Causes and Effects of Construction Contract Termination in East Gojjam Zone, Amhara Region, Ethiopia

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Abstract

Construction projects are vital to the satisfaction of human needs and the development of a nation. It requires the involvement and integration of building parties for a successful implementation. Contract terminations are the biggest obstacles to achieve project goals. This study identified the causes and effects of termination of construction contracts in East Gojjam Zone, Amhara Region, Ethiopia. The research was conducted by using both interviews and questionnaires from clients, contractors, and consultant's point of view having different experiences and positions. A total of 36 potential factors causing contract termination were identified using previously published studies, interview and questionnaires. The most critical and common influencing factors for construction contract termination were analyzed using frequency index and severity index techniques. The findings of the study indicated that the main factors that cause construction contract terminations were winning the auction at the lowest price, escalation of materials price, delay in progress payment approval, financial difficulties of the contractor, design errors, cost overrun of the project, poor management and supervision of construction site, construction delay, slow decision making, and insufficient plans and specification. According to this study, only 6.77% were completed within the allotted contract time, 58.71% were completed after numerous time extensions, and 34.52% projects terminated their contracts. On the other hand construction quality reduction, delay of the project completion date, increment of project completion cost, cracks and plant growing on walls and structures and vandalizing/decaying of the roof and other building materials are the most common effects of contract termination.

Key Words: Causes, Construction, Contract, Effects, Termination.

1. Background of the Study

1.1. Introduction

Construction projects are complex, uncertain, have long construction periods, involve many parties, and require the integration of different work components (Civil, Mechanical, and Electrical) to work together as a single unit. The projects require highly specialized designs, detailed plans and specifications, high-risk construction methods, effective management, skill full supervision, and close coordination [1].

Construction work may government or private projects. Projects are implemented in accordance with the rules and regulations of the country at each stage, starting from the project announcement to completion. The contractor winning the bids will undertake the initial stages of project development until the project is completed. However, some construction projects failed and the government terminates contracts. Contractors whose contract has been terminated will be included in the blacklist by the government sectors concerned with bidding processes [2]. A number of influencing factors lead either the contractors or the client to terminate the contract. Most previous studies [1-3] revealed that construction material price escalations, shortage of equipment, construction delay, financial difficulty, poor site management and change orders were the main governing factors for the construction contract termination.

Therefore, based on the above listed factors, most of the construction projects are delayed and terminated. Few projects are successfully completed according to the specification that greatly satisfies the stakeholders. Functionality, profitability to contractors, absence of claims and the court proceeding, and fitness for purpose for occupiers have also been used as measures of project success [3].

Construction works aim to meet the basic need of society through quality and adequate infrastructural development at local government, state and. the national levels. However, the people's expectations, especially at the local government levels have always been elusive as many of these construction project contracts are usually terminated before completion. Whenever such contracts are terminated, a large amount of public fund is wasted due to huge sums of capital expense. The potential beneficiaries are denied the benefits that would have accrued from the proposed project if completed, the contractor also suffers a loss of whatever

amount has been invested and his expected profit forfeited [4].

Therefore in this study the causes and effects of termination of construction contracts are clearly identified; discussed and finally appropriate resolution and recommendation were provided.

1.1.1 Construction contract

A construction contract has usually been defined as an agreement enforceable by the law between two or more parties to do or obtain from doing some act or acts of intention to create legal relations and to exchange mutual promises by having given something or having promised to give something of value as consideration for any benefit derived from the agreement. It is also defined as a legal agreement to work for or provide a service [5].

1.1.2. Construction contract termination

Contract termination is a situation when a given project is supposed to be turned off before completing or finalizing the project. Project termination is managed under the respective conditions of the contract. A legal contract can be terminated due to various reasons. However, the standard form of project contract contains an express clause that provides the employer and the contractor or either with the right to terminate the contract under specified circumstances. The contractual right to terminate a contract does not sometimes require a breach to be proved at all. However, it provides certainty about the procedures to be followed by either of the parties in the contract. The contract may be terminated by either the client or the contractor for convenience, by expiration or non-renewal [5]. In most cases, contractual project terminations dissatisfied all parties of construction and may incur extra costs and completion time [1].

1.1.3. Contractual right of termination

According to [6], there are three main ways that a contractual right allows for termination in construction contracts. These include:

Automatic termination: In situations where there is an express term to terminate the contract upon the occurrence or non-occurrence of a specified event, a contract can be terminated automatically. The occurrences that give rise to a right to terminate should be specified in such contracts in sufficient detail.

[6] Clearly stated that the contract will end automatically if the project is not implemented according to the agreement. For instance, a term may stipulate that a pre-condition must be satisfied by a certain

date before the remainder of the contract can begin. If that pre-condition is not satisfied within the stipulated time, the contract will automatically end. Including a clause in the contract that states that the agreement will automatically end if any or all of the obligations are not fulfilled by a certain date (commonly referred to as the "sunset date") is another example. Typically, a contract will end automatically when both parties have fulfilled all of their responsibilities. Typically, the party with the right to terminate notifies the other parties in writing of its immediate termination to make it effective [6].

Default: Contractual rights of termination for specific contract breaches are the most common. Most of the time, only major or serious breaches are included in the list of things that can cause a contract to be terminated, like failing to finish a job on time, supplying materials of the right quality, or paying bills on time. Typically, a cure notice is sent to the defaulting party, either requiring the breach to be fixed within a certain amount of time or requiring the defaulting party to "show cause" why the contract should not be terminated. When the defaulting party fails to adequately act on or respond to the notice in the manner required by the contract, a right to immediately terminate will be granted [6].

Convenience: In large contracts with higher risks and uncertain outcomes and in long-term service contracts, a contractual right for one of the parties (usually the principal) to terminate the contract at its discretion has become increasingly common. It is typical for compensation to accompany the termination for convenience, allowing the terminated party to recover not only its actual costs and profits up to the date of termination but also the costs of breaking agreements and demobilization; as well as a contribution to the loss of profit [6].

1.1.4. Statements of the problem

However, plenty of construction projects are launched in federal, regional and local administration level, but most of the proposed construction projects have been delayed [7] and terminated. These exposed the construction parties for extra cost. Hence, in East Gojjam Zone construction project terminations are critical and serious problems.

Therefore, in this study the causes and effects of project termination in the local and national level is identified, resolved and finally appropriate recommendation

and conclusions are provided for the problem.

1.1.5 Research objectives

The main objective of this study was to identify the causes and effects of construction contract termination in East Gojjam Zone. The specific objectives of the study were to identify the causes of construction contracts termination, to assess the effects of construction projects termination and to rank the construction contract termination factors.

2. Research Method

By reviewing previously documented researches, questionnaire, interview and the researchers' expert on construction projects, 36 influencing factors and 7 effects of construction contract termination were carefully identified. Sixty nine questionnaires were prepared and distributed into three construction parties (client, consultant and contractor) to gather relevant data for the analysis of the study (for the analysis for the proposed research problem). The data were interpreted and analyzed using frequency index and severity index techniques.

For severity and frequency index technique, the following formula which initially developed by [8] was used.

$$SI\% = \sum_{a=1}^{5} a * \frac{n}{N} * \frac{100}{5} \quad \ldots\ldots\ldots\ldots\ldots (1)$$

Where: a is the constant expressing weigh for each response range from (1 to 5 constantly) n is frequency of the responses and N is total member of respondents

$$FI\% = \sum_{a=1}^{5} a * \frac{n}{N} * \frac{100}{5} \quad \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where: a is the constant expressing weigh for each response range from (1 to 5 constantly) n is frequency of the responses and N is total member of respondents

Importance index: the importance index for each cause and effect of construction contract termination was calculated by the function of both severity and frequency index to rank the responsible termination factors, which is:

$$\mathbf{II\%} = \frac{\mathbf{SI\% * FI\%}}{\mathbf{100}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Where: II% is importance index percentage FI% is frequency index percentage and SI% is severity index

3. Result and Discussion

For the reliability and accuracy of the data, 69 questionnaires were distributed to the three construction parties (client, consultant and contractors) and fifty one of them were valid for the analysis of the proposed research problem. The questionnaires were designed to evaluate the frequency occurrences and degree of severity of 36 causes and 7 effects of construction contract termination. Beside

to the questionnaires distributed into respected stakeholders, open-ended questions were presented to respondents to gather reliable data about the problem.

3.1. Response rate

Table 1 show that 69 questionnaires were distributed to respondents. 58 responses were collected. Out of 58 collected responses only 51 were valid. This is because; the respondents did not properly fill 7 questionnaires.

Table 1 Response Rate

Population (N)	Sample (n)	No. of distributed sample	Number of response collected	No. of valid response	Response rate (%)
184	125	69	58	51	73.91

3.2. Working experience of respondents

About 29.41% of the respondents are experienced and have worked in the construction industry from eight to twelve years. Table 2 displays the response rate of respondents from different professions with varying levels of experience. Project and site managers, architects, resident engineers, structural engineers, highway engineers, contract administrators, design managers, and construction managers comprised the sample. The survey was completed by 51 construction professionals, who included 17 clients, 17 consultants, and 17 contractors

Table 2 Working experience of respondents

Experience		0-4 years	4-8 years	8-12 years	12-16 years	16-20 years	=>20 years	Total
Client	No.	3	5	4	3	1	1	17
	%	17.65	29.41	23.53	17.65	5.88	5.88	100.00
Contractor	No.	2	3	6	3	2	1	17
	%	11.76	17.65	35.29	17.65	11.76	5.88	100
Consultant	No.	4	4	5	2	1	1	17
	%	23.53	23.53	29.41	11.76	5.88	5.88	100.00
Total	No.	9	12	15	8	4	3	51
	%	17.65	23.53	29.41	15.69	7.84	5.88	100.00

3.3. Project status

For this study, 310 construction projects were launched in East Gojjam zone in the period of 2018 to 2023. Only twenty one of them were completed in their contract

time and 107 construction projects exposed to terminate (table 3).

Table 3 Construction project status in the period of 2018 to 2023 in East Gojjam zone

Construction Parties	No. and percentage	Project Status			Total
		Completed	Delayed	Terminated	
Client	No.	7	72	37	116
	%	6.03	62.07	31.90	100.00
Contractor	No.	6	59	48	113
	%	5.31	52.21	42.48	100
Consultant	No.	8	51	22	81
	%	9.88	62.96	27.16	100.00
Total	No.	21	182	107	310
	%	6.77	58.71	34.52	100.00

3.4. Ranking of termination factors

From the perspectives of the client, consultant, and contractor, the rankings of the 36 causes of construction contract termination in terms of degree of severity, frequency of occurrence, and important index are shown in tables 4, 5, 6, 7, and 8 below.

3.4.2. From client point of view

Table 4 Ranking causes of termination from client point of view

S. No.	Causes of termination	Frequency of Occurrence		Degree of Severity		Importance Index	
		FI	Rank	SI	Rank	II	Rank
1	Escalation of materials price	83.53	1	90.59	1	75.67	1
2	Financial Difficulties of contractor	81.18	5	88.24	2	71.63	2
3	Cost overrun of the project	83.53	1	84.71	5	70.76	3
4	Delay in progress payment approval	82.35	3	85.88	3	70.73	4
5	Winning the auction at the lowest price	82.35	3	84.71	5	69.76	5
6	Design errors	80.00	6	83.53	7	66.82	6
7	Poor management and supervision	77.65	7	82.35	10	63.94	7

	of construction site						
8	Poor quality of construction	76.47	8	83.53	7	63.88	8
9	Lack of financial fund	74.12	9	85.88	3	63.65	9
10	Shortage of materials	72.94	10	83.53	7	60.93	10

From the perspective of clients, the top ten reasons construction contracts are terminated are shown in Table 4. The escalation of materials price, financial difficulties of contractor, cost overrun of the project, delay in progress payment approval, winning the auction at the lowest price, design errors, poor management and supervision of construction site, poor quality of construction , lack of financial fund, and shortage of materials are the most common and significant causes of termination.

3.4.3. From contractor's point of view

Table 5 Ranking causes of termination from contractor's point of view

S. No.	Causes of termination	Frequency of Occurrence		Degree of Severity		Importance Index	
		FI	Rank	SI	Rank	II	Rank
1	Escalation of materials price	84.71	1	84.71	2	71.76	1
2	Winning the auction at the lowest price	80.00	8	88.24	1	70.59	2
3	Financial Difficulties of contractor	82.35	4	84.71	2	69.76	3
4	Delay in progress payment approval	82.35	4	83.53	4	68.79	4
5	Excessively complicated administrative procedure/ Bureaucracy	84.71	1	80.00	8	67.77	5
6	Insufficient plans and specifications	81.18	6	82.35	5	66.85	6
7	Construction delay	81.18	6	81.18	7	65.90	7
8	Design errors	78.82	9	82.35	5	64.91	8
9	Slow decision making	83.53	3	77.65	9	64.86	9
10	Unfit between bill of quantities and designs	78.82	9	77.65	9	61.20	10

Table 5 shows top 10 construction termination factors from contractors' point of view. Among the listed top ten termination factors the most frequent and most critical construction contract termination factors are escalation of

materials price, winning the auction at the lowest price, financial difficulties of contractor, delay in progress payment approval, excessively complicated administrative procedure/ bureaucracy, insufficient plans and specifications, construction delay, design errors, slow decision making and unfit between bill of quantities and designs.

3.4.4. From consultants point of view

Table 6 Ranking causes of termination from consultants point of view

S. No.	Causes of termination	Frequency of Occurrence		Degree of Severity		Importance Index	
		FI	Rank	SI	Rank	II	Rank
1	Winning the auction at the lowest price	88.24	1	85.88	1	75.78	1
2	Delay in progress payment approval	83.53	3	82.35	2	68.79	2
3	Design errors	82.35	6	81.18	4	66.85	3
4	Poor communication between the parties	81.18	8	82.35	2	66.85	3
5	Escalation of materials price	83.53	3	80.00	5	66.82	5
6	Slow decision making	84.71	2	72.94	9	61.79	6
7	Corruption	82.35	6	74.12	8	61.04	7
8	Financial Difficulties of contractor	83.53	3	72.94	9	60.93	8
9	Construction delay	78.82	10	76.47	6	60.27	9
10	Change orders/Variations	80.00	9	75.29	7	60.23	10
11	Inadequate experience of design team	80.00	9	75.29	7	60.23	10

From the perspective of consultants, Table 6 lists the top ten cause's construction contracts are terminated. The most common and significant of the top ten factors listed for construction termination are winning the auction at the lowest price, delay in progress payment approval, design errors, poor communication between the parties, escalation of materials price, slow decision making, corruption, financial difficulties of contractor, construction

delay, change orders/variations, and inadequate experience of design team.

3.5. Combined results (clients, consultants, and contractors)

The most common and critical top 10 combined results (table 7 and 8) that caused contract termination in construction projects mostly occurred by winning the auction at the lowest price, escalation of materials price, delay in progress payment approval, financial difficulties of contractor, design errors, cost overrun of the project, poor management and supervision of construction site, construction delay, slow decision making, insufficient plans and specifications.

Table 7 Ranking of causes of construction contract termination (combined)

S. No.	Causes of termination	Frequency of Occurrence		Degree of Severity		Importance Index	
		FI	Rank	SI	Rank	II	Rank
1	Winning the auction at the lowest price	83.53	2	86.27	1	72.06	1
2	Escalation of materials price	83.92	1	85.10	2	71.42	2
3	Delay in progress payment approval	82.75	3	83.92	3	69.44	3
4	Financial Difficulties of contractor	82.35	4	81.96	5	67.50	4
5	Design errors	80.39	6	82.35	4	66.21	5
6	Cost overrun of the project	78.43	11	79.61	6	62.44	6
7	Poor management and supervision of construction site	78.82	10	77.65	9	61.20	7
8	Construction delay	79.61	7	76.08	20	60.56	8
9	Slow decision making	81.96	5	73.73	28	60.43	9
10	Insufficient plans and specification	78.04	12	77.25	11	60.29	10

Table 8 Ranking the causes of construction contract termination

S. No.	Causes of termination	Frequency of Occurrence		Degree of Severity		Importance Index	
		FI	Rank	SI	Rank	II	Rank
1	Winning the auction at the lowest price	83.53	2	86.27	1	72.06	1

2	Escalation of materials price	83.92	1	85.10	2	71.42	2
3	Delay in progress payment approval	82.75	3	83.92	3	69.44	3
4	Financial Difficulties of contractor	82.35	4	81.96	5	67.50	4
5	Design errors	80.39	6	82.35	4	66.21	5
6	Cost overrun of the project	78.43	11	79.61	6	62.44	6
7	Poor management and supervision of construction site	78.82	10	77.65	9	61.20	7
8	Insufficient plans and specification	78.04	12	77.25	11	60.29	10
9	Construction delay	79.61	7	76.08	20	60.56	8
10	Lack of financial fund	74.51	21	79.61	6	59.32	12
11	Change orders/Variations	77.65	13	76.47	16	59.38	11
12	Poor communication between the parties	74.90	20	78.82	8	59.04	13
13	poor quality of construction	76.08	16	77.25	11	58.77	14
14	Unfavorable construction site	76.08	16	77.25	11	58.77	14
15	Slow decision making	81.96	5	73.73	28	60.43	9
16	Unfit between bill of quantities and designs	77.65	13	75.69	21	58.77	16
17	Excessively complicated administrative procedure/ Bureaucracy	78.82	8	74.51	26	58.73	17
18	Poor quality of construction materials	74.12	23	77.65	9	57.55	19
19	Inadequate experience of design team	75.29	19	76.86	15	57.87	18
20	Corruption	78.82	8	71.76	34	56.57	20
21	Technical inadequacy of the contractor	76.47	15	73.73	28	56.38	21
22	Dispute between different parties	73.73	24	75.69	21	55.80	22
23	Lack of access for material delivery	70.59	30	77.25	11	54.53	26

24	Shortage of materials	71.76	26	76.47	16	54.88	25
25	Inadequate experience of contractor	75.69	18	73.73	28	55.80	22
26	Adverse climate conditions	72.55	25	76.47	19	55.48	24
27	Inappropriate construction method	71.76	26	75.69	21	54.32	27
28	Poor site management and supervision	70.59	31	76.47	16	53.98	28
29	Unqualified/inadequate experienced labour	71.37	28	74.51	24	53.18	29
30	Unclear and inadequate details in drawings	74.51	21	70.20	35	52.30	30
31	Inadequate bid information	67.45	33	74.51	24	50.26	32
32	Shortage of equipment	71.37	28	72.16	33	51.50	31
33	Inadequate investigation of site	67.84	32	72.94	31	49.49	33
34	Problems with the surrounding community	63.92	36	74.51	26	47.63	35
35	Low productivity of labour	66.27	35	72.55	32	48.08	34
36	Incompetent sub-contractors	66.67	34	68.63	36	45.75	36

3.6. Effects of construction contract termination

The most common and critical effects of construction contract termination are poor quality of completed project, increment of project completion cost, cracks and weed growing on ground floor bed, cracks and plant growing on walls and structures, vandalizing/decaying of roof and other building materials, suspended floor slab failure complete building, roof and ceiling carcass failure/collapse, delay of the project completion date, unnecessary expenses of contracting parties, cracks and discoloration of block works. The ranks of degree of severity, frequency of occurrence and important index of 7 effects of termination are illustrated in table 9 below.

Table 9 Effects of construction contract termination

S. No.	Effects of termination	Frequency of Occurrence	Degree of Severity	Importance Index

		FI	Rank	SI	Rank	II	Rank
1	Poor quality of completed project	79.54	2	81.20	1	64.59	1
2	Increment of project completion cost	75.36	3	74.81	3	56.38	3
3	Cracks and weed growing on structures	69.13	7	63.97	8	44.22	7
4	Cracks and plant growing on walls	74.22	4	73.85	4	54.81	4
5	Vandalizing/decaying of building materials	71.77	5	72.31	6	51.89	5
6	Delay of the project completion date	70.35	6	72.51	5	51.01	6
7	Dispute between parties	79.94	1	80.21	2	64.12	2

3.7. Discussion of the results

Top five critical construction contract termination factors in East Gojjam Zone are discussed briefly as follow.

3.7.2. Winning the auction at the lowest price

Normally, the list bidder bidding system was used to select contractors solely based on their prices. So, from practical experience and observation, list winner bidding principle is a serious problem for the construction industry. The most important selection criterion for selecting a contractor is not considered the technical skills and project experience of contractors. Hence, selecting a contractor is no longer a straightforward process that is carried out by simply sorting the bids according to the price that is offered. Instead, it is a complicated process in which owners should take into account for a number of subjective factors (the status of the bidders, their performance/ efficiency capacity and others characteristics of the contractor. The Amhara regional state town development and construction bureau also stated to bound 25% of engineering estimation for any engineering project. Doing this would have effectively reduced the number of construction termination.

3.7.3. Escalation of materials price

The costs of construction materials for all types of construction projects have being radically increased especially in this time construction material price escalation is the most challenging factor all over the nations. Thus, the rapid escalation of construction material costs, tools, labor, and equipment pushed to terminate most construction projects. As a result, appropriate inflation factors should be

taken into account by the estimator during the cost estimation process. In developing nations including Ethiopia the main causes for the hyperinflation is fake scarcity [9-10].

3.7.4. Delay in progress payments approval

Late payments for work done by the clients on construction projects are one of the main reasons for project termination [10-14]. The contractors face a complicated problem to begin the project construction according to the contract. This resulted in project termination for most construction projects.

3.7.5. Financial difficulties of contractors'

According to the findings of this study, the project owners did not release the required payments timely. Hence, the contractors face financial difficulties to engage the construction processes. A situation in which the contractor's credit is negatively impacted and the contractors could not proceed the project appropriately and forced to delay or to totally terminate the project. [11], [14-16]. So, to reduce project delay and termination, the project owners should release the required payments on time

3.7.6. Design errors

In any construction project, design errors can have a negative impact on cost, schedule, and safety performance. Due to a variety of factors, including human error, a lack of coordination in the process, and an unclear design overview, the various types of design drawings may contain varying degrees of design errors. The significance of design mistakes made during the construction phase is poorly understood by civil engineers, both designers and contractors [14, 17].

4. Conclusion

Based on the findings of this study, the following conclusions are made.

Contract termination is a common problem at each contractor level and occurred in any types of construction projects at different stages of the construction process. In East Gojjam zone, more than 90% of the construction projects faced challenges to achieve their objectives in the period of 2018 to 2023 of our tudy and the construction parties lose a significant amount of capital due to improper handling of the situations. Based on the overall analysis of 36 influencing factors and the researchers' expert on construction projects, the most common and critical causes for project termination were prioritized as winning the auction at the

lowest price, escalation of materials price, delay in progress payment approval, financial difficulties of the contractor, design errors, cost overrun of the project, poor management and supervision of construction site, construction delay, slow decision making, and insufficient plans and specification. The top five effects of termination of construction projects are construction quality reduction, delay of the project completion date, increment of project completion cost, cracks and plant growing on walls and structures and vandalizing/decaying of roof and other building materials.

To reduce the significant impacts of project terminations, the researchers recommended to avoid least bidder principle, control materials price escalation, pay progress payments timely, properly and effectively utilize financial resources, good management and active supervision of construction site, providing sufficient plans and specifications are suggested to reduce construction contract terminations.

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