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Causes and Effects of Cash Shortage on Construction Companies of Ethiopia

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ADDIS COLLAGE

Study on Causes and Effects of Cash Shortage on Construction Companies of Ethiopia

By: Haftom Kahsay

A Thesis Submitted to School of Graduate Studies of Addis College, Department of Construction Technology and Management in Partial Fulfillment of the Requirements for the Degree of Master of Science in Construction Technology and Management.

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DECLARATION

I, the undersigned, declare that the study entitled "Study on Causes and effects of cash shortage in construction companies of Ethiopia" is the result of my own effort and study that all sources of materials used for the study acknowledged. I have conducted the study independently with the guidance and comments of the research advisor.

This study not been submitted for any degree in any other university. It is all sources of material used for thesis has been fully acknowledged and conducted for the partial fulfillment of the Degreeof Master of Science in Construction Technology and Management.

Haftom kahsay

Date: April, 2023 Signature: _____

STATEMENT OF CERTIFICATION

This is to certify that Haftom Kahsay has carried out his research work entitled "Study on Causes and effects of cash shortage in construction companies of Ethiopia". This work is original in nature and is suitable for submission for the award of Master of Science in Construction Technology and Management.

Semere Yilma (MSc., Ph. D. Candidate)	_____	26 April 2023
Advisor name	Signature	Date

APPROVAL SHEET

Study on Causes and Effects of Cash Shortage on Construction Sectors of Ethiopia

By: Haftom Kahsay

APPROVAL BY BOARD OF EXAMINERS

Chairperson	Signature	Date
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Special thanks are also forwarded for those who helped me in facilitating data collection. As most of the respondents were demotivated to react quickly, it required me to create a relational network with my friends in facilitating and supporting the data collection process.

Haftom Kahsay

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ACRONYMS

GDP	Gross Domestic Product
MSE	Micro and Small-Scale Enterprise
SMME	Small medium micro-Enterprises
ILO	International Labor organization
WHO	World Health Organization
FDRE	Federal Democratic Republic of Ethiopia
ERA	Ethiopian Roads Administration
CID	Construction company development

ABSTRACT

Currently our country's socio-economic progress is mostly influenced by the development of the construction company. The implementation of strategic management and planning is impacted by cash shortage in construction companies that occur mostly. Hence, the objective of this study is to find out the cause and effect of cash shortage on construction companies of Ethiopia specifically in Addis Ababa of 10 contractors, 8 consultants and 5 clients, whose project contract cost is above 100,000,000 (One hundred million) Ethiopian birr. The methodology used for data collection was literature reviews, and questionnaire surveys. Finally, the results were analyzed and the conclusions drawn out for the causes of cash shortage are improper cash management, delay in payment, and difficulty in obtaining financial support from the government.

The major effects of cash shortage are delays in project completion period, reduced profit margins and contractors' inability to pay salary to their workers and aggravate unemployment rate to national level.

The reasons for cash flow problems and poor management are the impacts of negative and positive cash flow and the potential solutions for improving cash flow on construction companies are not scientifically managed.

The recommendations drawn are that companies should work periodic cash flow analysis, periodic monitoring and evaluation on Cash Flow, work on financial plan management effectively and recruit better workers on the management of cash flow.

Key Words: Cash flow, Cash Shortage, cash flow system, challenges to cash flow, Causes of Cash flow problem, Construction company.

CHAPTER ONE: INTRODUCTION

1.1. Back ground of the study

The role of the construction company plays in socio-economic development is significant. The company is a distinct sector of the economy, which makes its direct contributions to economic growth. It provides the basis upon which other sectors can grow by constructing the physical facilities required for the production and distribution of goods and services. The company has a significant multiplier effect on the economy as a whole.

Economic growth is one of the most effective ways of reducing poverty, and infrastructure delivery has been identified as one of its key drivers. The construction company has great employment generation potential as labor intensive technologies are economically viable for most items of construction works but the present state of the construction company shows serious problem and failure due to poor management and bad cash flow management.

Cash is a basic term to be taken into consideration and all common in the construction company due to the fact that even profitable construction companies can have cash flow problems. Lack of control over cash flow has been a major contributing factor to the high rate of insolvencies in the company and impacts on the construction project implementation; therefore, it is a subject that should be taken seriously by all contractors. Simply stated, contractors go out of business because they run out of money, not because they run out of work. Several authors have investigated the causes of failure of construction firms (Argenti 1976, Slatter 1984, Lowe 1997, Arditi, Koksal and Kale 2000). Lack of adequate financial control is the most common characteristic of declining construction firms (Slatter 1984). In construction, failure studies have focused on explaining failure at the project level, rather than the company level, where there has been comparatively little work (Arditi, Koksal and Kale 2000).

Poor management of cash flow is the main causes that known the levels of insolvency in construction are high (Hughes, Hillebrandt and Murdoch 1998). Cash flow is one of the major tools required for controlling the cash movement of the Construction company by determining the cash in and cash out in the project (Melik, 2010). The traditional approach to cash flow prediction usually involves the breakdown of the bill of quantities in line with the contract program to produce an estimated expenditure profile. It ought to be possible to reduce these levels, since the major causes are known.

Several attempts have been made to devise a 'short cut' method of estimation, which will be both quicker and cheaper to utilize (Odeyinka and Lowe, 2000). According to Blyth and Kaka (2006), the majority of cash flow forecasting models developed have been based on standard value S-curves representing the running cumulative value of work, and using data from completed construction projects. They are valuable to project management in stating current status and predicting the future of projects. Although they are used in scheduling and planning, for reporting actual, earned and planned values and for resource loading various activities of a project, but according to Miskawi, (1989, cited in Blyth and Kaka, 2006), their reliability and accuracy is still in question.

In construction, financial problem studies have focused on explaining failure at the project level, rather than the company level, where there has been comparatively little work (Arditi, Koksal and Kale 2000). Advance knowledge of the factors affecting cash flowand an understanding of their impact is essential to the contractor (Liu et al., 2009). Therefore, research on how to avoid the causes should be encouraged. The most important step to take for cash flow is to help construction companies to develop good cash flow management practices.

The Ethiopian construction industries, like that in most developing countries, Face challenges that impede its development in particularly near the last four or five years due to poor cash flow management and cash shortage because of many reasons. It is challenging and problem for contractor to take and responsibility for finishing the project within the budget, time and quality even to stay in Construction Company. Therefore, this research mainly focusses on the cause and effects of cash shortage as well as the cash flow management practices and its impacts on Construction Company in Ethiopian construction companies.

1.2. Statement of the problem

Companies even profitable construction companies can have cash flow problems. Cash shortage occurred is one of the leading factors for the failure of construction firms around the world (Arega 2016). Studies and investigations have shown that lack of liquidity is a major problem causing construction project failure (Al-Issa and Zayed, (2007), cited in Liu et al., (2009)). Cash flow is a blood line of construction companies' mainly for contractors (Ihab, 2014). Thus, the sustainability of construction firms highly depends on the management of their cash flow. Studies showed that financial problem is a most significant factor for the delay of construction

projects (Sweis et.al, 2008; Abd El-Razeket,al, 2008; Alaghbari et.al,2007).

Financial problem by contractor was ranked to be the second significant factor contributing to time overrun in Addis Ababa Road constructions (Siraw, 2014). Similar research by Abubeker (2015) revealed that financial problem to be second ranked factor affecting time overrun as well as cost overrun.

The Ethiopian Construction development were in challenges of Delay in Construction company development policy implementation and corruption, weak capacity of contractors' and Consultants' in particularly due to cash shortage for project implementation, the challenges were due to finance and cash flow problem due to Resource unavailability.

In Ethiopian construction companies, it is challenging and problem for contractor to take and responsibility for finishing the project within the budget, time and quality. Even though contractor has right to cease projects as per contract because of shortage of cash, but the contractor may not get another work to shift the resource. There was a thin line between Ceasing and continuing the work due to the high overhead of the company. Most of the contractors were in problem in managing and using the advance payment and any other payments. The contractors were complaining to the government because of unpaid payment as per the contract through different medias and some of the contractors out of the construction company and many construction professionals are out of work because of cash shortage, so it is time to ask the following questions below.

1.3. Research Questions

The basic research questions to be considered were**;**

- How is the cash flow practice and cash management system of construction company in Ethiopia?
- What are the causes for the cash shortage in Ethiopia Construction Company?
- What are the effects of cash shortage, in the Ethiopia construction companies?
- What are the alternative mitigations to manage the impacts of cash shortage for the construction companies of Ethiopia.

1.4. Research Objectives

1.4.1. General objective of the study

The main objective of the study is to investigate the cause and effect of cash shortage, practice of cash Flow, Cash management of the Ethiopia Construction Companies.

1.4.2. Specific objectives of the study

The specific objectives of the research are:

1. To examine the cash flow practice and cash management system of construction companies inEthiopia.
2. To identify the critical causes for the cash shortage in Ethiopia construction company.
3. To assess the effect of cash shortage in Ethiopia construction companies.
4. To find out mitigations to manage the impacts of Cash Flowproblem or cash shortage for Ethiopia construction.

1.5. Significance of the study

The findings of the study have practical significance. This study is expected to give insights to understanding of the importance of financial planning on construction companies. It also gives detailed study on the company's insolvency and alternative solutions of cash shortage and how is managed each of their projects, would provide instructive lessons about what constitutes financial health for their projects.

The study is expected to raise the management awareness on company cash management, to identify the factors that contribute to construction company inefficiency caused by cash shortage. In due course it is hoped that this study will provide information for further studies.

1.6. Scope and limitations of the study

The focus of the research is to investigate the practice of Ethiopian construction cash flow management. The research scope mainly covers investigating the practice of cash management, factors affecting cash flow, cost control technique and impact of factors affecting cash flow of the construction company; beside the review of literatures related to these topics. The investigation

is done on Head office of the company with a contract amount of birr one hundred million in the city of Addis Ababa. The focus is narrowed by reason of most projects with a contract amount of less than one hundred million have limited project life, less than one year and have no formal structure and cash flow planning. Since, study is also limited to Ethiopian Construction the findings can't generalize to whole construction companies.

1.7. Organization of the research

This research contains of five chapters. Chapter one has been about introduction in which the motives of this research, the background, problem, research question, objective and the significance are addressed. Chapter two summarized literatures and studies that related to study in which includes the current knowledge including substantive findings, as well as theoretical concepts. The chapter three is about methodology that introduces the research method and design, sampling, data collection, and the way how studies data has to be analyzed. Data analysis Result, interpretation and presentation of this research will be presented in chapter four. The last Chapter five would be about Summary, conclusion and recommendations for the study.

CHAPTER TWO: LITERATURE REVIEW

2.1. General Overview

The Ethiopian construction company is characterized by a large number of entrepreneurs, companies, contractors as private or public or government organizations. Ethiopia's formal construction sector comprises indigenous and indigenized firms, as well as numerous major foreign civil engineering and construction companies. Recent studies by (Zewdu & Aregaw, 2015) indicated that the GDP contribution of the company has been raised to 5.6% and approaches to the sub-Saharan average (6%). Meanwhile, the Gross Domestic Capital Formation, which was about 60 percent in 1996/97, has reached nearly 75% in 2002/03. Even though Construction development face problem due to finance shortage and contractor's incapable in execution of project, the Beyond its contribution to the nation, the company is also the 6th major contributor of the content infrastructure stock following South Africa, Egypt, Morocco, Algeria and Nigeria. Since then, the country has been implementing significant number of programs/projects, which include theUniversity Capacity Building Program, the housing development program and the road sector programs among others. Construction project is a mission, undertaken to create a unique facility, product or service within the specified scope, quality, time, and cost (Chitkara, 2004). Despite itsprominent role, the construction company in Ethiopia, like in other developing countries, faces many challenges in its practice in particular cash shortage and finance related challenge.

In general, this study chapter would mainly revise different literatures on cash, cash flow and cash shortage cause and its effect on the construction company.

2.2. Cash Flow

Cash flow is the charting of cash movement into the production process, then into accounts receivable, and back into cash. Cash flow is a crucial step in making significant decisions concerning how to liquidate a project with the cash. Cash flow forecasting guides the contractor to the amount of cash needed for the project and to how to return this amount to the account from which it was borrowed. Halpin and Senior (2009) indicated that forecasting cash behavior over a project's duration is a crucial key for controlling project cash effectively. In addition, performing a thorough cash flow analysis for a project is necessary to eliminate or to minimize the possibility of financial failure.

The internal earnings of a construction company and/or commercial banks' financial facilities are two main sources contractors use to finance the operations of a construction project (Halpin& Senior, 2009). Selecting the financing method depends mainly on the degree of accuracy with which a contractor can estimate cash flow during the duration of the project and the type of project delivery system and corresponding level of risk that may emerge from the use of the financing technique.

When it comes to financing a construction project, the contractor's goal will be to finance the negative gap between project expenses and project revenues with the aim of achieving the optimum possible amount to finance; thus, the contractor's loans cost will be the least (Halpin& Senior, 2009). Although the project's financial nature is that an owner pays a contractor periodic (progress) payments, the contractor may face various financial problems along the project's progress. The owner's progress payments may be delayed, which will affect the progress of the project, unless the contractor has the financial ability to temporarily cover this negative cash value. Project expenses that exceed the cumulative progress payments paid by the owner to the contractor cause this situation. This gap between revenues and expenses is referred to as working capital, which is a source of power for a contractor in commencing a project. The term defines the remaining amount of available cash that the contractor has after deducting the amount of current liabilities. This working capital is the figure that will guide the contractor in the decision to use available credit lines or look for new sources of capital by using corporate finance.

The construction company is often considered a one-of-a-kind company and is unique for both smallscale as well as large-scale industries, but in reality, it is a manufacturer of unit items, and the difficulty with unit item manufacture is the failure to learn from repeated work. Repeated work brings efficiency and improved productivity, construction uses the concepts of subcontractor and unique suppliers to provide a small step in the path to multiple unit manufacture, but the continualshuffling of the contract types, players, sites and clients means that the simple learning in multiple units has to be relearned, time after time. If planned properly, company profits can provide an excellent return on investment, but this requires an effective cash flow control procedure. As Halpin& Senior, (2009) The company has to fund the work for the period from start until the first payment and so:

1) Assuming invoices submitted monthly at the end of the month

2) The average cost item is not billed for 15 days
3) Assuming a 30-day account settlement
4) The average payment period is 45 days
5) Assuming a ten percent reduction on the amount as withholding
6) The amount settled is 90%
7) The remaining ten percent is not obtained until the end of the contract payments.

If the company operates on a ten percent profit, then the company is in a neutral at best cash flow from the first payments. The best method to fund this type of contract is to delay payments to sub-contractors for as long as possible, which often leads to the contract terms requiring settlement of all subcontractor accounts prior to invoice settlement. This is in reality a game of cat and mouse involving the movement of money, and it is the velocity of money that is an important indicator of economic vitality. Research shows that only ten percent of companies that earn $10 million or less forecast their cash flow, which contributes to the excessive failure rates (Strugs, 2015). Complexity and construction projects go hand in hand. Even the most profitable company in the construction company can collapse if cash flow management is not effective (Central Computer and Telecommunication Agency., 1993; Liu, Zayed, & Li, 2009). The following terms has been stated on cash shortage as the study induces:

2.2.1 Cash Flow Management

Cash management is the corporate process of collecting and managing cash, as well as using it for short-term investing. It is a key component of a company's financial stability and solvency. Corporate treasurers or business managers are frequently responsible for overall cash management and related responsibilities to remain solvent.

The financial management strategy and the cash flow are the two interrelated items of the project affecting and determining each other. Since cash flow is the plan of predicting the future cash requirement of the project, all attitudes about the prospect of the project should take into account.

While developing flow. For instance, for the same project, the final cash flow curve will change considerably if the contractor planning to apply the front-loading strategy. Besides if cash shortage foreseen by the cash flow analysis of the project the company should prepare financial management strategies to cover the cash deficit and complete the project. Therefore, it is important to determine possible strategies analysis.

2.2.2 Cash Flow Analysis

It is an examination of a company's cash inflows and outflows during a specific period. The analysis begins with a starting balance and generates an ending balance after accounting for all cash receipts and paid expenses during the period. The cash flow analysis is often used for financial reporting purposes. See also cash flow projection, cash flow forecast. Cash flow analysis is an important financial activity for a project and entails listing money flows into and out of a project. Cash flow analysis enables a contractor to project future flows of cash to determine the necessary budget for a project. Cash flow analysis is not concerned with the amount of the cash flow alone, but also the timing of these cash flows. Most cash flow in the construction company is analyzed with monthly time periods. Cash flow analysis projects the cash balance at the end of each month.

2.2.3 Cash Flow Statement

Given the importance of good cash flow management, it might well help to produce a statement that demonstrates this. A cash flow statement looks a lot like a profit and loss statement and the balance sheet. It should aim to look at how cash moves in and out of the business. This in turn, allows you to: 1) Consider how funds move through the business 2) what impact cash flow has on the running of the business. 3) How payments reconcile with cash balances and values a cash flow statement should be made up of three categories: operating, investing and financing. a) Operating: This is a net income, plus or minus increases or decreases in current assets and liabilities and expenses. b) Investing: This figure reflects any increases or decreases in long or fixed term assets (independent of accumulated depreciation). c) Financing: This reflects any increases or decreases in long term liabilities/debt, owners' capital or dividends. We have these three figures; either add or take them away from the beginning cash balance to get overall net cash balance. This statement is a way of ensuring the ability to pay all of the bills. It also indicates when there is a need to get an alternative source of finance. Seasonal businesses can use this to track what happens during peak season and quieter times.

2.2.4 Types of Cash Flow

1. Terminal Cash Flow: At the end of the economic life of a capital asset i.e., the last year when the asset is terminated, there is usually, some value in the asset left. The asset may be sold at thatpoint of time as scrap or it may fetch some salvage value. This inflow to a firm in the last (terminal)year is called terminal cash flow. Similarly, in the case of a replacement

decision where an old existing asset is replaced with a new asset, the reduction in cost of the new asset, i.e., the sales value of the old asset, is the terminal cash flow of the asset replaced. In addition to the salvage value of the asset, the firm may also recover the increased net working capital that was tied up in the initial year. Thus, this release of working capital should also be added to the salvage value of the asset to determine the terminal cash flows.

2. Client Cash Flow: In construction, the term 'cash flow' typically refers to an analysis of when costs will be incurred and how much they will amount to during the life of a project. Predicting cash flow is important in order to ensure that an appropriate level of funding is in place and that suitable draw-down facilities are available. Until the main contractor has been appointed, cash flow projections are likely to be based only on agreed fee payment schedules for consultants and a simple division of the construction cost over the likely construction period. It is only when the main contractor is appointed, a master program prepared and some form of payment schedule agreed that cash flow projections become reliable. Cash flow projections may be affected by the need for the early purchase of long-lead time items or by items that the client may wish to purchase that are outside of the main contract (such as furniture or equipment).

3. Contractor Cash Flow: Contractors have to have money coming in to pay suppliers and subcontractors and for the day-to-day running of the business. At the start of any contract, a payment scheme or table is drawn and agreed with the client or their quantity surveyor.

4. Positive Cash Flow: Positive cash flow indicates that a company's liquid assets are increasing, enabling it to settle debts, reinvest in its business, return money to shareholders, pay expenses and provide a buffer against future financial challenges. Companies with strong financial flexibility can take advantage of profitable investments. They also fare better in downturns, by avoiding the costs of financial distress. This occurs when your outflow of cash is greater than your incoming cash. This generally spells trouble for a business, but there are steps you can take to remedy the situation and
5. Negative Cash Flow: Cash flow is the movement of income into and expenditure out of a business over time. If there is more money going out than in, this is negative cash flow. Many property developers have been forced into bankruptcy due to negative cash flow for

extended periods of time. This occurs when your outflow of cash is greater than your incoming cash. This generally spells trouble for a business, but there are steps you can take to remedy the situation and generate or collect more cash while maintaining or cutting expenses a negative cash flow means there is need to find an alternative source of income to be able to pay off debts.

2.3 Causes of Poor Cash flow

Poor cash flow is one that you have heard often it is what kept most business owners up at night. At best it can eat in to your "future plans" savings and at worst it can sink your business. (Ordermentum Insights, 2018). As the study indicates the top ten most common causes of poor cash flow are the following:

2.3.1 Low Profit

Profit is a major source of cash. It usually comes in from payments from your customers or through selling assets. If one business is unprofitable, you won't have enough money on hand to cover all your outgoings. This might lead a business body to borrow more cash than the business body can repay or worse, close your business down.

In his study (Ordermentum Insights, 2018) identified Major reasons why you businesses aren't generating high profits:

- If sales and marketing operations aren't working well. you have got low staff productivity
- If You are not charging enough for your products
- Ordering and delivery processes need improving is well assessed and correctedthrough evaluation
- You have got high and uncontrolled spending
- If you are not Freshen up your marketing efforts If you're participating in trade shows are low

2.3.2 Overinvestment

Overinvestment is also another cause for poor cash flow in Business activity. It can be tempting to purchase things that we don't really need, especially if we have cash on hand. But spending money on non-business critical things will only drain your minds, meaning you won't have sufficient cash to pay for the items that really matter

2.3.3 Expanding Too Fast

Expanding your business too soon, without concrete plan or sufficient money can put you in the red.

2.3.4 High overhead expenses

Overheads are your business' ongoing expenses that aren't directly related to the production and selling of your products.

2.3.5 Unexpected expense

Sending money on unexpected expenses changes can put a strain on your cash flow. Usually, thesechanges are things that you didn't foresee and did not include in your cash flow forecast. In short,you aren't able to allocate money to pay for them. A few of the most common unexpected expenses are loss of staff, equipment breakdown and an increase in the market competition that requires your business.

2.3.6 Too high withdrawals on borrowings

This happens when you withdraw too much cash out of your business or borrow money from loans but don't have sufficient profit to repay it. Sure, borrowing large amounts of money may prevent you from running out a funds in a short term, but keep in mind it is only delays a potential future financial crisis in the end, it will still cause serious cash flow problems, especially if you aren't able to work on your loan repayments. Remember that loans involve fluctuating interest rates and may sometimes require shorter repayment schedule.

2.3.7 High (Low) product pricing

Your product pricing also affects your cash flow position because it can lead to low profit. If your price is too high, no one will want to buy your products, but if you keep it too low, you wouldn't able to generate the revenue you need to keep your business

2.3.8 Overstocking

If you find yourself in negative cash flow position and money is tight there is one place you should look into straightway. Excessive inventory or overstocking can impact the movement of goods in and out of your business. When you stock too much of your raw ingredients the product it can tie up significant accounts of money and occupy costly warehouse space. Product that stays on yourselves for too long can also be at risk of becoming outdated and unsellable making you less profitable.

2.3.9 Poor financial planning

If you fall to perform a good cash flow forecast and don't set your budget beforehand you are more likely to suffer from cash shortages and could find yourself in serious financial difficulty .it doesn't matter whether you come up with a great financial plan and almost accurate forecast, if you are following a negative cash flow business model you are going to find yourself in trouble. As his finding out, what is a negative cash flow business model is that if you give a 90-day payment term to your customer but you have to settle your rent, utility bills, and other overheads weeks before you get paid you will find yourself with negative cash flow. No matter what you do, you are always going to be behind.

2.3.10 Late payment

One of the major causes of poor cash flow is late payments. According to a 2016 SME snapshot from MYOB late payments create an unhealthy cash flow cycle inside the business. 77 % of SME owners reported they are at a negative impact from customers not settling their bills on time, while 35 % said the payments have affected their personal instances and their ability to cover and other overheads.

In addition, in study (WenhuaHou, Xing Liu, Deqiang Chen ,2012) payment problem is one of the factors that affect cash flow of construction project. Payment Problems seriously affect the normal operation of contractors and hinder the healthy and sustainable development of the construction company, in some

cases; their negative impacts even extend to other aspects of the society. On the other hand, most construction companies have suffered from inadequate cash resources for a longtime. It is likely to be. In addition, in study (WenhuaHou, Xing Liu, Deqiang Chen ,2012) payment problem is one of the factors that affect cash flow of construction project.

Payment Problems seriously affect the normaloperation of contractors and hinder the healthy and sustainable development of the construction company, in some cases; their negative impacts even extend to other aspects of the society. On theother hand, most construction companies have suffered from inadequate cash resources for a long time. It is likely to be the final causes of failing for many companies, since cash flow is the most important power of running construction companies. Lack of cash brings extra expenses to construction companies and decreases profitability of them. Cash flow and profitability are interactive, even though they are different issues. The Payment problem is one of factors resulting in the poor performance of companies (WenhuaHou, Xing Liu, Deqiang Chen ,2012). Being acutely aware of these payment problem effects is helpful to contractors for their decision making.

2.4 Construction Resources Affecting Cash shortage

Money is always of special importance to those involved in construction project (Ismail Abdul Rahman, 2012). Hence, completion of any project within the estimated cost of project is the basic criteria for success of any project. The success of any project is highly depending on adequate availability and efficient management of various resources. Hence, prior and adequate arrangement for provision of resource involved in construction such as type and quantity of material, manpower, machines and finance are required at each stage of construction. One of various factors that cause failing resources management, the importance of resource management is not considered properly in the conceptual and planning phases of a construction project which resulted in construction cost overrun. Therefore, this leads to the project having inadequate budget to perform its vital function (Ismail Abdul Rahman, 2012). The necessity of proper budgeting for a project, an explanation of resource management, and the economic benefits that would accrue to the project are addressed. In order to control cost, equipment and labor should be utilized in the most efficient way possible. Managing resources in the framework of civil engineering construction sector is usually an extremely complex task. Factors contribute to this complexity include the variety and great number of existing resources of both human and material, the diversity of tasks that each working unit is

able to execute, the performance of each working unit, the involved costs, and the spatial distribution of all resources over the different places, leading to the need for displacement from one site to another. All these important factors imply a high number of variables, resulting in a somewhat difficult optimization process. The basic objective of resource management is to supply and support the project so that established time objectives can be met and costs can be kept within the project budget (Just & Murphy, 1994). One of the main causes of cost overrun is ineffective resource managements.

There are various resource related factors which lead to failure of resource management resulting in construction cost overrun. Related Works Completion of any project within the estimated cost is the basic criteria for the success of any construction project. Primary target of practitioners involved in construction projects is to complete the project within budgeted cost regardless of size and complexity of project. However, completion of any project highly depends on the construction resources. Project resources provide the means for accomplishing the work objectives (Padilla & Carr, 1991). Construction resources management is the most important factor contributing to cost success (Meeampol & Ogunlana, 2006). Construction resources management has a high and significant relationship with cost performance for successful projects (Meeampol & Ogunlana, 2006). Enshassi, Al-Najjar, and Kumaraswamy (2009) found that increment of construction materials prices due to continuous border closures, delay in construction and supply of raw materials and equipment by contractors, fluctuations in the cost of building materials, and resources constraint of funds and the associated auxiliaries not ready, were among the top ten factors affecting construction cost. Financial difficulties of owner and contractor were ranked as the first problems affecting construction cost in Vietnam (Le-Hoai, Lee, & Lee, 2008). If the contractor can minimize problems such as inefficient use and lack of construction equipment and shortage of quality material, the construction budget can be reduced (Meeampol & Ogunlana, 2006). In extension from the above review works in uncovering resource related factors connected to cash and finance, the comprehensive literatures review work has identified a total of 20 factors which are been classified into four categories, i.e., material, manpower, machinery and money as shown in Table 2.1.

Table 2.1. Factors causing construction cost overrun and Cash shortage

Category	Resource related factor
Material	Fluctuation of pieces of materials Shortage of materials Change in material specification and type Delay in delivery of materials
Manpower	High cost of labor Shortage of technical personnel (skilled labour) Severe overtime Labour productivity Labour absenteeism Shortage of site workers
Money	Financial difficulty of owner Delay payment to supplier sub-contractor Delay in progress payment by owner Cash flow and financial difficulties faced by constrictors Mode of financing, bonds and payments Poor financial control on site
Machinery	Equipment availability and failure Late delivery of equipment's Insufficient number of equipment's High cost of machinery and its maintenance

Source; Factors causing construction cost overrun table-1 (Meeampol & Ogunlana, 2006).

2.5 Significant Cash Shortage Factors and its Influence on Building Projects Profitability

Proffers that construction is a high-risk company but one of the most important sectors of any economy. Poor cash flow negatively impacts upon company profitability which further impacts upon project delivery. (Emmanuel A-G. Adjei , 2018) suggest that forecasting and management of cash flow are perfect tools to avoid risk of inducing delays or incompletion of construction projects. The construction company operates in a highly competitive environment and contractors cannot survive without effective management of finance (Emmanuel A-G. Adjei , 2018). This therefore motivates contractors to introduce low profit margins in tender bids to compete within the construction company and this in-turn affects company liquidity. Countless studies on the management of cash flow have revealed that construction managers pay limited attention to profitbut rather contract sums relating to site costs and fixed costs. (Gundecha M. M.,

2013), reports that the problematic cash flow can also damage the congenial atmosphere shared amongst members of the project management team and negatively influence site productivity, affect the quality of delivery and reduce profit margin. This subsequently impacts upon the company's contribution to a nation's economy. (Emmanuel A-G. Adjei , 2018) considering advance payment and delay on payment for only one period but this model failed to address delays on progress payments. Prompt and consistent payments are prerequisite for the successful delivery of construction projects and the performance of construction firms. (Sambasivan M. and Soon Y. W., 2007) identified that delay in payment is a recurrent problem in the construction company globally. And also, this study showed, an unnecessary financial burden is exerted on contractors whenever delayed payments by clients who avoid sharing the risk are experienced. This in effect impacts greatly on the profitability of projects and further on the survival in the competitive business environment. According to study given that contractor cash flow shortages remain pervasive and entrenched within the construction company. (Emmanuel A-G. Adjei , 2018).

2.6 Construction Company and its cash flow

Study report (Yong Y. C. and Mustaffa N. E. 2012) that the construction company is important to a nation's economic health and accounts for circa 7-10 percent of gross domestic product (GDP) value. Within Europe, the United States and Turkey, 7%, 8% and 5.5% of all workers respectively are engaged in the construction sector (Kazaz A., Manisali E., and Ulubeyli S., 2008). Various studies globally have been undertaken to address the performance improvement conundrum through effective cash flow management. For example, (Singh N. ,2011) investigate the difficulties faced by Vietnam's construction sector and found that the capital loss ratio accounts for 30% of total construction capital as a result of inefficient management. Increase in competition for jobs and the level of corporate failures in the company have also resulted in a decline in output and orders (Dascălu C. G. and Cozma C. D. 2008). These competitive pressures motivate the diversion of excess resources into other areas of business investment termed as 'cash farming'. Industrial sickness has also been identified to be a very sensitive problem which adversely affects the industrial health and the economy at large (Navulla D. And Sunitha , 2016). This occurs when a company at the end of any financial year, accumulates losses equal to (or exceeding) it's entire net worth and has suffered cash losses in such financial year and the

financial year immediately preceding. Empirical studies further reveal that a causal link is apparent between ineffective management of working capital and 'industrial sickness' (Emmanuel A-G. Adjei1, 2018). In practice of Construction Company construction firms are confronted by the problem of poor cash flow prediction in undertaking multiple projects and this coupled with an ill-structured progress measurement system weakens firms financially. Studies have unraveled the dominance by small – scales building contractors constituting over 90% of the job market and many of the directors the larger Ghanaian owned firms have little or no knowledge about the company which indicated that construction development were affected in cash flow (Akomah, B. B. and Jackson E. N. ,2016). Accordingly, a decline in profitability observed is due to a lack of knowledge that leads to inefficient use of financial, material and human resources, and underestimation of building rates. The high inflationary rate which makes the company unstable reduces contractors' capital further, hence making it difficult to manage firms and this also prevents local small-medium sized contractors from competing with foreign and large firms. (Enshassi A., Al-Hallaq K. and Mohamed S., 2006) showed that there is lack of measurable targets for enhancing the company's general poor performance in which this negatively influences the financial profitability of firms and employee motivation. Under such circumstances, contractors lose skilled personnel and consequently reduce output and profit generation. This therefore underscores the need to address the company's cash flow management challenges.

2.7 Cash Management

Guaranteeing project feasibility requires the effective management of incoming and outgoing finance which are key elements of cash flow management within a construction company throughout the project duration (El-Sawalhi N. I. and El-Riyati A., 2015). Monitoring and controlling project progress and associated cash flow management are important benchmarks for clients and contractors because they can identify the early warning signs of cost, cost overrun and program delay (Cui Q., Hastak M. and Halpin D., 2010). An extensive literature review revealed that research into cash flow is often concerned with maximization of profit or minimization of total project cost. Cash flow is essential to meeting any financial obligations and optimizing short term funding requirements of projects or company.it also suggest that delivering a successful construction project is dependent upon effective management of its cash flow. cash flow

mathematically is defined as the difference between the income flow and expense flow and overheads (including both on-site project and office overheads): Thus

Cashflow = income flow-expense flow-overhead,

Where: expense flow is the cost flow by projecting the cost as a function of time usage and payment method and

Where Expense flow=cashflow +time lag.

Income flow is the contractors' monetary earnings from clients honoring interim valuations and related claims submitted on work executed (Buertey J. I. T., Adjei-Kumi T., 2012). Accurately forecasting cash flow at the tendering stage is essential to circumvent financial stress (Emmanuel A-G. Adjei1, 2018). Cash flow provides essential financial information such as: capital required to execute a contract; the sum of interest to be paid on and loans and overdraft; and an evaluation of different tendering strategies (Kaka A. P., 1996). Overheads is a cost that cannot be recognized with a construction project or a unit of the construction project and it is divided into two categories namely general and job overhead costs (El-Sawalhi N. I. and El-Riyati A., 2015).

2.8 Factors that Influence Cash Flow

Olatunji A. A. (2010), suggested that timely completion of a project measures contractors' quality performance and their ability to eliminate or minimize delays. The edge of benefit additionally assumes a basic part on the income of any venture as it gauges the monetary quality of the business. (Ismail I. A., 2014) concurred and revealed that low profit margins were the 2nd highest ranked financial factor among fifteen factors to influence contractors' failure. (Asante J. A., 2014) proposes that most contractors are highly dependent upon outsourced capital and this decreases profits due to higher prices paid on credit (e.g. interest charges) which negatively influences the projected cash flow. Studies have identified numerous factors impacting on construction cash flow (Gambo N. and Said I., 2014, and Odeyinka H. A., Lowe J. and Kaka A. P., 2013). However, this study focused on quantifiable factors and it refers to factors that are appreciable and can easily beestimated or quantified.

2.8.1 Financial Risk

The risky construction environment is exposed to significant uncertainties which involve the need for capital, delays in client payments and varying interest rates during the contract end time and final payment (Barbosa P. S. F. and Pimentel P. R., 2001). During periods of high interest rates and inflation levels, cash flow forecasting becomes more important and this makes it a tool to evaluate the distribution of expenditure and revenues for projects with reference to project time. The non-availability or inadequacy of a structure to manage cash flow results in liquidity problems that affect working capital without prior warning and this defies the sustainability of projects. The increase in loan cost negatively affects cash flow on projects and causes greater operating cost that reduces profitability (Bolek M. and Wiliński W., 2012). Contractors struggle to bear the heavy daily construction expenses that often involve huge sums of money coupled with delayed payment (Judi S. S. and Rashid R. A., 2010). (Emmanuel A-G. Adjei1,2018) suggest that a toxic combination of cash flow dependence upon bank loans, high interest rates paid and mismanagement of cash flow is the primary cause of business failure in developing countries.

2.8.2 Retention

Retention provides funds for clients to rely on when contractors fail to perform due to incompetence and/or bankruptcy (Harris F. and McCaffer R., 2005). According to (Emmanuel A-G. Adjei1,2018), most contractors are subjected to cash retention and contractors also withhold part of payments due to subcontractors. Larger contracts tend to be subjected to smaller rates of retention since the application of the smaller rate on the value results in a large sum of cash. An increase in the rate of retention from 2.5% to 5.0% would result in a corresponding increase in working capital required from 2.61% to 4.05% of annual turnover (Kaka A. P., 1996). A large retention percentage and delay in releasing retention according to (Emmanuel A-G. Adjei1, 2018),were the fourth and fifth financial management factors respectively affecting project cash flow. (Bausman D. C., 2004) suggests that withholding retention due to contractors creates a financial burden upon contractors and other associate partners in the construction company. (Emmanuel A-G. Adjei1,2018) also state that contractors' experience negative cash flow on projects until final payment is affected and when the retention rate is greater than the profit margin. It therefore becomes difficult for subcontractors to obtain the retention withheld by the main contractors who become insolvent.

2.8.3 Delayed Payment

Delayed payment is a major and persistent problem that confronts the construction company (Judi S. S. and Rashid R. A. (2010). This however affects a contractor's cash flow due to inadequate working capital to continue the project and hence negatively impacts upon the delivery of work. These challenges further exacerbate the contractor's financial viability by reducing their ability to acquire 'starting capital' to execute new projects and maintain the planned cash flow to execute existing works (as specified by the program of works and contract documents, (Emmanuel A-G. Adjei1,2018)). External funding source attracts interest thus reducing cash flow and profitability further as the company becomes increasingly highly geared (Asante J. A., 2014).

An induced payment default situation eventually affects cash flow of contractors and others in meeting their respective financial obligation and spirals contractors (and possibly members of their supply chain)towards insolvency (Judi S. S. and Rashid R. A., 2010). Subcontractors are affected on contracts where a clause of pay-when-paid is inserted because they will only receive payment when the main contractors are paid (Emmanuel A-G. Adjei1, 2018). The inability of clients to honor timely payment is a disreputable practice that unduly places the financial burden (and insolvency risk) upon contractors and members of their supply chain.

2.8.4 Project Claims

Claims negatively impact upon a project in terms of cost and time, (Emmanuel A-G. Adjei1, 2018), and this has a corresponding effect on quality and these primarily arise due to deficiency and ambiguities in contract documentation (Singh N., 2011). Site conditions are a major source of claims particularly when the actual conditions differ greatly from the documented; inclement weather can also be a factor but this is often attributed to force majeure Asante J. A., 2014). Claims are sometimes initiated by clients who may require significant modification of the scope of works in terms of size or complexity – such modification invariably has a financial ramification (El-Razek, M. E. A., Bassioni, H. and El-Salam, W. A. , 2007). (Emmanuel A-G. Adjei1,2018), state that contractors claim for extra work undertaken are not honored until practical completion thus instigating further constraints upon cash flow. Delay in issuance of drawings and other input impedes progress of works and this has a corresponding effect on progress payment to the contractor. This therefore motives contractors to outsource funds which attracts interest and hence,

impacts on cash flow. Clients may claim for liquidated and ascertained damages stipulated in the contract when contractors fail to deliver the project on time. Mark-ups decided by contractors are usually high to compensate for the large sum of deduction to be affected on the project cost should any delay occur (Judi S. S. and Rashid R. A., 2010).

2.8.5 Sectional Completion

Contract conditions vary and some offer sectional completion where part-payment is made at defined stages of project completion (Emmanuel A-G. Adjei1, 2018). Sectional completion enables both parties to forecast cash flow because milestone payment dates can be assigned to individual phase completions on the project. These phases will include accompanying retention periods which produce a corresponding unique S-curve of each section or phase. Individual cash flow produced(based on the distinct information such as duration, sum retention etc.) is merged to give an overall cash flow and the time lag between completed sections inevitably impacts upon cash flow (positively or negatively). Different sectional or phase completed elements may also incur corresponding retention releases and this should be incorporated into the development of the cashflow forecast (Dascălu C. G. and Cozma C. D. , 2008).

2.8.6 Pricing Strategies

Pricing strategies offer contractors an alternative means of improving cash flow of projects through front-end and back-end rates loading. Front-end rate loading is a technique where work activities to be executed early are artificially overpriced and underpriced activities occurring towards the end of the contract Gundecha M. M. (2013). Capital lock-up is worst at either stage or the possibility of applying front-end loading depends on client awareness. This enhances the effective margin of the early stages of a contract and maintaining the overall margin at a competitive level. Additionally, front-end loading off-sets any borrowing hence, reduces the level of external financing. Back-end rate loading on the other hand is a technique where later activities in the bill carry higher margins than earlier items. (Emmanuel A-G. Adjei1, 2018) revealed that front-end payment was the third highest financial management factor that affected project cash flow from the contractor's perspective. This finding was confirmed by (Buertey J. I. T., Adjei-Kumi T. , 2012) which found that pricing strategy was the fifth most influential factor on contractors' cash flow.

2.8.7 Over-measurement and Under-measurement

Over-measurement is also employed at the early stage of a contract in which certified work are valued more than executed work [39]. It improves project cash flow at the early stage, plays the same role as front-end loading and provides extra cash to execute subsequent works. (Ismail Abdul Rahman, Aftab Hameed Memon & Ahmad Tarmizi Abd. Karim, 2012) Suggests that contractors have historically attempted to improve project cash flow through over-measurement during the early stages of the contract. Under-measurement (as its name suggests) is the opposite of over-measurement and occurs when certified works at the early stages are less than the actual value of work done. Over-measurement and under-measurement were both identified to be the second most influential factor affecting contractors' cash flow (Buertey J. I. T., Adjei-Kumi T., 2012). According to (Gundecha M. M. , 2013), these are not typically sought by contractors as both situations create capital lock-up. This view concurs with (Emmanuel A-G. Adjei1,2018) who found that over-measurement and under-measurement were the ninth and tenth financial factors respectively that affect a contractor's project cash flow.

2.9 Entrepreneurs and contractors in the construction Sectors

Most of Ethiopia construction sector is characterized by many small enterprises and high labor intensity it is also highly dependent on public regulations and public investments. Many authors agree on the impact of the construction company on the economic development of a country. Wells (1984) stated that construction is an activity that plays a very vital role in the process of economic growth. Moavenzadeh (1987) adds that construction has positive effects on the economy of a country by increasing GDP and employment. In Ethiopia, the construction company contributed about 5.6% to the national. In Ethiopia, there are no specific criteria to establish in particularly Micro and Small-Scale Enterprise (MSE), low grade contractors and some other Grade contractors and it is done voluntarily. As any interested citizens who wish to participate in the project can register individually in their respective woredas, sub cities or regions based on their area of interest. Since No educational background is required to select an area of specialization except for electrical works, which sometimes require some experience or vocational school certificate and no satisfactory training is given for the construction project and how to manage to lead the project in productive and quality based, it was difficult to them to manage cash flow hence they face finance problem.

2.10 Challenges to construction companies on cash flow

2.10.1 Late Payment by Clients

Buys (2006) and Endalkachew (2008) indicated that SMME contractors suffer from erratic cash flow problems and are often forced to delay or suspend works due to a delay in payment or nonpayment, the government being the main defaulter in this respect. Contractors fail to meet their various obligations and works end up costing much more than the budget due to claims and interests. In the case of the labor-based contractor, delayed payment inevitably leads to strikes, unrest and serious disruptions. The issue of delay in payments by the government was identified as a major stumbling block that has impeded the growth of contractor growth. The Bolton Committee (2001:5) adds to the debate by reporting that a small business is vulnerable during a period of "credit squeeze," when larger enterprises or government bodies could use their greater power to delay payment to small enterprises.

Anderson (1987) examined the problem of late payment and suggested that the relationship between main contractor and consultants is determined by the conditions of standard contracts. The practical implementation of the relationship shows that payment is the primary stumbling block to peaceful co-existence within the company. Quantity Surveyors do not perform evaluationson time. This may mean that the contractor receives payment for completed later than the expecteddate. Motlanthe (1990) stated that in addition to the complaint that the initial "tender price" is oftenfixed by the client or Principal Agent, it is common that fairly long delays occur between the time that work is certified as completed and the time that cash is received, particularly in the case of public sector clients. Motlanthe further argues that many contractors complained of the problemsin their subsequent financial relationship between the contractor and the subcontractor. They include undue delays in payment, retention monies not being refunded and excessive penalties often being inflicted for absurd reasons.

2.10.2 Difficulties When Running the Businesses

The contractors do not seem to understand the nature of complexity and risk in contracting; do not seem to be adequately informed of how to deal with them properly. The contractors lack skill, experience and tools to win profitable contract; they either win a grossly underpriced bid, or lose a grossly over-priced one. Cost, price, control program not provided. They lack own ready finance and access to affordable loan. Due to lack of collateral, any one that gets credit from banks is

subjected to high interest and financial risk management charges that make contracts unprofitable in the ambition to grow big and make big profit, most of them take projects they do not have the necessary skills and financial resources to execute. The contractors tend not to employ qualified worker; they consider them expensive, but they fail while doing things all by themselves or with cheap, incompetent workers. They lack skills to properly program projects resources in monthly segments for healthy cash flow; they are not allowed front load due to lack of trust; they do not know how to prepare documents for timely payment; delayed payment. (adimkew wubie yigrem, 2020)

2.10.3 Financial management skills

Small contractors have very low financial reserves and use the profit from ongoing projects to finance their next project; hence a loss in one project ultimately leads to a cash flow problem and liquidation (Stretton, 1984:43). This is exacerbated by the tendency for small contractors in developing countries to take money out of the business for spending on personal items such as cars or a new house (ILO (1987:40). Most indigenous contractors in PNG are owner operated who also control the company financial matters. It is likely therefore, that project funds will sometimes be channeled into other personal matters which consequent financial strain to the projects. In addition, delays in contractor payment caused by the cumbersome process of making contractor payments in the public sector create financial problems for the contractor. (adimkew wubie yigrem ,2020)

2.10.4 Lack of entrepreneurial and business management skills

Myers (2004) suggested that management expertise is one of the scarcest resources in the Construction company. He stated that lack of managerial know-how places significant constraints on SMME (Small medium micro-Enterprise) development. The lack of support services or their relatively higher unit cost can hamper SMME effort to improve their management because consulting firms are often not equipped with appropriate cost-effective management solutions for SMMEs. Furthermore, absence of information and/or time to take advantage of existing services result in weak demand for them. One universal problem facing SMME contractors is the inability to estimate cost, compile tenders and assess the effects of inflation; this clearly reflects the lack of training and experience in business and financial management. In the absence of this experience, SMME contractors tend to rely on intuition

based on previous experience. They also overestimate labor productivity and material transport costs. The lack of costing skills has led to the underpricing of contracts. An African Builder also faces heavy financial losses at the end of the project by virtue of the fact that he fails to incorporate costs associated with the overheads and contingencies in compiling and quoting for tenders. What most African contractors do, and are very confident of, is the use of the standard rate per m2 as a means of estimating. This is reinforced by the popular census as to what constitutes an acceptable township rate and the willingness of the competitors to undercut any contractor who tries to increase his rate.

This method of pricing leads to most contractors ending-up with underpricing, since they tend to use the same rate in all their projects,irrespective of the finishes, structure, allocation of resources and the nature of the foundations. Tomention the worst part, "township rates" in some cases have remained unchanged, irrespective of inflation prevailing today and the real value of the cost in the economy.

Griffin (1990) advocated that the apparent lack of understanding of inflation and the escalation in the cost of building material clearly present an imposing barrier to black SMME contractors wishing to compete in the formal home-building market. Building societies in South Africa are reluctant to allow their home-buying clients from increasing original agreed costs. However, this essentially forces the contractors to estimate price increases in advance and include in an amount for this in their tender. Griffin (1990) clarifies this and suggests that it means that, the contractor would have to assess and cover the risk of price increases. Kagari (1994) proposed a framework for monitoring the development of SMME contractors in Atlanta and deduced that many people started constructing business without construction education background, market experience or managerial talent needed to run a construction operation. Some of the skills badly

- Estimating knowledge
- Ability to read drawings and specifications;
- Ability to schedule construction activities; and
- Proper accounting/book-keeping skills essential to keep track of the job andperformance cost and profit.

2.10.5 Contract documentation

Rated not too low relative to other factors in terms of extent experienced, this factor is rated fifth in terms of the effect on performance. However, it is noted that most clients, either public or private, often use different contract documents. For public housing, the plans are standard - all being designed for a flat site to enable plans to be used throughout No site contours are shown on the plans and the contractor is required to inspect the site to allow for any site works. Given the lack of information, contractors may increase their estimates for site works at the risk of overpricing the work. Most contract conditions put the majority of risk on the contractor. Payments are not made for materials on site unless they are installed, but when operating with minimum funds this affects the contractor's performance.

2.10.6 Construction management skills

Deficiency in planning and management skills is said to be the greatest single problem for small-scale contractors generally (ILO, 1987:47). In developing countries, the local construction companylacks the capacity and capability of undertaking large construction projects, resulting in the continual domination of expatriate construction companies in undertaking all major construction projects (Adam, 1997:95-108). Consequently, smaller companies find it hard to acquire experiencein their type of project (Jannadi, 1997:33) leading to contractors with limited management and technical skills (Ofori, 1991:371-2).

This affects their ability to acquire building materials, manage their workers, successfully bid for work (Stretton, 1984:34-52) and generally contributing to poor performance (Ofori, 1991:371-2). Given the fluctuation in the building company, employment in the construction company in third world countries offers less employment security (Stretton, 1984:142). In addition, small contractors in developing countries experience a shortage in skilled labor due to the salary and the security of employment offered by large construction companies being greater than that offered by the small contractor (ILO, 1987:40-3). Furthermore, more young graduates are being assigned to oversee projects and their "lack of skills and experience at both the supervisor and worker level" has been a contributing factor (Lewis, 1984:37-48).

2.10.7 Financial Constraints

The high competition among emerging contractors has contributed to increase financial failures of the emerging market, making the market unsustainable. The Construction Company Development Board states that the large numbers of emerging contractors have moved into higher value public tendering in the 0.5m to 2m market, which is also becoming overly competitive. Statistics South Africa reports that, from 1995 to 2005, about 5907 construction companies were formallyliquidated. According to the Construction Company Development Board states that much more than 90% of the emerging black contractors survive the first five years. According to the SA Construction Company Status Report 1,400 construction companies were liquidated over the past three years. Emerging contractors feel that the banks are reluctant to deal with them unless exorbitant interest rates and through compulsory business management services. The high competition among emerging contractors has contributed to increase financial failures of the emerging market, making the market unsustainable. Lack of access to finance both during preconstruction which disqualifies emerging contractors from meeting guarantee and performance bond requirements and during construction which leads to cash-flow problems, incomplete work and even liquidation are financial constraints facing emerging contractors. The inadequacy of external finance at the critical growth /transformation stages of micro enterprises deters the enterprises with growth potential from expanding. (M. K. Nissanke, 2001).

- *Guarantees or sureties, insurance bonds, performance bonds etc.*

A Development Bank of Southern Africa Construction and Development Series number one (1993) reported that financial support is difficult to come by for SMME contractors. The summary below tells it all: They have found that ‘’the involvement of SMME contractors is in fact a process of involving entrepreneurs with no capital in a capitalist system. Invariably these contractors do not have the facilities to provide guarantees or sureties and it is pointless to make these aspects conditions of tendering as they only serve to exclude potential contractors from the process. In our opinion every opportunity should be afforded to anyone to tender. His only qualification needs to be his willingness to tender and his enthusiasm for the project.”

In addition, Shakantu (2007) cited Water meyer (2001) who argued that the requirement for a performance bond presents a significant financial hurdle for micro enterprises. Moreover because of their greater surety risk factor, micro enterprises are forced to obtain their performance bonds

at significantly higher rates than well-established enterprises. Even the reduction of the bond amount to between 2.5 percent and 10 percent depending on the risk classification of a contract, has not significantly reduced this problem in South Africa. As the study of (adimkew wubie yigrem, 2020) this becomes a barrier as SMME contractors are unable to raise millions as a performance guarantee.

2.10.8 Contractor Selection Procurement Procedure

The practices and procedures for selecting contractors and awarding contracts in the construction company are based on those used in the public sector (Holt et al., 1994; Herbsman & Ellis 1992; Merna & Smith 1990; Moore 1985). These involve systems of bid evaluation dominated by the principle of acceptance of the lowest evaluated price (Nguyen, 1985). Many now believe that the public sector system of bid evaluation, concentrating as it does solely on bid price, is one of the major challenges of project delivery problems (Holt et al., 1994; Ellis & Herbsman 1991; Bower 1989). Contractors, when faced with shortage of work are more likely to submit low bids simply to stay in business in the short term and with the hope of somehow raising additional income through 'claims' or cutting costs to compensate for their low bids (Hatush & Skitmore, 1998).

2.10.9 Classification of challenges regarding to factors

Bouazza et al. (2015) stated that Empirical studies on factors affecting the growth of SMEs can be roughly divided into two groups: internal factors of the firm and external factors that are beyond the SMEs' control.

External factors in their research can be summarized as follows: Legal and regulatory framework, Access to finance and Human resources capacities. Internal factors and many more key strategic factors can be summarized as follows: Characteristics of entrepreneurs, Managerial capacities, marketing skills and Technological capacities

2.10.9.1 Expansion factors

According to Schaefer (2006), one of the leading causes of construction business failure is over expansion, and it often happens when the contractor or business owner confuse success with how fast they can expand their business. A focus on slow and steady growth is optimum. In many cases, insolvency or bankruptcy has been caused by rapidly expanding companies, although growth would not be repressed. If the expansion is warranted there has to be a careful review, research,

and analysis identified what and who the company needs to add in order for the business to grow. The contractor has to focus on the growth of the business, not on doing everything in it (Schaefer, 2006).

2.10.9.2 Financial factors

SMME in Ethiopia, like in most developing countries are faced with the same challenging of accessing finance in their bid to expand. Mainstream financial institutions are not willing to provide loans to the sector rather large amount of money is given to large-scale firms. Eshetu and Mammo (2009) stated that commercial banks are reluctant to lend a small amount of money to small business because the cost of administering the loan exceeds the benefit accrued to them. This shows that banks are not inclined to develop an innovative and systematic approach that minimizes risk and administrative cost to serve the sector. As a result, the traditional approach used by banks and financial institution does not enable them to overcome the risk and transaction cost of lending to SMME (EC 2001). The monetary policy of the government does not compel banks to extend their loans to SMME. Mulu (2007) and Etsegenet (2000) showed that about 76% of SMME obtain their startup and expansion capital from informal financial sources such as own saving, moneylenders, relatives, and friends. This indicates that the financial sector in Ethiopia is not adequately developed, coordinated and lack competition. The lack of alternative financial source and access increase the difficulty of obtaining a credit facility for SMME. Mulu (2009 identifies that the financial markets in Ethiopia are underdeveloped and most of the small firms rely on the informal market for external finance

2.10.9.3 Information and Technology factors

Adejimi (2009) declare that information technology (IT) has enabled the globalization of the economy and facilitated competition. It has subsequently brought about large-scale change in the industrial nations. We have witnessed the rapid growth of some industries such as a computer, communications, software, and financial services by creating new services and enhancing efficiencies, while other more traditional industries have stalled or even contracted in comparison. As it is transforming the landscape, IT is enabling a major shift in the job market. Many analysts have noted that for the modern workforce, IT literacy is becoming an essential requirement. Capron (2000) mentioned in Sun and Howard (2004) stated that IT application in the construction

companyand communication technology has radically transformed the way we live, learn, work and play.

2.10.9.4 Managerial factors

Experience in any kind of management is very important and it plays a crucial role in ensuring that a business succeeds or fails. Poor management has been posited as one of the main causes of failure of small enterprises (Longenecker, et al., 2006) Lack of experience in the constructions company can lead the manager to make bad business decisions. Good management implies an awareness of all factors making up a successful business namely good strategy, marketing, pricing and financial control (Douglas, 1985). Financial mismanagement and management incompetence have been cited among the attributes that lead to the prominence of construction failures (Kangari, 1988), (Henry, 1991), (Schleifer, 1990), (Potgieter and Frank, 1990).

2.11 Impact of Covid-19 On Ethiopian Construction Company

COVID-19 is having material and global impact on the delivery of construction projects across the world. Following the recommendations of the World Health Organization (WHO), and FDRE Minister of Health, Containment Protocols for construction has been implemented to provide maximum safety for construction workers, enforcing measures for adequate prevention and control of the spread of the virus. Some of the new restrictions that require construction to continue are reducing work hours, implementing shorter shifts, increasing distances between workers, disinfecting tools and equipment between shifts, not having site visits, and having high-risk employees stay at home, among others. The construction sector, the transport sector, and manufacturing are the more vulnerable to economic shocks arising from the pandemic due to a significant drop in the global demand and a high dependency on international markets, and services in urban areas affected by a shock in local supply and demand (Emmanuel A-G. Adjei, 2018). Construction will be heavily impacted by the crisis, as a direct impact of the global demand shock, as well as the supply shock due to social distancing measures and if the crisis continues for 6 months, an average estimation of 1.76 million jobs threatened (-33%) [40] Depending on the restrictions, construction projects have seen severe productivity impacts, or in most cases, the complete suspension of all construction activities may occur if the pandemic increases. According to (Alemayehu Geda, 2021), Ethiopian GDP will be declined by 2.7% due to a decline in

commodity prices could lead to fiscal pressures and it making it impossible to respond to the COVID-19 crisis. The impact of COVID-19 may vary from project to project, region to region, nation to nation, and continent to continent due to deference in project types, project locations, project owners, project duration and complex, type of contract. According to FDRE, Planning & Development Commission, May 2020, report, COVID-19 will cause to increase in unemployment rate about 9.8% at the national level and 20%, particularly in construction company unemployment. Since the pandemic has happened around the globe, it will increase the Ethiopian foreign currencyshortage by 60 to 70% and it will reduce Construction Company's ability to pay wages and bank loans. Of emergency. The consequent aftermath of the pandemic expected is a decline in project financing as lenders would be uneasy to finance construction projects because of the uncertainty surrounding the completion of projects. On the other hand, FDRE, Ministry of Urban Development and Construction, May 2020, report stated that COVID-19 will cause reduction of productivity by 40%, the income of labor, Small Micro Enterprise, material suppliers, equipment rentals will be reduced by 2.6%, 11.2%, 18%, and 4.4% respectively. In addition to that contractor's expenditure and the unemployment rate will be increased by 15.1% and 40% respectively. It caused Reduction of new investments in the construction company Beyond this COVID-19 causing thousands of new cases and fatalities as well as wide scale disruption and fear, both socially and economically. Owners and contractors are carefully analyzing whether they should terminate or suspend projects or portions of projects. Some will opt to press forward while some will opt to terminate or suspend. Virtually every contract and subcontract allow the upstream party to suspend or terminate the project at any time for any reason, without a showing of downstream default. The disputes center on who must pay for lost revenue (including overhead and profit) and who bears the costs to demobilize and remobilize. Those questions can be answered only by looking at the relevant contracts. Many contracts require the contractors and subcontractors to bear the costs; many others allow recovery. Hence as indicated this study indicated COVID-19 the construction cash flow and caused cash shortage for running the construction project.

2.12 Strategies used to Minimize Contractor's Cash Flow Problem

Minimizing negative cash flow is very important for contractors. This is because lack of funds may prevent the fulfillment of the contract. Procedures that contractors can follow to minimize negative ash flow include: Loading of rates, in which the contractor increases the prices of the earlier items in the bill of quantities. This ensures more income at the early stages of the project. However, this technique might represent a risk to the contractor or the owner. (adimkew wubie yigrem ,2020). Thus, the following strategies are as per the studies:

- Adjustment of work schedule to late start timing in order to delay payments. In this case,the contractor should be aware that in this case in delay might happen will affect the project completion time and may subject him/her to liquidated damages.
- Reduction of delays in receiving revenues (try to collect interim payments from the clientas fast as possible). The time between interim measurement, issuing the certificate and receiving payment is an important variable in the calculation of cash flows. Although monies out go to many destinations, e.g., labor, suppliers, rentals and subcontractors; the monies in comes from only one source i.e., the client. Thus, any increase in the delay in receiving this money delays all the income for the contract with the resulting in the capital lockup.
- Asking for advance or mobilization payment (In local contracts there is provision).
- Achievement of maximum production in the field to increase the monthly payments.
- Increasing the mark up and reducing the retention.
- Adjust the timing of delivery of large material orders to be with the submittal of the monthly invoice.
- Delay in paying labor wages, equipment rentals, material suppliers and subcontractor.

According to according to Harris and McCaffer (2001) and Kaka and Price (1993) strategies for resolving deficit cash flow in a construction Company's cash reserve are Tender unbalancing (it may be a factor for rejection of bids in our country), Delayed payment to subcontractors, delayed payment to suppliers, Company's asset andborrowed funds.

2.13 Survival to a cash shortfall

As indicated in (Ordermentum Insights, 2018) these are a few tips that can help tosurvive a cash shortage shortfall

1. Tighten credit .be cautious when providing credit
2. Encourage early payments
3. Factor in some help if needed
4. Conserve cash
5. Talk with your vendors
6. Limit your inventory
7. Identify problems early and act quickly

2.14 Summary

From all different literatures indicated it is revised cash shortage could be caused was summarized mainly as it was due to:

- ✓ Late Payment by Clients
- ✓ Cash Flow Management
- ✓ poor cash flow, disease like COVID-19
- ✓ Contractor financial capacity

Cash shortage impacts on the quality, schedule, and cost overturn or liquidity effect of Construction Company and affect the workers, company and national economy.

2.15 Research gaps in the literature

Although research has mainly been performed with a project, organizational or theoretical perspective, and not based on a study with a project, that has not been done Cash flow problem and its impact as in particularly in construction companies in Addis Ababa, Ethiopia.

The preceding discussion suggests that the Building Construction project literature is supplied to the studies relating to Causes and Impacts cash shortage influencing the success of the projects and customer satisfaction.

However, the following gaps are clearly identifiable from the literature.

i. The identification of causes of Cash flow problem and cash shortage of Building construction in Ethiopia has not been clearly was shown and not written asstudy literatures
ii. The identification of Impacts of Cash flow problem and cash shortage of Building construction based on Project performance, economic, customer satisfaction has not been done. Hence this study aimed to fill this Gap and provide studyresult that support on how to control and manage Cash flow management, forecasting cost and how to control causes for cash shortage and cash flow problem.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Study Design

The study was conducted using descriptive statistics (design to determine the characteristics of a population or phenomenon to be studied). In this study a mixed quantitative and qualitative research design was used to assess and describe Causes and Effects of Cash Shortage in Construction Companies of Addis Ababa, Ethiopia by assessing Cash Flow problem causes and their impact of cash shortage. Mixed methods research is an approach to inquiry involving collecting both quantitative and qualitative data. The core assumption of this form of inquiry is that the combination of qualitative and quantitative approaches provides a more complete understanding of a research problem than either approach alone (Creswell, 2011).

3.2. Study area and period

The study was conducted on cash shortage in Ethiopia Construction Company. The study was mainly focused on Building construction inparticularly in Addis Ababa city which is the capital city of Ethiopia.

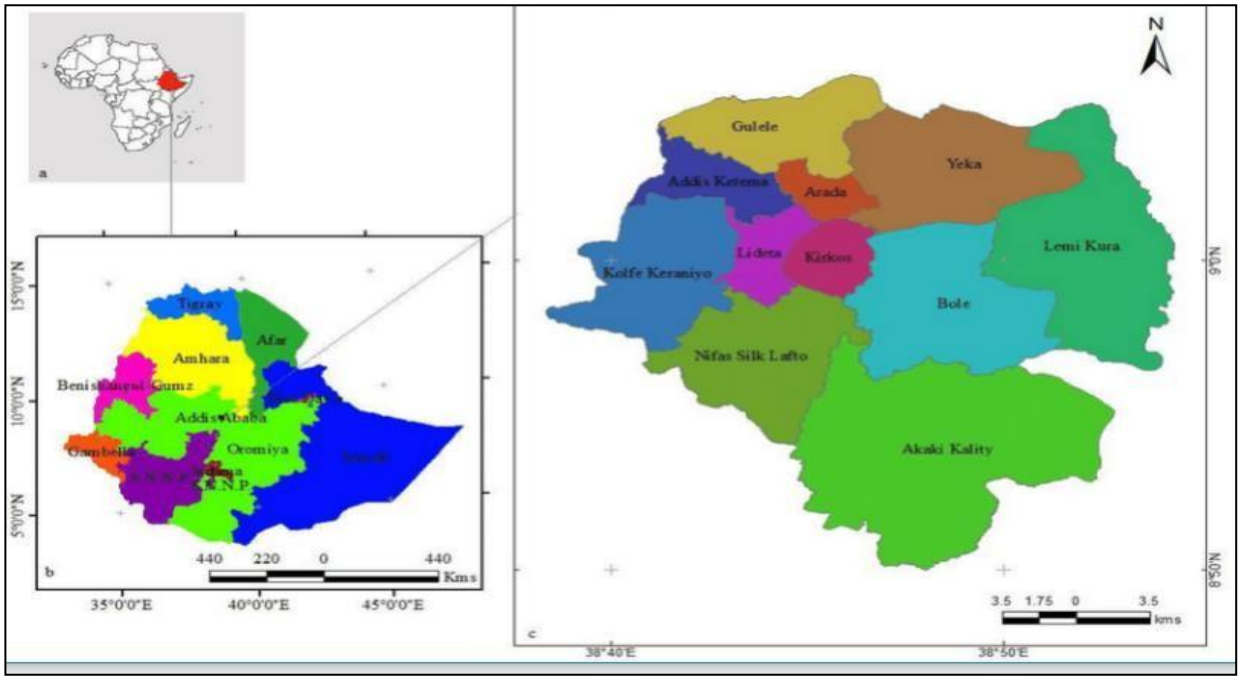


Figure 3. 1. Map of study area (Source researcher own)

Its astronomical location of Addis Ababa city is $9^0$0'19.4436''North Latitude and $38^0$45'48.9996'' East Longitude. Addis Ababa city was founded in 1879 by Etagie Tayitu and Atse Minilik II which is the capital city of Ethiopia one of the most rapidly growing Urbanization and populationand Economy and center of World diplomat and center of Africa Union office. Addis Ababa city has 11 sub cities Administration and main city Administration office of Mayor is located at Piassa near Minilik II square and Giorgis Church. The city has a population in 2009 with estimated population of about 6 to 7 million. In the City, different infrastructures such as building construction (private and public), road constructions, water supply and drainage expansions and stadium constructions and industrial Park construction and expansions of different resident houses, Real estates and research institutes etc. are carried in fastest of construction company with relativeto other rejoins of Ethiopia.

3.3. Target Population and Sample Size

This study focuses on head office of the construction companies in Addis Ababa City which their contract amount is One Hundred Million and above Ethiopian Birr which are currently on progress. According to Roscoe (1969), successful research can be conductedwith samples as small as between 10 to 20. However, for most studies samples size between 30 and 500 are most appropriate whereas sample sizes of less than 10 are not recommended.

Information collected from 2022 report of construction offices of city and from Construction sites survey, in Addis Ababa City construction currently there are 10 Contractors and 8 consultants and 5 Clients has participated. Namely those are:

Table 3. 1 Contractors Surveyed

No	Contractors Name
1	Yotek Construction Plc.
2	Yencomad Construction Plc
3	Samket Construction and engineering Plc
4	Welabu Construction Plc
5	Aser Construction Plc
6	Beaeka general Business Plc
7	Cross-land Construction
8	Diriba defersha Construction
9	Melcon Construction Plc
10	Fal general Contractor

Table 3.2 Consultants Surveyed

No	Consultants Name
1	Acut Engineering Plc
2	Afri Consult, consulting and engineers and Architect
3	Ethiopian Construction design and supervision works
4	Adugna Degefa Consulting architecture and engineers
5	Net Consult, consulting and engineers and Architect
6	Ansif Engineering and architecture consultancy
7	Prominent Engineering Solutions Plc
8	Ararat Consulting Engineers

Table 3. 3 Clients Surveyed

No	Clients Name
1	Addis Ababa Housing Administration Agency
2	Ethiopian Development Bank
3	Ayat Real State
4	Addis Ababa University
5	Metals and Engineering Corporation

From each contractor 3 respondents which are directly related to cash flow (Project Manager, Finance department head and Contract Administrator head) a total of 30 respondents.

From consultant 20 respondent and from client side 5 respondents, totally 55 respondents were taking for this study.

3.4. Sampling Techniques

Study sampling technique would be non-probability; purposive sampling would conduct to select the study professions or respondents. Individual respondents would determine taking in to consideration the accessibility, willingness to participate project type budget, resource and time limitation for this study.

3.5. Study Variables

Dependent Variable: Of these Study Dependent variables were was Cash Flow Shortage, cash flowsystem, challenges to cash flow, Causes of Cash flow problem or cash shortage, Impacts of cash Flow of the construction in Addis Ababa city.

Independent Variable: Delay in payment to Customer, Delay in project completion, Cost, Project Quality, Productivity, Dispute between stakeholder parts, level of customer satisfaction.

Hence the study would work on these variables including their relationships to assess the impact of cash flow or cash shortage on the construction in Addis Ababa city, Ethiopia.

3.6. Data Collection Process

After a thorough review of relevant literature related to cash flow and cash shortage and finance management and its impact on the construction company practice on building construction projectsquestionnaire questions that fit the objective to be achieved were developed. The design of the research has the following technique will be Questionnaire design.

3.6.1. The Questionnaire

Based upon a review of current literature and research objectives, structured questionnaire was prepared and self-administered to the various respondents. Almost all the questionnaires have closed-ended questions since the study was assessment for the first time and to ensure consistency of respondent feedback. Because it is not entirely possible to design all questions as closed-ended, some questions were left open-ended, to obtain numerical data or to request some written comment. It is planned two questionnaires for each stakeholder, thus a sample size of 55 professionals of those would be Engineers, project managers and finance departments for quantitative data and for qualitative study were involved.

For the purpose of the study, the questions were grouped under four main sections.

1. General Information,
2. Cash flow, cash flow challenges and cash shortage practice on the building construction
3. Causes of cash shortage on the building construction
4. The measurement that should be taken for controlling the impact of cash shortage on the building construction project to take with optimum performance of project accomplishment.

It employed the five-point type Liker ordinal scale to measure level of usage by responding firms from “Strongly Disagree” to “Strongly Agree” that is, 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree. The third section “impacts of cash shortage on construction in Addis Ababa city” inquiries about the effects of cash shortage on the construction project in the development in the construction company. It employed the five-point type Liker ordinal scale to measure level of usage by responding firms from “Strongly Disagree” to “Strongly Agree” that is, 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly

Agree. The fourth and the final section "Measurement to be taken for minimize the impact of cash shortage on the building construction project" asked responding firms to score identified measurement items for minimize the impact of cash shortage on building construction by contractors, consultants' Clients and others in building construction company. Based on the criteria identified, the Liker rating scale was again adopted to extract the appropriateratings as per their important measurement using the five-point Liker ordinal scale (1-5) was usedwhere1= Very weak, 2= Weak, 3= Average, 4= Strong, 5= Very strong.

3.6.2. Data Processing and Analysis

The analysis of data from questionnaires was done using average/ mean value. The data and other inputs obtained from the questionnaire surveys and interviews were analyzed based on the criteria set. Tables, histograms, pie charts and other graphic presentation are used to support the discussions.

3.6.3. Frequency Analysis

Under frequency analysis, descriptive statistical methods Analyzed by mean and/ or Percentage and the results were presented using tables, figures or charts.

3.6.4. Mean Value analysis

Mean value analysis is adopted for schedule non-performance parameters improvement. Accordingly, identified factors and improvement parameters are evaluated for the degree of occurrence in each project. The degree of occurrence and application are assessed with Very high, High, Law, Very Low and Never with weight value of 5, 4,3,2,1 respectively. The mean value Arithmetical calculations are stipulated with the following formula:

$$M.S = \frac{5*X_5 + 4*X_4 + 3*X_3 + 2*X_2 + 1*X_1}{5*N} \quad \text{..... Equation 3.1}$$

Where N = Number of respondent, M.S=Mean Score, and X_i=frequency of event i with this formula, the events measured here include: Cash flow and cash shortage practices andcash flow challenges and cash shortage impacts on the construction projected and measurement item for minimizing the impact of cash shortage on building construction.

3.6.5. Pilot test, Validity and Reliability Test for the Questionnaire

Pilot studies were carried out to ensure the clarity and relevance of the questionnaire to respondents. The questionnaire was shown to four researchers in the same field. Based on their feedback, amendments were made and the second phase of the pilot study was conducted on building construction workers. Based on the feedback, minor amendments were again made to remove any ambiguities and discrepancies. This pilot study was conducted to validate and improve the questionnaire, in terms of its format and layout, the wording of statements and the overall content. The draft questionnaire was revised to include the suggestions of these participants. In short, the questionnaire was validated through this process.

To be reliable, the questionnaire should be valid first and then by using Cronbach's alpha measure of reliability (i.e., internal consistency) is used to check. The sample respondent from the construction company and the result was feed in to SPSS software and the following table 3.1 describes the result.

Cronbach's alpha was originally derived by Kuder & Richardson (1937) for dichotomously scored data (0 or 1) and later generalized by Cronbach (1951) to account for any scoring method.

Cronbach's basic equation for alpha

$$\boldsymbol{\alpha} = \frac{n}{n-1} * (1 - \frac{\sum Vi}{Vtest})$$

- n = number of questions
- Vi = variance of scores on each question
- The higher the score, the more reliable the generated scale is A score of .70 or greater is generally considered to be acceptable.

✓ 0.90 or > = high reliability

✓ 0.80-0.89 = good reliability

✓ 0.70-0.79 = acceptable reliability

✓ 0.65-0.69 = Marginal reliability

CHAPTER FOUR: DATA ANALYSIS AND DISCUTION

4.1. Introduction

This chapter describes the analysis and interpretation of the collected data about the assessment of Cash flow shortage causes, poor cash flow management causes and impacts of cash shortage and Mitigation to control cash shortage. The Study of this document mainly titled as "Causes and Impacts of cash shortage on Ethiopia construction taken on Selected Grade 1 and Grade 2 contractors and consultants that have main offices in Addis Ababa and Government construction offices of Building and Road or Highway as case study. The chapteris also consisting of different topics such as: response rate or Questionnaire administration, demographic characteristics of respondents, Practice on Cash Flow monitoring through timely performing, cash shortage causes and its impacts, poor cash flow management and mitigation to control and to minimize cash shortage occurrence and its impact.

4.2. Response Rate of the Respondents

Out of 55 questionnaires distributed to the respondent 51 of questionnaires were collected and returned with the response rate was 91%, of which 4 questionnaires were not properly filled and not returned and hence not considered for final analysis.

Table 4. 1 Response Rate of Respondents

Organization from which respondents were taken	Number of Questionnaire Distributed to respondents	Questionnaire Returned and used for Analysis	%age of Returned Questionnaire
Client	5	5	100
Contractor	30	28	93
Consultant	20	16	80
Total	**55**	**51**	**91**

Source; Own survey

A test was carried by 9-sample respondent from the construction company, the result was feed in to SPSS software, and the following table

Cronbach's Alpha	N of Items
0.828	9

According to the tables above the variables are good Reliable because the result obtained from Cronbach's Alpha is 0.828 so it is within acceptable range.

4.3. Demographic Characteristics of Respondents

The first part of the questionnaire was demographic information giving the general profile of respondents and company. In this study Respondents educational level, Respondents experience at organization. The results obtained from the structured questionnaires are presented on the table 4.2 shown below.

Table 4.2 Demographic Characteristics of the Respondents

General Profile of Respondent			
Item		Frequency (Number of Respondents from Total Analysis number)	% Age
Respondents Educational Background	Diploma	10	18.2
	Degree	30	54.5
	Masters	15	27.3
	PHD	0	0
	Total	55	100
Experience	Less than 5years	0	0
	5-10 years	15	27.3
	11-15 years	35	63.6
	Above 16 years	10	18.8
	Total	**55**	**100**

Source: Own survey

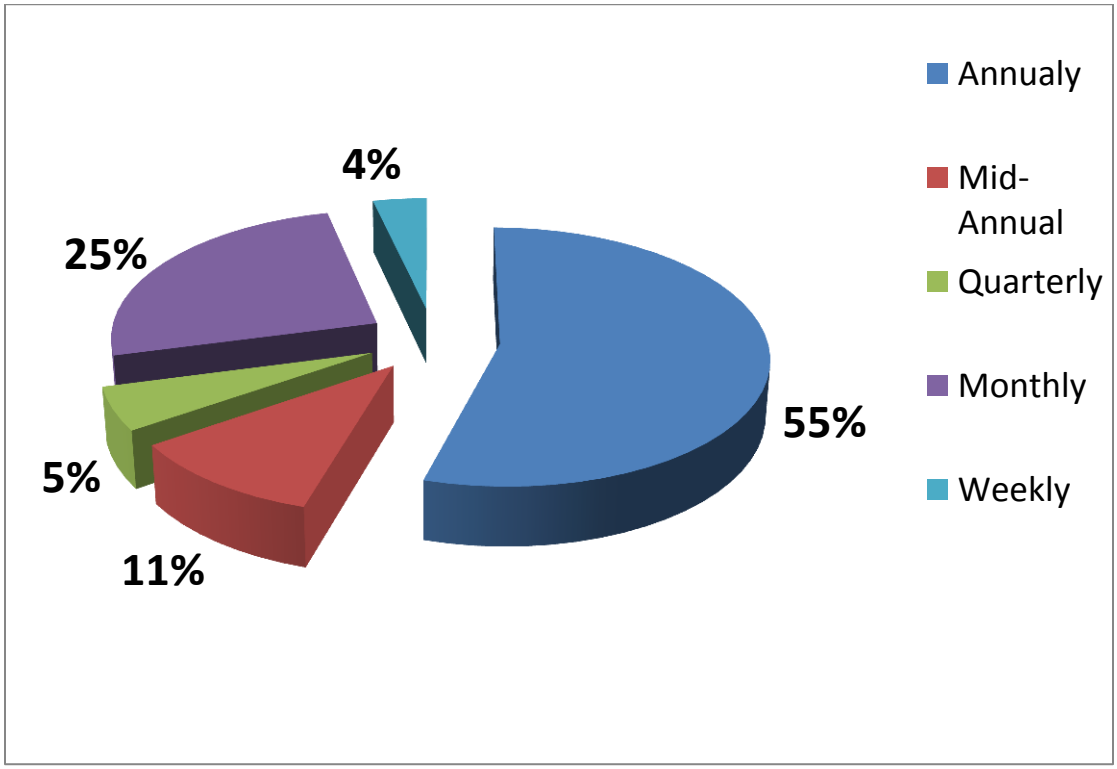
Study participants, out of the total 55 respondents, the respondents educational background as shown in table above shows above 81 % of respondents were degree and above degree holder in their educational background and the rest are diploma which indicated they have knowhow on the study issue and are not face difficult to understand for what were required on the questionnaire. Most of Respondents work experience in the studied organizations was between 11 to 15 years which account 63.6 % of respondents and more than 10 were account in 18.8% of respondents which showed the study participants were well experienced and know better about the cash flow issue of the construction company.

4.4. Periodic usage of cash flow analysis

To examine the periodic usage of cash flow analysis, respondents were asked to rate their usage level on a weekly, monthly, quarterly and annual basis. Table & Chart 4.3 illustrates that 55 per cent of respondents Agree that company use cash flow analysis annually and 5 percent of respondents agree that their company in particularly contractors done their cash flow analysis quarterly, whileonly 25 per cent make use of cash flow analysis on a monthly basis and 4 per cent on a weekly basis. As Cash shortage affect most of stakeholder directly involve on the construction of construction project, It was investigated most of Contractors check their cash flow condition through cash flow analysis annually and next to annually at Mid annually time of construction. Hence this cash flow analysis is not enough to give correction of cash flow problem.

Table 4.3 Percentage of Respondent Agreement on periodic time of cash flow

Period Description	No Of Respondents	Percentage of respondents
Annual	30	55%
Mid Annual	6	11%
Quarterly	3	5%
Monthly	14	25%
Weekly	2	4%
Total	**55**	**100%**



Apparent that large firms are more likely to perform cash flow analysis on an annual scale than small and medium firms.

The study reveals that while all participating stakeholders perform cash flow analysis annually, performance on a weekly or monthly basis occurs less and very less frequently. Cash flow analysis provides a useful forecasting system for ensuring that organizations can meet financial demands. Moreover, it provides information to clients, consultant and in particularly contractors will assist them in evaluating the company's ability to generate future cash flows (Mulenga and Bhatia, 2017). These findings indicate that most of these companies may not analyses cash flow appropriately to anticipate potential problems during the course of project execution.

4.5. Causes of cash Shortage in construction companies of Ethiopia

One of the challenges in performing the construction project is the cash flow management. In particularly, cash shortage is a major in affecting the construction performance and success. Hence

Knowing what causes cash shortage is crucial to mitigate for the impact. Table 4.4 below illustrates significant factors for cash shortage in Construction Company.

Table 4.4 Results on the causes for Cash shortage

Factors contributed to cash flow shortage	M.S	Rank
Inappropriate cash flow management	4.417	1
inflation of material prices, labor wages and transportation costs and	4.300	2
Market instability (Foreign Currency shortage or fluctuation)	4.250	3
Increment of foreign exchange rate for imported materials and plants.	4.250	4
Payment issue (Delay in payments to the contractor)	4.250	5
Improper resource planning	4.250	6
Defect in Cost forecasting	4.217	7
Inadequate Budgetary Control	4.200	8
Inefficient overhead cost planning	4.183	9
Shortage of Construction Resources	4.000	10
Neglect fund reserve strategy	3.967	11
Lack of Fund supporter (Fund Raiser condition)	3.950	12
Peace Instability (Political Issue and Dispute)	3.933	13
Work of construction stacked due to occurrence of Transmitted disease like COVID-19	3.900	14
Economic Changes	3.900	15
Low productivity of labor and equipment	3.867	16
Project complexity	3.850	17
Insufficient cash flow analysis of inflows and outflows;	3.733	18
difficulties in getting loan from financiers	3.717	19
increment of interest rate in repayment of loan	3.333	20
allocation of government budget not in place	3.067	21

Table 4.4 showed analysis resulted by Mean square on the basis of response of respondents the identified Causes of cash shortage from most significant causes to least significant 21 cash shortage significant causes were identified: As shown in the analysis result in table as the response of respondent's perception inappropriate cash flow management with M. S=4.417 the most significant which was the 1strank of significance ,next inflation of material prices, labor wages and transportation costs with M.S=4.300, at third position of significance for cash shortage was Market instability (Foreign Currency shortage or fluctuation) (M.S=4.250), Increment of foreign exchange rate for imported materials and plants (M.S =4.250) and at 5th position was Payment issue (Delay in payments to the contractor) (M.S =4.250), and the next five critical significances cash shortage causes respectively were the delay payment for work

done from clientwill affect the cash flow of the contractor , Causes of Late payment ;Clients poor financial management ,Withhold of payment by client ,Delay in variation and certification of interim payment by consultant , Inaccuracy of valuation for work done , Insufficient documentation and information for valuation , Heavy workload by consultant or engineer to do evaluation for valuation of work done and Contractors misinterpretation of clients requirement of variation order. If cash Flow forecasted is not properly prepared it brought to problem in cash flow. main risk variables responsible for variations between the forecast and actual cash flow are client's changesto initial design, inclement weather, architect's variation to works, labor shortage, production target slippage, delay in agreeing variation/ day works, delay in settling claims, problems with foundations, underestimating project complexity, estimating error and undervaluation. As the study by Williams and Jeongwoo (2010) and Navon (1996) described that cash flow fore-casting as a method for ascertaining future cash excesses or shortages. Hence due to challenges referred would causes in cash flow shortage. Shortage of construction input resources factor grouping is made up of: shortage of key materials, shortage of key plant items and labor shortage. Contractor's cash flow disbursement and project progresses are closely tied to regular supply of construction input resources. Where the resources of key materials, key plant items and skilled labor are in short supply, it is expected that they will impact significantly on construction progress and by implication, on the contractor's cash flow.

The 11^{th} in rank was Neglect fund reserve strategy (M.S=3.967,IRR=0.793) , Companies without cash reserves and strong balance sheets will face a significant challenge from the perspective of cash flow and their ability to access and apply for the relevant government support packages. As the study of Arafat and Skaik (2016) cash flow represents the life-blood of an organization because without it, outstanding financial obligations cannot be met. A company must have sufficient working capital to pay its creditors, suppliers, sub-contractors and employees and may be reliant on its clients' payments to cover these expenditure items (Lowe and Moroke, 2010).

As the analysis result in the table 4.3 above Lack of Fund supporter (Fund Raiser condition) the 12th significant cash shortage cause with Mean. Square =3. 950. The analysis also suggests that to augment cash flow problems the majority of company's take a bank loan. This indicates that they may not have analyzed cash flows appropriately to adequately anticipate the need for cash resources during the course of project execution, and therefore may not have a good track record

of adequate financial stability or collateral and a lower credit rating. Previous research shows that lenders do not easily provide large capital to firms with no track record/collateral and a lower credit rating (Seoetal., 2018). Payment for goods and services from customers, and purchase of stock and raw materials were indicated by respondents to be significant sources of cash inflow and outflow respectively, which implies that there is income available to pay accounts and wages.

Next to Lack of Fund supporter, Peace Instability (Political Issue and Dispute) with Mean .Square =3.933 is another important significant cash flow shortage in construction project .The 14th cash flow shortage cause was Work of construction stacked due to occurrence of Transmitted disease like COVID-19 (M.S=3.900).Coronavirus COVID-19 is causing a severe economic shock to many parts of the economy, whilst it may not appear apparent, the impact on the construction company will be significant and likely to have major structural effects on the sector's supply chain. Due to the COVID-19 lockdown measures, and associated economic fallout, construction firms will see a negative impact on turnover.

The 15th significant cause was Economic Changes (M.S =3.900), Economic changes factor grouping is made up of: changes in interest rates, inflation, and access to funds at reasonable interest rate, changes in currency exchange rates and compliance with new regulations. Where there is economic down turn, resulting in high interest rate, high inflation, etc., it is expected that this will impact significantly on the contractor's cash flow. Hence Economic changes disturb the financial capacity of contractors. The next last significant causes for cash shortage were Low productivity of labor and equipment (M.S=3.867) , Project complexity(M.S =3.850), Insufficient cash flow analysis of inflows and outflows (M.S=3.733) , 19th difficulties in gettingloan from financiers (M.S=3.717), increment of interest rate in repayment of loan (M.S=3.333) , allocation of government budget not in place (M.S=3.067) .Project complexity factor grouping comprises of: underestimating project complexity, estimating error, production targets slippage and changes to initial design. Less complex a project is, the easier it is to predict and manage its cash flow.

Where these happen, they are expected to impact significantly on the project cash flow. These variables have direct impact on productivity rate and hence on cash flow. Knowing of cash outflow and cash inflow sources well control cash shortage and cash flow problem. The sources of cash flow within construction, source of cash inflow is payment for goods and services from

customers, and purchase of stock and raw materials is the highest ranked source of cash outflow. When cash flow analysis is not undertaken by firms at appropriate times, the result could be a breakdown or inefficiency of financial systems, which could eventually lead to insolvency (Lowe and Moroke, 2010; Khosrowshahi and Kaka, 2007). Moreover, when companies perform productive cash flow analysis, it assists them in increasing investment on construction projects thus attracting the attention of major stakeholders and availing the growth opportunity (Habib and Huang, 2019). This indicates that they may not have analyzed cash flows appropriately to adequately anticipate the need for cash resources during the course of project execution, and therefore may not have a good track record of adequate financial stability or collateral and a lower credit rating. Hence cash inflow and outflow is one of major causes for cash flow process.

Difficulties in getting loan from financiers could cause insufficient financial resources in the Construction Company, and inflation of material prices, labor wages and transportation costs could cause financial market instability. Allocation of government budget not in place" was a significantcause to insufficient financial resources. According to Onukwube (2005), Ward (2000) and Lowe(1997), there are five major reasons for cash flow problems:

1) Insufficient cash flow analysis of inflows and outflows;
2) Delays in payments from clients who do not honor interim certificates when due, thereby reducing the amount of cash resources available to contractors to carry on withthe work;
3) Difficulties faced by contractors in obtaining financial support in the form of bank loans and over drafts when funds are required;
4) Poor budgetary control; and
5) Inadequate supplier management (e.g., over charging and the inability of suppliers to deliver their goods and services at the time required).

The most critical factors that would cause cash flow in problem and lead to cash shortage in particularly contractors are:

1) Difficulties in getting loan from financiers and

2) Allocation of government budget not in place

3) Market issues: According to Ahmed et al. (2003), the external factor of poor economic conditions such as currency and inflation rate would significantly give impact to project's cash flow and hence affects the timely performance of the project. The causes to financial market instability which will then lead to cash flow problems in construction project include:

i) increment of interest rate in repayment of loan,
ii) inflation of material prices, labor wages and transportation costs and
iii) Increment of foreign exchange rate for imported materialsand plants. IV, due to disease like COVID-19.

The independent variables include late payment, poor cash flow management, insufficient financial resources, financial market instability and COVID-19 disease. The greater the delay in payment due to contractor, the greater the cash flow problems, the greater the extent of delays; the poorer the cash flow management, the greater the cash flow problems, the greater the extent of delays; the greater the shortage of financial resources, the greater the cash flow problems, the greater the extent of delays; and the greater the instabilityof financial market, the greater the cash flow problems, the greater the extent of delays. Poor cash flow management by a client of a construction project will cause a late payment to contractor.

4.6. Poor Cash Flow Management on construction companies

Poor Cash flow Management is critical factor that affect the performance and success of construction project. Inappropriate of Cash flow management are caused from skill of cost and finance management, company finance capacity and background, costing and cost estimation methods, workmanship skill and experience and finance source. Table 4.5 below showed the analysis result as the response of respondents for those poor cash flow management causes.

Table 4. 5 Respondents' response analysis result for Poor cash flow management causes

S.N	Causes to poor cash flow management	M.S
1	Lack of regularly cash flow forecasting and related Risk that affect cash flow forecasting	4.200
2	Contractors' background financial instability	4.167
3	Un balance of inflow and outflow of cash flow	3.867
4	Poor credit arrangement with creditors and debtors	3.833
5	Capital lock-up	3.833
6	Contractor's work and handling of project without take into consideration their capacity	3.500

The study 6 critical cause was identified in study as shown in table 4.6. Above, and as the perception of the respondents on causes significance occurrence. The analysis was in M.S to evaluate and assess the level of causes as compared to given scale for study (1 to 5). Based on the level of significance for the occurrence causes for poor cash flow management all identified cause were significant causes as all their M.S were above 3. Based on the result;

Lack of regularly cash flow forecasting and related Risk that affect cash flow forecasting with the M.S=4.200 most and very highly significant causes for poor cash flow management in construction company . Next most significant was Contractors' background financial instability with M.S=4.167 which M.S value indicate very highly significant causes. And the next respective significant causes were UN balance of inflow and outflow of cash flow (M.S=3.867), Poor credit arrangement with creditors and debtors (M.S= 3.833). Capital lock-up (M.S=3.833) and the last not least cause was Contractors work and handling of project without take into consideration their capacity with M.S=3.500 was critical significant factors for the poor cash flow management. A poorly managed cash flow caused from:

1) Contractor handles too many projects at the same time
2) Contractor's instable financial background
3) Unqualified contractor underbidding the project cost
4) Lack of regularly cash flow forecasting
5) Poor credit arrangement with creditors and debtors and
6) Capital lock-up.

Poor cash flow management contributes most to delay of payment in construction, insufficient financial resources, and financial market instability. Irregularities in cash flow can cause capital lock-up and constitute a triggering factor for insolvency which may end up disrupting the planned project program (Lowe and Moroke, 2010). Contractor's instable financial background, client's poor financial and business management, difficulties in getting loan from financiers and inflation were identified as the most significant causes to main factors Poor cash flow. Generally, a contractor's instable financial background is the most significant factor that underlies poor cash flow management which would consequently lead to project delays. Clients as the most significant cause to late payment, client'spoor financial and business management. "Contractor's instable financial background and Bankers as the most significant cause to poor cash flow management.

Cash flow forecast is of great importance to construction contractor as well as the client to prevent consequences of liquidation and bankruptcy. Finance Risk was defined as the chance of exposure to the adverse consequences of future events with connected to Finance (CCTA, 1993). Bufaied (1987) described risk in relation to construction as a variable in the process of a construction project whose variation results in uncertainty as to the final cost, duration and quality of the project. Moreover, Fong (1987) asserted that it is generally recognized that those within the construction company are continually faced with a variety of situations involving many unknowns, unexpected, frequently undesirable and often unpredictable factors. These factors include production and timing schedule slippage of the project tasks, technological issues, people-oriented issues, finance, managerial and political issues. The major problem that construction managers encounter in making financial decisions involves both the uncertainty and ambiguity surrounding expected cash flows (Eldin, 1989). In the case of complex projects, the problem of uncertainty and ambiguity assumed even greater proportion because of the difficulty in predicting the impact of unexpected changes on construction progress and consequently, on cash flows. The uncertainty and ambiguity are caused not only by project-related problems but also by the economic and technological factors (Laufer and Coheca, 1990). Lowe (1987) maintained that the factors responsible for variation in project cash flow could be grouped under five main headings of contractual, programming, pricing, valuation and economic factors.

Kaka and Price (1993) and Kaka (1996) in developing a model for cash flow forecasting identified other risk factors affecting cash flow profiles to include estimating error, tendering strategies, cost variances and duration overrun. Khosrowshahi (2000) also identified other risk factors that impact on cash flow to include delay payment and difficulty in obtaining the right amount of funds at reasonable interest rates.

4.7. Effect of Cash Flow Problem / Cash shortage

Table 4.6 showed below the analysis result as perception of Respondents on the effect of cash shortage. The most critical effect of cash shortage was delay in completion of project, incapable to pay payment, unemployment and economic crisis were the identified impact.

Table 4.6 Effect of cash shortage

Effect	M.S	Rank
Delay in project completion time	4.333	1
Payment delay/Incapable to pay payment	4.200	2
Financial crisis/Lack of incentive	4.133	3
Increase Unemployment	4.083	4
Lead to poverty	4.083	5
Contractual Dispute	4.067	6
Capital lock-up	4.050	7
Additional (increased)costs	4.050	8
Impacts on national Economy	4.017	9
Economic Crisis/Incapable in purchasing	3.983	10
Personal life/family and society life effect	3.983	11
Reduction in profit margin	3.967	12
Project abandonment	3.950	13
Litigation/arbitration	3.817	14
Market Trade and Business activities impact	3.733	15
Displacement of workers	3.683	16

Analysis result showed in table 4.6 above 16 effects that would occur due to cash shortage were identified and the result from the perception of respondents as set scale of significance in questionnaire. Hence from result Delay in project completion time with Mean Score =4.333 is very highly significant effect of cash shortage**,** and in 2nd position of most significant effect was payment delay/Incapable to pay payment with Mean Score =4.200, Financial crisis/Lack of incentive was the most significant effect with Mean Score =4.133 is the fourth significant impacts of cash shortage.

The other significant effect with M.S value respectively were Increase Unemployment Rate (M.S= 4.083), cash shortage would Lead to poverty (M.S=4.083), among contractual parties (client, contractor, consultant) due to cash shortage it might cause of Contractual Dispute (M.S=4.067), And it also impacts on Capital lock-up (M.S=4.050) and Additional (increased) costs with M.s 4.050 due to time overturn for cash shortage to complete the required project. The rest impacts of cash shortage investigated respectively were; Impacts on national Economy with M.s =4.017, Economic Crisis/Incapable in purchasing (M.S=3.983), Personal life/family and society life effect with M.s of 3.983 Reduction in profit margin(M.S=3.967), Project abandonment (M.S=3.950),Litigation/arbitration (M.S=3.817) , Market Trade and Business activities impact (M.S=3.733),Displacement of workers (M.S=3.683)**,** Poor cash flow management contributes

most to delay of payment, insufficient financial resources, and financial market instability. Poor cash flow management was the root cause of delays.

4.7.1. Payment problem

Payment Problems seriously affect the normal operation of contractors and hinder the healthy and sustainable development of the construction company, in some cases; their negative impacts even extend to other aspects of the society. Most construction companies have suffered from inadequate cash resources. It is likely to be the final causes of failing for many companies, since cash flow is the most important power of running construction companies. Shortage of cash brings extra expenses to construction companies and decreases profitability of them. Cash flow and profitability are interactive, even though they are different issues. The impact of payment arrears which is pervasive on cash flow and profitability of construction project with real project data indicates that, generally, the longer the payment delay from owner, the more cash balance and profitability decline. The profitability suffers decrease with payment delay for material and labor though cash balance could be higher temporally. The decrease of tolerance of material suppliers and construction workers also reduces cash flow and profitability.

4.7.2. Delay in Project Completion

Delay could be defined as time overruns either beyond the completion date stipulated in contract or beyond the agreed date for delivery of a project between the parties (Assaf and Al-Hejji, 2006). Delay is one of the most serious problems in the construction company and is also an important issue to the completion of a project. According to Shen et al. (2001), majority of the building projects usually cannot be accomplished within the stipulated contract period. Only 25% of building contracts were accomplished within the schedule completion dates and the average time overrun exceeded 40% (Bromilow, 1974). In 2005, approximately 17.3% of 417 governments overrun exceeded 40% overrun exceeded 40% (Bromilow, 1974). In 2005, approximately 17.3% of 417 government contract projects in Malaysia were considered sick with more than three months delays or abandoned (Sambasivan and Yau, 2007).

The construction company is regarded as one of the mostrisky, dynamic and challenging business of which delay of construction project challenging to project development which has occurred mostly due to cash flow shortage. Delays in construction projects lead to serious consequences

that may retard the development of the construction companyand influence the overall economic condition of a country (Arditi et al., 1985). Delay in the completion of construction projects could be the greatest cause for extra cost and loss in financial return or other benefits from project. Thus, delay is costly for both owner and contractor. To the owner, a delay means loss of potential revenue; while to the contractor, a delay means increased costs in overhead. Most of the survey results (Al-Khalil and Al-Ghafly, 1999; Frimpong and Oluwoye, 2003) show that financial problem in particular cash shortage is one of the main causes of delays. Delay in the completion of construction projects could be the greatest cause for extra cost and loss in financial return or other benefits from project. Thus, delay is costly for both ownerand contractor. Most of the survey results (Al-Khalil and Al-Ghafly, 1999; Frimpong and Delays occur in projects as the company is famed for poor risk management with many projects failing to meet deadlines and cost targets. According to Abdul-Rahman et al. (2006) and Abdul-Rahman et al. (2009) the effects of irregularcash flow on construction projects are delays in completion time; capital lock-up; insolvency; litigation/arbitration; and project abandonment/failed projects. Irregular cash flow therefore posesa significant threat to a successful project delivery (Odeyinkaetal.,2008; M a h a m i d e t a l .,2012; Sambasivan and Soon,2007). Regarding capital lock-up, contractors either have to borrow money to meet their obligations or remove funds from the company's reserves, thereby depriving the cashof its interest-earning capabilities (Adjeil et al., 2018; Asante, 2014; Omopariola et al., 2017). Contractors become insolvent when the business has insufficient assets to cover its debts, or whenthey are unable to pay their debts when due (Price Water house Coopers, 2009; Lowe, 1997).

1) Interim certificates, delay in payment from client and delay in retention release.

Valuation and payment are the means by which a contractor receives cash in-flows and anything that tampers with their smooth running is expected to affect the contractor's cash flow significantly.

2) Contractor's Finance resources are one of the major measures on the contractors' performance that affect construction project. Lack of funds may affect the project's cash flow and lead to construction delay of site possession which consequently causes delays to the project as whole.

3) The construction company impacts labor markets and societies in general. The construction riskstypically impact the important time and cost performance parameters of a project. Risks have a significant impact on the cost and time performance of a project. The lack of accurate cost estimation and risk assessment leads to the failure of projects, which is translated into the failure of the construction company (Van Thuyet et al. 2019). The construction company must be able to estimate and forecast the different risks that could impact a project's performance. Risk assessmentand estimation allows the reflection of different risk factors on a project's cash flow.

The risks associated with cost overruns and the measures that construction companies should consider in mitigating them. However, due to the inherent nature of risk that the construction company poses, these forecasts are bound to have variations and deviations. There are two central norms when it comes to construction cash flow views. The first norm defines the cash flow as net receivables minus net pay ablest during a project, while the other norm defines the cash flow as the actual movement of money in and out of a project (Wang and Yuan 2011). On the other hand,Odeyinka et al. (2008) showed that among the most common severe risk factors in the construction company, financial risks are the most influential regarding severe adverse outcomes on a construction project. Sato and Hirao (2013) examined the trade-offs between the budgeting issuesand the risk factors. The integration between the risk management plan and the budgeting plan toensure that all Finance risk factors are considered and those adequate buffering measures are in placeto mitigate the effect or the impact of the Finance risks.

4.8. The effects of cash shortage on completion of construction projects

Effective cash flow, completing projects within cost is primary objective of clients (Adediranand Windapo,2017). "Project success "means that certain aspects for a specified stakeholder are met (Alao et al., 2018), whether from the perspective of the developer, engineer, contractor, promoter or members of the public (Purnus and Bodea, 2017; Windapo et al., 2017). However, due to the complex project procurement and implementation environment (Windapo et al., 2017) and unmanaged cash flow problems (Odeyinka and Yusif, 1997; OdehandBattaineth, 2002) construction projects are often deemed unsuccessful in meeting the aspirations set at project commencement. The risk of contracting construction projects becoming insolvent can largely be attributed to poor financial management strategies, especially inadequate attention to cash flow

management at the organization allevel (Abubakaretal., 2016; Arditietal., 2000; Lowe,1997; Ugochukwu and Onyekwena, 2014).This concurs that cash flow management is critical for contractors to successfully deliver projects in the construction company (Sherif and Kaka, 2003). The appropriate management of cash flow is a vital tool and essential to the continued health and stability of the construction company because liquidity serves as the primary resource for running successful project organizations (Peer, 1982) Singh and Lakanathan,1992), The issues that disrupt cash flow are myriad and include: payment delays; changes to orders; profitmargins; retention conditions; and credit arrangements with suppliers (Park, 2004).

Coronavirus COVID-19 is causing a severe economic shock to many parts of the economy, whilst it may not appear apparent, the impact on the construction company will be significant and likely to have major structural effects on the sector's supply chain. As the study showed by (5) Their Coronavirus scenario suggests that construction might see a 70% reduction in output this causing significant cash flow issues for those without significant cash reserves. Due to the COVID-19 lockdown measures, and associated economic fallout, construction firms will see a negative impact on turnover. Many businesses are in or anticipating severe financial distress and potentially a reluctance of lenders to work constructively with the company. It is unlikely that the full impacts of reduced cash flow through supply chains will materialize until later in the year. Different techniques for controlling Transmission of COVID-19 like shutdown, developing new working patterns, Lockdown eased, Lockdown shielding and social distancing end – would affect the contractor and lead to cash shortage for payment to idle workers due to rate of production would be stacked. As Ethiopia Civil service law contractors couldn't terminate the workers in particularly permanent workers rather paid their salary. But it was challenge and critical risk for contractor during locking and in general due to occurrence of COVID production would be stacked. As Ethiopia Civil service production would be stacked. As Ethiopia Civil service law contractors couldn't terminate the workers in particularlypermanent workers rather paid their salary. But it was challenge and critical risk for contractor during locking and in general due to occurrence of COVID. Especially, the last three years construction activity was very low and the first six month almost stopped. Hence contractors faceda problem finance crisis for payment to workers Dispute Insolvency amongst construction companies is attributed to inadequate financial management strategies and lack of consideration towards cash flow management processes (Calvert, 1986; Clough and Sears, 1994; Boussabaine and Kaka ,1998; HarrisandMcCaffer,2001). Contractual

disputes also impact upon cash flow. Oke et al. (2016) establish that construction projects are faced with numerous, simple to complex issues that range from late payments to litigation. This supports the notion of Danuri et al. (2006) and Kennedy (2005) that cash flow problems and poor management of cash flow are the main subjects of disputes (Lowe, 1997). This can lead to financial adversity if these disputes result in arbitration or litigation (Bob, 2005).

4.9. Effects of positive and negative cash flow on construction projects

The analyses the impact of cash flow on construction projects its effects were allocated to either positive cash flows or negative cash flows.

Table 4.7 Effect upon Cash flow

Effects of positive cash flow	Mean. Score
1. Availability of sufficient cash to meet demands	4.20
2. Adequate planning and execution of the project	4.23
3. Timely completion of the project	4.15
4. Proper utilization of cash resources	4.03
5. Reliability indicator for lending institutions	4.01
Effects of Negative cash flow	Mean Score
1. Capital lock-up	4.28
2. Delay in project completion time	4.24
3. Project abandonment	4.19
4. Lack of incentive	4.16
5. Reduction in profit margin	4.14
6. Additional (increased)costs	4.07
7. Litigation/arbitration	4.02

Positive cash flows are indicated as having the following significant effects on construction projects: adequate planning and execution of the project (mean score = 4.23); availability of sufficient cash to meet demands (mean score = 4.20); timely completion of the project (mean score = 4.15), proper utilization of cash resources (mean score = 4.03); and reliability indicator for lending institutions (mean score=4.01).

Conversely, negative cash flow are identified as having the following adverse effects: capital lock-up (mean score=4.28); delay in project completion time (mean score = 4.24); project abandonment (mean score = 4.19); reduction in profit margin (mean score = 4.14); additional (increased) costs (mean score = 4.07); and litigation/ arbitration (mean score = 4.02). Capital lock-up and delay in project completion time could occur due to the delays in payments to

contractors' identified in Table 4.7 which are capable of affecting cash flow negatively. Also, project abandonment could cause contractors to financial losses, which can also be interpreted as a negative impact on cash flow. Nwachukwu and Emoh (2011) prefer that the effect of positive cash flow on a construction project is the successful and timely completion of that project. As study (Edwardsetal. 2017) revealed that is adequate funding for the procurement of construction resources, namely, labor, materials and plant. Reliability indicators provided by lending institutions, such as financial stability and creditworthiness, help contractors to secure the required cash flow to run their construction business and deal efficiently with unpredicted situations (such as tax increases on materials) (Adjeil et al., 2018; Omopariola et al., 2017). Positive cash flow enables the contractor to gain access to loans or overdrafts when necessary (and at a preferential rate) (Seo et al., 2018; Zainudeen et al., 2010). It secures cash flow and securing regular cash flow throughout the project's life-cycle promotes the forging of a stronger contractor-client relationship and healthier long-term business relationship (Dahunsi, 2010; Nwachukwu and Emoh, 2011). It is noted, regular and timely cash flows between the client and contractor also safeguard the efficient delivery of the construction project (Abdul-Rahman et al., 2006; Kumar et al., 2018). Hwee and Tiong (2002) Study showed that proper cash flow administration (positive cash flow) is the most important factor that can affect the portability of a project.

The significance of cash flow is related to cash as the primary source of every successful construction project (Sherif and Kaka, 2003). A stable financial performance, achieved through productive cash flow analysis, creates the potential for construction organizations to exploit their investment opportunities (Seoetal, 2018). Finance is the fuel that energizes Project, and a firm's cash flow is one of the most significant indicators of that company's financial strength as it impacts upon both performance and profitability (Tam, 2002; Naoum, 2003; Beatham et al., 2004). Cash flow is of particular importance to the contractor because it is a reflection of a project's financial performance prior to the contract being completed and the final account settled (Usman et al., 2016).

According to Abdul-Rahman et al. (2006) and Abdul-Rahman et al. (2009) the effects of irregular cash flow or Cash flow problem on construction projects comprise: delays in completion time; capital lock-up; insolvency; litigation/arbitration; and project abandonment/ failed projects. Irregular cash flow therefore poses a significant threat to a successful project

delivery (Odeyinkaetal, 2008; Mahamidetal, 2012; Sambasivan and Soon, 2007). Contractors become insolvent when the business has insufficient assets to cover its debts, or when they are not able to pay their debts when due (Price Water house Coopers, 2009; Lowe, 1997). Insolvency amongst construction companies is attributed to inadequate financial management strategies and lack of consideration towards cash flow management processes(Calvert, 1986; Clough and Sears, 1994; Boussabaine and Kaka, 1998; Harrisand McCaffer,2001).

4.10. Mitigation to Prevent Cash Shortage/Cash Flow Problem

To control or minimize the cash shortage that would face or cash problem in general in construction project the following alternatives that are indicated in table 4.8 were investigated. Respondents were responded to these mitigations as their perception and analysis result was shown by Mean score from the linker scale (1 to 5) in Table 4.8 below.

Table 4.8 Mitigation to cash flow problem

Mitigation	M.S
Prepare effective cash flow and cost forecasting and work on better cost estimating methods	4.250
Effective plan and begin work with Available and sufficient cash to meet demands	4.167
Proper utilization of cash resources	4.167
Practice on proper cash flow management (process of monitoring, analyzing and adjusting projects' cash flow)	4.133
Perform Periodical cash flow analysis (weekly, monthly, quarterly, annually) and make correction if cash flow in problem	4.133
Avoid great a gap between cash inflows and outflows	4.117
Control negative cash flow through monitoring and evaluation time to time	4.100
Timely completion of the project	4.083
Maintain to Practice on Applying positive cash flow	4.033
Adequate planning and execution of the project	4.017
Work with Fund raise company by providing Smart Plan and work proposal by showing work Reliability indicator for lending institutions	4.017
Work on Save environment and by care protection without Stopping the project work if COVID -19 and similar transmitted disease face	4.000
Stake holders (contractor, consultant, client, Finance departments and fund raiser) coordination and Integration	3.900

As seen the Analysis result the listed alternative solutions were the most significant as the M.S results were more than 4. Among them Prepare effective cash flow and cost forecasting and work on better cost estimating methods with Mean Score 4.250 was the most significant solution to manage the Cash flow problem. And Stake holders (contractor, consultant, client, Finance

departments and fund raiser) coordination and Integration with Mean Score 3.900 the last significant solution to cash flow problem.

4.10.1. Appropriate cash flow management

Cash flow management , source of cash flow and balancing cash inflow and cash out flow in construction company are major and core that has in focus and sustainable works has to be done with continuously cost analysis of activities of construction .Sources of cash inflow are ; Payment for goods and services from customer, Interest on savings and investments , Shareholder investments , Increase bank overdraft and Sources of Cash Outflow are ; from Purchase of stock and raw materials , Payment of wages and salaries , Income tax, VAT, and other taxes , Purchase of fixed assets and office furniture , Loan repayment , Dividend repayment and Reduced overdraft facilities Zainudeen et al. (2010) suggest that bank loans, retained profits and hire purchase are common methods used to mitigate cash flow problems.

According to Peer (1982) and Singh and Lakanathan (1992), the appropriate management of cash flow is a vital tool and essential to the continued health and stability of the construction company because liquidity serves as the primary resource for running successful project organizations. The issues that disrupt cash flow are myriad and include: payment delays; changes to orders; profit margins; retention conditions; and credit arrangements with suppliers (Park, 2004). These issues must be effectively and efficiently managed by parties to the contract. Construction delays could be reduced by identifying the root causes of financial-related problems

4.10.2. Cash flow forecasting

Cash flow forecasting involves producing a suitable financial forecast that can be compared against actual progress on site and the associated outlay of expenditure (RICS, 2014; Lowe, 1997; Russell, 1991). Accurate cash flow forecasting allows contractors to envisage peaks and troughs in their cash balances (Akinola, 2010; and RICS, 2014) and helps them to strategies borrowing or management of surplus funds throughout the project's duration (Abdul Rahman et al., 2009). Forecasting cash flow requirements and setting side suitable provisions is of critical necessity for providing financial stability during periods of insufficient cash resources (Harris and McCaffer, 2001).

According to Harris and McCaffer (2006), cash flow forecasting provides an excellent early warning system to ensure that the organization continues to meet its financial demands, since anything outside these demands could result in the company's potential liquidation. The need to forecast cash requirements is important in order to make provision for the difficult times of inadequate cash resources before they arrive (Harris and McCaffer, 2001). Cash flow forecasting provides a good warning system to predict possible insolvency (according to McCaffer, 1976) Hence effective cash flow forecast with monitoring and Risk analysis to manage the risks that affect Cash flow forecast

Accurate cash flow forecasts, enabling the contractor to foresee the possible risks and include buffers to mitigate the impact on a project's cost performance (Abd El Razek et al., 2014). Discussing the risks that may occur in the cash flow of a construction project, Odeyinka et al. (2008) indicated that all projects tend to develop a cash flow forecast at the beginning of the project, using a net cash flow value flow and cost flow approach.

Possible solutions in mitigating financial-related delay such as to structure the market, not to over develop, to conduct training on cash flow management, to access risk management, to be smart in accepting the contract, to choose a good paymaster, and to apply payment bond with bank and client were suggested to clients and contractors, respectively.

CHAPTER-FIVE: CONCULUSION AND RECOMMENDATION

5.1. Conclusion

Based on the finding the following conclusions have been stated:

- ✓ **Periodic usage of cash flow analysis result indicates:**

The periodic usage of cash flow analysis, respondents were asked to rate their usage level on a weekly, monthly, quarterly and annual basis. 79% of respondents agree that company use cash flow analysis annually. It was investigated most of Contractor check their cash flow condition through cash flow analysis annually and next to annually at monthly time of construction.

Hence the cash flow analysis is not enough to give correction of cash flow problem. Apparent that large firms are more likely to perform cash flow analysis on an annual scale than small and medium construction companies. The study reveals that while all participating stakeholders perform cash flow analysis annually, performance on a weekly or quarterly basis occurs less and very less frequently.

- ✓ **The main Causes of cash Shortage are:**

One of the challenges in performing the construction project is the cash flow management. In particularly, cash shortage is a major in affecting the construction performance and success. The study identified Causes of cash shortage from most significant causes to least significant 21 cash shortage significant causes were identified:

- inappropriate cash flow management the most significant
- Second inflation of material prices, labor wages and transportation costs
- third position of significance for cash shortage was Market instability (Foreign Currency shortage or fluctuation)
- 4th Increment of foreign exchange rate for imported materials and plants
- 5th position was Payment issue (Delay in payments to the contractor),
- And the next five critical significances cash shortage causes respectively were the delay payment for work done from client will affect the cash flow of the contractor , Causes of Late payment ;Clients poor financial management ,Withhold of payment by client ,Delay in variation and certification of interim payment by consultant , Inaccuracy of valuation for

work done , Insufficient documentation and information for valuation, inappropriate cash Flow forecasted , Neglect fund reserve strategy , Lack of Fund supporter (Fund Raiser condition)

- 12th significant cash shortage cause , Peace Instability (Political Issue and Dispute) , Work of construction stacked due to occurrence of Transmitted disease like COVID-19.Coronavirus COVID-19 is causing a severe economic shock to many parts of the economy, Economic Changes , Low productivity of labor and equipment, Project complexity, Insufficient cash flow analysis of inflows and outflows , difficulties in getting loan from financiers, increment of interest rate in repayment of loan , allocation of government budget not in place.

✓ **Poor Cash flow Management causes:**

Poor Cash flow Management is critical factor that affect the performance and success of construction companies. Inappropriate of Cash flow management are caused from skill of cost and finance management, company finance capacity and background, costing and cost estimation methods, workmanship skill and experience and finance source.

The study 6 critical cause were identified in study. These factors identified were;

- Lack of regularly cash flow forecasting and related Risk that affect cash flow forecasting was very highly significant causes for poor cash flow management in Construction Company.
- Respectively next most significant were Contractors' background financial instability
- The third respective significant causes were; Un balance of inflow and outflow of cash flow, Poor credit arrangement with creditors and debtors, Capital lock-up and
- The fourth cause was Contractor's work and handling of project without take into consideration their capacity were critical significant factors for the poor cash flow management.

✓ **Effect of Cash Flow Problem / Cash shortage**

Impacts of cash flow problem were investigated. Among them, the most critical effect of cash shortage was Delay in completion of project, incapable to pay payment, unemployment and economic crisis, financial crisis, Increase Unemployment Rate, cash shortage would Lead to

poverty, Contractual Disputes among contractual parties (client, contractor, consultant), Additional (increased) costs were the significant effect identified.

Payment Problems seriously affect the normal operation of contractors and hinder the healthy and sustainable development of the construction company, in some cases; their negative impacts even extend to other aspects of the society. Most construction companies have suffered from inadequatecash resources. It is likely to be the final causes of failing for many companies, since cash flow is the most important power of running construction companies. Shortage of cash brings extra expenses to construction companies and decreases profitability of them.

Cash flow and profitability are interactive, even though they are different issues. The impact of payment arrears which is pervasive on cash flow and profitability of construction project with real project data indicates that, generally, the longer the payment delay from owner, the more cash balance and profitability decline. The profitability suffers decrease with payment delay for material and labor though cash balance could be higher temporally. The decrease of tolerance of material suppliers and construction workers also reduces cash flow and profitability.

Delay is one of the most serious problems in the construction company and is also an important issue to the completion of a project. The construction company is regarded as one of the most risky, dynamic and challenging business of which delay of construction project challenging to project development which has occurred mostly due to cash flow shortage. Delays in construction projects lead to serious consequences that may retard the development of the construction company and influence the overall economic condition of a country. Delay in the completion of construction projects could be the greatest cause for extra cost and loss in financial return or other benefits fromproject.

Positive cash flows are indicated as having the following significant effects on construction projects: adequate planning and execution of the project, availability of sufficient cash to meet demands, timely completion of the project, proper utilization of cash resources, and reliability indicator for lending institutions.

5.2. Mitigation to Prevent Cash Shortage/Cash Flow Problem

To control or minimize the cash shortage that would face or cash problem in general in construction project the alternatives mitigation was identified: As seen the Analysis result the listed alternative solutions were the most significant as the M.S results were more than 4. Among them Prepare effective cash flow and cost forecasting and work on better cost estimating methods was the most significant solution to manage the Cash flow problem. And Stake holders (contractor, consultant, client, Finance departments and fund raiser) coordination and Integration with Mean Score the lastsignificant solution to cash flow problem.

In all the possible alternative mitigation studies identified were:

- Prepare effective cash flow and cost forecasting and work on better cost estimating methods, Effective plan and begin work with Available and sufficient cash to meet demands
- Proper utilization of cash resources
- Practice on proper cash flow management (process of monitoring, analyzing and adjusting projects' cash flow)
- Perform Periodical cash flow analysis (weekly, monthly, quarterly, annually) and make correction if cash flow in problem
- Avoid great a gap between cash inflows and outflows
- Control negative cash flow through monitoring and evaluationtime to time
- Timely completion of the project
- Maintain to Practice on Applying positive cash flow
- Adequate planning and execution of the project
- Work with Fund raise company by providing Smart Plan and work proposal by showing work Reliability indicator for lending institutions and Work on Save environment and by care protection.

5.3. Recommendations

From the study find out the cash flow shortage causes were identified. Hence it was recommended to work on the causes to control and manage cash flow and make it positive cash flow. Also, it was shown in this study there was unsatisfactory cash flow analysis periodically.

- The company should work periodic cash flow analysis per-week, per two weeks, per month, per Annual quarter,mid-annual and annuals
- The company should develop Monitoring and Evaluation on Cash Flow strategies
- The Company has to work on financial plan management in effective
- The company would to recruit better workers on the cash flow and cost management
- The contractor has to develop the financial potential and have reservation in finance.

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Appendix

QUESTIONNAIRE

ADDIS COLLEGE

Haftom Kahsay is a Masters student at Addis College in **Construction Technology and Management Department**. I have been working thesis paper for the fulfillment for MSc under the title of "Causes and Effects of Cash Shortage in Construction Companies of Addis Ababa, Ethiopia". The study is focused on the Causes and Effects of Cash Shortage in Construction Companies of Addis Ababa, Ethiopia. You have been selected to participate in the study by completing the questionnaire attached. Please be assured that the information provided will be used strictly for academic purposes by theresearcher. Your assistance in completing the attached questionnaire will be greatly appreciated. You do not have to disclose your personal details.

SECTION –I: Respondents Information

✓ **Personal information**

a. Educational level (Tick) ○ **Ph**.D ○ Master Degree ○ Underground ○ Diploma ○ other

b. Work experience in the company (tick one under corresponding title or position in tableshown below)

Less than 5 years	5-10 years	11-15 years	16 and above years

c. Your Organization Information (tick one)

Client ○ , contractor ○ , consultant ○ finance institute ○

Section-2

1. periodic usage of cash flow analysis (tick X in front of time)Weekly-----, monthly-------, quarterly-----, annual basis-----

   For next questionnaire questions (2, 3, 4, 5) Use the following Key Scale and put your (X) underthe scale of your perception on that you agree on.

   Key Scale: 5=Very High Significant/Agree, 4= Highly Significant/Agree 3= Significant/Agree , 2=Insignificant/Disagree, 1= Highly In Significant/Disagree

2. Causes for Cash shortage occurrence

No	Factors contributed to cash flow shortage	5	4	3	2	1
1	Insufficient cash flow analysis of inflows and outflows;					
2	difficulties in getting loan from financiers					
3	allocation of government budget not in place					
4	Market instability (Foreign Currency shortage or fluctuation)					
5	Inappropriate cash flow management					
6	increment of interest rate in repayment of loan					
7	due to disease like COVID-19					
8	inflation of material prices, labor wages and transportation costs and					
9	Increment of foreign exchange rate for imported materials and plants.					
10	Peace Instability (Political Issue and Dispute)					
11	Lack of Fund supporter (Fund Raiser condition)					
12	Payment issue (Delay in payments to the contractor)					
13	Difficulties in obtaining Financial aid					
14	Inadequate Budgetary Control					
15	Improper resource planning					
16	Defect in Cost forecasting					
17	Inefficient overhead cost planning					
18	Neglect fund reserve strategy					
19	Low productivity of labor and equipment					
20	Economic Changes					
21	Project complexity					
23	Shortage of Construction Resources					

3. Poor cash flow management causes

S.N	Causes to poor cash flow management	5	4	3	2	1
1	Contractor's work and handling of project without take into consideration their capacity					
2	Contractors' background financial instability					
3	Lack of regularly cash flow forecasting and related Risk that affect cash flow forecasting					
4	Un balance of inflow and outflow of cash flow					
5	Poor credit arrangement with creditors and debtors					
6	Capital lock-up					

4. Effect of Cash Flow Problem / Cash shortage

S. N	Effect	5	4	3	2	1
1	Capital lock-up					
2	Delay in project completion time					
3	Project abandonment					
4	Reduction in profit margin					
5	Additional (increased)costs					
6	Litigation/arbitration					
7	Financial crisis/Lack of incentive					
8	Payment delay/Incapable to pay payment					
9	Displacement of workers					
10	Economic Crisis/Incapable in purchasing					
11	Contractual Dispute					
12	Impacts on national Economy					
13	Market Trade and Business activities impact					
14	Personal life/family and society life effect					
15	Payment Delay					
16	Increase Unemployment					
17	Lead to poverty					

5. Mitigation to Cash shortage

S.N	Mitigation	5	4	3	2	1
1	Maintain to adopt positive cash flow					
2	Effective plan and begin work with Available and sufficient cash to meet demands					
3	Adequate planning and execution of the project					
4	Timely completion of the project					
5	Avoid great a gap between cash inflows and outflows					
6	Proper utilization of cash resources					
7	Practice on proper cash flow management (process of monitoring, analyzing and adjusting projects' cash flow)					
8	Work with Fund raise company by providing Smart Plan and work proposal by showing work Reliability indicator for lending institutions					
9	Control negative cash flow through monitoring and evaluation time to time					
10	Stake holders(contractor, consultant, client, Finance departments and fund raiser) coordination and Integration					
11	Perform Periodical cash flow analysis (weekly, monthly, quarterly, annually) and make correction if cash flow inproblem					
12	Prepare effective cash flow and cost forecasting and work on better cost estimating methods					
13	Work on Save environment and by care protection without Stopping the project work if COVID -19 and similar transmitted disease face					

If you have additional comment srelated to the study please write in given space below

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Thank in advance for your cooperation

September, 2022