (2009)
Disagree on the valuation of work done	➢ Inaccuracy of valuation for work done ➢ Unpaid of work done due to defect ➢ Verbal instruction given not confirmed in writing ➢ Work carried out by contractor does not comply to the specification	Mohamad et al. (2012)
Contractual Provisions	➢ Contract agreements do not bring any justice to both main contractors and sub-contractors ➢ Disrespectful from parties involve regarding to the contractual provisions effectiveness	Ab. Halim et al. (2010)
Technical Problems	➢ Delay in processing for approval ➢ Delay in receiving progress payment from client ➢ Claims without adequate supporting documents. ➢ Failure to identify technical problem and remedial action to be taken. ➢ Insufficient information and poor documentation on work progress. ➢ Inexperience of site supervisor and contractor's representative ➢ Unclear material description and details in specification and drawing ➢ Actual quantities do not match as stipulated in Bill Quantities (BQ).	Hamzah Abdul - Rahman (2009)

Source: Mohamed et al. (2012)

However, different scholars published their works related with the issue of late construction payment across the world. According to their view, late payment could be caused not by a single party in the contract system; rather it could be the cumulative effect of different stakeholders'

problem that resulted in late payment. Therefore, all the causes that happen in the construction projects due to late payment could be categorized as follows;

- Contractor related causes,
- Employer related causes,
- Consultant related causes and also
- Contractual matters related causes.

2.3.1.1 Late Payment caused by Contractors

These are causes of late payment which are primarily contributed by the contractors. Reeves (2003) stated that, one of the main reasons for delayed payments in construction projects are, when there are errors in submitting claims by contractors. This includes claims without adequate supporting documents, wrongly calculated claims and those submitted without using the correct procedures. When this is the case, contractors need to resubmit the claims after making the necessary corrections. Another factor contributing to delayed payment is when contractors fail to agree with the valuation of work on site. This would results in conflict between clients and contractors which thereby rise to dispute. The following are the causes of late payment related to contractor as established by Samuel (2011) and (Ramachandra and Rotimi, 2015).

- Contractor delay in submitting claims
- Contractor submits claim with error
- Contractor submits claim without supporting documents
- Contractor failure to agree to the valuation of work
- Contractor fail to understand the contract agreement
- Requesting payment for defective works
- Failure to make regular progress
- The contractor suspension of work
- Mobilization of poor quality materials
- Disagreement in valuation of work completed
- Problem of understanding the contract clause
- Insolvency of the contractor

2.3.1.2 Late payment caused by Employers

Most of the time employers have lions share in contributing for delayed payment in the construction industry worldwide as different literatures witnessed. According to the study conducted by Abdul-Rahman et al (2011) and Hasmori et al (2012), the following listed causes of late payment are identified as related to employers; poor financial management, ineffective utilization of funds, scarcity of capital to finance the project, financial failure due to bankruptcy or winding up employer other business activities, Overlook the ripple effect of economic downturn on cash flow, problem with the measurement and valuation process, delay in retention release are found to be the main causes of construction payment problems that are contributed by the employer in public building construction projects. As per Reeves (2003), the main factor contributed by employers is when they take longer than the stipulated time in terms of the contract to certify the payment. Ramachandra and Rotimi (2015) identified the following causes of payment problems as contributed by public Employers, these are Administration/bureaucracy, attitude of the client, improper supervision and financial control, financial difficulty due to failure to secure the contract, Political/policy influence. According to the study by Megan, (2015) on Evidence based Impacts of Slow Payment Practices in Alberta's Construction Industry; Client short on Cash, Client cumbersome administrative process, binding charges or extra ordered by the client without agreement on price, Non production or delay of required contract documentation (discharge, certificate of conformity) are the major causes of late payment from Employer side.

2.3.1.3 Late payment caused by Consultant

Construction payment problems are not caused by employers and contractors default only. Consultants also contribute for the occurrence of construction payment related problems in different ways. According to different literatures, favoring the employer or biasness of consultant, problem in valuation of variations, weakness in making decision, wrongly withholding payment certificate are some causes from the consultant side making to happen payment delay in construction industry (Fisseha, 2015).

2.3.1.4 Late payment caused by Contractual Matters

Regarding to the contractual matter is concerned; there are provisions of clauses which say pay-when-paid in most condition of contracts. Pay when paid clauses are provisions in some contract where payment is made conditional upon payment being received by the employer, e.g. a subcontractor will only be paid when the main contractor is paid by the client. This clause may have a devastating effect on the sub-contractors due to events which are beyond their control. If the client exercises his right to withhold payment for whatever reasons stipulated in the building contract to the prime contractor, the sub-contractor who may have done his work properly will not get paid if such a clause is in place. It would be unfair for the sub-contractor for not being paid due to the fault of others. 'Pay-when-paid' or also known as 'back to back' method of payment never brings justice to the second parties (Artidi and Chotibongs, 2005). Usually second parties would get delayed payment or even to the worst no payment at all.

Ramachandra and Rotimi (2015) and Nazir (2006) forwarded the following causes of late payment in construction projects as related to contractual matters;

- Procurement method used.
- Contract type used.
- Contract used are too complicated to be understood by both parties.
- Contract used are not comprehensive of payment aspect.
- Contract bias to one party, and
- The provision of pay when paid clause.

In general case, forms of contract used in developing countries are often derived from those used for developed countries that require high level of contracting experience than most domestic contractors can meet. These documents and systems are often used without modifications to suit the local situation and the terms and conditions of the contract are said to be unrealistic as to the context of developing countries. Moreover, contractors seldom understand the provisions of such contract forms; small contractors, in particular, are unaware of their rights or unable to enforce their employers during any issue raised. Projects are sometimes unilaterally suspended or abandoned by the employer; contractors are seldom paid promptly for work done. The procedure for payment certificate is "bureaucratic", and owing to poor financial management, funds are often

not available to pay the contractors. In addition to this, the contract document give seldom provision on payment management system that means, no specific time for interim payment and no applicable and clear remedies for delayed payments (Kaseim, 2008).

2.3.2 Effects of Late Payment

When payments are delayed in any part of the construction payment process, contractor cash flow is directly affected. Cash flow is crucial to project success and survival of the industry as a whole (Ang, 2006). For example, seriously delayed payments can influence the time, cost, and quality of a project, ultimately causing dispute, arbitration or litigation, total abandonment, or the liquidation of a construction firm anywhere in the supply-chain (Aibinu & Jagboro, 2002). In some cases, when delayed payments lead to arbitration or litigation, sub-contractors abandon their right to payment in favor of maintaining cash flow by moving on to other projects.

The problem of late payment could have a ripple effect on the entire construction value chain. This is because when the Employer does not pay the main contractors on time, the sub-contractors, sub-sub-contractors, suppliers, permanent and temporary workers, and everyone in the construction chain will be affected. The insolvency of one party in the payment chain could cause severe impacts to parties below him. The difficulties are further worsened with the fact that it is a normal practice to include conditional payment "pay when paid" clause provisions in the sub-contracts. The burden of the main contractor's non-payment due to his own faults will be shifted to the subcontractor as well and this in turn will affect the sub-contractor's cash flow. This is aggravated if the reason of the non-payment by the employer to the main contractor is solely due to his own defaults and not caused by the sub-contractor (Kwame, 2011).

Lack of payment to contractors is a common cause of disputes in the construction industry. According to Artidi and Chotibongs (2005), 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. Disagreements then lead to arguments as relationships eroded and the stage is set for conflict; finger pointing, blaming and judging, back-passing and lawyers. Projects exceed initial time estimates and costs escalate and extensive delays are experienced. Delayed payments never bring justice to contractors and subcontractors its effects are sometimes so harsh that some companies

have to close down. One of the biggest consequences would be the interest due on capital borrowed. Contractors often borrow working capital from banks in order to finance their construction operations and invariably have to pay interest on these borrowings (Artidi and Chotibongs, 2005).

Likewise, Samuel (2011) and other scholars identified the possible impacts of delayed payment as described below.

- Creates financial hardship: It is anticipated that delayed payment can create financial hardships for the contractor.
- Creates a negative chain effect on other parties: the construction payments have domino effects. A delayed payment by one party may affect the entire supply chain of payment of a construction project.
- Creates cash-flow problems: It is universally accepted that delayed payment affects the contractor's cash flow, which in turn can affect the progress of the works and profitability (Naseem, 2005).
- Results in a delay in completion of projects: According to the study by Abdul-Rahman and Beraw (2006), a financial problem is confirmed by the view of top management in the survey as being the main cause of delay of projects, in addition to manpower shortage.

In addition to this, Nazir (2006) also forwarded the following impacts of late payment in his study; delay in project's progress, extension of time for project, low quality of work and financial hardship for contractors.

Kwame (2011) identified the following as the major and most common effects of late payment in construction projects;

i. Cash flow problem
ii. Delay in completion of the projects
iii. Liquidation/bankruptcy
iv. Leads to abandonment of the project
v. Loss of profit and reputation

I. Cash flow problem

Cash flow refers to the movement of cash into or out of a business, a project, or a financial product. It is usually measured during a specified, finite period of time. For a business to be successful, good cash flow is crucial. Cash flow is the primary indicator of a business' financial health (Kwame, 2011). Similarly, cash flow in construction industry refers to the movement of cash into or out of a project. Effective cash flow is a key business skill and will help to protect the financial security of your construction project. Good cash flow forecasting is a balancing act, managing your cash inputs and outputs.

According to the explanation of Ye and Abdul Rahman (2010) late payment problem is interrelated with the cash flow problem. Cash flow in the construction industry is critical because of the relatively long duration of projects. Any deviation due to either project delays or cash flow delays can have major impact on the project. Most construction projects are individual profit centers, each with its own cash cycle based on the costs of activities related to the project and on payments from a client as prescribed in a contract. The times for receiving payments from the client will affect cash flow of a project. 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. When taking into consideration the payment delayed from owners and negative cash flow of contractors, prompt payment from owners in this circumstance is utmost important to minimize financial hardship of a contractor.

II. Delay in completion of the entire project

There is no doubt that delay in payment is likely to reduce productivity, retard progression of works, and initiate labor unrests; which may disturb the environment required for timely completion of infrastructural projects (Judi and Rashid, 2010).

In developing countries, delays in the completion of infrastructural projects have been reported in Malaysia, Indonesia, Qatar, Jordan, Egypt, Ghana, South Africa, and Kenya, among other countries (Maurice et al, 2015). In Malaysia, Sambasivan and Soon (2007) identified causes of delays in the completion of infrastructural projects, including contractor's improper planning, late payments for completed work, poor site management, inadequate experience, poor management of

sub-contractors, inconsistent communication between parties, as well as shortage of materials, equipment, and labor. In Ghana, delay in payments, poor contractor management, delays in material procurement, poor technical performances, and escalation of material prices were identified as key factors contributed to delays in the completion of infrastructural projects (Frimpong et al, 2003). In Kenya, Maurice et al (2015) conducted a research on Sondu-Miriu hydropower project which experienced delay for about five years. Hence, one of the major contributing factors for such time delay was late payment of the contractor, with ripples effect extending down the contractual hierarchy. The study was further assessed the effects of late payment of the contractor on the completion of the project. Accordingly, late payment of the contractor affected the project by causing, loss of productivity and efficiency, re-scheduling and re-sequencing of works, extension of time and acceleration, as well as prevention of early completion.

According to MoWUD clause 69, which states, failing to pay to the contractor the amount due under any certificate of the Engineer within thirty days will result in default of employer. Therefore, because of the importance of interim payments, failure to comply with clauses which set out the obligations of the Employer in respect of interim certificates is likely to amount to a fundamental breach of contract. Therefore, late payment would result in delay in completion of the project even until termination of the contract.

III. Bankruptcy or liquidation

Payment defaults have many effects on project participants as well as the industry, as funding is the core of any economic transaction. Late and non-payments have an immediate effect on cash flow which in turn drives contractors and eventually subcontractors to source additional funding by means of overdraft, trade credits or other means (Ramachandra and Rotimi, 2015).

It was reported in China that late and eventual non-payments along with lack of security caused substantial cash flow difficulties leading to risks of insolvency or bankruptcy of construction parties (Kumaraswamy and Soo, 2008). According to Ang (2006), failure to pay complete invoices and on time, both have many negative effects on parties to a construction contract.

Payment delays and losses primarily affect the cash flow of contractors which is crucial to the success of construction projects and the survival of the industry.

Eugenie (2006) also forwarded that, frequent payment delays could lead to additional financing and transaction costs and eventually place parties down the chain in insolvency situations. Conversely, prompt payment for completed work could be seen as a strong incentive to contractors and subcontractors to deliver quality services and to complete projects successfully (Cheng, et al., 2009).

In New Zealand, insolvencies specifically in the construction industry were spread throughout the country and some involved major companies (Ameer, 2005). Again, the introduction of Construction Contracts Act was seen as the remedy to address the insolvency problem that resulted in the drafting of the New Zealand Construction Contracts Act 2002. Contractor's liquidation will severely affect the contractor's performance in completing the work which will result in the abandonment of projects.

In UK, during the early nineties, thousands of businesses and companies became insolvent with enormous numbers of job lost (Ameer, 2005). That was one of the reasons that prompted the Department of Environment to produce Latham Report; constructing the team which reviewed the procurement and contractual arrangements in the UK construction industry and provided recommendations to improve its performance. Some of the recommendations were adopted which resulted in the drafting of the UK Construction Contracts Act, known as the Housing Grants, Construction and Regeneration Act 1996.

IV. Contractors profit and reputation

The final goal of any contractor is to gain profit and good reputation from the project. However, if the contractor faced late payment regularly it is automatic that he would fail to complete projects timely and the project at his hand become abandoned then finally he might loss reputation and reduced credibility and also reduced profit (Hasmori et al, 2012).

Judi & Rashid (2010) stated that, when the Employer do not pay the contractors on time and regularly, the company may potentially go into liquidation and influence the profitability of the

contractor and also value chain of the construction industry will suffer. Again a failure of the contractor in getting regular and timely interim payment could result in project delay, reduced profitability and to the worst case the company may go into liquidation (Mohamed et al, 2012).

Most importantly, the capability of (especially emerging) contractors is closely related to the receipt of payment for work completed. If these payments are delayed, then the business financing requirement can change dramatically to the point where the company can easily slip into liquidation. Obviously, the business also faces the basic interest cost of financing the outstanding payments and this can severely affect the company's profitability. Profitability must be an essential outcome, given the requirement for the sustainable development of the construction industry (Judi & Rashid, 2010).

V. Abandonment of the project

During extended delay of payments, contractors may take their course of action which includes stop working, suspending the work and slowing down their work. In the worst case the Contractor may simply leave the site and abandon the project (Judi and Rashid, 2010).

According to the study by Kwame (2011) in Ghana, delayed payment and especially non-payment may cause abandonment of projects. This is due to no sources of money to pay for the labors, materials, plants and equipments 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 monies 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 projects. Inevitably, disputes will crystallize and both parties will resort to dispute resolution process. In addition to this, late payments are often associated with other issues in Malaysia's construction industry such as productivity, non conformance, safety, delay and abandonment issues (Nazir, 2006).

2.3.3 Contractual Remedies and minimization methods of late payments

2.3.3.1 Contractual Remedies

Most construction contracts have provisions for a specific remedy in the event of any breach of the terms and conditions within its framework and/or for a contractual entitlement in respect of specified events. Therefore, it is essential that the parties and those who represent them fully understand the terms of the contract and the remedies available to them under it.

Basically, as John Murdoch and Will Hughes (2000) stated, the parties to the contract are obliged to carry their obligations to their conclusion, unless there are express clauses setting out circumstances relieving them of this obligation. Hence general contracts carry such clauses, for example, giving an employer the power to determine the contractor's employment if the contractor fails to make regular progress suspends work or becomes insolvent. Similarly, a contractor may have the right to determine the contract if an employer obstructs the issue of certificates, continuously suspends the works or becomes insolvent. Such determination can only take place within the express terms of the contract. The absence of such terms would leave the parties reliant upon common law remedies.

According to the understanding of the MDB FIDIC clause (16) and, if the employer fails to effect the payment to the contractor which is employers default in making payment , the contractor shall be entitled for the following available remedies.

- Right to interest on late payment
- Right to suspend the work
- Right to Termination of contract

I) Right to interest on late payments: as per the provisions of Clause 60(2) of the MoWUD condition of contact, it sets out the method and the time scale in which the employer is to pay the contractor for work done. It says "the contractor will be paid monthly within 30 days of the presentation of the engineer's interim payment certificate to the employer…" but, it says nothing about what happens if the employer is failed to do so where the contractor has not been paid during the construction of the works. Whereas, the PPA standard bid document sub clause (43.1) states that if the employer makes a late payment, the contractor shall be paid interest on the late

payment in the next payment. Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made at the prevailing rate of interest for commercial borrowing for each of the currencies in which payments are made. In accordance to MDB FIDIC clause (14.8), if the Contractor does not receive payment as per the procedure under Sub-Clause 14.7 [*Payment*], the Contractor shall be entitled to receive financing charges compounded monthly on the amount unpaid during the period of delay. This period shall be deemed to commence on the date for payment specified in Sub-Clause 14.7 [*Payment*], irrespective (in the case of its sub-paragraph (b)) of the date on which any interim Payment Certificate is issued. Unless otherwise stated in the Particular Conditions, these financing charges shall be calculated at the annual rate of three percentage points above the discount rate of the central bank in the country of the currency of payment, or if not available, the interbank offered rate, and shall be paid in such currency. The Contractor shall be entitled to this payment without formal notice or certification, and without prejudice to any other right or remedy.

II) Right to suspension of work: as per the provision of Clause 16.1 of FIDIC, if the Engineer fails to certify in accordance with Sub-Clause 14.6 or the Employer fails to comply with Sub-Clause 2.4 [*Employer's Financial Arrangements*] or Sub-Clause 14.7 [*Payment*], the Contractor may, after giving not less than 21 days' notice to the Employer, suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case may be and as described in the notice. If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and
b) Payment of any such Cost plus profit, which shall be included in the Contract Price.

It shall be established that in the event of the employer's failure to make a progress payment to the contractor within the time stated in the contract, by notifying the employer, the contractor may urge the employer to effect a progress payment. If the employer still fails to pay after receipt of the contractor's notice, he may negotiate with the contractor for payment on deferred terms. If they

come to an agreement, the employer shall pay overdue interest. But if both of them do not come to an agreement and the contractor is unable to continue his work, the contractor may suspend work and the owner shall bear the liability for breach of contract (Ang, 2006). According to him, suspension of work is a safe position taken by the contractor and is in fact one routinely taken by the contractor when non-payment from the employer continued. But for late payment, this action might be too harsh and impose another problem at site such as illegal suspension of work by the contractor. There are persuasive writings arguing for allowing of contractors to suspend their works because of late payments, the facts remains that this is currently not the established law. Murdoch and Hughes (2000) said that, one contracting party (A) had no right to suspend performance of contractual obligations on a temporary basis, on the ground that the other party (B) was in breach of contract. Unless B's breach was sufficiently serious to justify A in terminating the contract altogether, A's only remedy was to claim damages, in the meantime continuing with the contract. This meant that, unless the contract specifically provided for suspension of work as a remedy for late or non-payment (as did FIDIC and the JCT forms of contract), a contractor who suspended work on the ground of not having been paid would be guilty of a breach of contract in failing to maintain regular and diligent progress.

The common law position has now been reversed by statute in UK. Section 112 of the Housing Grants, Construction and Regeneration Act 1996 provides that where any sum due under a construction contract has not been paid in full by the final date for payment, and no effective notice to withhold payment has been given, the payee has the right to suspend work until full payment is made. This right may not be exercised without giving the other party at least seven days' notice of the intention to suspend, stating the grounds on which this action is based. The Act provides that any time during which work is suspended in this way is to be disregarded in working out the length of time taken to complete the contract work, and any other work which is directly or indirectly affected. This means, in effect, that the contractor and any affected sub-contractor is given an extension of time for the period of suspension. However, it is worth noting that nothing in the Act gives either the contractor or any sub-contractor the right to claim for loss and/or expense in respect of costs arising out of the delay.

Murdoch and Hughes (1996) are also explained that, it is not uncommon to find that a contractor or sub-contractor who has not been paid what is due threatens to suspend work under the contract until payment is made. It must be noted that without a clear contractual right to suspend the works, the contractor is not entitled to do so even though the employer has failed to pay him within the time stipulated in the contract. In this respect, if the contractor suspends the work, the courts may find him guilty of repudiating the contract. This will in turn open for the other party to accept the repudiation and void the contract and bring a claim for damages.

The right to suspend performance of obligations under the contract is contained in section 112 of the Housing Grants, Construction and Regeneration Act 1996. Section 112(1) states:

1) Where a sum due under a construction contract is not paid in full by the final date for payment and no effective notice to withhold payment has been given, the person to whom the sum is due has the right (without prejudice to any other right or remedy) to suspend performance of his obligations under the contract to the party by whom payment ought to have been made ('the party in default').

III) Right to Termination of Contract: In accordance with clause (59.1) of PPA, the Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract. The fundamental breach of the contract includes;

a) A payment certified by the Engineer is not paid by the Employer to the Contractor within 90 days of the date of the Engineer's certificate;
b) The Contractor stops work for 28 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Engineer;
c) The Engineer instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 28 days;
d) The Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation;
e) The Engineer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Engineer;
f) The Contractor does not maintain a Security, which is required;

g) The Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in the Special Conditions of Contract; and
h) If the Contractor, in the judgment of the Employer has engaged in corrupt, fraudulent, collusive or coercive practices in competing for or in executing the contract.

However, terminating a contract is often viewed to be a serious step to adopt and from a commercial viewpoint this may not be a desirable and conducive for possible settlement. Most contractors will also fear that if this step is resorted to, their rightful entitlement may be "stuck" for years and can only be recovered after a successful attempt into arbitration of litigation. Such a fear is of course not good for any contractors who appreciate the importance of cash flow to the going concern and health of a company (Ang, 2006).

2.3.3.2 Methods to minimize late payment

Hasmori et al. (2012) said that the remedies to overcome the late payment is by adopting a new way of payment method among developers or clients whom wrongfully withholding the payment. Penalties shall also be given personally to the employees if they are found wrongfully withholding the payment.

According to the Mohamed, et al. (2012) and others, the factors and impacts of the late and non-payment can be solved through financial management, contractual matters, legislation, new way of payment method, local attitude, technical issue and financial institution.

Danuri, et al (2006) also revealed that; amongst the most appropriate solutions to overcome the problem of late and non-payment faced by local contractors include: a right to regular periodic payment, a right to a defined timeframe for payment and a right to a speedy dispute resolution mechanism.

The recognition of the nature and consequences of payment delays and losses within the construction industry led to the development of legal and contractual solutions in many countries. A major development is the enactments of construction payment specific Acts to address the payment problems in many countries (Cheng et al., 2008). One of such enactments is the Building

and Construction Industry Security of Payment Act in New South Wales, Australia. The Act has helped to reduce the frequency of late payments. In New Zealand, the Construction Contracts Act (CCA) was circulated to curb bad payment practices within the construction industry, especially following the liquidation of some large companies because of non-payment by their clients. Bonds and guarantees, and insurance provisions also exist to provide protection against the risk of non-payment in construction contracts (Ramachandra and Rotimi, 2011).

Kwame (2011) conducted a research on effects of late payment on Cash flow forecasting in Ghana. Accordingly, he forwarded the following options to improve contractor's cash flow during late payment; Payment of interest on delayed payments, Employers work with in stipulated budget, provision of defined time frame in the contract conditions. In addition, different researchers forwarded different methods to minimize the late payment. Thus the following table 2.3 shows some of the methods identified by them in order to alleviate the impacts of late payment in Construction industry.

Table 2.3: Minimization methods of late payment per literature review

Minimization method of late payment	Description	Source
Financial Management	1. To conduct training on cash flow and financial management. 2. To apply payment bond with bank and client.	Abdul-Rahman et al(2011)
Contractual related Matters	1. To be smart in accepting the contract and to choose a good paymaster. 2. Determining the contract with the Employer 3. The development of principles of modern construction contracts. 4. There should be a specific clauses in the contract related to managing construction payment.	Abdul- Rahman etal. (2009) Haseeb et al. (2011)
Legislation	Legislation should be amended to give a clear message	Ab. Halim et al.

	to constructors and clients as to clarity the payment matters and refund procedures. 1. A right to a speedy dispute resolution mechanism 2. A right to suspend work 3. A right to regular periodic payment. 4. A right to a defined time frame for payment	(2010)
Local Attitude	Fundamental change in the mind-set towards timely payment and statutory enactment to deal with payment in construction industry.	Hasmori et al. (2012)
Technical Issue	The detail and proper procedures of claim issuance to resolve matters arising	Mohamad et al. (2012)

Source: (Mohamed et al, 2012)

Among the above listed minimization methods; construction payment security/legislation is one of the most methods widely used by many countries to reverse the problem related with late or non payment. For example; Countries such as the UK, USA, Australia, Singapore and New Zealand have enacted payment specific legislation and sought other legislative solutions to payment default in construction projects (Ramachandra & Rotimi, 2015). In New Zealand, the Construction Contracts Act (CCA) is a payment specific legislation, which was a major step taken towards mitigating payment default within its construction industry (Brand and Uher, 2008).

The following are different Acts and respective countries and states which enacted them to address the problem of late and nonpayment (Prism Economics and Analysis Report, 2015).

1) Housing Grants, Construction and Regeneration Act 1996 - UK, England.
2) Building and Construction Industry Security of Payment Acts 1999-2009 (various states) - Australia.
3) Construction Contracts Act 2002 - New Zealand.
4) Building and Construction Security of Payment Act 2004 - Singapore.
5) Security of Payment Legislation (SOPL) Act 2015-Hong Kong.
6) Prompt payment act in different states of USA.
7) Prompt payment act in Canada.

8) Directives on prompt payment-EU.
9) Prompt Payment of Accounts Act 1997-Ireland.
10) Construction contract Act 2011-Ireland.
11) Construction Industry Payment and Adjudication Act 2012-Malaysia.

A 1994 report on the construction industry commissioned by the U.K. government drew attention to the damage to the industry caused by payment delay (Latham, 1994). The Housing Grants, Construction and Regeneration Act, 1996 (commonly known as the 'Construction Act') contain the 'Scheme for Construction Contracts'. The default payment period under the "Scheme" is seven days. The "Scheme" applies to payment obligations between prime Contractors and Sub-Contractors. The Construction Act also provides for a 28-day expedited adjudication system to settle performance disputes. The Housing Grants, Construction and Regeneration Act (HGRA), 1996 was intended to ensure that payments are made promptly throughout the supply chain and that disputes are resolved swiftly (http://www.legislation.gov.uk/ukpga/ 1999). Provisions of the act include:

- The right to be paid in interim, periodic or stage payments.
- The right to be informed of the amount due, or any amounts to be withheld.
- The right to suspend performance for non-payment.
- The right to adjudication.
- Disallowing pay when paid clauses.

It is in 1982, the U.S. federal government adopted the first Prompt Payment Act. The initial version of the Act required that the federal government and its agencies pay contactors within 30 days of receipt of a valid invoice. The Act also provided for interest on late payments. In 1988 the Prompt Payment Act was amended to require prime Contractors to pay Sub-Contractors and Sub-Contractors to pay Sub-Sub-Contractors within the same specified time frame. Interest penalties also apply. Both the prompt payment obligations and the interest penalty flow down to all Sub-Contractors. (http://uscode.house.gov/download/pls/31C39.txt).

Prompt payment legislation in Australia operates at both the Commonwealth (i.e., federal) level and at the state level. The process of payment reform began in New South Wales which accounts for approximately one-third of construction activity in Australia. In 1997, the government of New

South Wales enacted the Building and Construction Industry Security of Payment Act 1999. The Act was subsequently amended to close loop-holes in the original version. The New South Wales statute expressly nullifies 'pay-when-paid' clauses. Payments under construction contracts are due within 10 days following the submission of a valid invoice. Interest charges are applicable on late payments. Similar to the U.K. statute, the New South Wales Act also provides for an expedited adjudication system to resolve payments withheld on the grounds of performance. Similar statutes were adopted by most other Australian states and by the Commonwealth legislature (New South Wales, Building and Construction Industry Security of Payment Act 2002). (http://www.legislation.nsw.gov.au/maintop/view/inforce/act+46+1999+cd+0+N)

Payment defaults remain chronic and prevalent issues affecting the entire delivery chain of construction industry in Malaysia. For that particular reason, the Government have embarked serious afford to reduce payment default issues by enacting Construction Industry Payment and Adjudication Act (CIPAA) in 2012. The aim of the act was establishing a cheaper, speedier, contemporary, binding, statutorily-enabled adjudication mechanism, and also to streamline payment process and timeframes for construction contracts and provide procedures on responses following payment claims (Mohd and Ismail, 2012).

Regarding the effectiveness of the act, follow-up studies on the success of prompt payment legislation in Australia showed that; fewer late payments increased reporting of never having late payments and an increased sense that the act helped create a fair and balanced payment standard. Another success of the act was increased communication between parties and opportunities for early dispute avoidance and resolution as a result of the act (Brand & Uher, 2010).

CHAPTER THREE

3 RESEARCH METHODS & PROCEDURES

3.1 Introduction

This research is basically a combination of exploratory and descriptive study. It is an exploratory study because the goal of this research is to identify the causes & effects of late payment and methods of minimization where there has been little research conducted in this area. Besides that, the researcher was uncertain of the perceptions of the respondents towards these problems. Findings reported from these early explorations will provide new and valuable insights into the area of delayed payment in the construction industry. This research also paves the way for more in-depth and exhaustive studies in the future. The study is also descriptive as it is used for the purpose of describing a group's behavior to identify the causes & effects of late payment from the perspectives of the contractors, Employers and consultants. The methods of research utilized in descriptive research are survey methods of all kinds including comparative and correlation methods (Kothari, 1990).

3.2 Research Approach and Design

There are two types of research approaches i.e. qualitative and quantitative researches where the division bases on the way in which the research objectives can be questioned. A qualitative research is a "subjective" assessment of a problem and takes the form of an opinion, view, perception or attitude towards objects (that are referred to as an attribute, variable, factor or question). Quantitative research, on the other hand, is an "objective" measurement of the problem that investigates facts and tries to establish relationships using statistical tools (Naoum, 2002). Therefore, due to these facts quantitative approach is very relevant and employed under this study.

Research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure.

In fact, the research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data. As such the design

includes an outline of what the researcher will do from writing the hypothesis and its operational implications to the final analysis of data (Kothari, 1990). Hence, the research design for this study incorporates five phases. Phase one is the proposal for identifying and defining the problems and establishment of the objectives of the study. During the second phase of the research which is literature review, reading and extracting information from various sources related to the topic to get thorough knowledge of the research theory and concepts. The sources include books, previous thesis, journals, newspapers and the internet. The third phase of the research included data collection and organization. During phase four result and discussion was conducted. In this phase the result of questionnaires and interview were discussed. The last phase of the research was establishment of the conclusions and recommendations.

3.3 Sampling Technique

Sampling is the selection of study units from a defined population of interest, so that by studying the sample we can fairly generalize our results back to the population from which they were chosen (William, 2006). There are several approaches to determine the sample size. These are, using the census for small population, using sample size of similar study, using published table and applying formula. Therefore, in this research, the population size is public building projects commenced and undertaken between 2004 to 2008 EC at regional level. The lists of the projects have been taken from Oromia region education bureau, health bureau, urban development and housing with a total of thirty eight construction projects. The projects include office buildings, health institution buildings, educational buildings and housing projects which are under construction and also completed. Therefore, here the sample size is equal to the population. Consequently, contractors, consultants and employers who took part in the construction of the aforementioned projects were identified as respondents. However, in order to be within the scope of the research projects undertaken by contractors of category class three, four and five were selected. Therefore; the total number of contractors become thirty eight(38), number of public Employers are four(4) and number of consultants are also four(4) under this study.

3.4 Instrumentation

The research instrument employed under this study were self administered questionnaire and interview.

Questionnaire: the choice of using this method was made based on a variety of factors, including the type of information to be gathered and the need to protect the privacy of the participants. Often, confidentiality is necessary to ensure that participants respond honestly. Since the subject of the research is payment, confidentiality is very necessary. Again, the questionnaire survey is deemed as being the appropriate way in gathering all the information from different groups for this study. It was designed according to the objectives and the research questions by reviewing literature dealing related with the subject matter. The approach enabled participants to provide the essential data at their convenience. One module of the instrument was applied across the board to permit comparison of perspectives from different groups. The questionnaire consisted of closed ended questions and also spaces provided for additional comments by the respondents too. In addition to this, the questions were grouped under four sections. The first section is of questions related to type of payment subjected to frequent delay. The second, third and fourth section respectively are related to causes of late payment, effects of late payment and methods of minimization. Hence, the respondents were asked to show their level of agreement based on Likert scale of five ordinal measures from one (1) to five (5).

Interview: interview is one of the primary data collection methods which is flexible and adaptive way of investigating underlying motives of a subject in a way that self administered questionnaires cannot. The interview conducted were based on semi structured style, which has a predetermined set of questions (generalized form of questionnaire) with a flexible order depending on what the interviewer perceives the subject matter by looking at the respondent capability and exposure or experience. Accordingly, senior reputed professionals representing the employers and the contractors were contacted to get their reflection on the questions raised by the researcher.

3.5 Data collection

The data collection approach adopted for conducting this research includes both primary and secondary sources. Questionnaire survey and interview provided the primary data for this thesis

while the secondary data were sources from literature review including relevant books, journals, magazines, dissertations and internet. The review of literature provided useful information on the causes and effects of late payment and method of minimization for late payment in the global construction industries. Accordingly, the respondents were requested to indicate their level of agreement for causes and effects of late payment and methods for minimization based on their experience and knowledge. The questionnaire adopted a 5-point likert scale ranging from 5(strongly agree) to 1(strongly disagree), the higher the number, the greater the cause or the effect.

After determining the research sample size, a total of 54 questionnaires were distributed and delivered to the representatives of the three target groups (the employer, the contractor and the consultant) of the projects under study. So, the questionnaires were distributed to the representatives of each party who have a direct involvement and believed to have sufficient know-how about a specific project. For the sample determined, a total of twelve questionnaires were distributed to the employer, thirty eight of the questionnaires to the contractors and four questionnaires were distributed to the representatives of consultants of the projects. The quantity of questionnaires to consultant is low this is because, almost all the projects are not externalized and given to private consultant, rather the projects are designed and supervised by the government through its own professionals. The number of questionnaires distributed to the employer representatives is twelve in number which is three questionnaires for each respective office two for supervision Engineers and one for contract officer. The questionnaires distributed to contractors and consultant representative is one for each group.

Regarding the interview, three reputed professionals one representing the employer and two persons representing the contractors were contacted to get their reflection on the questions raised by the interviewer.

3.6 Data Analysis

The data collected through questionnaire surveys and interview have been analyzed by using spreadsheet and interpreted accordingly. Relative importance index tool was being used to rank the results of the respondents and the Spearman's rank correlation coefficient 'r' was used to measure and compare the association between the rankings between the parties.

3.6.1 Relative Importance Index (RII)

Relative importance index (RII) is a non-probabilistic rank statistic derived from ordinal data and its accuracy is non-dependent on sample size or the population (Maurice Paul Okeyo, et al. 2015). Many previous researchers used this method to determine the relative importance index of the various causes and effects of delays such as Kwame (2011), Samuel (2011), Desai Megha and Bhatt Rajiv (2013). Therefore, the same method has been used in this study within the groups (i.e. employer, consultants and contractors). The five point scale ranged from 1 (strongly disagree) to 5 (strongly agree) has been adopted and transformed to relative importance indices (RII) for each factor using the formula indicated below. The higher the value of RII is, the more important the identified cause or effect of late payment is. This ranking enabled cross comparison of the relative importance of the causes, effects and minimization methods of late payment as perceived by the three categories of participants.

$$RII=\frac{\sum W}{A*N}$$

Where;

RII: is relative importance index

W: is the weighting scale given to each factor by the respondents

A: is the highest weight scale and

N: is the total number of respondents.

Kikwasi (2012) tried to put the range of RII value based on the strength of importance as indicated in the following table.

Table 3.1: Relative Importance Index and average score strength Range

Average Score	**RII**	**Ranking**
4.0 to 5.0	0.80 to 1.00	High (H)
3.0 to 4.0	0.60 to 0.80	Medium (M)
1.0 to 3.0	0.20 to 0.60	Low (L)

3.6.2 Measurement of Association of Ranks

Charles Spearman's coefficient of correlation (or rank correlation) is the technique of determining the degree of association between two variables in case of ordinal data, where ranks are given to the different values of the variables. The main objective of this coefficient is to determine the extent to which the two sets of ranking are similar or dissimilar.

Kothari (1990) explained that, when the data are not available to use in numerical form for doing correlation analysis but when the information is sufficient to rank the data as first, second, third, and so forth, it is quite often to use the rank correlation method and work out the coefficient of rank correlation. In fact, the rank correlation coefficient is a measure of correlation that exists between the two sets of ranks. In other words, it is a measure of association that is based on the ranks of the observations and not on the numerical values of the data. It was developed by famous statistician Charles Spearman in the early 1900s and as such it is also known as Spearman's rank correlation coefficient. For calculating rank correlation coefficient, first of all the actual observations be replaced by their ranks, giving rank 1 to the highest value, rank 2 to the next highest value and following this very order ranks are assigned for all values. The second step is to record the difference between ranks for each pair of observations, then square these differences to obtain a total of such differences.

Therefore, in this research it is used to show the degree of agreement between the different groups. The correlation coefficient varies between +1 and −1, where +1 implies a perfect positive relationship (agreement), while −1 results from a perfect negative relationship (disagreement). It might be said that sample estimates of correlation close to unity in magnitude imply good correlation, while values near zero indicate little or no correlation. And it is calculated by the following formula:

$$r = 1-\{\frac{6\Sigma di^2}{n(n^2-1)}\}$$

Where;

r: is the Spearman rank correlation coefficient between two parties,

d: is the difference between ranks assigned to variables for each cause, and

n: is the number of pairs of rank.

Hence, under this study it has been used that, after determining the values of RII for all statements (variables) described in the questionnaire, ranks are given based on their respective RII or mean value of ratings calculated. Then, as the respondents of the questionnaire are from the three groups in the project, rank correlation coefficients are determined to measure the degree of agreement in the ranking of employers, contractors and consultants, in three different groups of pairs (employer Vs contractor, employer Vs consultant, and contractor Vs consultant).

3.7 Ethical Consideration

The study ensured informed consent obtained from participants. They may need full information about the research including the reasons they have been chosen to participate. Participants' privacy, confidentiality and anonymity were guaranteed. Consent forms and a covering letter were provided during questionnaire distribution. Finally the respective office assured that the study findings will be used appropriately and at the same time a copy of the final conclusion will be provided for them.

CHAPTER FOUR

4 RESULT AND DISCUSSION

4.1 Introduction

This chapter deals with the results and discussions on the data collected from the respondents.

4.2 Organization and Response Rate

The organizations of the respondents were from three different groups which are the major stakeholders in the construction industry (i.e. Contractor, consultant and Employer). The total number of questionnaires distributed and delivered to the these groups were a total of fifty four out of which twelve questionnaires delivered to the public employer, thirty eight questionnaires to contractors and four questionnaires to the consultant. Accordingly, as shown in the table below the response rate from public Employer and consultant side is 100 percent. However, from contractor side there were some incomplete responses and also other unreturned questionnaires, due to this reason a total of twelve questionnaires found to be invalid, so that the response rate from contractors side have been limited to 68 percent.

Table 4.1: Response rate and organization of respondents

Group of respondents	**# Distributed**	**# of response**	**% of response rate**
Employer	12	12	100
Contractor	38	26	68
Consultant	4	4	100
Total	**54**	**42**	**77.8**

4.3 Type of payment and frequency of delay

The respondents were first asked to identify the type of payment which frequently gets delayed. Therefore, according to the contractor's perspective interim payment ranked first which frequently vulnerable to late payment. The perspective from employer and consultant shows corresponding result that advance payment ranked first which usually paid late. However, the weighted average /aggregate result of all the respondents as indicated in the table 4.2 shows, both interim and advance payments are the top ranked payments which are frequently vulnerable to delay with similar aggregate relative importance index of (0.74). Accordingly, final payment and retention took the consecutive rank of second and third which means they are almost not delayed as frequent as the interim and advance payment. The respondent of the interview also explained that, it is really surprising to talk about the payment problems and related procedures in Oromia region. Almost every process is handled and executed by the mercy of the public employer, no time limit especially for advance payment, there are occasions to wait up to three to four months after agreement has been signed and some contractors commence the work from cost centre of other project just to save time and to use the idle manpower and equipments. Therefore, generally, the overall interview result also agreed with the aggregate result of the questionnaire.

Table 4.2: Respondents result on type of payment and frequency of delay

S/N	Type of payment	Contractor		Consult.		Employer		Aggregate	Rank
		RII	Rank	RII	Rank	RII	Rank		
1	Advance Payment	0.75	2	0.75	1	0.72	1	0.74	1
2	Interim payment	0.80	1	0.65	2	0.63	2	0.74	1
3	Final payment	0.55	3	0.50	3	0.52	3	0.54	2
4	Retention	0.52	4	0.35	4	0.47	4	0.49	3

4.4 Causes of Late Payment

The first research question was to identify the causes of late construction payment. Accordingly, thirty main causes were recognized from different literature reviews as enumerated in the table

4.3. Finally, these causes were categorized in to four groups based on their origin; employer related causes, contractor related causes, Consultant related causes and contractual matter related causes. Hence, respondents were made to show their level of agreement against each causes based on the given scale explained previously and finally the result for each category were analyzed and presented in the following section.

Table 4.3: Causes of Late Payment

❖ Frequent changes/variations
❖ Lengthy and bureaucratic payment handling system of Employer
❖ Scarcity of capital to finance the project/budget deficit
❖ Corruption practice of client employees
❖ Refusal to pay interest on late payment by Employer
❖ Problem of understanding the contract clauses by client
❖ Clients failure to develop a good payment handling attitude among its employees for wrongfully withholding the payment
❖ Client's failure to agree on the valuation of work done
❖ Clients lack of trust with the consultants certification
❖ Contract type and method of payment used by client
❖ Failure to agree on the valuation of work completed
❖ Payment requested for defective works/not to the specifications/ by contractor
❖ Suspension of work by contractor
❖ Bankruptcy/liquidation of the parties
❖ Failure to make regular progress by contractor
❖ Mobilization of Poor quality materials on site by contractor
❖ Conflict with consultant
❖ Failure in understanding the contract document by contractor
❖ Delay in valuation of the work completed by consultant
❖ Wrongly Withholding payment certificate
❖ Argument on the amount to be paid/Certification/

❖ Favoring the employer (bias) of the consultant
❖ Dependence of the consultant on the employer in valuing what is paid to the contractor
❖ Verbal instruction given is not confirmed in writing
❖ Poor recording & documentation by the parties
❖ Conditions of Contracts used are not comprehensive enough in terms of payment issues.
❖ Payment culture of the industry(chain payment &work first get paid later)
❖ Contracts used are too complicated to be easily understood by both parties
❖ Contract agreements commonly in practice do not bring justice related to payment.

4.4.1 Employer Related causes

Employer related causes are causes contributed mainly by employer or client. The respondents were asked to react or to show their level of agreement based on the five point scale for ten major causes listed under this section. Thus, the ranking result of the causes as chosen by the three category respondents (i.e. contractor, employer and consultant) shown in the table 4.4. The results obtained from the respondents have confirmed that all the ten causes related to the employer exist in the public building projects of Oromia region.

Table 4.4: Relative Importance Index (RII) and Ranking (R) of Employer related Causes

S/N	Employer related causes	Contractor		Consultant		Employer	
		RII	R	RII	R	RII	R
1	Frequent change/variations	0.90	3	0.85	2	0.73	3
2	Lengthy and bureaucratic payment handling system	0.95	1	0.95	1	0.83	1
3	Scarcity of capital to finance the project	0.78	7	0.70	5	0.75	2
4	Corruption practice of client employees	0.91	2	0.55	6	0.55	10
5	Refusal to pay interest on late payment	0.82	5	0.75	4	0.65	7
6	Problem of understanding the contract clauses	0.90	3	0.75	4	0.58	9
7	Failure to develop a good payment handling attitude among its employees for wrongfully	0.87	4	0.75	4	0.62	8

	withholding the payment						
8	Clients' failure to agree on the valuation of work.	0.87	4	0.80	3	0.68	6
9	Clients lack of trust with the consultants certification	0.79	6	0.80	3	0.70	5
10	Type of contract and method of payment used	0.75	8	0.80	3	0.73	4

Table 4.5: Aggregate Relative Index (RII) and Ranking(R) for employer Related causes

S/N	Employer related Causes	Contr. RII	Consl. RII	Emp. RII	Aggr. RII	Rank
1	Frequent changes/variations	0.90	0.85	0.73	0.85	2
2	Lengthy and bureaucratic payment handling system	0.95	0.95	0.83	0.91	1
3	Scarcity of capital to finance the project	0.78	0.70	0.75	0.77	6
4	Corruption practice of client employees	0.91	0.55	0.55	0.74	9
5	Refusal to pay interest on late payment	0.82	0.75	0.65	0.77	6
6	Problem of understanding the contract clauses	0.90	0.75	0.58	0.80	4
7	Failure to develop a good payment handling attitude among its employees for wrongfully withholding the payment	0.87	0.75	0.62	0.79	5
8	Clients' failure to agree on the valuation of work done.	0.87	0.80	0.68	0.81	3
9	Clients lack of trust with the consultants certification	0.79	0.70	0.73	0.76	7
10	Type of contract and method of payment used by client.	0.75	0.80	0.73	0.75	8

As shown in the table 4.4 among the ten listed employer related causes; lengthy & bureaucratic payment handling system of the employer is the most severe cause which let the payment to be delayed and it is ranked number one by all the three respondent groups (i.e. contractor, consultant & employer). The result from the contractor category shows lengthy & bureaucratic payment

system , corruption practice and frequent variation orders are the top three causes with RII value of (0.95, 0.91 & 0.9) respectively. However, the result obtained from the employer side shows Lengthy & bureaucratic payment system, scarcity of capital to finance the project and frequent change orders are the top three major causes with RII value of (0.83, 0.75 and 0.73). But as chosen by consultant the two top causes with RII value (0.95 & 0.85) are bureaucratic payment system & frequent change orders.

However, in order to identify clearly the position of each cause it is worthwhile to see the weighted average /aggregate result of the respondents. Therefore, as shown in table 4.5 Lengthy & Bureaucratic payment handling system of the employer and frequent change/variation orders are the two top severe causes with aggregate RII value of (0.91 & 0.85) as chosen by the three categories of respondents. In this section, we can see contradicting issues, which says, corruption practice of client employee is ranked number two by contractors, but it is ranked 6th and 10th by consultant and employer respectively. Hence, the contractor is asserting that, corruption practice is critical causes of late payment in Oromia public building projects with RII value (0.91), but the consultant and the employer are defending that corruption is not critical issue for late payment with low RII value of (0.55).

However, the data obtained through interview agreed with the response from contractors. As per the reflection from the interview respondents, corruption practice is a serious and deep rooted cause for late construction payment in Oromia region. The contractor's payments are passing through several steps starting from site supervisor and project committee up to the highest ladder for checking, reviewing, certification, approval, recommendation etc. In Oromia region this cumbersome processes seems as if it has been purposely designed to get the contractors to their table which will help them to get some sort of benefit or bribe from the contractors just to speed up the lengthy process otherwise the payments are being withheld unfairly and then there is also no realistic means of complaining or appealing the situation to an independent body. The time is unduly consumed for this process depending on the attitude of each of those Engineers and officers.

Regarding corruption is concerned, the research was conducted by World Bank in Ethiopia; accordingly, the finding revealed that, public construction sector in Ethiopia is consistently

considered to be one of the most corrupt of all sectors (Janelle, 2012). Therefore, this proves that corruption practice also one of the critical causes of late payment in Oromia region public building projects.

4.4.2 Contractor Related Causes

Among the different major causes of late construction payment identified and presented earlier in table 4.3 nine of them were assigned to contractor related factors. Accordingly, the respondents from employer, consultant and contractor forwarded their views with respect to the listed causes and the result is depicted in the table 4.6 below. As indicated in the table 4.6 consultant group ranked failure of the contractor to agree on the valuation of work completed as top causes of late payment and payment request for defective works, lack of regular progress & poor quality material mobilization as the second series cause. In similar manner, the view from employer side ranked request of payment for defective works as the top major cause and failure to make regular progress to be the second serious cause. The result from contractor group was agreed with the view from consultant in the two top causes but quite different on the rest results as shown in the table 4.6. The aggregate result described in table 4.7 also shows matching result with the consultant and contractor first and second rank, that means failure to agree on the valuation of work and requested payment for defective works with RII value of (0.80) and (0.75) respectively. Liquidation of contractor, poor recording & documentation and failure of understanding the contract document were the least three causes of late payment as chosen by the respondents. The result from interview session revealed that low financial strength of contractors, requesting payment above the executed works, failure to make regular progress are the top three causes related to contractor. In addition to this, it is customary to see lack of understanding the contract document by contractors excepting the BOQ so that, they are failed to recognize their rights and obligations. This problem is also observed from client and consultant side too.

Table 4.6: (RII) and Rank (R) values for Causes of late payment due to contractor

S/N	Contractor Related causes	Contractor		Consultant		Employer	
		RII	R	RII	R	RII	R
1	Failure to agree on the valuation of work completed	0.78	1	0.90	1	0.80	3
2	Payment requested for defective works	0.70	2	0.85	2	0.83	1
3	Suspension of work by contractor	0.65	4	0.8	3	0.75	5
4	Bankruptcy/liquidation of the contractor	0.61	5	0.75	4	0.65	8
5	Failure to make regular progress	0.61	5	0.85	2	0.82	2
6	Mobilization of Poor quality materials on site	0.54	7	0.85	2	0.78	4
7	Conflict with consultant	0.67	3	0.80	3	0.70	6
8	Poor recording & documentation	0.54	7	0.70	3	0.63	9
9	Failure in understanding the contract document	0.59	6	0.80	3	0.67	7

Table 4.7: Aggregate RII & Rank result of causes of late payment due to Contractor

S/N	Contractor Related causes	Cont.	Consul.	Employer	Aggregate	
		RII	RII		RII	R
1	Failure to agree on the valuation of work completed	0.78	0.9	0.80	0.80	1
2	Payment requested for defective works	0.70	0.85	0.83	0.75	2
3	Suspension of work by contractor	0.65	0.8	0.75	0.69	3
4	Bankruptcy/liquidation of the contractor	0.61	0.75	0.65	0.63	5
5	Failure to make regular progress	0.61	0.85	0.82	0.69	3
6	Mobilization of Poor quality materials	0.54	0.85	0.78	0.64	4
7	Conflict with consultant	0.67	0.80	0.70	0.69	3
8	Poor recording & documentation	0.54	0.70	0.63	0.59	6
9	Failure in understanding the contract document	0.59	0.80	0.67	0.63	5

4.4.3 Consultant Related Causes

Table 4.8 shows the RII and rank result of consultant related causes. The weighted average or aggregate RII value indicated in the table 4.8 shows; wrongly or deliberate withholding of contractors payment by consultant is ranked the top cause with aggregate RII value of (0.76). Again delay of the consultant in valuation of the executed works and dependence of the consultant on the employer in valuing what is paid to the contractor were ranked as the second and third causes of late payment due to consultant with cumulative RII result of (0.75&0.74). Likewise, Poor record and documentation is the last and least problem due to consultant which ranked 7th with RII value of (0.51).

Table 4.8: (RII) & Rank (R) result for Consultant related causes

S/N	Consultant Related causes	Contractor		Consultant		Employer		Aggr.	Rank
		RII	R	RII	R	RII	R	RII	R
1	Delay in valuation of the work completed	0.75	4	0.70	2	0.77	1	0.75	2
2	Wrongly Withholding payment certificate	0.82	1	0.45	4	0.73	2	0.76	1
3	Argument on the amount to be paid/certification/	0.74	5	0.75	1	0.72	3	0.73	4
4	Favoring the employer (bias)	0.79	3	0.40	5	0.67	4	0.72	5
5	Dependence on the employer in valuing what is paid to the contractor.	0.81	2	0.55	3	0.65	5	0.74	3
6	Verbal instruction given is not confirmed in writing	0.71	6	0.70	2	0.67	4	0.70	6
7	Poor recording & documentation	0.45	7	0.45	4	0.65	5	0.51	7

4.4.4 Causes related to Contractual matters

Regarding Contractual related causes are concerned four major issues were identified and enumerated in the questionnaire. Accordingly, respondents were made to rank each causes based on their level of severity. In the table 4.9 the respondents answered that "Condition of contracts used in the construction are not comprehensive enough related to payment" is the primary cause of late payment with RII result of (0.84). In the same manner, the cause which says "Contracts used are too complicated to be easily understood by both parties" ranked the second major cause for late payment having RII value of (0.79), and finally payment culture of the industry and deficiency of Contract agreements to bring justice related to payment ranked third and fourth contributory factors of late payment with importance index of (0.72) & (0.71) respectively.

Table 4.9: Importance index (RII) & Rank (R) for Contractual related causes

S/N	Contractual Related causes	Contractor		Consultant		Employer		Aggregate	
		RII	R	RII	R	RII	R	RII	Rank
1	Conditions of Contracts used are not comprehensive enough in terms of payment aspects.	0.85	1	0.85	1	0.82	1	0.84	1
2	Payment culture of the industry(chain payment &work first get paid later)	0.73	4	0.60	4	0.75	2	0.72	3
3	Contracts used are too complicated to be easily understood by both parties	0.78	2	0.80	2	0.80	3	0.79	2
4	Contract agreements in practice do not bring any justice related to payment to all parties.	0.74	3	0.65	3	0.68	4	0.71	4

4.4.5 Summary to Causes of late Payment

In order to identify the severity of the causes of late payment among the four categories (i.e contractor related, consultant related, Employer related and Contractual matter related) it is paramount important to summarize the response of the three respondent groups against each listed categories. Accordingly, as presented in the table 4.10 below, causes related to Employer are registered as the top most severe causes of late payment with aggregate importance index value of (0.76) and contractual related factors ranked the second most severe cause with RII value (0.75) which is very close to the first one and contractor and consultant related causes become the third and forth position respectively as chosen by the respondents with aggregate RII value of (0.73 & 0.66) respectively.

In relation with this Haseeb et al (2011) identified the four major factors which caused the delay in construction and these are client problem, service provider problem, sources problem and universal problem. Based on the survey results, client factors identified as a major factor causing the delay in construction with the inability to make timely payment and lack of financial arrangement for the project (Hasseb et al., 2011).

Nazir (2006) conducted a research on problems of late payment among contractors in Malaysia. According to his finding, client related causes are the top factor of late payment as perceived by main contractors, sub-contractors and client with high level of agreement.

Danuri and Hanid (2006) also studied late and nonpayment issues in Malaysia. Thereby forwarded that, the most frequent causes of late and non-payment include: paymaster's poor financial management, paymaster's failure to implement good governance in business and local culture/attitude. All the three major causes identified are related to client or Employer problems.

Therefore, all the findings of the aforementioned researchers validate that, the causes from employer side are very severe.

Table 4.10: Summary of causes of late payment by category

S/N	Description	RII				Rank
		Employer	Contractor	Consultant	Aggregate	
1	Employer related causes	0.68	0.85	0.76	0.76	1
2	Contractor related causes	0.74	0.63	0.82	0.73	3
3	Consultant related causes	0.69	0.72	0.57	0.66	4
4	Contract related causes	0.76	0.77	0.73	0.75	2

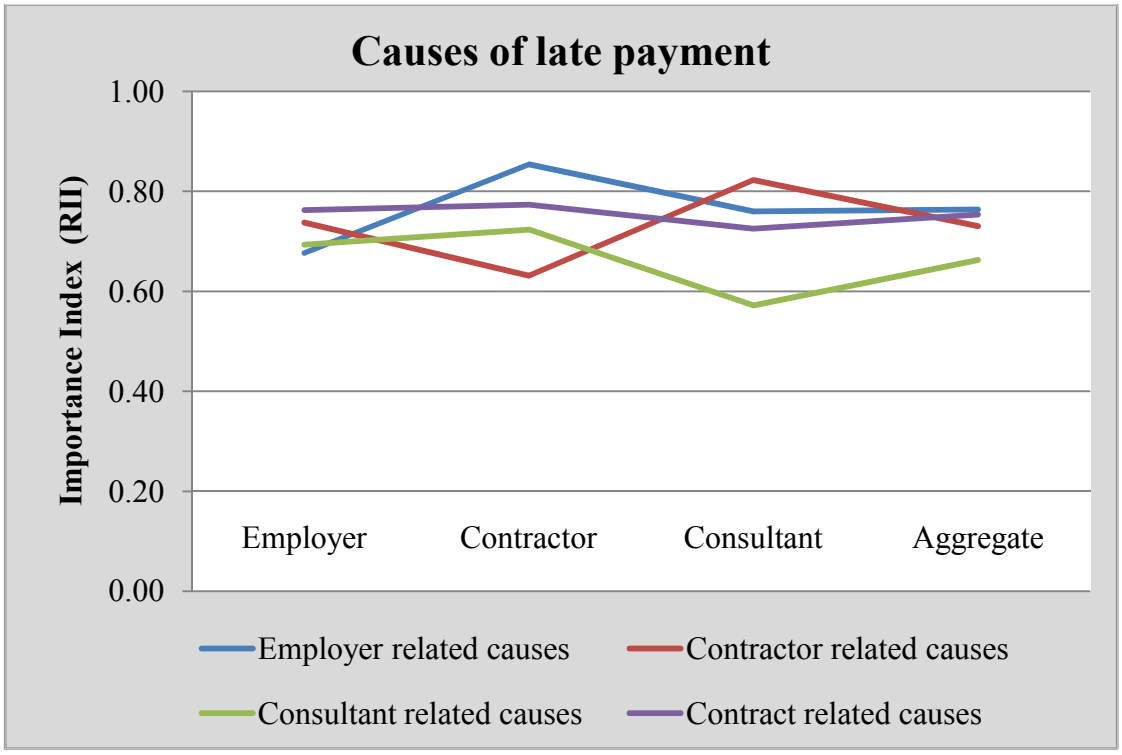

Figure 4.1: Severity of cause of late Payment by category.

4.4.6 Agreement test between the respondents on the causes of late payment

In this section the response from respondents were tested for correlation or association of their result using Spearman rank correlation coefficients, to check if there is difference in ranking between two groups of respondents; these are Employer vs Contractors, Contractors vs Consultants and Employer vs Consultants on the causes of late payment.

As per Kothari (1990), the value of spearman correlation coefficient (*r*) should be evaluated by hypothesis testing. The purpose of a hypothesis testing is just to avoid being deceived by chance occurrences and also it helps to evaluate whether consensus of opinions exist among respondents. Accordingly, the testing device depends upon the value of *n* which is number of paired variables. For small values of *n* (i.e., *n* less than 30), the distribution of 'r' is not normal and as such we use the table showing the values for Spearman's Rank correlation in (Appendix III) to determine the acceptance and rejection regions. The researcher wants to test at 95% level of significance the null hypothesis is zero or no correlation in the concerning ranked data.

The Null Hypothesis (Ho) is: There is no correlation in the ranking of causes of late payment between two groups of respondents.

The Alternative Hypothesis (Ha) is: There is correlation in the ranking of causes of late payment between two groups of respondents.

In order to decide whether to accept or reject the null hypothesis critical value of 'r' is taken from the table in the Appendix at the level of significance 95% (P = 0.05). If the calculated value of 'r' is greater than the critical value, 'Ho' is rejected, i.e. there is sufficient evidence of a statistically significant agreement or correlation between the groups. If the calculated value of 'r' is less than the critical value, Ho is accepted**,** i.e. there is no evidence of a statistically significant agreement or correlation between the two groups.

Therefore, the value of 'r' for paired groups is calculated as follows;

Contractor Vs Consultant= $r=1-\{\frac{6\Sigma di^2}{n(n^2-1)}\} =1-\{\frac{6*170}{3 \text{ 0}(3\ 0^2-1)}\}=0.96$

Contractor Vs Employer= $r=1-\{\frac{6\Sigma di^2}{n(n^2-1)}\} =1-\{\frac{6*2\ 4\ 7}{3\ 0(3\ 0^2-1)}\}=0.94$

Consultant Vs Employer= $r=1-\{\frac{6\Sigma di^2}{n(n^2-1)}\} =1-\{\frac{6*197}{3 \text{ 0}(3\ 0^2-1)}\}=0.95$

Table 4.11: Values of Spearman rank Correlation for the causes of late payment

Respondent group	$r=1-\{\frac{6\Sigma di^2}{n(n^2-1)}\}$	Critical value of 'r' @ 0.05 significance level
Contractor Vs consultant	0.96	0.3620
Contractor Vs Employer	0.94	0.3620
Consultant Vs Employer	0.95	0.3620

In this case a one-tailed test is appropriate and we look in the table in row for n = 30 and the column for a significance level of 0.05 and found that the critical value of (0.3620) from the table in the appendix III. Hence, the calculated values of r = 0.96, 0.94 and 0.95 for the three paired group of respondents, which is outside the limits of the acceptance region or greater than the critical value of r=0.3620. Therefore, the null hypothesis is rejected and the alternative hypothesis is entirely accepted. This means that, there is a strong correlation or agreement between the ranked data of two respondents on the causes of late payment.

4.5 Effects of Late Payment

The different causes of late payment discussed above had their own effect on the contractor, Employer and the consultant. Accordingly, the respondents were made to show their level of agreement for each effect of late payment based on the severity of its impacts on the contractor, Employer and the consultant. The contribution of each of the effect to overall effects was examined and the ranking of the attributes in terms of their criticality as perceived by the respondents were done by using Relative Importance Index (RII) and the result is accordingly discussed in the following section.

4.5.1 Effects of late Payment on Contractor

As indicated in the table 4.12 below eleven major effects of late payment on contractor were identified. Among them, delay in completion of the project, Cash flow problem and diminished contractors profit & reputation are the top three effects of late payment on contractor as perceived by the respondents with very high aggregate RII Value of (0.90, 0.89 & 0.82) respectively. Table 4.12 also revealed that; increased cost in overhead of the contractor and leads to abandonment of the project also ranked fourth. In addition; negative relationship across the chain, suspension of work and dispute are ranked as fifth having similar aggregate relative important index value of (0.76).

Table 4.12: Rank of Effects of Late Payment on Contractor based on RII value

S/N	Impact of late payment on Contractor	RII				Rank
		Cont.	Consul.	Empl.	Aggregate	
1	Create cash flow problem	0.95	0.80	0.77	0.89	2
2	Delay in completion of the project	0.93	0.80	0.85	0.90	1
3	Increased cost in overhead	0.80	0.70	0.73	0.77	4
4	Force to borrow from financial institutions	0.77	0.50	0.72	0.73	6
5	Affect contractors profit and reputation	0.92	0.60	0.70	0.82	3
6	Creates negative relationship across the chain	0.79	0.65	0.72	0.76	5
7	Resulted to suspension of works	0.77	0.90	0.75	0.76	5
8	Leads to abandonment of the project	0.80	0.65	0.73	0.77	4
9	Resulted in dispute	0.76	0.75	0.75	0.76	5
10	Difficulty to tender for new projects	0.78	0.60	0.63	0.72	7
11	Leads to bankruptcy/ liquidation	0.75	0.65	0.67	0.72	7

According to Artidi and Chotibongs (2005), majority of the problems in the construction industry begin when payment in the exact amount due by the date shown on the statement is not received. Disagreements then lead to arguments as relationships declined, and the stage is set for conflict and dispute. Thereby, Projects exceed initial time estimates and costs escalate and extensive

delays are experienced and finally the project will be abandoned and contractor's profit becomes diminished. In line with this, as effects of late payment on contractor is concerned, the interview outcome is totally agreed with questionnaire result. The interviewee stressed that, the effect of late payment on contractor is a lot and serious and yet they prefer to absorb all the consequences. This is basically; contractors do not want to make public Employers at default even for extended late payments due to various justified reasons. For instance, contractors thought that if they make the public Employer in default their relationship will be broken and loss the opportunity to get other business from them. Contractors also fear of court proceedings to claim for compensation damages which they consider that it is time taking and long process.

Therefore, generally the interview participants suggested that, public employers should get awareness on the extent and severity of late payment on the cash flow of contractors, otherwise things may escalate to the level uncontrolled and many of our contractors might become bankrupt.

The following are the two top effects of late payment on contractor with very high aggregate RII value identified in this study to be discussed as under.

- Delay in completion of the project
- Cash flow problem

4.5.1.1 Delay in completion of the project

Construction projects involve a series of dependent and interrelated activities which engage important resources such as money, manpower, machinery etc. If the crucial materials are not supplied in time, the respective activity cannot progress, causing delays in the dependant activities. This may also result in some machineries, operators and manpower going idle, which increases the overhead cost. Again, the purchasing officer should follow the relevant procurement procedure to ensure materials are available at site, in time and in required quality and quantity. Therefore, when payment is delayed it shakes the whole system of the projects and leads to abandonment of the project and finally insolvency of the contractor. Therefore, delays in receiving payments for the work completed by the contractor, directly affect the completion period of the project. So that, the greater the delay in payment due to a contractor, the greater the cash flow problems, the greater the extent of delays in completion to be.

4.5.1.2 Cash flow Problem

This is the second major effect of late payment on contractors. Cash flow in the construction industry is critical because of the relatively long duration of projects. Any deviation due to either project delays or cash flow delays can have major impact on the project.

Most construction projects are individual profit centers, each with its own cash cycle based on the costs of activities related to the project and on payments from the employer as prescribed in a contract. So that, when payment is delayed it directly affect the cash flow of the project which has a domino effect in the entire project. In many developing countries, the doors of commercial banks are practically closed to the construction industry except when the loan applications are backed by real assets as collaterals (Zerfu, 2003). Also, banks in these countries consider construction as a high risk business due to the uncertainties associated with its nature (Kaseim, 2008). However, domestic contractors have very little fixed assets which might have already been used as collateral for acquiring of bonds and guarantees. These situations leave the contractors to be very much dependant on payments of their employer. Therefore, if the contractor's cash flow is severely affected due to late payment from employers, the total payment chain of the project will be affected. As a result, delay in completion of the project would be observed, negative relationship across the board as the contractor couldn't pay to his workers, equipments, suppliers and subcontractors and to the extreme case the contractor might go in to liquidation or bankruptcy.

4.5.2 Effects of late Payment on Employer

Late payment in construction projects also affects public Employers in multi directions. As per the aggregate RII result of respondents indicated in the table 4.13 shows, Loss of potential revenue by employer due to delay in completion of the project is the top most severe effects of late payment on employer with very high RII value of (0.91). Interruption of work program and Low quality of works due to contractor's uncertain financial condition are the 2nd and 3rd very critical effects on employer with high aggregate relative importance index value of (0.83 & 0.80) respectively. Increased cost of construction, termination of the contract by contractor due to employers default, dispute and payment of interest for delayed payment were ranked from 4 to 7 respectively.

Regarding the effect of late payment on public Employers, the interview respondents said that, if domestic contractors are strong enough and bold to claim for compensation damages due to defaults of the employer, things would have been very dangerous, even no project would be accomplished with in the budget due to cost increase for compensation and terminations. But due to lack of transparency and unequal bargaining power among the parties, domestic contractors pay whatever cost to complete projects for the sake of good reputation which is an asset and to be considered as diligent customer.

Maurice et al. (2015) conducted a research in Kenya on Sondu-Miriu hydropower which experienced delay for about five years. Hence, one of the major contributing factors for such time delay was late payment of the contractor, with ripples effect extending down the contractual hierarchy. His study was further assessed the effects of late payment of the contractor on the completion of the project and accordingly, late payment of the contractor affected the project by causing; loss of productivity and efficiency, re-scheduling and re-sequencing of works, extension of time and acceleration, as well as prevention of early completion. Finally, the researcher concluded that timely payment of contractors is crucial for ensuring the continuity of works and completion of infrastructural projects within time, budget, and quality. As shown in the table 4.13; loss of potential revenue, interruption of the program and low quality of work are the top three effects in this study. Therefore, the effect of late payment as identified by Maurice et al. (2015) in Kenya Sondu-Miriu hydro power project is almost similar to the findings in Oromia public building projects.

Samuel (2011) also identified the following top three effects of late payment in Ghana construction industry which is much related finding with this study although the ranking are reshuffled. These are; low quality of works, delay in project progress and extension of time for project are the three top effects as perceived by the respondents from client.

Therefore, the findings of the above listed researchers in other countries substantiate the effects of late payment on Employer in this study.

Table 4.13: RII value & Rank on Effects of Late Payment on Employer

S/N	Impact of late payment on Employer	RII				Rank
		Cont.	Consult.	Emp.	Aggr.	
1	Loss of potential revenue due to delay in completion	0.95	0.85	0.87	0.91	1
2	Interest payment on delayed payments	0.64	0.80	0.62	0.65	7
3	Termination of the contract by contractor	0.82	0.55	0.55	0.71	5
4	Increased in construction cost of the project	0.74	0.70	0.77	0.74	4
5	Low quality of works due to contractor's uncertain financial condition.	0.87	0.75	0.68	0.80	3
6	Interruption of program of works	0.85	0.80	0.80	0.83	2
7	Resulted in dispute	0.71	0.70	0.58	0.67	6

4.5.3 Effects of late Payment on Consultant

Late payment has also significant effect on Consultants like other parties discussed in previous section. As illustrated in the table 4.14 loss of reputation is the major effect that late payment imposes on consultants. In construction industry, good image and reputation of consultant is vital and to be protected safely. Which means, with late payment originating from misunderstanding between the employer & the consultant, it would be hard for the same employer to work with that consultant again. Therefore, for a consultant loss of reputation means loss of job. The second effect is conflict among parties. This is true that when payment is delayed, the relationship of the parties become eroded and leads to conflict and dispute due to blaming and finger pointing one another. The last effect of late payment on consultant as shown in the table (4.14) is reduced profit margin with (0.70) aggregate RII value. As well known profit is one of the end results of consultants from construction projects. Therefore, unless otherwise projects are completed within time, budget & quality the profit margin will also be affected.

Table 4.14: RII value & Rank on Effects of Late Payment on Consultant

S/N	Impact of late payment on Consultant	RII				Rank
		Cont.	Consult.	Empl	Aggr.	
1	Loss of reputation	0.82	0.85	0.72	0.79	1
2	Reduced profit margin	0.80	0.75	0.48	0.70	3
3	Result in conflict among parties	0.80	0.75	0.72	0.77	2

4.5.4 Summary on Effects of late Payment

Table 4.15 shows comparison of the severity of impacts of late payment among each stakeholder. Accordingly, it is revealed that the effect of late payment is more severe on contractors than other stakeholders with aggregate RII value of (0.75).

The interview result also reflects the same opinion with the questionnaire. They stated that, cash flow is the lifeblood of the construction project, so that when payment is delayed it directly impacts the cash flow of the contractor which then endangers the whole supply chain of the construction project. Therefore, it can be concluded that even though late payment affects the employer and also the consultant, the risk is more critical and severe on the contractor.

Borvorn (2012) had conducted a research on delay in payment factors in residential building projects in Bangkok, Thailand. Hence, the evaluation result showed that main contractors faced severe level from delay in payment in building construction projects. The idea of Karib et al (2008) again prove this result which says, contractors would be the direct and tremendously affected party due to the fact that Contractor is the party who upfront their capitals to ensure project delivery before receives payment from the client.

The survey result undertaken by Danuri and Hanid (2006) on late and nonpayment issues in Malaysia indicated that, the three most serious effects of late and non-payment are “Create cash flow problems”, “Create stress on contractors” and “Creates financial hardship”. In addition to this, Mohamed et al (2012) explained that; failure of the contractor in getting regular and timely interim payment could result in project delay, reduced profitability and to the worst case the

company may go into liquidation. Therefore, all these effects identified by different scholars confirm that, the contractor is the front line party severely affected by the late payment.

Table 4.15: Summarized RII and Rank of effects of late payment by Group

S/N	Description	RII				Rank
		Employer	Contractor	Consultant	Aggregate	
1	Effects on Employer	0.70	0.79	0.74	0.74	2
2	Effects on Contractor	0.73	0.82	0.69	0.75	1
3	Effects on consultant	0.64	0.81	0.78	0.74	2

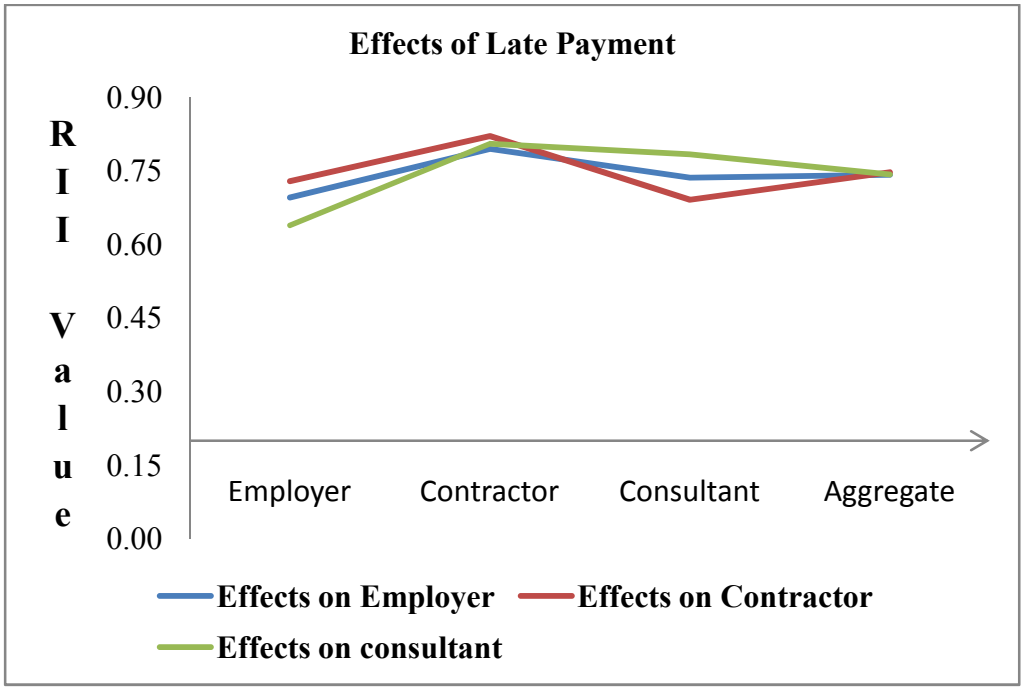

Figure 4.2: Comparison of Effects of Late payment on targeted stakeholders

4.5.5 Correlation Measurement for Effects of late Payment

As discussed in the previous section for causes of late payment, Spearman rank coefficient is used here as well to measure the correlation between the respondents result on the effects of late payment. In the same manner, the closer the value of spearman's coefficient 'r' to 1 the more the strength of correlation or association between the two respondent's results is.

The value of spearman correlation coefficient (*r*) shall be evaluated by hypothesis testing in similar with the discussion under section (3.3.6).

The Null Hypothesis (Ho) is: There is no correlation in the ranking of effects of late payment between two groups of respondents.

The Alternative Hypothesis (Ha) is: There is correlation in the ranking of effects of late payment between two groups of respondents.

In order to decide whether to accept or reject the null hypothesis critical value of 'r' is taken from table in the Appendix at the level of significance 95% (P = 0.05). If the calculated value of 'r' is greater than the critical value, 'Ho' is rejected, i.e. there is evidence of a statistically significant agreement or correlation between the groups. If the calculated value of 'r' is less than the critical value, Ho is accepted**,** i.e. there is no evidence of a statistically significant agreement or correlation between the two groups

Table 4.16: Summary of correlation test on the ranking of effects of late payment

Respondent group	**$r=1-\{\frac{6\Sigma di^2}{n(n^2-1)}\}$**	**Critical value of 'r' @ 0.05 significance level**
Contractor Vs consultant	0.92	0.4451
Contractor Vs Employer	0.94	0.4451
Consultant Vs Employer	0.98	0.4451

The critical value of 'r' is taken from the table in the appendix for n = 20 and the column for a significance level of 0.05 and found that the critical value r=0.4451. Hence, as indicated in the

table (4.16) the calculated values of r = 0.98, 0.94 and 0.92 for the three group respondents which is outside the limits of the acceptance region or greater than the critical value of r=0.4451. Therefore, the null hypothesis is rejected and the alternative one is accepted. This result confirmed that there is a strong correlation or agreement between the ranked data of; contractor versus employer, employer versus consultant and consultant versus contractor on the effects of late payment.

4.6 Methods for Minimization of late Payment

This section is to identify the proposed methods of minimizing late payment by respondents. The study identified a total of 10 minimization methods. Accordingly, respondents were made to show their agreement for each method as per Likert scale of 5 ordinal measures. Thereafter, the ranking result of the respondents were analyzed by using relative importance index and illustrated in the table 4.17. So that, the method which says "there should be well-defined clauses in the contract related to managing time of payment" was established to be the premium solution or mitigation or method to tackle the issue of late payment in public building projects in Oromia region. In addition to this, introducing construction payment security act/ legislation for late payment was ranked as the second solution or method with aggregate (RII=0.81). The study also revealed that, Provision of payment bond from bank or insurance and penalizing employees of client for wrongful withholding of payment were ranked the third and fourth methods to minimize late payment with aggregate (RII=0.80 & 0.67) respectively. Table 4.17 also shows that training contractors, consultants & employers on cash flow management (RII=0.64), impose penalty of interest on late payers (RII=0.62), Internalization of contract document (RII=0.60), assigning Construction management professionals for safe and effective contract administration (RII=0.57), determining the contract with the contractor (RII=0.54), train and educate all parties on the effects of late payments (RII=0.49), were ranked from five to ten as perceived by the three respondent groups.

The respondents of the interview also suggested the following methods which is exactly agree with the result from the questionnaire; in order to minimize late payment in public building projects in Oromia region; explicitly described closes in the contract with respect to time for

(advance, interim, final and retention payments), interest for delayed payments should be binding, client employees should be penalized if they found wrongly withholding payments.

According to Mohamed et al (2012), the factors and impacts of the late and non-payment can be solved through financial management, Provision of specific clauses in the contract related to managing time of payment and legislation/payment security act respectively. Whereas the top three methods with high RII value under this study are; provision of specific clause on managing time of payment, security payment act and provision of payment bond respectively. Therefore, the finding of this research is almost in agreement with the finding by Mohamed et al (2012).

Table 4.17: Proposed Solutions to minimize late payment

S/N	Solutions to minimize late Payment	RII				Rank
		Cont.	Conslt	Emp.	Aggr.	
1	Impose penalty of interest to late payers.	0.55	0.80	0.73	0.62	6
2	Provision of payment bond from bank or insurance to guarantee payment in the event of default by the employer.	0.84	0.75	0.78	0.80	3
3	Employees of client shall be penalized if they found wrongfully withholding the payment.	0.82	0.65	0.35	0.67	4
4	There should be well-defined clauses in the contract related to managing time of payment.	0.85	0.85	0.80	0.83	1
5	Legislation/construction act for payment security should be introduced to give a clear message to contractors and clients as to clarity of the payment matters. such as;	0.86	1.00	0.65	0.81	2
	A right to regular payment.					
	Applying charges to overdue payments.					
	A right to a defined time frame for payment					
	A right to a speedy dispute resolution mechanism					

	A right to suspend work					
6	Determining the contract with the Employer & the contractor	0.47	0.45	0.73	0.54	9
7	Employers, contractors & consultants shall be trained on cash and financial management	0.58	0.65	0.77	0.64	5
8	Train and educate all parties on the effects of late payments.	0.36	0.65	0.72	0.49	10
9	Contract documents shall be internalized by contractors, employers & consultants.	0.55	0.65	0.68	0.60	7
10	Assigning Construction management professionals for safe and effective contract administration.	0.52	0.6	0.68	0.57	8

CHAPTER FIVE

5 CONCLUSION AND RECOMMENDATIONS

Late payment is inevitable, however, it can be minimized when the causes are exhaustively identified and the severity of its effects is well understood by all parties. Hence, the aim of this research was to identify the causes & effects of late payment and methods for minimization or avoidance in public building projects of Oromia region. Accordingly, thirty major causes and twenty effects of late payment were identified and divided in to four categories based on their origin; Employer related, Contractor related, consultant related and Contractual matter related. The major finding under each category for causes and effects of late payment and also the proposed mitigations or methods for its minimization through this study were concluded as well as recommended as follows;

5.1 Conclusions

1. Among the identified four categories of causes of late payment i.e. Contractor related, employer related, consultant related and Contractual matter related. Employer related causes marked as the most dominant which make the construction payments late in Oromia public building projects. Likewise, contractual matter related causes become the second, Contractor and consultant related causes hold the third and fourth rank contributing for late payment to happen respectively.
2. Three targeted stakeholders (i.e. Employers, Contractors and Consultants) were considered under this study to recognize the effects of late payment. Hence, the research finding revealed that the effect of late payment is more severe on contractor than the Employer and the Consultant.
3. Among the examined effects of late payment on contractors; delay in completion of the project, Cash flow problem and diminished profit & reputation of the contractor were the three top critical effects. However, regarding the effect on consultant; loss of reputation, conflict among parties and reduced profit margin were ranked the top three serious effects.

4. Loss of potential revenue due to delay in completion of the project, interruption of program and Low quality of works due to contractor's uncertain financial condition are the three top effects of late payment on Employers.
5. In this study Corruption practice is a serious cause of late payment as ranked by the contractors. However, it is not serious as perceived by consultants and employers. But, interview result and previous studies confirmed that corruption practice is being a serious cause for late payment in Oromia public building projects.
6. From four major payment types which are usually being in practice in public building projects in Oromia region; Interim and advance payments were ranked the two top frequently delayed payments with equivalent RII value whereas final payment & retention becomes second and third respectively.
7. A total of ten methods were identified to minimize the prevailing effects of late payment. Hence, Provision of well-defined clauses in the contract related to managing time of payment was ranked as the first prominent method to curb the effects of late payment whereas introducing construction specific Legislation/construction payment security act for the clarity of the payment matters ranked as the second top method and Provision of payment bond from bank or insurance to guarantee payment in the event of default by the employer also ranked the third minimization methods of late payment proposed for public building projects in Oromia region.

5.2 Recommendations

1. According to the research finding, Employer related causes are the major factors that significantly contributed for late payment. Therefore, the concerned offices or bureaus in Oromia region should evaluate their business process and devise the ways to avoid the problem.
2. The study revealed that, effect of late payment is very risky to contractors than other stakeholders; this is due to the interrelationship between late payment and cash flow problem. So that, Contractors should be aware of cash flow management << prevention is often better than cure>>, by regularly assessing their finances and conducting frequent cash flow forecasts, and should plan ahead and act upon any issues before they cause serious problem.
3. Late and nonpayment problems have forced countries like the UK, Singapore, New Zealand, Australia, USA, and others to legislate their construction specific statutory payment security regime. These legislations purposely enact provisions to address issues on prompt payment in the construction industry to eliminate poor payment practices and to improve the contractor's cash flow. Therefore, the respective body in Oromia region in collaboration with Federal government should conduct further studies to introduce the construction specific legislation act in order to avoid or minimize the vulnerability of the construction industry to frequent late payments.
4. Condition of contracts both MoWUD and PPA should be re assessed and thereby well defined and specific time frame has to be in place for advance, interim, final and retention payments.
5. Almost all standard forms of contract in our country provide for monthly payments which are based upon the value of work completed in the previous month. The process of valuing work on a monthly basis can be time consuming and therefore in recent years there has been a move to introduce milestone or stage payments in other countries whereby a pre-agreed sum is paid only when work has reached a certain stage of milestone. Therefore, concerned bodies should get awareness from this study and devise to adopt the system.

BIBILIOGRAPPHY

1. Abdul-Rahman, A., Munaaim, M.E.C., Danuri, M.S.M. and Berawi, M.A., (2008). Issues affecting payments in the building and construction industry of a rapidly developing economy. Building Engineer, November, 4-10.
2. Abdul-Rahman, H., Berawi, M. A., Berawi, A.R . , Mohamed, O., Othman, M. and Yahya, I. A. (2006) Delay mitigation in the Malaysian construction industry . Journal of Construction Engineering and Management 132 (2): 125 – 133.
3. Abdul-Rahman H, Danuri M S M, Munaim M E C and Chen W (2006) A Report of a Questionnaire Survey on Late and Non-Payment Issues in the Malaysian Construction Industry, Kuala Lumpur, Construction Industry Development Board (CIDB).
4. Abdul-Rahman H, Takim, R and Wong, S M (2009) "Financial-related Causes Contributing to Project Delays." Journal of Retail & Leisure Property 8: 225-238.
5. Abdul-Rahman H, Wang C, Takim R and Wong S M (2011) "Project Schedule Influenced by Financial Issues: Evidence in Construction Industry." Scientific Research and Essays 6: 205-212.
6. Abubeker Jemal (2015). Thesis on "Factors Affecting Time and Cost Overrun in Road Construction Projects" in Addis Ababa, Ethiopia.
7. Aibinu, A., & Jagboro, G. (2002). The effects of construction delays on project delivery in Nigerian construction industry. International Journal of Project Management, 20, 593-599.
8. Alan C. Twort and J. Gordon Rees 2004, Civil Engineering Project Management, 4th Edition, Elsevier Butterworth-Heinemann, London.
9. Ameer, A.N. (2005a). Payment in the Construction Industry – Towards Zero-Default. QS National Convention 2005, 10 – 11 August 2005, Hilton, Kuala Lumpur, Malaysia.
10. Ang Su Sin, Tony (2006) Payment issues, the present dilemma of Malaysian construction industry, Universiti Teknologi Layalsia, Johor Bahru, Malaysia.
11. Artidi, D. and Chotibongs, R. (2005) Issues in Subcontracting Practice. Journal of Construction Engineering and Management ACSE. Volume 8: 866-876.

12. Borvorn Israngkura Na Ayudhya (2012), Factors Causing Delay in Payment of Residential Building Projects in Thailand. FIG Working Week 2012. Knowing to manage the territory, protect the environment, evaluate the cultural heritage, Rome, Italy, 6-10 May 2012
13. Brand, M.C. and Uher, T.E., 2008. Review of the performance of security of payment legislation in New South Wales. In:The RICS Construction and Building Research Conference COBRA 2008. Dublin Institute of Technology, Ireland.4-5 September.
14. Cheng, T., Soo, G., Kumaraswamy, M., and Jin, W. (2009) 'Security of Payment for Hong Kong Construction Industry – Workable alternatives and suggestions', Building Journal Hong Kong, China, 60-77.
15. Construction Industry Police (draft) by MoWUD (2012), Addis Ababa, Ethiopia.
16. C.R.Kothari, (1990), Research methodology and Techniques. Former Principal, college of Commerce University of Rajasthan, India.
17. Danuri, M.S and Hanid, M., 2006. Late and non-payment issues in the Malaysian Construction Industry, Contractor's perspective. In: International Conference on Construction, Culture, Innovation and Management (CCIM). Dubai (United Arab Emirates).26-29 November.
18. Davenport, J (2010). Construction survey reveals worrying payment delay trend. Construction industry Development Board. Cape Town: Engineering News.
19. David Chappell (2006), Construction contracts question and answers, Newyork, London.
20. Davis Langdon & Seah Consultancy (2003). Construction payment blues –Why that domino effect? Executive Summaries for the Practitioner, 3 (3): September 2003.
21. Davis, R, Construction insolvency, 2nd Ed., Great Britain: Palladian Law,1999
22. Desai Megha, Dr. Bahatt Rajiv,(2008). A methodology for Ranking causes of delay for Residential construction projects in Indian Context. International Journal of Emerging Technology and Advanced Engineering. ISSN 2250-2459, ISO 9001:2008 Certified Journal, Volume 3, Issue 3, March 2013
23. Euginie, L. (2006) 'Curing the Ills of Non-Payment in the Construction Industry – the Singapore Experience', 8th Surveyors' Congress, Kuala Lumpur: ISM
24. FIDIC 2006, MDB Harmonized Condition of contract for construction, Geneva, Switzerland.

25. Fisseha Shimekit, (2015). Payment issues: The case of selected public building construction projects in Addis Abab, Ethiopia.
26. Frimpong, Y., Olowoye, J., & Crawford, L. (2003). Causes of delay and cost overruns in construction of ground water projects in developing countries: Ghana as a case study. International Journal of Management, 21(1), 321-326.
27. Hamzah, A., Chen, W., Mohd-Danuri, M.S., & Che-Munaaim, M.E. (2009). Cause, effect, andreaction for late-payment and non-payment issues in Malaysian building sector. Top class Journal of Business Management and Innovations, 1, 8 – 20.
28. Haseeb M, LU X, Dyian M, and Rabbani W (2011) "Problems of Projects and Effects of delays in the Construction Industry.'' Australian Journal of Business and Management Research 1: 41-50.
29. Hasmori M F, Ismail, I. and Said, I. (2012) "Issues of Late and Non-Payment among Contractors in Malaysia". 3rd Int'l Conference on Business and Economics Research Proceedings, 12-13 March.
30. Jackson, I.J., and Gilliam, M.H. Financial management for contractors, 3rd Ed. U.S.A: FMI, 1999.
31. Janelle Plummer, editor (2015). Diagnosing corruption in Ethiopia: perceptions, realities, and the way forward for key sectors, Washington DC, USA.
32. John Murdoch and Will Hughes 2000, Construction contracts law and management, 3rd edition, Spon press. Pp.17,234-244
33. Johnston, S. (1999), "Debt and interest in construction Industry". A guide to the late payment of commercial debts (interest) Act 1998. Thomas Teleford Limited, London.
34. Joint Contracts Tribunal (1998) The JCT standard form of building contract, 1998 edition. London: JCT Publications.
35. Judi S S and Abdul Rashid R (2010) "Contractor's Right of Action for Late or Non-Payment by the Employer." Journal of Surveying, Construction & Property 1: 65-95.
36. Karib, A. S., Shaffii, N., & Nor, N. M. (2008). A Report on the Proposal for a Malaysian Construction Industry and Adjudication Act (CIPAA). Lembaga Pembangunan Industri Pembinaan Malaysia.
    Retrieved from https://www.cidb.gov.my/cidbv2/images/pdf/cipaa08_0.pdf

37. Kaseim Seid (2008), Thesis on problems of construction conditions of contract for public works. Addis Ababa University, Ethiopia.
38. Kikwasi, G.J. (2012) 'Causes and effects of delays and disruptions in construction projects in Tanzania', Australasian Journal of Construction Economics and Building, Conference Series, **1** (2) 52-59
39. Kho Mei Ye, Hamzah Abdul Rahman(2010) Risk of late payment in Malaysian construction industry International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering Vol:4, No:5, 2010
40. Kometa ST, Olomolaiye PO, Harris FC. Attributes of UK construction clients influencing project consultant's performance. Construction Manage Econ 1994; 12:433–43.
41. Kumaraswamy, M.M. and Soo, G., 2008. Payment Problems and Regulatory Responses in the Construction Industry: Mainland China Perspective. Journal of Professional Issues in Engineering Education and Practice 134(4), pp.399-407.
42. Kwame, B.T.(2011) effects of delayed payments on cash flow forecasting of Ghanaian road contractors. Kwame Nkrumah University of Science and Technology, Ghana.
43. Latham, M.(1994), Construction the Team, Final Report of the Government/Industry Review of Procurement and Contractual Arrangements in the UK Construction Industry (United Kingdom: Her Majesty's Stationary Office, 1994) p 84 (part of Recommendation No. 25).
44. Maurice Paul Okeyo,etal. (2015). "Effects of Delayed Payment of Contractors on the Completion of Infrastructural Projects". A Case of Sondu-Miriu Hydropower Project, Kisumu County, Kenya University of Nairobi, Kenya.
45. Megan Kinal (2015), Survey of Slow Payment Practice, Alberta Trade Contractors Coalition, Alberta, Canada.
46. MoFED (2005) Federal, Public Procurement Directive: Ministry of Finance and Economic Development (MoFED), Addis Ababa, Ethiopia.
47. Mohamad F M, Nekooie M A and Che Kamaruddin N (2012) The Adequacy of Contractual Provisions in Managing Construction Failure in Malaysia.

48. Mohamed Nor Azhari Azman et al (2012), Payment Scenario in the Malaysian Construction Industry Prior to CIPAA. Construction Research Institute of Malaysia (CREAM); 55200 Kuala Lumpur, Malaysia.
49. MOWUD 1994, Standard condition of contract for construction of civil work projects, Addis Ababa, Ethiopia. December 1994.
50. Murdoch, J. and Hughes, W. (1996). Construction Contracts Law and Management, 2nd Ed., E & FN Spon, London.
51. Murdoch, J. and Hughes, W. (2000). Construction Contracts Law and Management, 3rd Ed., published 2000 by Spon Press 11 New Fetter Lane, London EC4P 4EE.
52. Naoum, S.G. (2002) Dissertation Research and writing for construction students. Elsevier Butterworth-Heinemann.
53. Noushad Ali Naseem. (2005). Construction Industry Payment and Adjudication Act. International Forum Construction Industry Payment Act and Adjudication. Kuala Lumpur: CIDB and ISM.
54. Natasha B.D. 2015, Analysis on Causes, impact and Strategies of Payment among contractors in Malaysian construction industry. http://dx.doi.org/10.1061/(ASCE)1052-3928(2008)134:4(399)
55. New South Wales, Building and Construction Industry Security of Payment Act 2002 http://www.legislation.nsw.gov.au/maintop/view/inforce/act+46+1999+cd+0+N
56. Nik Mohd D.N and Zulhabri Ismail, 2012 Construction Industry Payment and adjudication act (CIPAA) remedying payment issues: CIDB G7 contractor's perspective. Malaysia.
57. Nazir N Z (2006) Late Payment Problems among Contractors in Malaysia, MSc, University Teknologi Malaysia (UTM).
58. Prism Economics and Analysis (2013). The Need for Prompt Payment Legislation in Construction Industry Canada, April 2013.
59. Prism Economics and Analysis (2015). The Need for Prompt Payment Act in Federal Government Construction. Canada, April 2015.
60. Public Procurement Agency (PPA), Standard bidding document for procurement of work. Addis Ababa, Ethiopia January 2006.

61. Queensland government Building and Construction Industry Payments Act 2004, Current as at 16 December 2015. Retrieved from (www.legislation.qld.gov.au.)
62. Ramachandra, T. and Rotimi, J.O.B., 2015. Causes of Payment Problems in the New Zealand Construction Industry, Construction Economics and Building, 15(1), 43-55.
63. Ramachandra, T and Rotimi, J O (2011) 'The nature of payment problems in the New Zealand construction industry', Australasian Journal of Construction Economics and Building, 11 (2) 22-33.
64. Reeves, K. (2003) Pay Up. JUBM Construction News and Views.
65. Rourke, J.W.& Gentry, CA.(2002), Missorll, Prompt payment laws Applicable to construction projects., 2010.Malasyia.
66. Sambasivan, M., & Soon, Y. (2007). Causes and effects of delays in Malaysian construction industry. International Journal of Project Management, 25, 517-526.
67. Samuel, K.A.(2011), "Causes and effects of delayed payment by client on construction projects in Ghana". Journal of Construction Project Management and Innovation Vol. 1 (1): 27 -45, (November) 2011.Capecost, Ghana.
68. Siti, S.J and Rosli, A.R Journal of surveying, Construction & Property Vol, 2010. Malaysia.
69. Singh K.S., Ir. H. (2003). Engineering and Construction Contracts Management – Post Commencement Practice. Singapore.
70. The Need for Prompt Payment Legislation in Construction Industry (2015). A report by Prism economics and Analysis. Canada.
71. United Kingdom, Housing Grants, Construction and Regeneration Act, 1996 http://www.legislation.gov.uk/ukpga/ 1996.
72. William M.K.(2006), Research Methods Knowledge base.
73. Yao, A. (2014). Effects of delayed payment on projects and stakeholders: A case study of Keta Municipal Assembly. Kwame Nkrumah University of Science and Technology, West Africa.
74. ZERFU T. (2003) Construction Industry in Developing Countries AECE Bulletin, Vol. 5, No. 1, pp. 79-83.

APPENDIX

APENDIX-I

Questionnaire

This questionnaire is prepared to obtain information from respondents with semi- structured questions. The information is required for the academic research title "Cause and effects of late payment and method of Minimization in Oromia public building projects", which is being conducted as partial fulfillment of the requirements for Masters Degree in construction management.

The main objective of the research is to investigate the major causes and effects of late payment and method of minimization of the causes and finally to deliver recommendation based on the findings.

The questionnaire consists of four sections, Section A is about the type of payment which is frequently subjected to late payment. Section B contains causes of late payment, Section C effects of late payment, Section D method of minimization. At the end there is a space that left for your general comments regarding the research topic.

Your response, in this regard is highly valuable and contributory to the outcome of the research. All the feedback will be kept strictly confidential, and utilized for this academic research only.

Regards!!

Dechasa Dirirsa

MSc student in Construction Management
Adama Science & Technology University

Tele: +251-911-04-32-23
Email: dechdir@gmail.com

Section A: Type of payment and frequency of delay

The following table shows type of payment and how often they are subjected to late payment. Therefore, please would you rank as per the given choices based on your familiarity?

Each scale represents the following ratings:

Very often =(5) Often =(4) sometimes =(3) Rarely =(2) Never =(1)

Question: How do you rate the occurrence of delay in the following type of payments?

S.N	Type of payment	Vey often	Often	Sometimes	Rarely	Never
1	Interim payment					
2	Final payment					
3	Retention payment					
4	Advance payment					
	Other if any					

Section B: Causes of Late Payment

Please rank the following causes for late construction payment by marking/ticking the raw against each causes based on your level of agreement. Finally, there is space at the end of each table where you can put any regarding the topic. Each scale represents the following ratings:

Strongly Agree=(5) Agree=(4) Neutral =(3) Disagree =(2) strongly disagree =(1)

Question: State the level you agree with the causes of late construction payment

	Causes of late payment	5	4	3	2	1
Employer /Client/ related	Frequent change/variation orders					
	Lengthy and bureaucratic payment handling system					
	Scarcity of capital to finance the project					
	Corruption practice of client employees					
	Refusal to pay interest on late payment					
	Problem of understanding the contract clauses					
	Clients failure to develop a good payment handling attitude among its employees for wrongfully withholding the payment					
	Client's failure to agree on the valuation of work done.					
	Clients lack of trust with the consultants certification					
	Contract type and method of payment used by client					

	Causes of late payment	5	4	3	2	1
Contractor related	Failure to agree on the valuation of work completed					
	Payment requested for defective works/not to the specifications/					
	Suspension of work by contractor					
	Bankruptcy/liquidation of the contractor					
	Failure to make regular progress					
	Mobilization of Poor quality materials on site					
	Conflict with consultant					
	Poor recording & documentation					
	Failure in understanding the contract document					
Consultant related	Delay in valuation of the work completed					
	Wrongly Withholding payment certificate					
	Argument on the amount to be paid					
	Favoring the employer (bias)					
	Being dependent on the employer in valuing what is paid to the contractor					
	Verbal instruction given is not confirmed in writing					
	Poor recording & documentation					
Contract Related	Conditions of Contracts used are not comprehensive enough in terms of payment aspects.					
	Payment culture of the industry(chain payment &work first get paid later)					
	Contracts used are too complicated to be easily understood by both parties					
	Contract agreements commonly in practice do not bring any justice related to payment.					
Please add if any?						

Section C: Effects of late construction payment

Please rank the effects of late payment on contractor by ticking the appropriate raw against the listed effects. Finally you can add if any in space provided at the end of the table.

Very high=(5) High =(4) Low =(3) Very Low =(2) No effect =(1)

Question: How do you rate the effect of late payment?

	Effects of late payment	**5**	**4**	**3**	**2**	**1**
Effects of late payment on Contractor	Create cash flow problem					
	Delay in completion of the project					
	Increased cost in overhead					
	Force to borrow from financial institutions					
	Affect contractors profit and reputation					
	Creates negative relationship across the chain					
	Resulted to suspension of works					
	Leads to abandonment of the project					
	Resulted in dispute.					
	Difficulty to tender for new projects					
	Leads to bankruptcy/ liquidation					
Effects of late payment on Employer	Delay in completion of the project (loss of potential revenue)					
	Interest payment on delayed payments					
	Termination of the contract by contractor					
	Increased in construction cost of the project					
	Low quality of works due to contractor's uncertain financial condition.					
	Interruption of program of works					
	Resulted in dispute eg.(cost of arbitration, litigation...)					
Effects of late payment on Consultant	Loss of reputation					
	Reduced profit margin					
	Result in conflict among parties					
Please add if any?						

Section D: Methods of Minimization of late payment

The following are methods of minimization for late payment as enumerated in the table below. Therefore, please see carefully and rank the level of your agreement by marking the raw in front of each alternative.

Strongly agree=(5) Agree =(4) Neutral =(3) Disagree=(2) Strongly disagree =(1)

Question: Indicate your level of agreement for minimization method (avoidance) of late payment

S/N	Method of minimization/Remedies	5	4	3	2	1
1	Impose penalty of interest to late payers.					
2	Provision of payment bond from bank or insurance to guarantee payment in the event of default by the employer.					
3	Employees of client shall be penalized if they are found wrongfully withholding the payment.					
4	There should be well-defined clauses in the contract related to managing time of payment.					
5	Legislation/construction act for payment security should be introduced to give a clear message to contractors and clients as to clarity of the payment matters. such as;					
	➢ A right to regular or periodic payment. ➢ Applying charges to overdue payments. ➢ A right to a defined time frame for payment ➢ A right to a speedy dispute resolution mechanism ➢ A right to suspend work					
6	Determining the contract with the Employer & the contractor					
7	Employers, contractors & consultants shall be trained on cash and financial management					
8	Train and educate all parties on the effects of late payments.					
9	Contract documents shall be internalized by contractors, employers & consultants.					
10	Assigning Construction management professionals for safe and effective contract administration.					

APENDIX-II

Spearman's Rank Correlation coefficient Determination

Table A2.1 Spearman's Rank Correlation coefficient for causes of late payment

S/N	Causes of Late Payment	Rank			Rank difference of respondent groups					
					Cont vs Conslt		Cont vs Empl		Conslt vs Empl	
		Cont	Conslt.	Empl	d	d^2	d	d^2	d	d^2
1	Frequent change/variations	3	2	3	1	1	0	0	-1	1
2	Lengthy and bureaucratic payment handling system	1	1	1	0	0	0	0	0	0
3	Scarcity of capital to finance the project	7	5	2	2	4	5	25	3	9
4	Corruption practice of client employees	2	6	10	-4	16	-8	64	-4	16
5	Refusal to pay interest on late payment	5	4	7	1	1	-2	4	-3	9
6	Problem of understanding the contract clauses	3	4	9	-1	1	-6	36	-5	25
7	Clients failure to develop a good payment handling attitude among its employees for wrongfully withholding the payment	4	4	8	0	0	-4	16	-4	16
8	Client failure to agree on the valuation of work done.	4	3	6	1	1	-2	4	-3	9
9	Clients lack of trust with the consultants certification	6	5	5	1	1	1	1	0	0
10	Type of contract and method of payment used by client.	8	3	4	5	25	4	16	-1	1
11	Contractor failure to agree on the valuation of work completed	1	1	3	0	0	-2	4	-2	4
12	Payment requested for defective works/not to the specifications/	2	2	1	0	0	1	1	1	1
13	Suspension of work by contractor	4	3	5	1	1	-1	1	-2	4
14	Bankruptcy/liquidation of the contractor	5	4	8	1	1	-3	9	-4	16
15	Failure to make regular progress	5	2	2	3	9	3	9	0	0
16	Mobilization of Poor quality materials on site	7	2	4	5	25	3	9	-2	4
17	Conflict with consultant	3	3	6	0	0	-3	9	-3	9
18	Poor recording & documentation	7	3	9	4	16	-2	4	-6	36
19	Failure in understanding the contract document	6	3	7	3	9	-1	1	-4	16
20	Delay in valuation of the work completed	4	2	1	2	4	3	9	1	1
21	Wrongly Withholding payment certificate	1	4	2	-3	9	-1	1	2	4

22	Argument on the amount to be paid	5	1	3	4	16	2	4	-2	4
23	Favoring the employer (bias)	3	5	4	-2	4	-1	1	1	1
24	Being dependent on the employer in valuing what is paid to the contractor	2	3	5	-1	1	-3	9	-2	4
25	Verbal instruction given is not confirmed in writing	6	2	4	4	16	2	4	-2	4
26	Poor recording & documentation	7	4	5	3	9	2	4	-1	1
27	Conditions of Contracts used are not comprehensive enough in terms of payment aspects.	1	1	1	0	0	0	0	0	0
28	Payment culture of the industry(chain payment &work first get paid later)	4	4	3	0	0	1	1	1	1
29	Contracts used are too complicated to be easily understood by both parties	2	2	2	0	0	0	0	0	0
30	Contract agreements in practice do not bring any justice related to payment to all parties.	3	3	4	0	0	-1	1	-1	1
	Σd^2					**170**		**247**		**197**

Where, 'd' is the difference between the ranks of the paired respondents.

Cont=contractor

Conslt= Consultant

Empl=Employer

Therefore, the spearman rank correlation coefficient 'r' is determined as follows;

Contractor Vs Consultant= $r=1-\{\frac{6\Sigma di^2}{n(n^2-1)}\}=1-\{\frac{6*170}{3\,(3^2-1)}\}=0.96$

Contractor Vs Employer= $r=1-\{\frac{6\Sigma di^2}{n(n^2-1)}\}=1-\{\frac{6*247}{3\,(3^2-1)}\}=0.94$

Consultant Vs Employer= $r=1-\{\frac{6\Sigma di^2}{n(n^2-1)}\}=1-\{\frac{6*197}{3\,(3^2-1)}\}=0.95$

Table A2.2: Spearman's Rank Correlation coefficient for Effects of late payment

S/N	Impacts of late Payment	Rank			Rank difference of respondent groups					
					Cont. vs conslt.		Cont. vs Empl.		Conslt. vs Empl.	
		Cont.	Conslt.	Empl.	d	d^2	d	d^2	d	d^2
1	Create cash flow problem	1	2	2	-1	1	-1	1	0	0
2	Delay in completion of the project	2	2	1	0	0	1	1	1	1
3	Increased cost in overhead	4	4	4	0	0	0	0	0	0
4	Force to borrow from financial institutions	7	7	5	0	0	2	4	2	4
5	Affect contractors profit and reputation	3	6	6	-3	9	-3	9	0	0
6	Creates negative relationship across the chain	5	5	5	0	0	0	0	0	0
7	Resulted in suspension of works	7	1	3	6	36	4	16	-2	4
8	Leads to abandonment of the project	4	5	4	-1	1	0	0	1	1
9	Resulted in dispute.	8	3	3	5	25	5	25	0	0
10	Difficulty to tender for new projects	6	6	8	0	0	-2	4	-2	4
11	Leads to bankruptcy/ liquidation	9	5	7	4	16	2	4	-2	4
12	loss of potential revenue by employer	1	1	1	0	0	0	0	0	0
13	Interest payment on delayed payments	7	2	5	5	25	2	4	-3	9
14	Termination of the contract by contractor	4	5	7	-1	1	-3	9	-2	4
15	Increased in construction cost of the project	5	4	3	1	1	2	4	1	1
16	Low quality of works due to contractor's uncertain financial condition.	2	3	4	-1	1	-2	4	-1	1
17	Interruption of program of works	3	2	2	1	1	1	1	0	0
18	Loss of reputation by Consultant	1	1	1	0	0	0	0	0	0
19	Reduced profit margin of the consultant	2	2	2	0	0	0	0	0	0
20	Result in conflict among parties	2	2	1	0	0	1	1	1	1
	Σd^2					117		87		34

Contractor Vs Consultant= $r=1-\{\frac{6\Sigma di^2}{n(n^2-1)}\}=1-\{\frac{6*117}{20(20^2-1)}\}=0.92$

Contractor Vs Employer= $r=1-\{\frac{6\Sigma di^2}{n(n^2-1)}\}=1-\{\frac{6*87}{20(20^2-1)}\}=0.94$

Consultant Vs Employer= $r=1-\{\frac{6\Sigma di^2}{n(n^2-1)}\}=1-\{\frac{6*34}{20(20^2-1)}\}=0.98$

APENDIX-III

Values for Spearman's Rank Correlation coefficient (r)

Table A3.1 Values for Spearman's Rank Correlation coefficient (r)

n	.20	.10	.05	.02	.01	.002
4	.8000	.8000	—	—	—	—
5	.7000	.8000	.9000	.9000	—	—
6	.6000	.7714	.8236	.8857	.9429	—
7	.5357	.6786	.7450	.8571	.8929	.9643
8	.5000	.6190	.7143	.8095	.8571	.9286
9	.4667	.5833	.6833	.7667	.8167	.9000
10	.4424	.5515	.6364	.7333	.7818	.8667
11	.4182	.5273	.6091	.7000	.7455	.8364
12	.3986	.4965	.5804	.6713	.7273	.8182
13	.3791	.4780	.5549	.6429	.6978	.7912
14	.3626	.4593	.5341	.6220	.6747	.7670
15	.3500	.4429	.5179	.6000	.6536	.7464
16	.3382	.4265	.5000	.5824	.6324	.7265
17	.3260	.4118	.4853	.5637	.6152	.7083
18	.3148	.3994	.4716	.5480	.5975	.6904
19	.3070	.3895	.4579	.5333	.5825	.6737
20	.2977	.3789	.4451	.5203	.5684	.6586
21	.2909	.3688	.4351	.5078	.5545	.6455
22	.2829	.3597	.4241	.4963	.5426	.6318
23	.2767	.3518	.4150	.4852	.5306	.6186
24	.2704	.3435	.4061	.4748	.5200	.6070
25	.2646	.3362	.3977	.4654	.5100	.5962
26	.2588	.3299	.3894	.4564	.5002	.5856
27	.2540	.3236	.3822	.4481	.4915	.5757
28	.2480	.3175	.3749	.4401	.4828	.5660
29	.2443	.3113	.3685	.4320	.4744	.5567
30	.2400	.3059	.3620	.4251	.4665	.5479