

Study of Cashflow Constrains in a Construction Project

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Abstract: A constraint is a condition, agency or force that impedes progress towards an objective or goal and Construction industry is a one of the most risky sectors due to high level of uncertainties included in the nature of the construction projects. Although there are many reasons, the deficiency of cash is one of the main factors threatening the success of the construction projects and causing business failures. Therefore, an appropriate cash planning technique is necessary for adequate cost control and efficient cash management while considering the risks and uncertainties of the construction projects. The main objective of this thesis is to conduct a brief study of cash flow management. its various aspects, The factors influencing a cash. To prepare a questionnaire to identify the factors impact on current markets cashflow status by using satical pacakage for social science(SPSS)software and to develop a framework. The linguistic expressions are used for utilizing from human judgment and approximate reasoning ability of users for reflecting their experience into the model to create cash flow scenarios. The uncertain cost and duration estimates gathered from experts are inserted in the model. The model provides the user different net cash flow scenarios with formats that are beneficial for foreseeing possible cost and schedule threats to the.

Keywords: Cost Overrun, Time Overrun, Stakeholder Management, Survey Response.

I. INTRODUCTION

1.1 Background of the Study

Introduction Cash is the most important resource for a construction company, because more companies become bankrupt due to lack of liquidity for supporting their day-to-day activities, than because of inadequate management of other resources. Many construction projects have negative net cash flows until the very end of construction when the final payment is received or advanced payment is received before starting the project. It is very difficult to convince creditors and potential lenders that these inadequacies in cash flow are only temporary. Perhaps this is one of the main reasons that insolvency is more likely to occur in this industry than any other. Moreover, the construction industry is a sector where significant uncertainties arise in many aspects of the problem, including the business and the financial environments. The financial risks come from several sources, encompassing the need for intensive capital, cash retainage from clients, the exposure to interest rate changes during the period between the contract closing and the end of the payment plan, leading to difficulties in good cash flow forecasting. Inaccurate cash forecasts and inadequate cash flow management incurs financial stress. Companies of different sizes face this kind of problem which requires distinct approaches and proper tools according to the nature and complexity of the operations. Cash flow at the project level consists of a complete history of all cash disbursement, cash shortage, loans, cost of money, and all earnings received as a result of project execution. A firm with higher cash flow variability increases the level of expected external financing costs, which incurs high cost of money and accordingly high project cost. Although significant research work has been conducted on cash flow forecast, planning, and management, the objectives of most of research is to maximize profit/final cash balance, or minimizing total project cost, or more accurately forecast the cost-in flow or cost outflow. Furthermore, Identifying of cashflow constrains needs to be effective and fast, considering the short time available and the associated cost at the tendering stage. Contractors rarely prepare a detailed construction plan at this stage, and usually wait until being awarded the contract. Therefore an effective and fast

technique for forecasting cash flow is required, which is with reasonable accuracy and which takes into consideration the tradeoff of greater profitability and the cost of money.

1.2 Cash Flow

Cash Flow is one of the most common cash forecasting and cost control technique has been widely used by most of the construction companies for a long time. In economy, cash flow is described as “The pattern over time of a firm’s actual receipts and payments in money as opposed to credit” (Black, 1997) or “The flow of money payments to or from a firm” (Bannock et al. 1988). Basically, cash flow defines the expenses and revenues of the single project or whole company per time and reflects their present and future situations by demonstrating net cash conditions. Cash flow is a financial model necessary to count the demand for money to meet the project cost and the pattern of income it will generate (Smith, 2008). Therefore, the usage of cash flow technique is beneficial for both the projects in tender stage and while the projects are in progress since the contractors want to know in all stages of the project that if their predicted cash flow is sufficient for covering the possible financial deficit of the project. Cash flow is very important for construction projects as:

A cash flow chart visualizes the net amount of money that will be required during the project as a function of time and gives an alert before the project/company will be in trouble. Therefore, cash flow chart will give chance for displaying the financial risk of the project.

- It enables tracking both cost and revenue of the project through time. –
- Cost and time are the two major items for the success of a construction project. Therefore, cash flow analysis is important for visualizing of cost - time integration of the project.
- A cash flow chart summarizes and gives a snapshot of the whole picture of the financial situation of the project, which is easy to understand by users such as project managers, contractors, clients and financial suppliers.
- It is required for describing financial situation of the whole company.
- It provides cash management strategies in order to plan, monitor and control the cash shortage or surplus.
- Cash flow is a useful tool for capital budgeting practices in decision - making process during making new investments (CIB, 2000).
- It is a good cost planning technique helps in taking bid/no bid decisions of the company during tendering stage of the project (Kirkham, 2007). Besides, cash flow will assist the contractors in the selection of contracts that will not cause serious cash problems due to the lack of sufficient financial resources (Kaka and Price, 1991).
- It will be useful in pretender stage for making good estimation and determine the contingency, mark-up percentage of the bid cost.
- It develops a cash conscious culture in the company by promoting allocation, usage and control of resources effectively

1.3 Cash Management

Cash management is basically required for planning, monitoring and controlling the cash flow of the project and taking necessary actions to the anticipated cash flow problems for completing the project on time within the budget.

According to CIB (2000), an efficient cash management should:

- Reduce the financial risk of the project, volatility of the company’s cash flow and maintain its position by providing enough liquidity.
- Control the expense of the project and consider the possible rate of increase in inflation and its pressure onto the project expenses.
- Optimize cash collection and improve cash capacity to make the project more profitable.
- Plan the company’s total credit capacity with banks to supply the foreseeable funding needs.
- Find necessary funds with lowest possible cost.
- Maintain and improve the company’s credit control and its credit worthiness to protect against a credit compress from suppliers, banks or from other creditor.

The financial management strategy and the cash flow are the two interrelated items of the project effecting 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 be taken into account while developing cash flow. For instance, for the same project, the final cash flow curve will change considerably if the contractor planning to apply front - loading strategy. Besides, if cash shortage is foreseen by the cash flow analysis of the project, the company should prepare financial management strategies in order to cover the cash deficit and complete the project. Therefore, it is important to determine possible strategies while making cash flow analysis. In spite of the discussions about the morality of using them, there are some tactics generally applied by the contractor in order to improve the cash deficiency of the project stated by Marc (2009) as below:

1. **Front-Loading:** Front-loading is mostly used in unit price type of contracts. In tendering stage, the contractors enhance the cash flow conditions without changing the tender price by increasing the work items going to be constructed at early stages and reducing the those going to be held on at the end in order to balance the cost of the original tender price
2. **Back-Loading:** When the contractors foreseen cash problems due to inflation, they try to postpone the items to be constructed at the expense of the earlier ones.

Besides, there are some policies should be taken to enhance cash flow of the project and reduce project expense for funding the project in case of cash shortage. Atallah (2006) suggests some techniques for maximizing, accelerating cash inflow and controlling cash outflow:

- To negotiate with the client for getting fair and logical payment terms and retention amount so that the cash requirement of the project will not threaten the project success
- To submit the first invoice as soon as possible and get the cost of mobilization (site office setup, supervision, temporary facilities), bonding and insurance cost. 10 - To introduce the completed works to the client as soon as possible for making checks and strictly following up the deserved receivables.
- To practice prudent contract and change order management for improving the chances of getting paid. - To accelerate the schedule for improving the cash inflow and decreasing the overall indirect cost of the project.
- To retain at least the same amount of money from the subcontractors in progress payments.

If the company could not take the necessary actions contractually for improving cash flow, lending strategies should be developed for meeting the financial needs of the project. As discussed before, due to the risky nature of the construction industry, high rates of business failure and bankruptcy occurred in the construction sector and many banks are unwilling to lend money to the contractors unless they are reliable (Atallah, 2006). Besides, even if the company is found eligible by the financial supplier, the lenders will loan with high rate of interest at time of cash shortage since the late interference on to project may not reduce the financial risk

1.4 Factors Affecting the Cash Flow

Here some of the factors affecting the cashflow can be identified from referring various literature reviews.

- High payroll burden
- Failing to budget for reserve cash.
- Paying cash for assests.
- Slowpaying coustomers.
- Being slow to the invoice coustomers
- Poor labour productivity.
- Wether forecast
- Funds allocated for safety purpose
- Project location.
- Cash flow & financial difficulties faced by contractors.
- Delay in progressive payment by owners.

1.5 Reasons of Cashflow Failures

In the construction projects there are various reasons for the cost overrun that are occurring in the project. Some of the reason, are

A. High Payroll Burden

If a company work with labour-intensively, the financial stress of having to pay your employees every week or two can make cash flow difficult. The Construction Payment Report says that employee paycheck are the biggest casualty of poor cash flow caused by late payments. You can't tell your employees that you'll have to delay their paycheck until your customers pay their bills. Companies who use a lot of subcontractors may not have as much of a problem. Their payments come only once a month and they can pass any payment delays down to their vendors. Many subcontracts contain a paid-if-paid or paid-when-paid clause, meaning that payment is not due to the subcontractor until, or unless, the owner pays the GC for the sub's scope of work. These clauses push the burden of late payments on to the subcontractor and provide protection for the GC.

B. Failing to Budget for Retainage

Retainage – also called retention – is money with held until the end of a project to ensure that the project is completed to the job specifications. A practice common in the commercial construction industry, retainage is typically 5- 10% of the total contract. If you are not used to having a portion of each progress payment held until the end of a job, and don't budget accordingly, your construction company will run into cash flow issues. With average profit margins of only 5%, a 10% retention holdback means there isn't any room to pay overhead or other expenses once payments come in

C. Paying Cash for Assets

Creating positive cash flow in a construction business is all about managing working capital – the liquid cash you have in your bank account available to pay bills, wages, and expenses. If you are buying equipment or vehicles with cash, you are stealing money from yourself. Financing equipment and other large purchases frees up your cash to cover other necessary costs such as payroll or supplies.

D. Slow Paying Customers

The longer you must wait for payment from a customer, the longer you are without the cash you need to run your business. They don't just affect your future cash flow. Late or slow payments can also cost you more, as late fees and finance charges add up fast. They don't just affect your future cash flow. Late or slow payments can also cost you more, as late fees and finance charges add up fast.

E. Being Slow to Invoice Customers

Customers aren't going to pay you until you invoice them. If your invoicing is slow or inconsistent, it is costing you money and just because you sent an invoice doesn't mean your work is done, either. Having a process to send reminders is an important part of the invoicing process that can help you get paid faster.

F. Using Cash for Other Investments

It is a good idea to invest excess cash so you can earn more through interest and investment gains. However, if a sudden cash emergency comes up, you are often left with no quick way to recoup that money.

G. Shop for the Best Prices

It's always a good idea to comparison shop between suppliers to make sure you're getting the best price. Every supplier wants your business. If you let them know you're shopping for the best offer, a supplier is likely to give you the best deal possible, especially if you're not bluffing and willing to walk away. By reducing costs, you're freeing up cash.

H. Avoid Over- and Underbilling

Some project managers take pride in over-billing. Since this means the invoice will be higher than the job completed to date, current cash flow will increase. The downside is that it will reduce cash flow when the project is complete. Cash flow takes a hit in the near term for companies that decide to underbill their clients. So what's the best option? The best approach is to bill according to how much of the project has been completed

I. Process Change Orders Quickly

Change orders are common in construction. They're often the result of a project that requires more time, money, and/or resources than originally thought. Extreme weather also can play a role. The project manager should process a change order immediately, rather than waiting until the project is complete. That money needs to be received quickly, which will positively impact cash flow.

1.5 Constrains

- The theory of constraints (TOC) developed by Goldratt (1990) is a process aimed at identifying and removing constraints in organizational processes that are standing in the way of organizational goals.
- A constraint is defined as anything that limits an organization or entity from moving toward or achieving its goal.
- There are constraints in every working environment. However, there can be situations that we are unaware of the existence of the constraints, or, we tend to put more emphasis on the project goals.
- Although constraints have been discussed in much of the management literature, there is little detailed study on constraints in construction working environment. In current construction situation, it is vital to grow with the new technology & concepts.

The ultimate goal is nonstop improvement. Essentially in India, where the appropriate system of work is not followed, TOC will not only help in controlling the limiting factors but also help in continuously approaching the new techniques to overcome delay and cost overrun..

1.6 Constrains Identified

A. Establish Good Accounting & Financial Practices

- Every construction company needs the right accounting reports and financial statements to identify where their cash flow is healthy, and where it needs support. After all, you can't manage what you don't measure. Businesses need to understand more than just how much money they have in the bank. You need to be able to quickly identify how each project on your books affected your cash position overall.
- For example, an accounts payable report will help you identify aging bills that are accruing interest penalties. An accounts receivable report shows which customers are delaying payment, so you can quickly identify who to follow up with, or which jobs to lien. A cash flow forecast helps predict future cash issues, so you can take action before it impacts your bottom line.
- These reports don't need to be so complicated that only a CFO can understand them. At its core, tracking cash is simply about good record-keeping. Most construction management and accounting software can quickly produce these reports automatically.
- Good accounting and financial practices help business owners manage cash flow, identify strengths and weaknesses, and make more informed decisions that help the company grow.

B. Protect your Company's Right to File a Mechanics Lien

- Every construction business owner worries about the risk of non-payment. A mechanics lien is one of the most powerful tools that construction businesses have to ensure they are paid on time, every time.
- Since every state has their own mechanics lien laws and requirements, it's important that someone in your company is tracking the different rules and deadlines. Make sure to protect your payments on every project by sending preliminary notices when you start work, sending a notice of intent to lien when payment is late, and filing a lien claim before the deadline.
- A big part of managing cash flow in construction is about collecting what you earn as quickly as possible. Companies that implement a strict mechanics lien policy are able to collect payments faster and with less effort than businesses who only protect certain jobs.

C. Finance Fixed Asset Purchases Whenever Possible

- Giving away all your cash to avoid interest payments doesn't make sense when it comes to cash flow. By making smaller payments over time, you free up cash each month to use for necessary business expenses, such as payroll.
- Another benefit of financing purchases is that you are building up a good credit rating. This rating comes in handy when you need to apply for a short-term loan or need other financing to help your business.

D. Negotiate Better Payment Terms

- Even before you join a project, you have the responsibility to negotiate the best contract terms for your company. This may include striking out pay-if-paid clauses, or adding terms that allow you to collect retainage faster.
- Talk to your suppliers about how to get the best offer on the materials you need. This may include buying in larger quantities or even threatening to change suppliers to get better pricing. Make sure you are getting the best prices and the best payment terms you can from all your vendors.
- Your terms with your suppliers should ideally be equal to or longer than the terms you give your customers.

E. Ask the GC or Property Owner to purchase Materials directly from the supplier

- Down payments are rare in construction. According to the Construction Payments Report, only 4% of contractors say they get an upfront deposit
- regularly on jobs. If the GC isn't willing to give you a deposit, ask them to buy the materials you'll need. After all, they'll be paying for them either way. If you can get them to pay for it up front, you'll keep more cash in your own pocket for later.

F. Invoice Promptly and Regularly

- Make sure you have a system for sending out invoices or payment applications promptly and regularly. Avoid delays in payment by following the billing schedule closely and ensuring that you include the required documents with each invoice. Get confirmation that your customer received your invoice(s), and follow up a week after sending them to see if there are any issues.
- Good invoicing requires close coordination between the project manager and the office or credit manager.

G. Be visible on the job by filing preliminary notices

Contractors and suppliers who file preliminary notices are generally the first ones to collect payment. The owners want to prevent liens! This can significantly shorten the time from invoice to payment. More and more companies are using these documents to leverage their lien rights and improve cash flow, so sending them doesn't have the negative connotation that it used to. Implement a payment funnel or a company credit policy to help you know when to act

H. Payment options and/or discounts for Early Payment

Offering your customers multiple ways to pay your invoice could speed up payment. Many companies like the convenience of paying by credit card, even for large purchases. Your accounting software or bank can help you set up merchant services so you can accept these payments. There is a transaction fee for each charge, but it can be worth it to get your cash faster. You can also offer discounts for early payment to encourage your customers to pay quickly. However, don't make the discount so steep that it negatively affects you if your customers choose to use it. About 2-5% is standard for the industry.

I. Avoid Over and Under Billing

If you overbill a project, you'll have an influx of cash up front, but nothing to cover expenses at the end of the project (when hidden costs tend to pop up). Underbilling doesn't help either. It is best to keep your billing as close to your costs as possible, so you will always bring in enough cash to cover your expenses.

II. LITERATURE REVIEW

Surbhi Rithe, Maithilee Thakare (2012) et al., To successfully diminish the constraints to overcome delay, cost overrun and poor quality work, To study the reasons behind the occurrence these kind of constraints and find out the ways to reduce and ultimately eliminate them To have a good understanding of the identified constraints at the planning stages, the documentation plays a very important role. Based on experience & assumptions, one can list out the probable causes of delay & identify the root for the same

Ellen Lau, Janet Jiahui Kong(2014) et al., The aim and scope of this paper is to identify the constraints in construction project working environment and apply the theory of constraints (TOC), which provides practical steps for making organizational decisions in situations in which constraints exist. to identified the constraints in five categories, they are

1. Economic constraints,
2. Legal constraints,
3. Environmental constraints,
4. Technical constraints,
5. Social constraints

TO have a good understanding of the identified constraints at the planning stages, we can suggest the management to have the constraints documented and to consider these constraints in the relevant project planning agenda and schedule as well as the designing of the organizational structure and to avoid all these constraints error in the upcoming projects and once the project guidelines are followed the profit of the company

Anjay Kumar Mishra (2015) et al., This study explores the idea of how the TOC is applicable to improve the project performance dealing with time constraint with a case of Sankosh-Tipling Road project and Bhimdhunga- Lamidanda Road Project of Dhading District and The five basic steps of TOC to remove the constraints are identifying the constraint, exploiting the constraint, subordinating to exploitation, elevating the system In study of Sankosh-Tipling Road project, the Theory of Constraint (TOC) was applied considering the human behavior factors like Parkinson's Law and Student syndrome to manipulate the activity time estimate to aggressive time estimate by creating the time buffers in Critical Chain Project Management (CCPM). With application of Critical Chain Project Management (CCPM), the project was supposed to be finished 30 weeks prior to originally estimated date of completion if it has ideal condition

Marylin Mumbi, Michael Mundia(2013) et al., the study sought to establish the influence of management of project constraints on completion of building construction projects in Nakuru County, Kenya. The study specifically sought to determine the influence of management of scope and resource on completion of building construction projects in Nakuru County. The study used a descriptive survey research design From the findings the researcher concluded that in most cases and increase in project activities result to an expanded project scope which affect project completion. It was also concluded that in most cases scope constraints is attributed to inadequate project funding. The results on the hypothesis revealed that management of scope constraint has a significant effect on completion of building construction projects in Nakuru County

Prof. A.K.Kanase, Prof. R.D.Shinde(2002) et al., The literature search identified several case studies and quantitative data on the application of TOC to different companies and To find the constraints and Increase the profit. To improve the capacity, To Reduce lead times Fast improvement of the company This paper has focused on maximizing throughput as the end goal. Actual Process is to elaborate start to finish length of the project, the overall delays occurred and reasons so as for the next project same mistakes shall not happen. However, short cycle times results in high. In short, for maximum profit, the bottleneck tool should always run at full capacity.

Saba Sultana (2001) et al., Recognizing the constraints in six classifications. The effects of these constraints to the construction project were contemplated. The paper would like to propose creating attention to overseeing and controlling the constraints in construction project working condition for accomplishing high and effective construction project working condition To have a decent comprehension of the various constraints identified at the early stages, and recommend the administration to have the constraints reported and to consider these constraints in the relevant plan and schedule just as the planning of the organisational structure

Jun Wang(2017) et al., In Australian LNG construction industry, according to the public report published by EnergyQuest and APPEA (2014), every LNG project in Western Australia has suffered different levels of time and cost. overruns. For instance, the latest Wheatstone LNG construction project suffers a six-month delay due to the slow schedule of off-site module manufacturing in Malaysia. To have a good understanding of the identified constraints at the planning stages, the

documentation plays a very important role. Based on experience & assumptions, one can list out the probable causes of delay & identify the root for the same. To have a good understanding of the identified constraints at the planning stages, the documentation plays a very important role. Based on experience & assumptions, one can list out the probable causes of delay & identify the root for the same.

Mr. Harish R Rajmane , Dr. A. K. Gupta² & Prof. D. B. Desai(2019) et al., The aim and scope of this project is to identify the constraints in construction project working environment. Only If constraints are better understood at the outset, it is believed that better performance can be assured in a construction project The proposed work will help to identify the constraints which leads to delays in construction work. Suggesting and recommendations made through this project work will be also useful for the industrial people to use the remedial measures so as to improve performance, reduce cost and delays in construction project work.

Norhanim Zakaria, Azlan Shah Ali*, Teh Yen Yi(2016) et al., As the construction projects grow in size and complexity, the roles of Quantity Surveying (QS) firms which provide QS services getting more significant.

Theory of Constraints (TOC) views every process in a system are linked and constraint needs to be identified and dealt with so that to achieve continuous improvement in the whole operation. This study adopted questionnaire surveys and semi-structured interviews with QS practitioners in Kuala Lumpur, which directly involved in the management of the QS firm.

Descriptive and content analysis were adopted to analyse the identified constraint .Twinkle S. Nambiar, Fazil P(2017) et al., The aim of this project is to study about various constraints faced during flat construction and to identify the top limiting factors also known as constraints causing delay, cost overruns and poor-quality work. If the constraints are well understood at the commencement of the project, enhanced performance can be guaranteed in future Twenty responses were received from the questionnaire survey. The data was collected by means of face -to- face interview. Importance- Performance Analysis (IPA) was used to analyze the collected data using IBM SPSS Statistical Software. The final results show the major ones (constraints) prevailing in the flat construction projects that affects the projects in a very adverse manner.

Siddesh Pai & S.Giridharan (2012) et al., To build ultra mega power project with the application theory of constrains to complete the project with a profit and in a given time To build ultra mega power project with the application theory of constrains to complete the project with a profit and in a given time

Purva Pardeshi , Dr Nagesh Shelk(2007) et al., to successfully complete the residential building in a given and minimum loss of resources in a economical way by applying toc and to find the Project constraints and key parameters It mainly focuses its attention on both Single and multiple project environments. It sets a project completion time and determines under explicit consideration of uncertainty which activity requires particular attention to avoid delaying project completion.

Mustafa Hassan Talib(2006) et al., Construction projects in Iraq are suffering from constraints (financial, technical, political, legal and environmental) that hamper their work. It is therefore necessary to identify these constraints by following the theories and to sort them solutions are examined and the future results of each solution are identified and useful in addressing the specific problem and the extent of the future impact of its application. The methodology used in the research of extracting indicators from the theoretical and practical framework and finding solutions through the curriculum of the thinking throughput will be used to reach a number of conclusions and recommendations aimed at achieving its objectives

Azar Izmailov & Diana(2007) et al., to successfully diminish the constraints to overcome delay, cost overrun and poor quality work ,To study the reasons behind the occurrence these kind of constraints and find out the ways to reduce and ultimately eliminate them To have a good understanding of the identified constraints at the planning stages, the documentation plays a very important role. Based on experience & assumptions, one can list out the probable causes of delay & identify the root for the same.

Surbhi Rithe, Maithilee Thakare(2004) et al., The aim and scope of this project is to identify the constraints in infrastructure construction project working environment. If constraints are better understood at the outset, it is believed that better performance can be assured The importance of having more intensive research that give emphasis on clients achieving a well managed cash flow in order to obtain a prompt payment practice in the construction industry. The greater the delay in payment due to a contractor, the greater the cash flow problems, the greater the extent of delays. The poorer the cash flow management, the greater the cashflow 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

Alexander Maravas(2017) et al., the inherent uncertainty and imprecision in project scheduling have motivated the proposal of several fuzzy set theory based extensions of activity network scheduling techniques. Building upon these, a cash

flow calculation methodology for projects including activities with fuzzy durations and/or costs is proposed in this paper. According to the proposed approach, the project cash flow is represented by an S-surface (as opposed to the traditional S-curve) ensuing by connecting S-curves at different risk possibility levels. The methodology is exemplified by estimating the working capital requirements in a real world road construction project. Furthermore, the benefits of the methodology and its subsequent computerization are discussed. It is believed that the proposed approach may also be useful for both evaluating project proposals during feasibility studies and for performing earned value analysis for project monitoring and control.

Shalini Nair (2018) et al., Cash flow is one of the most critical aspects in the proper management of any company or industry. Success or failure in proper cash flow management ultimately plays a huge role in determining the success or failure of the company or industry as a whole. Cash flow exists at three levels, the company management level, at an individual manager level and at the individual level in terms of productivity. Cash flow can be observed as a series of transactions in a game. The interesting feature in the game is that the state of no-move by one player, as in a failure to pay, may lead to a game-ending move for another player. Cash flow is not like productivity, it is not completely controlled by factors in the company's control, and even the best-managed companies may experience liquidity problems from time to time. This research develops the game and the game rules to study cash flow at a microeconomic level.

Serhat Melik(2012) et al., Business failure of the construction companies is the most important result of the fragile structure of the construction sector. Although there are various reasons of business failure, according to many construction management researches like Peer and Rosental (1982), Pate Cornell et al. (1990), Singh and Lakanathan (1992), Kaka and Price (1993), Boussabaine and Kaka (1998), the main reasons of the bankruptcy of the construction companies is the inefficient control and management of cash. Therefore, controlling and regulating the movement of the cash is necessary for the success of the construction projects. Cash flow is one of the major tools required for controlling the cash movement of the company by determining the cash in and cash out in the project and demonstrating the possible results clearly. Due to importance of the cash flow in construction sector; many studies have been made by researches for developing a reasonable cash flow model for the construction projects.

Anjay kumar Mishra(2011) et al., Theory of Constraints (TOC) is new concept of project management. It has been effectively used in the manufacture industry. This study explores the idea of how the TOC is applicable to improve the project performance dealing with time constraint with a case of Sankosh-Tipling Road project and Bhimdhunga-Lamidanda Road Project of Dhading District. The five basic steps of TOC to remove the constraints are identifying the constraint, exploiting the constraint, subordinating to exploitation, elevating the system performance and repeating process. Critical Chain Project Management (CCPM) approach has considered the human behavior factors like Parkinson's Law and student syndrome while rescheduling the project. Buffer management was introduced with considering the human behavior factors for manipulating the activity duration to aggressive time estimates. Buffer Management uses the time buffers viz. Project Buffer and Feeding Buffers as well as Resource Buffers.

III. METHODOLOGY

3.1 Research Methodology

The research methodology of this paper includes a literature review, secondary data analysis, questionnaire design, questionnaire survey, data analysis using SPSS software. The given below methodology will help in framing the dissertation research in proper structure and help in analysing the factors obtained from a theoretical framework

3.2 Flowchart

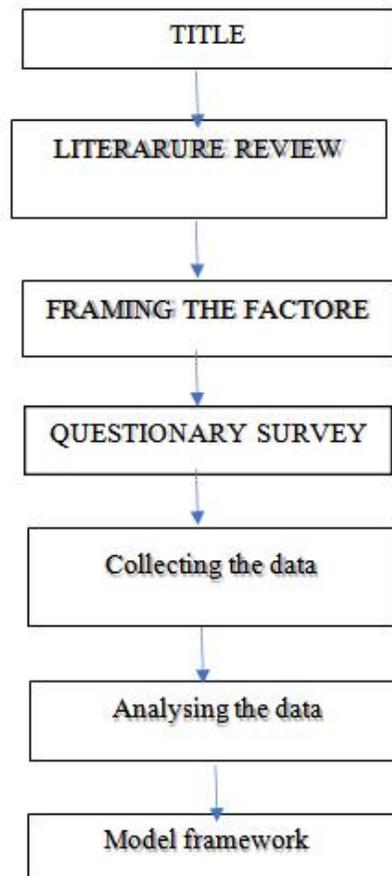


Figure: Methodology

IV. CONCLUSION

The constrains influence cost and time in the construction of buildings in construction industry has been reviewed from various literature papers. It is noted that Inflation and Escalation of material price, Change in project by owner, High transportation cost, Frequent breakdown of the construction plant and equipment, Rework due to errors during construction, Inappropriate construction method, Additional work at owner’s request, Ineffective planning & scheduling of project by contractor, Mistakes or discrepancies in documents or specification issued by consultant, Lack of financial management and planning and materials selection and change in types and specifications during constructions, Shortage of construction material, Poor maintenance of equipment, Financing between the owner and the contractor, Poor procurement of material, Shortage of labour and resources, Financing by contractor during construction, Slow delivery of materials, Availability of equipment play major role in cost. The responses are being collected to undergo the further process.

V. FUTURE WORKS FOR PHASE II PROJECT

This research paper is planned to study the cashflow constrains in the construction industry. The data interpretation will be done on the SPSS Software, which helps to create a Framework from such function the constrain in cashflow of construction project can be evaluated.

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