
An Analysis of How the Construction Business in Ethiopia Is Affected by the Rising Cost of Building Materials

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Abstract: The construction industry differs significantly from other economic sectors due to a variety of distinctive features. Construction projects fail with a disproportionately high frequency in Ethiopia's construction industry today because it is fragmented and highly subject to political and economic cycles. However, due to the numerous risks inherent in how the sector functions, phrases like project business failure, collapse, and bankruptcy frequently used in Ethiopian construction. Assessing existing issues with Ethiopian construction project failure was the goal of this study. According to the study's findings, the main causes of current construction project failure are delays in clients' (donors') debt collections, border closures, heavy dependence on bank loans and payment of high interest on these loans, lack of capital, absence of industry regulations on building materials costs due to high neglect in free market and lack of experience in contract management. Finally, realities of the focus group showed that the construction project failure is valid and it represent a step forward in the way of construction industry development in Ethiopia. The results of the research also recommended to that there be an urgent need for an independent and responsible body to take the lead of the adoption and the application of the ethical code and more efforts need to be done to help construction sectors to understand and realize the importance and role of ethics professional in construction industry. Education and mandatory training programs can be conducted for stakeholders about the content of the market inflation and rising Cost of Building Materials to control. Media's role and research development also is very important. Based on these findings, approvals to all stakeholders are obey for National Trade Industry Regulations that currently work in Ethiopia construction industry.

Keywords: Construction Project Bankruptcy, Construction Industry, Failures, Obstacle

1. Introduction

A society requires the construction sector as a tool to advance its objectives for urban and rural development. The complexity of the construction process itself and the numerous stakeholders involved, including customers, users, designers, regulators, contractors, suppliers, and others, have contributed to this increase in complexity [1]. The wealth of the construction industry tends to fluctuate with the growth of the overall economy, and it responds quickly to changes in the economy due to its cyclical nature [2]. In industrialized nations like Ethiopia, the construction industry is backed by the social and political infrastructure that is reflected in the legal systems through various contract types and the official recognition of professional competence. In developing nations, which frequently rely on infrastructure and procedures that are either copied from or enforced by the industrialized countries,

such supportive infrastructure systems are essentially nonexistent [3]. Numerous researchers have examined the issues and difficulties facing the construction sector in developing nations and have offered solutions to these issues and difficulties, such as the high rate of project failures [4]. However, due to market inflation on building supplies, there has been little progress in work efforts to address these issues. These factors include a lack of resources for implementation work, governments' disregard for the importance of the construction industry, and a lack of resolve to address its issues [5]. This shows that the strategies for enhancing the performance of the industry as a whole lack measurable targets, which is another significant reason why development of the construction industry has not progressed. According to the researchers, issues facing the industry in developing nations can be divided into three categories: issues caused by client and consultant problems, issues caused by contractor

problems, and issues caused by government authority and contractor ineptitude [6]. According to Authors, main issues faced by government authority in developing countries can be divided into three categories: issues brought on by the industry's infrastructure, issues brought on by inaccurate information and frequent changes in instructions, issues brought on by clients, contractors, and consultants failing to uphold their obligations, and issues brought on by their own shortcomings [7]. Ethiopia's construction sector was one of the top ones in east Africa in 2020 and through the middle of 2021 for high economic growth rates. In terms of creating employment possibilities for Ethiopian workers and supporting domestic production at that time, this sector's contribution has grown. Contrary to its counterparts in many emerging and adjacent nations, this industry has seen numerous setbacks since that time, which have reduced its contribution to the development of the Ethiopian economy [8]. The purpose of this study is to examine the current issues with construction project failure in Ethiopia's construction industry and to assess the severity of these issues from the perspective of the construction sector.

2. Literature Review

2.1. Development of the Construction Sector in Ethiopia

Ethiopia will have more than 138 million residents by 2030, according to the UN's 2015-revised World Population Prospects report [9]. Ethiopia currently ranks second in terms of population in Africa, just after Nigeria. Ethiopia's restoration offers prospects and difficulties unmatched by anything in recent times. Together with the construction of completely new political, social, economic, technological, and cultural institutions, Ethiopia will see inclusive development [10]. One of Ethiopia's most long-lasting and extensive projects over the coming years will be the restoration of its cities and rural areas. The current resurgence of construction activity in its numerous manifestations is indicative of the lengthy historical process of national self-expression and progress [11]. The building and housing sector is a major contributor to Ethiopia's economy in addition to playing a social role in supplying housing, amenities for the general public, and infrastructure for commercial ventures [12]. According to these statistics, gross domestic capital creation for the Ethiopian government increased from US\$63.022 million to US\$160 million between 2015 and 2016. During this time, construction accounted for 7.5% of Ethiopia's total GDP [13]. At the current pricing, this equals to 9.4% of the entire output, according to African Economic Outlook [14]. As a result, the market value of the construction sector would be about \$6 billion. In conclusion, the Ethiopian economy has benefited greatly from the building sector. Additionally, according to the research group, Ethiopia would have growth of 12.7% through 2021, with the final ten years of development averaging 10.7% in 2025. These investments were mostly funded by money transferred by Ethiopian Diasporas overseas and financial aid provided to Ethiopia by

other nations [15]. The majority of these monies were used for construction, with a focus on restoring various schools and health facilities destroyed during battles between the Ethiopian government and the Tigray People Liberation Front (TPLF) in October 2020–2022. Ethiopia has one of the highest investment levels in the world compared to GDP, according to Deloitte. The country has taken significant steps to improve electricity supply, housing stock, and transportation networks, with a projected need for \$1.5 billion in annual infrastructure expenditure. This has resulted in better jobs and opportunities in metropolitan areas and the construction industry, which has boosted GDP growth [16]. It should be mentioned that up to 70% of Ethiopia's need for construction materials are imported. Cables, steel, ceramics, locks, furniture, and electrical fixtures all fall within this category. All are essential to achieving the ambitious development and infrastructure aspirations of other nations [17]. The remarkable growth in capital flow and investment came to stop in starting from 2014 year of the Ethiopia colander, this giving rise to a notable decline in the Ethiopian regions, which, in turn, had a shocking impact on the local construction industry. To demonstrate, the annual rate of growth in the construction industry was negative in the Oromia, Afar, Tigray and Amhara regions [18]. This notable depression in investment continued until the signing of the declaration of principles agreement between the Tigray People Liberation Front (TPLF) and October 2022 will see the Ethiopian Government in South Africa. Since that time, the Tigray, Afar, and Amhara regions have seen a considerable improvement in activity in the building sector. The peace process, which received support from numerous international donors and attracted the interest of private Ethiopian investors both inside and outside of Ethiopian territory, was responsible for the upbeat environment that resulted. While waiting for a beneficial peace to start the rehabilitation process in the Oromia area, construction projects may fail. In contrast to the manufacturing and agricultural industries, the local construction sector also contributes significantly to the employment of Ethiopian workers. Many Ethiopian employees have been employed in this sector. The proportion of Ethiopia's work force employed by the construction industry has been steadily rising. To illustrate, from 23,900 workers in 1970 to 97,000 workers in 1993, the number of Ethiopians employed in the construction business expanded. In contrast, in 2000, 13% of the total Ethiopian working force was employed in the construction business [19]. Although the construction industry in Ethiopia has made significant strides in terms of economic development, local output contribution, employment, and meeting some local needs of the Ethiopian society, it still faces a number of challenges that prevent it from playing the significant role in the Ethiopian economy that it would otherwise play, as is the case in neighboring and developing nations [20]. Several researchers at the project level rather than the corporate level have discussed this issue. The mechanism for identifying building firms that are in jeopardy of failing factors that contributed to business failure included a lack of engineering expertise, a weak financial director, an insufficient cash flow strategy, a subpar budgetary

management system, and a flawed bidding procedure [21].

2.2. Construction Project Failure: Definition and Problems

A contractor has far greater risks than a comparable worker does in practically any other business. Additionally, compared to other businesses, the client is exposed to risk during the construction process for a longer length of time [28]. Despite the fact that many businesses that fail on projects have small-owned assets, project failure has been documented. A construction project failure is defined by researchers as a business that ceases operations as a result of assignment or bankruptcy, ceases operations with losses to creditors as a result of actions like foreclosure or attachment, withdraws voluntarily while still owing money, and is involved in legal proceedings like receivership, reorganization of arrangement, or voluntarily compromising with creditors [22]. The failure is the inability of a company to pay its debt because of a significant drop in sales, a downturn in the economy, the loss of a key client, a lack of fresh supplies, and management flaws. According to Scholar has given a definition of failure from such an economic perspective, a business has failed if its actual rate of return on invested capital, after accounting for risk factors, is significantly and consistently lower than the rates on comparable investments [23]. Insufficient revenues to cover expenses and circumstances where the average return on an investment is lower than the firm's cost of capital are other criteria. Construction project failure was attributed by variety of circumstances, including discontinuance for any reason, termination due to trade and creditor loss, sale to stop more losses, and failure to try [24]. This can be boiled down to two variables: environmental factors and strategic leadership variables. Researchers have determined that economic considerations, lack of experience, bad sales, expenditure, customer, fraud and negligence, asset and capital, and disaster are the main causes of many project failures [25]. They discovered that economic considerations have the biggest impact on failure. There are five subcategories of economic factors: poor profit, high interest rates, loss of market or inflation, lack of consumer spending, and no future. Project failures have been attributed to the following variables such as budgetary issues, human/organizational capital concerns of market conditions adaption, business issues, macroeconomic issues, and natural factors. According to researchers, there are seven primary causes of project failure: insufficient funding, inaccurate cost estimates, lax control, bad advice, governmental regulations, fluctuating commerce, and fraud. The reviews of the literature demonstrates unequivocally that a construction project's failure is the result of a complicated process and is rarely caused by a single element [26].

3. Research Methodology

A thorough study of pertinent research studies' literature yielded a total of 41 elements that could contribute to the current issue of construction project failure. Four main groupings were formed as a result of grouping factors with comparable characteristics: managerial, financial, company

growth, business environment, and political. After that, a postal questionnaire was created using the criteria in order to ascertain the primary current issues causing construction project failure in the Ethiopian construction industry. Two teams of specialists examined the questionnaire to assess its content validity. Prior to distributing the questionnaire to the intended study population, this test allowed for the insertion of modest changes to better suit the local market conditions. In first contractors and building consultants with active registrations with the Ethiopian construction ministry are the target population.

The target population was distributed between the two categories as follows: 20 of first class of contractors and 10 of consultants and 5 of clients (government authority those are slightly followed government projects as owner), a totals 35 stakeholders. According to researchers have enclosed, the following formula was used to determine the sample size for an unbounded population distribution [27].

$$SS = \frac{Z^2 * P[1-P]}{C^2} \quad (1)$$

Where ss = sample size

z = z value (e.g., 1.96 for 95% confidence level)

p = percentage picking a choice, expressed as decimal (0.5 used for sample size needed)

c = confidence interval (0.5) order to ensure that the chosen sample fully represents the target population.

$$SS = \frac{1.95^2 * 0.5[1-0.5]}{0.5^2} = 384$$

Correction for finite population

$$New\ SS = \frac{SS}{1 + \frac{SS-1}{Pop}} \quad (2)$$

$$New\ SS = \frac{384}{1 + \frac{384-1}{35}} = 32$$

Therefore, based on a 95% confidence level, the projected sample size for contractors, consultants, and clients is 32. The following calculations were made to guarantee that clients, consultants, and contractors were fairly distributed:

$$\text{Contractors} = \frac{32 * 20}{35} = 18, \quad \text{consultants} = \frac{32 * 10}{35} = 9 \quad \text{and} \\ \text{Clients} = \frac{32 * 5}{35} = 6$$

The questionnaires were given to 32 different construction companies in order to get their input on the industry and rank it according to the severity of the 56 characteristics that had been found. Given the nature of ordinal scales, the numbers (1, 2, 3, 4 and 5) allocated to the degree of influence suggest neither that the gap between scales is equal nor do they reflect absolute values.

The ordinal scales that were employed are 1 = very low influence, 2 = low influence, 3 = moderate influence, 4 = high influence, and 5 = very high influence. They are essentially numerical designations. The ranking for the "important elements Sustainable Construction Materials" was then determined using the Relative Important Index (RII) approach, which involved averaging the relative significance indices of

each factor in the group.

$$RII = \frac{\sum[W]}{A*N} \quad (3)$$

Where: W = the weight given to each factor by the respondents

A = Extreme impact = 4

N = the total number of respondents.

Only 25 completed questionnaires in all were returned, which translates to an outstanding 61% response rate.

4. Results and Discussions

4.1. Managerial Factors

In Table 1, the mean value and rank for each management factor are shown in descending order. Rising labor market wages, local raw material prices, and a lack of project claims management procedures are the top three factors that may drive up project costs in a given industry, according to the descriptive data.

Table 1. Means and Ranking of Managerial Group Factors.

Factor	Mean	Rank
Rising wage costs in labor market	4.25	1
Increasing raw material costs from domestic and overseas supplies	4.15	2
Lack of project Claims management techniques	4.13	3
Bad decisions in formulating company policy	3.93	4
Rising important prices due to falling exchange rate	3.91	5
Higher indirect taxes imposed by the government	3.75	6
Lack of control contact period	2.69	7
Lack of commitment	2.58	8
Centralized decision making	2.54	9
Lack of experience in the line of work	2.53	10

Making poor decisions while creating company policy, growing critical prices because of falling, and lack of control over the project cost period are the next three most significant impacts of project cost rise under this category of managerial reasons. Lack of control over the contact length, a lack of commitment, centralized decision-making, and lack of experience in the field of work were the managerial criteria that received the lowest ratings. This could mean that the majority of Ethiopia's contracting companies are tiny in size.

4.2. Financial Factors

Table 2 makes it clear that the top four variables include relying on bank loans and paying excessive interest rates, mismanaging cash flow, lacking capital, and low profit margin because of fierce competition. This outcome is unexpected given that the majority of contracting companies in Ethiopia have serious issues with cash flow, capital, and fierce competition in a very challenging environment.

Table 2. Means and Ranking of Financial Group Factors.

Factor	Mean	Rank
Dependence on bank loans and paying high interest	4.32	1
Cash flow mis-management	4.26	2
Lack of capital	4.26	3
Low margin of profit due to competition	4.22	4
Estimating practices	4.03	5
The increase in capital expenditures	4.00	6
Bill and collecting effectively	3.92	7
Difference of local currency exchange with contract currency	3.75	8
Evaluation of profit yearly	3.34	9
Material wastages	3.32	10
Controlling equipment cost and usage	3.29	11
Dealing with variation order	3.26	12
Employee benefits and compensation	2.77	13

The findings indicated that the following financial failure causes had the lowest means values: handling variation orders, regulating equipment cost and usage, reducing material waste, and yearly profit evaluation.

It is well known that small businesses lack a dedicated accounting department that regularly publishes financial reports, making it challenging to keep track of financial ratios. Contracting companies in the Gaza Strip never prioritize factors that may have an impact on their financial situation, such as employee benefits and compensation, variation orders, controlling equipment costs and usage, reducing material

waste, and evaluating annual profits.

4.3. Business Growth Factors

According to Table 3, there are six criteria included in this category. Growing project sizes and a lack of managerial development as the organization expands were ranked first and second, respectively, with mean values of 3.98 and 3.62. Following this, a shift in the nature of the job and an increase in the number of projects were placed third and fourth, respectively. With mean scores of 2.69 and 2.74, respectively,

building a regional office in another governorate and switching from private to public work were both listed at

positions 5 and 6, respectively.

Table 3. Means and Ranking of Business Growth Group Factors.

Factor	Mean	Rank
Lack of managerial development as the company grows	3.98	1
Increase size of projects	3.62	2
Change in the type of work	3.58	3
Increase number of projects	3.38	4
Change work from private to public or vice versa	2.74	5
Opening a regional office in other governorates	2.69	6

The first factor has to do with the company's ability to adapt to the expansion of the industry. It has a direct bearing on management development at a time when the organization is experiencing tremendous growth. There appears to be broad consensus that underestimating project expenses and overestimating revenues is one of the nearly tediously recurring errors that contributes to cost of project escalation. Construction companies need to prevent taking on more projects than they can manage financially and organizationally.

4.4. Political Factors

Table 4. Means and Ranking of Political Group Factors.

Factor	Mean	Rank
Delay in collecting debt from donors	4.45	1
Border closure	4.37	2
Segmentation of Ethiopia	4.25	3
High cost of materials	4.03	4
Lack of resources	3.91	5
Limitations on material import	3.82	6
Monopoly	3.74	7
Banks policy	3.65	8
Difficulties in dealing with suppliers and traders	3.34	9

The rankings of nine factors within this category are shown in Table 4. With mean scores of 4.45, 4.37, 4.25, and 4.03, respectively, the top-scoring factors with high means are the delay in collecting debts from donors, border closure, segmentation of Ethiopia, and high cost of materials. While the three mean values with the lowest values are related to banks' policies, monopoly, and suppliers and traders, with respective mean values of 3.34, 3.65, and 3.74. It should be noted that donors pay the majority of construction projects in Ethiopia. The management of cash flow and a lack of financial resources both have a direct impact on this. Closing the border has a significant negative influence on the Ethiopian economy in terms of decreased productivity, decreased income, stricter policies and regulations for banks and suppliers, and monopoly because of the task in resources.

Segmenting Ethiopia entails further subdividing the nation, completely obstructing the flow of people, products, and services. Due to a lack of laborers and building supplies, segmentation has a very negative effect on work activities. Closing and segmenting Ethiopia has led to high material costs, a shortage of resources, and restrictions on material imports, monopolies, and bank policies.

e) Ranking of Groups

Table 5. Mean and Ranking of Main Groups.

Group	Mean	Ranking
Political	3.95	1
Financial	3.75	2
Managerial	3.53	3
Business growth	3.44	4

It is also interesting to note that despite each group having varied factors in terms of context and quantity, the business growth and business environment groups had the same mean value and rank. When mean values are equal, this characteristic is typical in statistics; the variance is an appropriate comparison of two sets of data.

5. Conclusion

The primary goal of this essay is to assess how rising building material costs are affecting construction projects in Ethiopia. The study took into account 41 supporting elements, which were categorized into the following four categories: managerial, financial, political, and company expansion. According to the findings, each of the following elements has a significant potential to cause a price increase on a construction project such as According to the study's findings, the main causes of current construction project failure are the delays in clients' (donors') debt collections, border closures, heavy dependence on bank loans and payment of high interest on these loans, lack of capital, absence of industry regulations on building materials costs due to high neglect in free market and lack of experience in contract management. The National Industry Trade needs to adopt appropriate industry regulations and make recommendations for how to implement them.

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