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Identifying the Causes of Delay in the Building Sector in Egypt: A Case Study of Small and Medium-Sized Companies

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Abstract

Delay in the construction industry is known to be a significant issue as indicated by many studies in the past few years. The construction sector in Egypt is not an exception as a wide range of projects are suffering from time overrun. the presence of time overrun in the project is the root of other problems such as cost overrun and poor quality. Hence, one of the simplest ways of dealing with delays is by identifying the causes and sources of delays in construction projects in Egypt. Therefore, this paper discussed the causes of delay in the building sector in Egypt according to the perspective of professional parties working in different small and medium-sized companies. The main method of data collection was a questionnaire survey with small and medium-sized companies in Egypt. The participants had more than 5 years of experience in the Egyptian construction sector. The financial problems faced by owners were considered significant by two different companies which indicates that this factor is usually the reason for delays in projects in Egypt. Ineffective planning and scheduling have also proven to be important in the procedure of preventing delays as it was mentioned by all experts involved in the data collection. This study has shown that the perspective of experts working in different companies may not be the same regarding the causes of delays in the construction sector. The adequate understanding of the causes aids in proposing effective strategies that can reduce the occurrence and impact of delays.

Keywords*: construction delay, causes of delay, delay in building projects, Egyptian construction sector.*

1. Introduction

The presence of delays in construction works will have a huge impact on contract participants and their commitment to completing the project. The essential goal for project managers is to make sure that their project is finished at the specified time and cost [1]. Generally, studies have shown that multiple factors can be the reason for delays in the project such as changes in design, errors in the project, and even weather conditions can play a part in this problem [2]. Nassar A. [2] discussed the cause and effect of delays on the performance of projects in Egypt. The author stressed on the influence of delay generally as it can lead to disputes, problems between participants, and can eventually result in the total abandonment of the project. Delays can be reduced or avoided through the proper understanding of their causes. Hence, the purpose of the study was about identifying the major factors that are causing delays in Egypt. A list of factors was determined by a literature review and then a survey was sent to 200 experts in Egypt working for private and public companies. The findings of the study showed that the major delays are lack of financial capabilities by the owner, inexperienced contractor, delay in payments, and errors in soil investigation. Thus, there is an essential need to understand the causes of delay in construction projects to determine the proper preventive measures that can be applied in the project.

After the Egyptian revolution in 2011, another study was conducted in 2013 to discuss the time overrun causes in the construction sector in Egypt to compare the differences between the factors before and after the

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revolution [3]. The purpose of the paper was to classify and rank the potential factors that are the reason for having time overrun specifically after the revolution in Egypt. Brainstorm sessions and a questionnaire survey were used with professionals working in the industry to determine the factors. The relative importance index was used to rank the causes of time overrun in the Egyptian industry. The major ranked parameters were changes in the scope of work, lack of equipment, financial problems, failure of equipment, and poor planning. For instance, labour strike was ranked 63rd before the revolution in Egypt, and after that, it was ranked 5th which shows the potential influence of the revolution [3].

There has been minimal focus on medium and small-sized construction companies in terms of project delay. The ability to mitigate and prevent delays is not alike between construction companies and large ones have more capabilities and resources. Therefore, this study contributes to the body of knowledge by exploring the potential causes of delay from a different perspective. The major goal was to explore the causes of delay in the building sector in Egypt according to small and medium-sized companies. The paper is divided into multiple sections starting with a literature review of the recent studies in Egypt and other developing countries. The data collection and analysis section introduced the methods used for gathering data (i.e., questionnaire survey) and the usage of the Relative Importance Index (RII) for data analysis. The results section indicated the top-ranked causes of delay for each construction company followed by the discussion section that compared the results of this study with previous papers in the same context, and the last sections were the conclusion, recommendations, and study limitations.

2. Literature Review

There are many studies that explored the causes of delay in the construction industry, especially in developing countries. A review of these studies reveals a variety of approaches followed by researchers. Al-Kharashi A., Skitmore M. [4] presented research about the delay roots in the Egyptian construction sector. The goal was to explore the possible causes that occurred in the last 10 years. The relative importance index was used to evaluate and rank the factors. A questionnaire survey with 29 experts was made using emails and phones after getting all the factors from a literature review. The findings have shown that the top factors were currency exchange rate, financial issues faced by the owner, coronavirus pandemic, changes in the scope of work, and financial problems faced by the contractor. The study indicated the huge impact of covid 19 pandemic on the performance of projects in Egypt.

Shehob A., et al. [5] showed case studies for projects that analyzed delays and compared the different causes between multiple countries. On the other hand, Shibani A., et al. [6] conducted a research study about the roots of delay in the construction sector in Egypt. The study presented a list of delay causes retrieved from previous studies. A questionnaire survey was prepared and given to 33 experts working for contractors, consultants and owners in Egypt's construction sector. The methods of data analysis that were used included the importance index, frequency index, and severity index to measure and rank the highest potential causes. The top-ranked delays were delay in providing payments for completed works by the owner, change orders, impact of subsurface conditions, low production rate by labours, and poor planning and scheduling.

Doloi H, et al. [7] reported the potential parameters causing delays in the Indian construction sector. The main ones were poor contracts, problems in site coordination, and poor communication. Alsuliman J. [8] concentrated on public projects in Saudi Arabia and the causes of time overrun. The factors were ranked based on their occurrence during various stages of the project. Factors faced during the awarding of tenders were ranked first, and factors before the tender were ranked last. Elshaboury N. [9] prioritized the roots of delay in the building sector in Egypt. The study aimed to explore the causes in the building sector according to the opinion of consultants, owners, and contractors. An extensive literature review was used to gather the causes before designing a questionnaire survey. The top five causes were financial problems faced by the contractor, increases in prices, delay in shop drawings, labours shortage, and poor soil investigation.

Assafi M., et al. [10] investigated the perspective of construction organizations in Bangladesh about the causes of delay. The RII was the tool adopted to evaluate these causes. The top-ranked factors were mistakes during the construction stage, weather conditions, and changes in the contract by the client. El-Razek M., et al. [11] indicated

that delays are a major issue in projects and must be dealt with to ensure the success of construction projects. The objective of the study was to explore the opinion of consultants, contractors, and owners in Egypt regarding the causes of delay. The list of factors was obtained using a literature review and the method of data collection was semi-structured interviews. The findings have shown that the main delay causes are financial difficulties faced by the contractor, delay in payments, design changes, and not following contractual agreements. Both owners and contractors had usually opposed perspectives, usually each one blaming the other party, while consultants are keener on having intermediate views. The researcher suggested that teamwork and joint effort to reduce the possibility of delays.

Sambasivan M., Soon Y. [12] reported the main prominent sources of delay including the financial abilities of the client, improper planning, improper management of the site, and contractor's experience. Aziz R. [13] had similar research that focused on road construction projects in Egypt. 293 delay causes were initially gathered from previous studies before using a questionnaire survey and interviews to rank them. RII was again used to analyze and rank the factors based on their significance. Causes of delay were ranked in groups starting with equipment related factors, design, contractor, material, and contract related factors.

Another study explored the same topic but in residential projects in Cambodia. RII was used to rank and evaluate the delay roots. Findings showed that shortage of supplies, poor scheduling, late delivery of materials, late payment by the owner, improper site management, and delay by the subcontractor to be the top risks in residential projects leading to project' delay [14]. Moreover, Lindhard S., Wandahl S. [15] evaluated the causes of delay in Denmark and stated that design related issues, external factors, changes in work, and lack of labours and materials were the paramount causes. For the success of construction projects, researchers and practitioners should aim to understand the sources of delay and take the appropriate measures to reduce and control them.

Another study used fuzzy models to assess delays in residential projects in Egypt. A questionnaire was distributed among 36 experts to rank the causes of delays. The analysis was conducted using fuzzy logic and the relative importance index. Inadequate experience from the contractor, delay in payments, and ineffective planning were the top-ranked parameters [16]. Gebrehiwet T., Luo H. [17] used the correlation coefficient and RII to analyze the causes of delay before the construction stage, during, post-construction stage. Highest-ranked factors in all these stages were corruption, lack of utilities on site, and fluctuation in prices.

3. Data Collection and Analysis

A comprehensive literature review was used to collect the most common causes of delay in the construction industry. These factors were then used to rank their potential in the Egyptian construction industry through the use of a questionnaire survey. The targeted population was experts working in the Egyptian construction sector and from different small and medium-sized companies. The companies represent small to medium-scale organizations operating in the construction sector in Egypt. Asha and Nabil were both small-sized companies as they had less than one hundred employees. On the other hand, ECG was classified to be a medium-sized company as it had around 101-500 employees.

The researcher explored the ability to gather several responses from each company. The questionnaire survey was sent out to 3 different small and medium-sized construction companies in Egypt in order to gather different opinions according to the working environment of the company. The challenge of this study was to gather as many responses as possible in the survey due to the lack of interest and limited time by the respondents. This is the key limitation of this work, but the findings and methodology can be considered for future research. The total number of responses gathered was 10 for all three companies. From Asha the participants were 1 project manager, 1 construction manager, and 2 site engineers. From Nabil the respondents were 1 project manager, 1 control engineer, and 1 site engineer. From ECG the respondents were 1 project manager, and 2 senior technical office engineers. Figure 1 shows the overall experience spent in the construction industry by questionnaire survey respondents.

There have been minimal studies conducted to explore the problems faced by these companies. The analysis phase was accomplished after gathering the data from the questionnaire survey. The responses collected from the survey helped in ranking the causes according to their importance and influence on the Egyptian construction

sector. The tool used for data analysis was the relative importance index (RII) which is helpful in determining the potential factors that must have higher attention than others. This tool was commonly adopted by many studies that also explored the causes of delay in projects and showed great results in terms of simplicity and effectiveness.

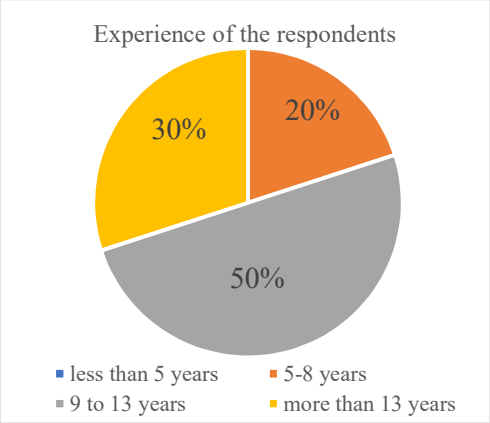

Figure 1. Experience for the survey respondents.

4. Results

The results of the questionnaire survey aided in ranking the causes of delay according to their importance. The first construction company was "Asha" and 4 professional parties agreed to participate in the survey. Each one of the provided a weight from 1 to 5, where 1 is "not a cause of delay", 2 is "low cause of delay", 3 is "moderate", 4 is "a common cause of delay", and 5 is "a significant cause of delay". The same criteria were used with all other companies. A represents the maximum weight used in the equation which is 5 in this case, and N is the number of participants. The below equation can be used to obtain the relative importance index.

$$RII = \frac{W}{A * N}$$

Table A1 in Appendix indicates the results of the first company "Asha" and the relative importance index of each cause of delay. The total number of respondents from this company were 4. Each respondent was asked to evaluate the factors to calculate their RII. The "W" is the average of the total weight given by the respondents (for example if 2 respondents have chosen the weight to be 4 and 5, then sum of W will be 4.5). In this table "W" was rounded up to the highest order if the number had any decimals.

The second company was Nabil Construction which is another contractor working on multiple projects in Egypt. Table 2A in Appendix shows the causes of delay and their relative index according to experts working for Nabil Construction Company, and the number of participants from this company was 3. The same equation was used once again for this company and each respondent provided a weight to rank the causes of delay.

The third company that participated in the survey was ECG (see Table A3 in Appendix). The overall ranking of these causes showed that there are some variations between the opinion of experts working for these three companies is shown in table 4. The table shows the top 5 ranked causes of delay according to each company and based on their RII. For Asha the top three factors were financial problems of owners, delay in payments, and delay in the delivery of materials. For Nabil construction financial problems was ranked first, followed by mistakes during the construction phase, and lack of experience by the contractors. Lastly, ECG ranked change order at the top, followed by financial problems by the owner, and improper construction method.

It is clear from the results that the causes of delay between medium and small sized construction companies can be similar. It always depends on the experience of the company and the ability to deal with risks effectively. Nevertheless, the same risks might be faced by all companies but with different degrees of impact. Figure 2 shows the RII of the top ranked causes of delay for all construction companies that participated in the study.

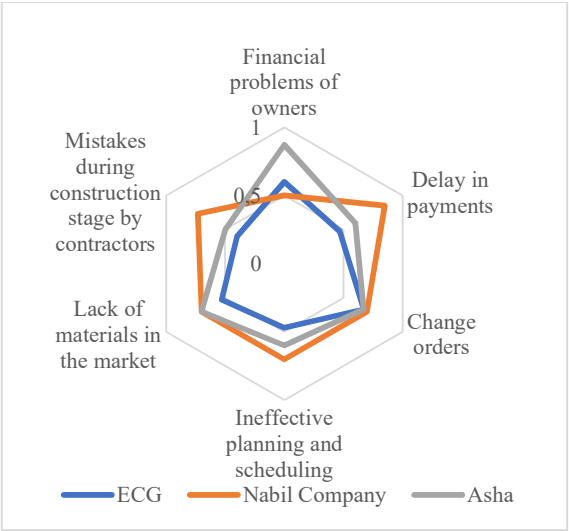

Figure 2. Comparing the top ranked causes of delay between small and medium sized construction companies in Egypt.

The previous figure indicated the RII values for the main causes of delay, but table 1 shows the ranking of these factors for each individual company based on their RII value.

Table 1. Ranking the top causes of delay in Egypt according to different construction companies

Causes	*Asha*	*Nabil Construction*	*ECG*
1	Financial problems of owners	Financial problems of owner	Change orders
2	Delay in payments	Mistakes during construction stage by contractors	Financial problems of owners
3	Delay in the delivery of materials to site	Lack of experience by the contractor	Improper construction methods
4	Lack of materials in the market	Ineffective planning and scheduling of project	Ineffective planning and scheduling of project
5	Ineffective planning and scheduling of the project	Inaccurate estimation	Shortage of labours

5. Discussion

The findings of this research demonstrated the significance of understanding the causes of delay from different perspectives. It can occur due to many factors that differ from each country to the other and can also be completely different between construction companies with various scales and sizes. The analysis indicated that financial problems of the owner are the most common reason of delaying projects managed by small and medium sized construction companies. Shibani A., et al. [6] studied the Egyptian construction sector and revealed similar factors to this study including delay in payments, improper planning, and scheduling, and change order. On the other hand, El-Razek M., et al. [11] explored the perspective of consultants, owners, and contractors in Egypt. Again, similar causes were identified including delay in payments, and financial difficulties faced by contractors. Aziz R. [13] was another researcher that focused his study on Egypt. However, the study only categorized causes in certain groups and identified that equipment, design, contractor, material, and contract are the main categories that generate delays in construction projects. El-Rasas T., Marzouk M. [16] found out that improper planning and delay in payments are ranked first in causing delay in residential projects in Egypt.

Numerous studies explored the causes of delay in other countries. Al-Kharashi A., Skitmore M. [4] showed the most common causes of delay in the past 10 years and financial problems of the owner was one of the top ones indicating that this cause is appearing in other countries as well not only Egypt. However, different outcomes were reported in India which indicates the working conditions are not alike and other forms of risks are usually encountered [7]. The findings of this study were poor contracts, problems in site coordination, and poor communication, all three factors were not significant in Egypt. Alsuliman J. [8] concentrated on public projects in Saudi Arabia and the causes of time overrun. The used criterion was different as the researcher discovered the construction stage with the most common occurrence of time delay. It showed that most delays occur during the tender. On the other hand, the study in Cambodia indicated that both delay in payments and poor scheduling are critical factors leading to time overrun [14].

This study showed the potential factors leading to delays in construction projects managed by small and medium sized construction companies in Egypt. Delay factors are consistently changing depending on the working conditions and circumstances faced by the country. It also differs according to the experience and capabilities of the construction companies. Therefore, large and big companies are well equipped with the experts and those capable of dealing with risks in a very efficient way. Nevertheless, this is different with small and medium sized companies that can deal with risks in a very different way. Owners that tend to select small and medium sized companies are not usually concerned with the experience and capabilities of the contractor, but they mainly focus on getting the project completed. Therefore, the financial capabilities of the owner may not be well assessed by these contractors as they try to bid for projects without careful consideration of owner's financial situation. Ineffective planning and scheduling were also a common risk between contractors as apparently less attention is given for this critical stage of the project.

It can be concluded that understanding the sources of the problem is the most effective way of reducing or preventing delays in construction projects. However, these causes are different from one country to the other and can be different between construction companies.

6. Conclusion

Delay in the construction sector is still considered a major concern although many studies investigated the issue since decades ago. Projects are still suffering from high probability of time overrun and lack of proper understanding of the problem from its core. This study demonstrated the concept of identifying the causes of the problem before proposing any proactive measures. Therefore, the top causes of delay in the construction sector in Egypt were identified according to the perspective of experts working for various contracting companies in Egypt. The findings demonstrated that the opinion of experts about the roots of delay is different and may depend on the working conditions faced in their project. The financial problems faced by owners was considered significant by two different companies which indicates that this factor is usually the reason for having delays in projects in Egypt. Ineffective planning and scheduling have also proven to be important in the procedure of preventing delays as it was mentioned by all experts involved in the data collection. It should be taken into account that most of the top ranked factors were related to the owner, and hence greater attention should be given by these parties before the start of the project to prevent any delays. To conclude, this paper showed the importance of properly identifying the roots of delay to better understand the problem, and to ensure the adequate proactive measures taken in the project. It is advised that further studies are needed to explore specific types of construction projects (i.e., commercial, residential, tourism, etc.) as the types of causes may differ depending on the project.

There are a couple of limitations in this study that should be well highlighted and discussed. First of all, the number of respondents in the study was quite limited, even though different construction companies were involved. Another limitation was the use of the relative importance index for analyzing and ranking the causes.

The first recommendation for future research is to investigate a larger sample involving first class construction companies from Egypt. This can help in developing more generalized findings and compare the causes of delay between various sizes of companies. The other paramount factor is to consider the adoption of another statistical approach for ranking the causes that is more accurate and based on simulation analysis.

Competing Interest Statement

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

Data Availability

Additional data used in this research are accessible upon request.

References

[1] A. Gasemagha, T. Kowang, "Project Manager Role in Project Management Success," *International Journal of Academic Research in Business and Social Sciences,* vol. 11, No. 5, pp. 1345-1355, Jan. 2021.

[2] A. Nassar, "Causes and Effects of Delay in the Construction Project," *International Journal of Engineering Research & Technology (IJERT),* vol. 5, No. 4, pp. 447–452, Apr. 2016.

[3] R. Aziz, "Ranking of delay factors in construction projects after Egyptian revolution," *Alexandria Engineering Journal,* vol. 52, No. 3, pp. 387–406, Sep. 2013.

[4] A. Al-Kharashi, M. Skitmore, "Causes of delays in Saudi Arabian public sector construction projects," *Construction Management and Economics*, vol. 27, No. 1, pp. 3-23, Feb. 2009.

[5] A. Shebob, N. Dawood, R. Shah, Q. Xu, "Comparative study of delay factors in Libyan and the UK construction industry," *Engineering, Construction and Architectural Management,* vol. 19, No.6, pp. 688-712, Nov. 2012.

[6] A. Shibani, O. Mahadel, D. Hassan, A. Agha, M. Saidani, "Causes of time overruns in the construction industry in Egypt," *International Research Journal of Modernization in Engineering Technology and Science*, vol. 3, No. 1, pp.510–531, Jan. 2021.

[7] H. Doloi, A. Sawhney, K. Iyer, S. Rentala, "Analysing factors affecting delays in Indian construction projects," *International Journal of Project Management,* vol. 30, No. 4, pp. 479-489, May. 2012.

[8] J. Alsuliman, "Causes of delay in Saudi public construction projects," *Alexandria Engineering Journal,* vol, 58, No. 2, pp- 801-808, June. 2019.

[9] N. Elshaboury, H. Alaa, A. Al-Sakkaf, G. Alfalah, E. Mohammed, "Prioritizing Delay Causes in the Egyptian Building Construction Projects" *Proceedings of the 6th World Congress on Civil, Structural, and Environmental Engineering*, June. 2021.

[10] M. Assafi, I. Hoque, M. Hossain, "Investigating the causes of construction delay on the perspective of organization-sectors involved in the construction industry of

Bangladesh," *International Journal of Building Pathology and Adaptation,* April. 2022.

[11] M. El-Razek, H. Bassioni, A. Mobarak, "Causes of Delay in Building Construction Projects in Egypt," *Journal of Construction Engineering and Management,* vol. 134, No. 11, pp. 831-841, Nov. 2008.

[12] M. Sambasivan, Y. Soon, "Causes and effects of delays in Malaysian construction industry" *International Journal of Project Management*, vol. 25, No. 5, pp. 517-526, July. 2007.

[13] R. Aziz, A. Abdel-Hakam, "Exploring delay causes of road construction projects in Egypt," *Alexandria Engineering Journal*, vol. 55, No 2, pp. 1515-1539, 2016.

[14] S. Durdyev, M. Omarov, S. Ismail, "Causes of delay in residential construction projects in Cambodia," *Civil and Environmental Engineering,* vol. 4, No 1, 1-12, Feb. 2017.

[15] S. Lindhard, S. Wandahl, "Exploration of the reasons for delays in construction," *International Journal of Construction Management*, vol. 14, No. 1, pp. 36-44, Feb. 2014.

[16] T. El-Rasas, M. Marzouk, "Fuzzy model for assessing delays in Egyptian residential projects," *Journal of Financial Management of Property and Construction*, vol. 25, No 2, pp. 225-246, July. 2020.

[17] T. Gebrehiwet, H. Luo, "Analysis of Delay Impact on Construction Project Based on RII and Correlation Coefficient: Empirical Study," *Procedia Engineering,* vol. 196, pp. 366-374, 2017.

Appendix

Table A1. Causes of delay according to experts working for Asha construction company

Category	Causes of delay	W	A	N	RII
Management	Poor Site Management	8	5	4	0.4
	Shortage of Labours	10	5	4	0.5
	Delay in delivery of materials to site	16	5	4	0.8
	Lack of materials in market	14	5	4	0.7
	Lack of Communication between parties	11	5	4	0.55
	Inaccurate estimate	12	5	4	0.6
	Unavailable Equipment	10	5	4	0.5
Contractor	Ineffective planning and scheduling of project	14	5	4	0.7
	Financial problems	18	5	4	0.9
	Lack of experience	9	5	4	0.45
	Incompetent subcontractor	12	5	4	0.6
	Mistakes during construction	10	5	4	0.5
	Improper construction method	12	5	4	0.6
Consultant	Lack of experience	7	5	4	0.35
	Poor contract management	12	5	4	0.6
	Mistake in design documents	12	5	4	0.6
	Quality assurance	8	5	4	0.4
Owner	Financial problems	10	5	4	0.5
	Change of orders	14	5	4	0.7
	Delay in progress payments	17	5	4	0.85
	Slow Decision making	14	5	4	0.7
	Suspension of work	14	5	4	0.7
	Lack of working knowledge	9	5	4	0.45
Other	Bad weather conditions	8	5	4	0.4
	Improper Site Conditions	8	5	4	0.4
	Obstacles from government	6	5	4	0.3
	Problems with neighbours	9	5	4	0.45
	Accidents during construction	8	5	4	0.4
Labours	Low productivity level	14	5	4	0.7
	Poor skills from labours	13	5	4	0.65
	Conflicts between labours	8	5	4	0.4

Table A2. Causes of delay according to experts working for Nabil Construction Company

Category	Causes of delay	W	A	n	RII
Management	Poor Site Management	7	5	3	0.47
	Shortage of Labours	6	5	3	0.40
	Delay in delivery of materials to site	11	5	3	0.73
	Lack of materials in market	8	5	3	0.53
	Lack of Communication between parties	5	5	3	0.33
	Inaccurate estimate	8	5	3	0.53
	Unavailable Equipment	10	5	3	0.67
Contractor	Ineffective planning and scheduling of project	9	5	3	0.60
	Financial problems	11	5	3	0.73
	Lack of experience	10	5	3	0.67
	Incompetent subcontractor	8	5	3	0.53
	Mistakes during construction	11	5	3	0.73
	Improper construction method	10	5	3	0.67
Consultant	Lack of experience	10	5	3	0.67
	Poor contract management	7	5	3	0.47
	Mistake in design documents	8	5	3	0.53
	Quality assurance	7	5	3	0.47
Owner	Financial problems	13	5	3	0.87
	Change of orders	10	5	3	0.67
	Delay in progress payments	9	5	3	0.60
	Slow Decision making	9	5	3	0.60
	Suspension of work	8	5	3	0.53
	Lack of working knowledge	8	5	3	0.53
Other	Bad weather conditions	5	5	3	0.33
	Improper Site Conditions	6	5	3	0.40
	Obstacles from government	5	5	3	0.33
	Problems with neighbours	3	5	3	0.20
	Accidents during construction	6	5	3	0.40
Labours	Low productivity level	9	5	3	0.60
	Poor skills from labours	11	5	3	0.73
	Conflicts between labours	6	5	3	0.40

Table A3. Causes of delay according to experts working for ECG

Category	Causes of delay	W	A	n	RII
Management	Poor Site Management	9	5	3	0.60
	Shortage of Labours	6	5	3	0.40
	Delay in delivery of materials to site	7	5	3	0.47
	Lack of materials in market	8	5	3	0.53
	Lack of Communication between parties	8	5	3	0.53
	Inaccurate estimate	9	5	3	0.60
	Unavailable Equipment	7	5	3	0.47
Contractor	Ineffective planning and scheduling of project	7	5	3	0.47
	Financial problems	8	5	3	0.53
	Lack of experience	6	5	3	0.40
	Incompetent subcontractor	9	5	3	0.60
	Mistakes during construction	6	5	3	0.40
	Improper construction method	8	5	3	0.53
Consultant	Lack of experience	6	5	3	0.40
	Poor contract management	6	5	3	0.40
	Mistake in design documents	7	5	3	0.47
	Quality assurance	8	5	3	0.53
Owner	Financial problems	9	5	3	0.60
	Change of orders	10	5	3	0.67
	Delay in progress payments	7	5	3	0.47
	Slow Decision making	5	5	3	0.33
	Suspension of work	5	5	3	0.33
	Lack of working knowledge	5	5	3	0.33
Other	Bad weather conditions	4	5	3	0.27
	Improper Site Conditions	7	5	3	0.47
	Obstacles from government	5	5	3	0.33
	Problems with neighbours	3	5	3	0.20
	Accidents during construction	7	5	3	0.47
Labours	Low productivity level	8	5	3	0.53
	Poor skills from labours	8	5	3	0.53
	Conflicts between labours	6	5	3	0.40