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# Effect of conflicts on the contracting business failure in the construction industry

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## ABSTRACT

The construction industry plays an important role in the economy of countries and provides the necessary services to achieve the needs and welfare of societies. For this, attention should be given to this sector. The research aims to indicate the most important causes of conflicts in construction projects, the most important reasons for the failure of construction contracting companies, and to study the relationship between conflicts and failure of contractors in the construction industry. This study uses the questionnaire method to achieve its objectives. The target participants are contractor of grade 1 and 2 in Palestine. Eighteen (18) conflict factors and 17 influencing factors in contracting failure are identified and tabulated in a questionnaire form. Results show that the main conflict factors include: delaying monthly payments from the project owner, frequent variation orders, the quality of work is poor, rework, and delay in delivering the works according to the schedule. While the main factors of contractors failure are: cash flow problems, conflict between parties, bidding strategy, local political conditions and low profit due to high competitions. The results show a correlation between conflict and contracting business failure. The results of the research would be of great importance to those interested in the construction industry, as they contribute to identifying the causes of major problems in the construction sector and help in its renaissance and development.

## 1. Introduction

The construction sector is one of the most important sectors in people's lives, as it meets their needs for essential infrastructure such as homes, schools, health centers, streets, etc., in addition to being an essential support for the economies of countries and the creation of job opportunities (Mahamid, 2021). Despite this very significant importance, the construction sector suffers from some obstacles that prevent the achievement of the objectives of this sector with complete success (Doumpos et al., 2017). Numerous research studies have reported instances of construction projects failing in terms of meeting time, quality, and cost commitments (Mahamid, 2022). This research focuses on studying key obstacles in the construction sector, with a particular emphasis on the failure of contractors (Mahamid, 2012; Al Hallaq, 2019; Driel, 2019; Abebe, 2021; Bedada, 2023) and conflict in construction projects (Mahamid, 2017; Soni et al., 2017; Mbatha, 2021).

Conflict in construction projects is defined as problems between project parties that prove difficult to solve on-site, often necessitating resolution through external arbitrators or the legal system (Soni et al.,

2017). The causes of conflicts in construction projects are diverse and can have adverse effects on projects performance, including fostering animosity among project parties, causing project delays, and increasing costs. These outcomes ultimately hinder the construction sector's role as a leading contributor to a country's development (Mbatha, 2021).

Contracting business failure is defined as the inability of a firm to fulfill its duties, adapt to market changes and requirements, and achieve its goals (Mahamid, 2012). The construction industry stands out as one of the most risky industries and one of the most susceptible to failure (Driel, 2019). Illustratively, in Palestine, between 2017 and 2019 alone, 120 contracting companies failed and declared bankruptcy (Al Hallaq, 2019). The failure of contracting companies has a pronounced negative impact on the construction sector, the economy of the state, and society at large (Bedada, 2023).

The literature review reveals a limited number of studies focused on the analysis of failure in construction contracting or conflicts in construction projects. Notably, there is a gap in the existing literature, as no previous study has explored the interconnection between these two issues: conflicts and contracting business failure. This study is designed to

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comprehensively address this gap in the literature. The research aimed to identify the primary causes of conflicts between owners and contractors in construction projects, the key reasons for the failure of construction contracting companies, and to investigate the relationship between conflicts and the failure of contractors in the construction industry. The questionnaire method was used to achieve the research objectives. The aspiration was to provide a deeper understanding of how conflicts in construction projects affect the failure of contractors. Such insights will contribute to mitigating these problems and their adverse effects on both the construction sector and society at large.

## 2. Previous studies

### 2.1. Contracting business failure factors

Business failure is characterized by a company's inability to meet its financial and non-financial obligations (Mahamid, 2012). Business failure is also defined by Al Hallaq (2019) as the company's inability to adapt to market requirements to achieve its strategic objectives. The construction industry stands out as one of the most prone to failure, ranking second among various industries in terms of corporate failure (Driel, 2019; Abebe, 2021; Bedada, 2023). Kivrak and Arslan (2008) concluded that the failure of contracting firms can be attributed to a lack of labor experience and economic conditions of the country. Donkor (2011) found that financial problems, low profit, and high expenses are the main factors in contracting firms' failure. Mahamid (2012) identified 44 failure factors in his field survey. The most significant factors are political issues, fluctuations in the cost of materials, delayed payments, and conflicts. Mbat and Eyo (2013) pointed out that managers, staff, and government regulations have impacts on business failure. Holt (2013) indicated that financial difficulties, poor management, and work conditions are the main factors affecting contracting business failure. Absalom et al. (2014) stated that one of the main factors contributing to contract failures in developing countries is a lack of labor productivity and efficiency.

Sasikumar et al. (2017) conducted a questionnaire survey to identify the significant contributors to contract failure in construction projects. They concluded that the top factors are awarding bids at the lowest bidder price, poor management, poor productivity, poor experience, high competition, low profits, rework, delay in project delivery, material waste, and lack of regulations. In the same vein, Al Hallaq (2019) indicated 73 failure factors classified into five groups, namely financial, managerial, contractual, political, and organizational. The most severe factors are delayed payments, unavailable resources, monopoly, and political issues. John et al. (2019) found that the top failure factors in the construction industry are fraud, lack of experience, lack of labor productivity, and poor resource and procurement management. Mahamid (2022) concluded that cost overruns in construction projects are a main factor leading to business failure. Bedada (2023) conducted a questionnaire survey to investigate the factors of contracting business failure. He recognized 41 failure factors that are related to four groups: the environmental group, the managerial group, the financial group, and the political group. The main factors include delayed payments, poor management, bank loans with high interests, and changes in the prices of materials.

### 2.2. Factors of conflicts in construction projects

Conflict in construction projects is considered one of the major causes of business failure (Tayeh, 2009). The success of the construction industry depends on addressing its main problems, such as conflicts between parties (Mahamid, 2017). Segerstedt and Olofsson (2010) found a relationship between a large number of project resources and conflicts between participants. Mahamid (2011) indicated a direct relationship between conflicts and the success of construction projects in terms of cost, time, and quality. Hartmann and Caerteling (2010)

concluded that the main causes of conflicts in the construction industry are delay, cost increase, poor quality, and mistrust. McCord (2010) found that conflicts are common and mainly affected by poor management and poor supervision. Mahamid (2017) concluded that the main sources of conflicts are unqualified contractors and subcontractors. Ayudhya (2011) indicated that the main conflict factors in construction projects include payment delays, schedule delay, ground conditions, and inaccurate BOQ.

Bakhary et al. (2015) indicated a high correlation between claims and conflicts in Malaysian construction projects. Mahamid (2016) pointed out that conflict factors can be classified into direct and indirect factors. He concluded that the critical direct factors are delays in payment, change orders, work quality, and unskilled labor. While the significant indirect factors are poor communication, improper planning, and cost estimating. Mahamid (2017) conducted a questionnaire survey to identify the main cause of conflicts in construction projects. The finding showed that the main causes are: payment delays, changed orders, unqualified subcontractors, and poor supervision.

Soni et al. (2017) identified the primary factors influencing conflicts in construction projects as poor labor experience, inadequate management, and ineffective strategies for conflict resolution. Olamoju and Olagoke-Salami (2020) recommended enhanced communication among construction parties and prompt decision-making to address conflict in the construction industry. They also established a link between conflicts and cost increases in construction projects. They concluded that the main conflict factors include improper planning and a lack of adequate information about the project. Mbatha (2021) emphasized that contractors bear the main responsibility for conflicts in construction projects. They found that the top conflict factors are improper planning and management, payment delays and a lack of work skills.

The literature review shows that there are no studies that dealt with the relationship between the conflict in construction projects and the failure of construction companies, particularly in Palestine. Hence, this study is considered original in its focus and addresses a significant gap in the existing literatures. This study used the questionnaire method to collect and analyze information related to its topic. The study samples consist of contractors and consultants with substantial experience in the construction industry. The findings of this study is expected to form the basis for those interested in understanding the impact of conflicts on the failure of contracting companies in the construction industry.

## 3. Research methods

The study aimed to find the impact of conflicts on the failure of construction contracting companies. Factors influencing both conflict and business failure were collected from previous studies. The questionnaire method was chosen for data collection, as it is recognized as an approved and effective approach for understanding the opinions of the study sample on an issue that concerns them (Mahamid, 2022). Eighteen (18) conflict factors and 17 influencing factors in contracting failure were identified from previous studies. The questionnaire was structured into three parts: the first part gathered information about the company and the respondent, the second part presented conflict factors in a table, and the third part presented contractor's failure factors in a table. The study targeted construction contractors registered with the Palestinian Contractors Union within grades 1 and 2. Participants were requested to fill out the questionnaire, assessing the importance of each of the factors included in the questionnaire using the following key: 1 for not significant, 2 for of little significance, 3 for of moderate significance, 4 for of high significance, and 5 for of very high significance.

To test the validity and reliability of the questionnaire, a pilot study was conducted. Three (3) local specialists were asked to check if the questionnaire questions would be helpful to achieving the study objectives. They confirmed the validity of the questionnaire and its high potential for achieving the study objectives. The specialists are experts in the construction industry and have more than 30 years of experience in

the field. One of them is an academic expert in the field, and the others are construction project managers.

The sample of the study consists of registered construction contractors in grades 1 and 2. The total number of registered contractors is 130. The representative sample size was calculated using Equation (1) (Kish, 1965):

$$n = \frac{n'}{1 + \frac{n'}{N}} \tag{1}$$

Where:

n: the sample size from a finite population.

n': the sample size from an infinite population, which can be calculated from this formula.

$$[n' = S^2/V^2].$$

N: Total population (120 contractors).

V: Standard error of sample population equal 0.05 for the confidence level 95 %, t = 1.96.

S<sup>2</sup>: Standard error variance of population elements, S<sup>2</sup> = P (1-P); maximum at P = 0.5.

The sample size for the contractors' population can be calculated from Equation (1) as follows:

$$n' = S^2 / V^2 = (0.5)^2 / (0.05)^2 = 100$$

$$n_{\text{contractors}} = \frac{100}{1 + \frac{100}{130}} = 56$$

Which means that the minimum sample size needed for this study is 56 respondents.

The questionnaire was distributed to 100 contractors. The contractors were selected randomly from an available list in the Palestinian Contractors Union. The selected contractors received the questionnaires either face-to-face or via email, utilizing addresses obtained from the provided list. A total of 82 questionnaires were filled out and collected (response rate = 82 %). The respondents had experience in different positions in their organizations and firms (Fig. 1). They also had substantial experience in construction projects (Fig. 2).

The responses were analyzed using SPSS. The significance of each factor was calculated using the weighted average for each factor, and subsequently, the factors were ranked accordingly. Following the analysis of responses and identification of the five most significant factors affecting conflicts in construction projects, a new questionnaire was formulated. This questionnaire was then sent to the same participants who had previously completed the initial questionnaire to assess the extent of the effect of these factors on contracting business failure. The following key was utilized for the second round of responses: 1 for no effect, 2 for low effect, 3 for moderate effect, 4 for high effect, and 5 for very high effect.

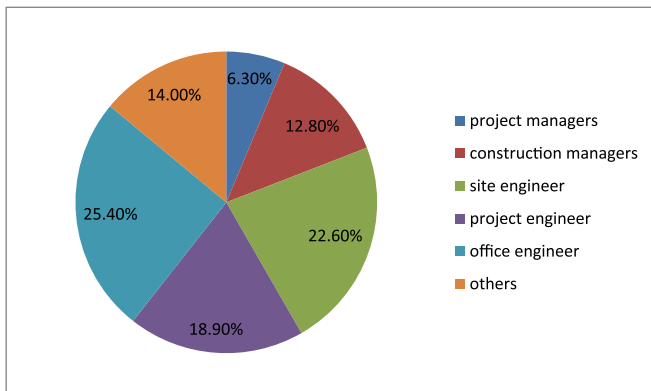


Fig. 1. Respondents' positions in their organizations.

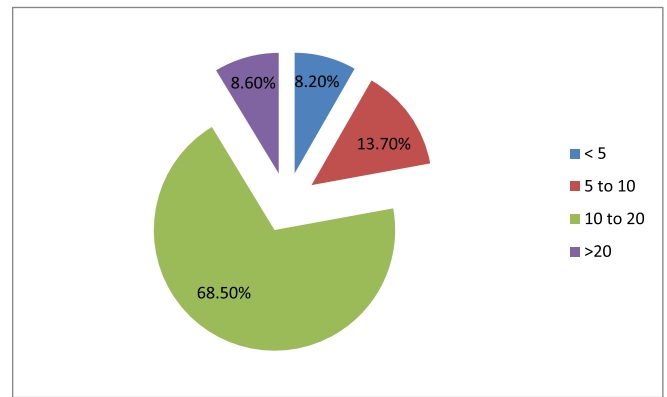


Fig. 2. Respondents' years of experience in construction projects.

## 4. Results and discussion

### 4.1. Ranking of conflicts factors

Eighteen (18) conflict factors are presented in Table 1. The contractors' responses indicate that the five most critical factors are delaying monthly payments from the project owner, frequent variation in orders, poor quality of work, rework, and delay in delivering the work according to the schedule.

Delaying monthly payments from the project owner affects the contractor's ability to comply with financial requirements such as paying for labor as well as employees' wages, paying subcontractors' dues, and paying suppliers' dues, which causes conflict with the owner. This is consistent with what was reported by Mahamid (2016), Mahamid (2017), and Mbatha (2021). Frequent variation in orders may lead to the creation of new works or the abandonment of existing works in the contract, and this leads to an increase or decrease in the new quantities, which may lead to a conflict between the owner and the contractor on how to price the new changes in the project. The same result was reported by Mahamid (2017). Poor quality of work may lead to its rejection by the supervising engineer at the site, which causes conflict between the supervising engineer and the contractor. The results of the study conducted by Mahamid (2016) support this assertion. Reworks may be due to implementation problems, design errors, or changes in project scope. Completing the work and then re-doing it takes additional time and may lead to a delay in the project. Accordingly, a dispute may arise between the project parties over who bears responsibility for the

Table 1  
Ranking of conflict factors.

Factor	Weighted Mean	Rank
Delaying monthly payments from the project owner	4.37	1
Frequent variation orders	4.25	2
The quality of work is poor	4.14	3
Rework	4.05	4
Delay in delivering the work according to the schedule	3.97	5
Lack of labor productivity and efficiency	3.85	6
Poor quality of design documents	3.74	7
Failure to comply with the specifications as contracted	3.68	8
Contractor financial problems	3.59	9
Changes in material prices	3.48	10
Changes in the labor rate	3.39	11
Fluctuation in the exchange rate	3.34	12
Delay in supervision and approval	3.25	13
The contracted project duration is unreasonable	3.21	14
Ambiguity and a lack of clarity in the written contract	3.11	15
Poor performance of subcontractors	3.06	16
Lack of cooperation and communication between project parties	2.98	17
Weather	2.89	18

delay resulting from the rework. This result has not been addressed in any of the previous studies reviewed in this research. The postponement of project deliverables, in deviation from the established schedule, typically gives rise to disputes concerning the underlying reasons for the delay and the attribution of responsibility. This information assumes significant importance in the evaluation of project delivery delays, forming the basis for the imposition of penalties and the determination of compensation obligations among the involved project stakeholders (Ayudhya, 2011).

4.2. Ranking of contracting business failure factors

Seventeen (17) factors affecting contracting business failure are shown in Table 2. From the results, the top five critical factors of construction firms' failure are cash flow problems, conflict between parties, bidding strategy, local political conditions, and low profit due to high competition. When the owner of the project delays the payments due to the contractor, the contractor, in turn, cannot cater for the financial requirements of the project, such as payments for building materials, labor, subcontractors, equipment, staff, and others, which affects the cash flow of the company and its ability to continue. This is consistent with what was reported by Al Hallaq (2019), John et al. (2019), and Mahamid (2012). Conflicts cause a negative impact on the smooth and comfortable progress of the projects. This causes stumbling in projects in terms of increased costs, delays, and confusion in the company's work environment. This in turn leads to financial losses for the company, in addition to confusing its presence in the market, which ultimately leads to its failure as was concluded by Mahamid (2012). The bidding strategy applied locally, which depends on awarding the bid to the lowest-priced contractor, contributes greatly to the failure of companies since that the lowest-priced contractor may not have the necessary qualifications to implement and manage the project and pay the financial requirement necessary to continue the project smoothly and successfully. Therefore, owners should focus on the qualifications of the contracting company in terms of experience in the market, the size of the resources, the qualifications of the employees, and the size of the capital to ensure the success of the project and the company as well (Absalom et al., 2014). Local political conditions in Palestine contribute to the failure of contracting companies. It contributes to dividing the country into separate geographical areas, which limits the movement of labors, materials, and equipment. Beyond the challenges posed by importing materials and equipment from international sources, there exists a consequential reduction in the accessibility of essential project resources. Compounding this issue is the considerable volatility in the prices of these materials and equipment, further exacerbating the complexities associated with procurement and resource management. In addition to the

Table 2  
Ranking of contracting business failure factors.

Factor	Weighted mean	Rank
Cash flow problems	4.41	1
Conflicts between parties	4.39	2
Bidding strategy	4.38	3
Political conditions	4.36	4
Low profit due to high competition	4.31	5
Poor contract management	4.12	6
Poor procurement management	3.94	7
Poor documentation system	3.91	8
Improper planning	3.81	9
Lack of professional managers	3.5	10
Improper resources management	3.47	11
Lack of communication between participants	3.46	12
Lack of control systems	3.33	13
Fraud	3.31	14
Monopoly	3.17	15
One man rule	3.03	16
Natural disaster	2.82	17

mentioned hurdles, strikes and lockouts pose a significant threat to project progress and performance. The combined effect of these factors not only constrains the company's financial capabilities but also heightens the risk of failure, particularly when the organization is initially lacking in experience, capabilities, and qualifications (Al Hallaq, 2019). Due to the large number of contracting companies compared to the limited local market and number of projects, some contractors apply the low profit policy to win a larger number of projects. This policy may be useless due to the constantly changing prices of materials, equipment, and labors, and the high cost of living in general, such as water, electricity, and other life necessities. This may lead to a loss for the company and its inability to keep pace with market requirements. This finding is unique as it has not been reported in previous studies.

4.3. Impact of conflict on contracting business failure

Table 3 and Fig. 3 summarize the effect of critical conflict factors on contracting business failure. The results of the relative index show that the top conflict factors have a high impact on contracting business failure. The results ranked the "delaying monthly payments from the project owner" factor in position 1 in terms of effect on contracting business failure (R. I. = 0.71), followed by "delay in delivering the works according to the schedule" in position 2 with R. I. = 0.67. "The quality of work is poor" is ranked in position 3 with R. I. = 0.63, followed by "frequent variation orders" and "rework" in positions 4 and 5, respectively. These factors are discussed, and their impact on the conflict is explained in Section 4.1. Conflict exerts a notable adverse influence on the operational efficacy of companies, resulting in a decline in profit margins or, in certain instances, leading to financial losses. This dynamic interaction, in conjunction with other pivotal factors, contributes in various ways to the potential failure of contractors.

5. Conclusion

The construction industry plays an important role in the economies of countries and provides the necessary services to meet the needs and welfare of societies. For this, attention should be given to this sector, to study it in depth, to understand its problems, and to solve them in order to maintain its pioneering role. This study is conducted to address the relationship between conflicts and the failure of construction contracting companies in construction projects in the West Bank in Palestine from the contractors' perspective. The study identifies key factors influencing conflicts between owners and contractors in construction projects. These include delayed monthly payments from the project owner, frequent issuance of variation orders, substandard quality of work, instances of rework, and deviations from the project schedule leading to delays in project delivery. The study's findings underscore that pivotal determinants leading to contractors' failure encompass

Table 3  
Effect of the top five conflict factors on contracting business failure.

The most significant conflict factors	Effect on contracting business failure					Relative index (R. I.)
	No	low	medium	high	very high	
Delaying monthly payments from the project owner	0	0.6	5.2	62.2	32.0	0.71
Delay in delivering the works according to the schedule	0	1.2	10.8	61.5	26.5	0.67
The quality of work is poor	0	2.7	12.3	64.2	20.8	0.63
Frequent variation orders	0	6.4	21.6	58.3	12.7	0.56
Rework	0	9.3	30.7	50.3	9.7	0.51



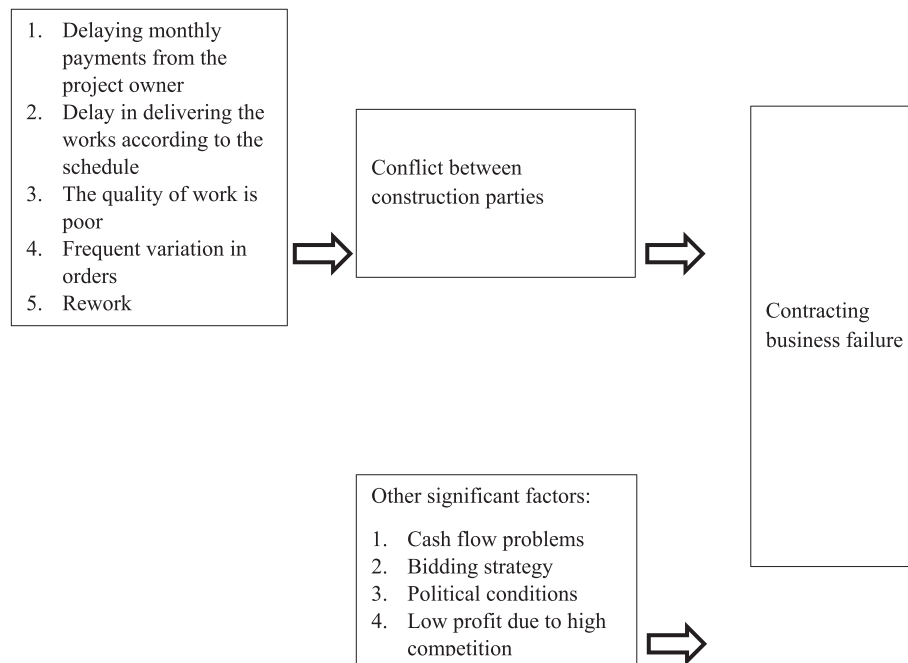


Fig. 3. Effect of top conflict factors on contracting business failure.

challenges related to cash flow, conflicts between parties, bidding strategy, local political conditions, and diminished profitability arising from intense competition in the market. In the examination of the correlation between key conflict factors involving contractors and owners and the subsequent failure of construction contracting companies, the results reveal a robust association among them. Specifically, the factor of “delaying monthly payments from the project owner” emerged as the most impactful, securing the top position with a Relative Importance Index (R.I.) of 0.71. Following closely is the factor of “delay in delivering the works according to the schedule” in the second position with an R.I. of 0.67. “The quality of work is poor” claimed the third position with an R.I. of 0.63, while “frequent variation orders” and “rework” occupied the fourth and fifth positions, respectively.

It is strongly recommended that all project stakeholders heed the findings of this research and proactively address the key factors influencing conflict and failure. Measures such as timely disbursement of financial obligations, adherence to project timelines for the delivery of completed works, rigorous quality control measures, and meticulous adherence to project specifications are crucial. Additionally, effective project planning to minimize variation orders and rework is essential. Adhering to these recommendations is anticipated to mitigate conflicts within projects, enhance overall performance, and subsequently decrease the failure rate of contractors.

#### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

#### References

- Abebe, M. (2021). The Effect of Strategic Leadership on Organizational Innovation: in case of selected Digital Tech firms in Ethiopia. Master thesis, Addis Ababa University, Ethiopia.
- Absalom, H., Sylvester, M., Githae, W., Stephen, D., Abednego, O., 2014. Factors influencing effective productivity on construction sites in Nairobi County. *Int. J. Soft Comput. Eng. (IJSCE)* 4 (5).
- Al Hallaq, K., 2019. Critical factors causing contractor's business failure in Gaza Strip. *J. Eng. Res. Technol.* 6 (2), 10–20.

- Ayudhya, B. (2011). Appraisal of Common Dispute Problems over Residential Building Projects in Hong Kong. FIG Working Week 2011, Marrakech, Morocco, 18–22 May 2011.
- Bakhary, N., Adnan, H., Ibrahim, A., 2015. A study of construction claim management problems in Malaysia. *Procedia Econ. Finan.* 23, 63–70.
- Bedada, A., 2023. An analysis of how the construction business in Ethiopia is affected by the rising cost of building materials. *Am. J. Constr. Build. Mater.* 7 (1), 1–6. <https://doi.org/10.11648/j.ajcbm.20230701.11>.
- Donkor, S. (2011). Determinants of business failure: the perspective of SMEs building contractors in the Ghanaian construction industry (Doctoral dissertation).
- Doumpos, M., Andriosopoulos, K., Galarotis, E., Makridou, G., Zopounidis, C., 2017. Corporate failure prediction in the European energy sector: A multicriteria approach and the effect of country characteristics. *Eur. J. Oper. Res.* 262 (1), 347–360.
- Driel, H. (2019). Financial Fraud, Scandals, and Regulation: A Conceptual Framework and Literature Review. *Business History*, 61 (8), 1259–1299. <https://doi.org/10.1080/00076791.2018.1519026>.
- Hartmann, A., Caerteling, J., 2010. Subcontractor procurement in construction: The interplay of price and trust. *Supply Chain Manage.: Int. J.* 15 (5), 354–362.
- John, K., Gwaya, A., Wanyona, G., 2019. Causes of contractors' failure in the construction industry in Rwanda. *Int. J. Innov. Sci. Mod. Eng.* 5 (12), 75–82.
- Kish, L. (1965). Survey sampling. John Wiley and Sons, Inc., New York.
- Kivrak, S. and Arslan, G. (2008). Factors causing construction company failure. *Building Abroad*, October 2008, 297–305.
- Mahamid, I., 2011. Risk matrix for factors affecting time delay in road construction projects: Owners' perspective. *Eng. Constr. Archit. Manag.* 18 (6), 609–617.
- Mahamid, I., 2012. Factors affecting contractor's business failure: contractors' perspective. *Eng. Constr. Archit. Manag.* 19 (3), 269–285. <https://doi.org/10.1108/09699981211219607>.
- Mahamid, I., 2016. Micro and macro level of dispute causes in residential building projects: Studies of Saudi Arabia. *J. King Saud Univ. – Eng. Sci.* 28 (1), 12–20.
- Mahamid, I., 2017. Analysis of common factors leading to conflicts between contractors and their subcontractors in building construction projects. *Australian J. Multi-Discip. Eng.* 13 (1), 18–28. <https://doi.org/10.1080/14488388.2017.1342515>.
- Mahamid, I., 2021. Effects of design quality on delay in residential construction projects. *J. Sustain. Architect. Civil Eng.* 28 (1), 118–129. <https://doi.org/10.5755/j01.sace.28.1.20531>.
- Mahamid, I., 2022. Impact of rework on material waste in building construction projects. *Int. J. Constr. Manag.* 22 (8), 1500–1507. <https://doi.org/10.1080/15623599.2020.1728607>.
- Mbat, D., Eyo, E., 2013. Corporate failure: causes and remedies. *Business Manage. Res.* 2 (4), 19–24.
- Mbatha, S., 2021. Causes and impacts of conflicts in construction projects: A viewpoint of Kenya construction industry. *Int. J. Soft Comput. Eng.* 10 (5), 1–8.
- McCord, J. (2010). Subcontractor Perspectives: Factors That Most Affect Their Relationships with General Contractors – A Pacific Northwest Study. In *49th ASC Annual International Conference Proceedings, the Associated Schools of Construction*, Washington State University, Washington.
- Olamuju, A., Olagoke-Salami, S., 2020. Evaluation of causes and effects of conflicts between contractor and client representatives in Nigerian construction industry (a case study of Lagos state). *J. Environ. Res. Dev.* 4 (1), 69–76.

- Sasikumar, A., Kumar, R., Rajan, V., Kalpanadevi, S., 2017. Critical causes of contractors' failure in Indian construction industry. *J. Emerg. Technol. Innov. Res.* 4 (4), 56–59.
- Segerstedt, A., Olofsson, T., 2010. Supply Chains in the Construction Industry. *Supply Chain Manage.: Int. J.* 15 (5), 347–353.
- Soni, S., Pandey, M., Agrawal, S., 2017. Conflicts and disputes in construction projects: An overview. *Int. J. Eng. Res. Appl.* 07 (06), 40–42. <https://doi.org/10.9790/9622-0706074042>.
- Tayeh, B. (2009). The Relationship between Contractors and Their Subcontractors in the Gaza Strip. Master thesis, The Islamic University of Gaza, Gaza.