

# A Study on the analysis of payment problems in private building sector in Kerala State, India

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**Abstract** - As with any commercial activity, cash flow is essential to the survival of a construction company. Cash flow and financial health highly dependent on timely payments from builders due to the fact that construction takes a long time, products are expensive, and payments are typically made for work that has already been completed is brought. Liquidity bottlenecks for contractors not only lead to business failures, but also have ripple effects down the supply chain. Recognizing this impact, most countries have enacted legislation specifically for construction industry payments to ensure a steady flow of cash to project participants. However, payment issues exist in culture and practices, suggesting industry characteristics can make mitigation difficult. In this context, the study focuses on examining payment issues in the Kerala construction industry and exploring viable solutions to secure payments to construction stakeholders.

**Key Words:** Construction management, Payment problems, Construction industry, India, Kerala.

## 1. INTRODUCTION

The issue of payments in the construction industry is not a new phenomenon. The problem seems to be generalized by contractors and subcontractors not receiving money on time. This can take the form of underpayments, late or delayed payments, and no payments at all. Non-Payment or Underpayment refers to circumstances in which a scheduled payment has never been received and/or is deemed uncollectible, written off or partially/completely lost. On the other hand, delay or delinquency in payment occurs when payment is not made on time to the prime contractor or subcontractor according to the deadline agreed between the parties. Financing is at the core of any economic transaction, so payment defaults will undoubtedly have many ramifications for project stakeholders and the industry.

Late or missed payments have an immediate impact on cash flow. This leads to contractors, and ultimately subcontractors, seeking additional funds through overdrafts, trade credits, or other means. In China, delays and eventual non-payments, in addition to lack of guarantees, have been reported to lead to significant liquidity problems, putting construction companies at risk of bankruptcy. A prudent contractor may anticipate delays in client payments and consider the risk factor for late/non-payment when setting prices. However, this increases the cost of the project as contractors tend to raise their bids when they know their customers are behind on payments. Late or non-payment of payments will lead to disputes and subsequent suspension or termination of the project. Payment issues are one of the leading causes of conflict in the construction industry, according to research.

### 1.1 Type of Payment

Work done in the construction industry is usually paid in instalments. The instalments during the term of the contract are called intermediate or down payments, and the last instalment is called the final payment. From another perspective, the researcher classifies contract payments into four types.

- 1.11 Periodic payment
- 1.12 Stage/Phase payment
- 1.13 Advance payment
- 1.14 Payment after completion/Milestone payment

#### 1.11 Periodic payment

This refers to another form of interim payment that is paid based on an interim evaluation of work.

#### 1.12 Stage/Phase payment

This refers to a situation where payment is released upon completion of the agreed stage/steps of work.

### 1.13 Advance payment

To pay the contractor in advance before the work is done.

### 1.14 Payment after completion/Milestone payment

This refers to a situation where a party is requesting payment for the completion of all activities performed for a milestone.

## 1.2 Payment Problems - International Perspective

The operation of payment systems is not always smooth. Customer payments to prime contractors are often slow and inconsistent, leading to delays in payments to suppliers and subcontractors. This negatively impacts the efficiency and stability of the industry as a whole. Agreed procedures are necessary to ensure that payments are made regularly and promptly (Banwell, 1964).

### 1.3 Types of Payment Problems

Based on previous research that expressed a comprehensive view of payment issues and said it covered the following range of topics:

- a) Late payment where the time taken to make payment is beyond the contracted payment period is due to the usual practice of late payment of invoices.
- b) Partial payment of an invoice where payment is withheld for any reason; or
- c) Non-payment of a building professional for any part of the contracted building works by end customers, developers or head contractors.

## 2. OBJECTIVES

The main focus of this research is to explore viable solutions that can secure payments to building stakeholders for construction projects. One focus is the impact of payment difficulties due to construction bankruptcies to explore the concept of security against bankruptcy risk. To achieve this set goal, the goals pursued in current research are outlined below.

1. To investigate the extent and nature of payment problems in the Kerala construction industry.
2. To investigate the causes of payment problems in the industry.
3. To evaluate the effects of payment problems in the industry.

4. To explore feasible solutions that could secure payments to parties on construction projects in Kerala.

## 3. LITERATURE REVIEW

(1) Hughes, Hillebrant and Murdoch (1998) "Financial Protection in the UK Construction Industry" explains that defaults are primarily due to two reasons. "Unable to pay" refers to the financial difficulties of the payer, either because the payer is not seeking funding or does not have sufficient capital and inadequate cash flow management. The "do not pay" situation is due to the attitude of the payer. It seems common for clients to delay payments to contractors and subcontractors to manage cash flow for other projects and reduce overdrafts.

(2) Abdul-Rahman et al. (2008) A survey of issues affecting payments in the construction industry in a rapidly developing economy found that consultants and contractors have differing perspectives on the causes of late payments. According to contractors, the most common causes of late payment are delayed certification, poor financial management by the customer, local culture/attitudes, failure to implement proper corporate governance by the customer, and is an underpayment of notarized amounts from customers are the most common cause of late payments.

(3) Danuri, et al., (2006). "Delay and Non-Payment Issues in the Malaysian Construction Industry – A Contractor's Perspective" According to Malaysian contractors and consultants, other causes of payment problems include: WILLFUL MISCONDUCT Customer reluctance to pay, lack of budget for the year, lack of communication and conflict between parties, delays in submitting claims for payment from contractors, general misunderstanding of contract terms.

An analysis of the literature has revealed that payment problems in the construction industry have multiple causes. The consequences are failure to raise funds or insufficient capital and inadequate cash flow management, inefficient use of funds, lack of capital to fund projects, withdrawal from banks during periods of declining sales. Indicates financial difficulties due to failure to raise funds, delays in releasing retainages to contractors and delays in evaluating and certifying interim and final payments. Another study found that contractors and stakeholders in the construction industry, including suppliers and subcontractors, complained that they were not paid or were unreasonably delayed by their employers. Payment issues at the top of the hierarchy have serious implications for cash flow issues in the contract chain. Despite numerous investigations, the problem of late or non-payment of payments seems to continue.

#### 4. METHODOLOGY

A quantitative approach was used to determine respondents' perceptions of the impact of financial stability on cash flow represented by delayed payments on their financial performance. This approach was also used to collect data for ranking the financial stability factor among other construction productivity factors. The study focuses on contractors whose businesses are classified as small and medium enterprises. These are the main phases for conducting this study.

- Identifying the problem
- Specifying research objectives
- Specifying research scope
- Data collection
- Literature research
- Questionnaire
- Data analysis
- Results

##### 4.1 Designing and collecting data through a questionnaire survey

A survey was conducted as the primary data source. There are two ways to collect data from surveys. One is called horizontal height and the other is called vertical height. Cross-sectional studies are designed to collect data over a short period of time whereas longitudinal studies are designed to collect data over a longer period of time. Due to the time limitations of this study, a cross-sectional survey method was chosen.

##### 4.2 Data collection

The questionnaire was distributed as a Google form to a random sample of 45 construction companies in the Kerala construction industry. These communication methods returned 30 completed questionnaires. Therefore, the response rate was 67%, and this 30-person response rate was used for the analysis.

##### 4.3 Rating scale

Each statement in these questions should be rated on a scale from "strongly agree" to "strongly disagree", starting with the following rating system. Strongly agree - 5 Agree - 4 Satisfied - 3 Disagree - 2 Strongly disagree - 1.

**Table -1:** Questionnaire for "General expected effects of the delay in payments to the contractors financial performance".

No	General expected effects of the delay in payments to the contractors financial performance
1	Delay in the project payments delays labours wage payments
2	Delay in payment hinders the contractor's labours incentive program
3	Delay in payment affects the amount of the line of credits provided by the materials suppliers or the financial institutes
4	Delay in payment affects the contractor's equipment ownership and operation capabilities
5	Delay in payment affects the contractor's materials supplying capabilities
6	Delay in payment in one of the projects affects the forecasted cash flow of other projects
7	Delay in payment affects the financing cost of the project
8	Delay in payment affects the forecasted profit margin
9	Delay in payment may erode the contractor's reserve fund
10	Delay in payment affects the contractor's financial reliability in the market
11	Delay in payment in general critically affects the project successfulness
12	Cash problems of the client
13	Time taken to check the bill by client
14	Non-adherence of correct formats by Contractor and Improper submissions by Contractor (less documentation)

**Table -2:** Questionnaire for "Productivity

No	Productivity factors
15	Delay in payment
16	Construction method
17	Unrealistic time and cost estimate

18	Work supervision
19	Effectiveness of communication protocol (i.e., clarity of instructions, delay in responding to Request for Information (RFI))
20	Incomplete drawings or drawings omission
21	Overcrowding
22	Lack of material
23	Lack of proper material handling and storage
24	Lack of tools and equipment
25	Accidents
26	Change orders
27	Inspection delay
28	Workers absenteeism and turnover
29	Poor site conditions and management
30	Site accessibility
31	Planning and work flow
32	Labors skills and experiences
33	Weather effect
34	Project specifications
35	Rework

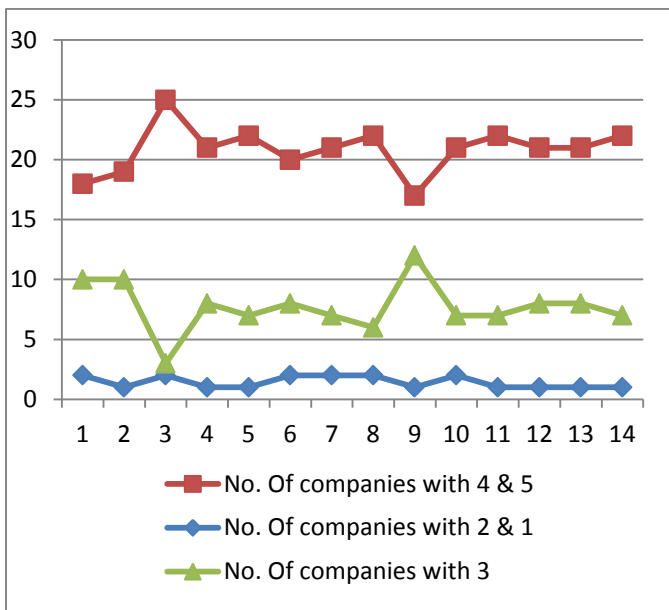
factors”.

**5. RESULT AND ANALYSIS**

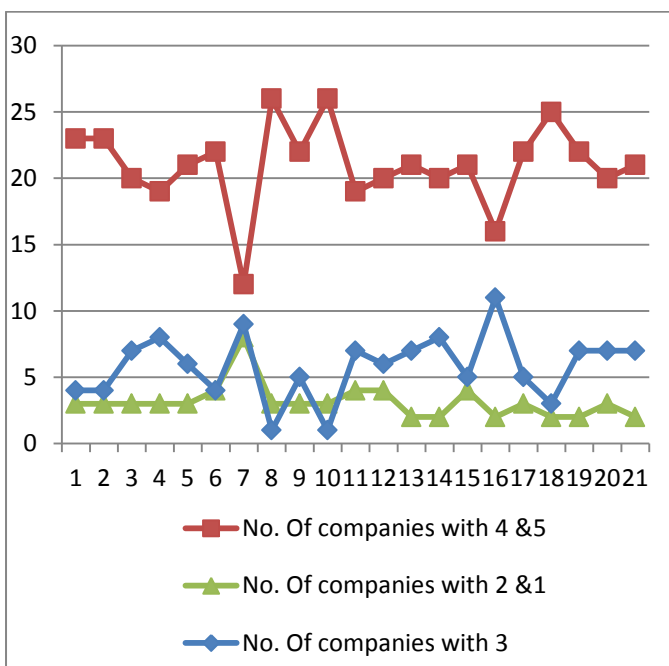
**Table -3:** Result Analysis Chart

Question No.	Number of companies responded 4&5, Agree	Number of companies responded 3, Satisfactory	Number of companies responded 1&2, Disagree
1	18	2	10
2	19	1	10
3	25	2	3
4	21	1	8
5	22	1	7

6	20	2	8
7	21	2	7
8	22	2	6
9	17	1	12
10	21	2	7
11	22	1	7
12	21	1	8
13	21	1	8
14	22	1	7
15	23	3	4
16	23	3	4
17	20	3	7
18	19	3	8
19	21	3	6
20	22	4	4
21	12	8	9
22	26	3	1
23	22	3	5
24	26	3	1
25	19	4	7
26	20	4	6
27	21	2	7
28	20	2	8
29	21	4	5
30	16	2	11
31	22	3	5
32	25	2	3
33	22	2	7
34	20	3	7
35	21	2	7



Line Graph 1: Number of Companies with Responses



Line Graph 2: Number of Companies with Responses

## 6. CONCLUSION

The purpose of this study was to identify the factors responsible for payment problems in privately funded construction projects in Kerala, their impact and solutions. The focus of previous research has been on large construction companies. However, the ranking of relative importance of late payments may differ among small and medium-sized construction companies. Delayed payments can impact a company's cash flow and affect its financial

stability. Large companies tend to be financially stable. However, this does not apply to small and medium-sized construction companies. Survey results distributed to 45 construction companies in Kerala showed that late payments on projects can have a significant impact on financial performance. Additionally, the SPSS analysis ranked the productivity factor number one and payment delays number four among the 21 construction productivity factors studied.

The study found that the top 5 out of 14 “Common Expected Impacts of Late Payments on Contractor Financial Performance” are payment issues in the Kerala construction industry are;

- Delay in payment affects the amount of the line of credits provided by the materials suppliers or the financial institutes
- Delay in payment affects the forecasted profit margin
- Non-adherence of correct formats by Contractor and Improper submissions by Contractor(less documentation)
- Delay in payment affects the contractor’s materials supplying capabilities
- Delay in payment affects the contractor’s financial reliability in the market

The study found that the top five out of 21 “Productivity factors” of payment problems in the Kerala construction industry are;

- Lack of material
- Lack of tools and equipment
- Labours skills and experiences
- Delay in payment
- Lack of proper material handling and storage
- Planning and work flow

## 7. RECOMMENDATION

### PAYMENT DELAY:

The study recommends that modified strategies or methods be adopted for construction project implementation. Also, enforce contractual indemnity clauses under the terms of the contract. If there is a delay in certificate approval. Customer will pay interest on payments not paid on time. It is hoped that the results of this research will help those in charge of implementing public works to pay construction costs in a timely manner.

### PRODUCTIVITY FACTORS

- Lack of material
  - Review your pool of subcontractors

Review your supplier pool and consider if you may need to source alternative or additional suppliers

- Diversify your supply chain
- Optimize schedule
- Improve site purchasing procedures
- Lack of tools and equipment
  - **Manage Equipment Requests & Delivery Centrally**

With many worksites, each requiring different equipment and tools on a daily basis, it is important to have a centralized system that can handle equipment distribution and allocation requests. Merchandise management systems can take over these tasks.
  - **Determine the Cost of Equipment Use**

For example, you may want to set different rates for different sites or projects. There may be a standard price for an excavator, but prices may be higher due to remote work sites or project density in a particular area. However, it needs to be managed based on different variables such as hours, days, weeks, months, overtime, and duration
  - **Get Your Construction tools Inspected Regularly**

It is inevitable that equipment will come back damaged. Of course, don't let this continue.
  - **Schedule usage and Periodic Construction Equipment Maintenance**

Regular maintenance and inspections are important throughout the life of your equipment. A maintenance plan is very important to the life of your equipment.
- Labours skills and experiences
  - **Provide proper training programmes**

If you want a construction site that runs efficiently, you need to train your workers. Make sure everyone is trained before starting a project.
  - **Clear communication**

Communication is the number one productivity factor in any job. No one can do

a good job if they don't know what's going on. For best results, communicate your goals to your crew before starting a new project and keep them informed throughout the project.

- Delay in payment
  - Enforcement of late clauses in contracts. Applying fees to late payments can be determined in the same manner as late fees.
  - Development of each contractor's payment department to report late payment issues. This department is responsible for maintaining records for each customer, including a history of late payments. These customers will be penalized if they do not make the contracted payments on time. The department recognizes that time is of the essence and must be able to resolve any relevant issues as quickly as possible.
- Lack of proper material handling and storage
  - Train Your Workers

Handling and storing materials involves many risks, some of which are dangerous and can harm workers. However, educating employees on best practices can eliminate some of the associated risks and dangers.
  - Store Similar Materials Together

Some building materials and chemicals can react with each other when put together. For example, some are highly flammable and can react with each other. This poses a hazard to both the worker and the material itself.
  - Choose Storage Space

The quality of most building materials can be affected by various weather conditions. For best quality, store at room temperature and cover carefully.

## REFERENCES

- (1) Abd El-Razek, M. E., Bassioni, H. A., & Mobarak, A. M. (2008). Causes of Delay in Building Construction Projects in Egypt. *Journal of Construction Engineering & Management*, 134(11), 831-841.
- (2) Abdul-Rahman, A., Munaaim, M. E. C., Danuri, M. S. M., & Berawi, M. A. (2008). Issues affecting payments in the building and construction industry of a rapidly developing economy. *Building Engineer* (November).
- (3) Abernethy, M. (2010). Reservations about NEC 3 Contractor, 34(4). Retrieved from <http://www.contrafedpublishing.co.nz/Contractor/May+2010/Reservations+about+NEC+3.html>

(4) Abeysekera, V. (2002, 10 April). Re-engineering payment procedures: An agenda for client financed construction. presented at the meeting of the International conference on reengineering construction, Hong Kong.

## BIOGRAPHIES



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