

The Influence of Weather Conditions on Time, Cost and Quality in Successful Construction Project Delivery

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Table S1. Gender Profile of Respondents

Recipients	Frequency	Percentage	Cumulative %
Male	181	74.80	74.80
Female	61	25.20	100.00
Total	242	100.00	

Figure S1. Graph showing gender profile.

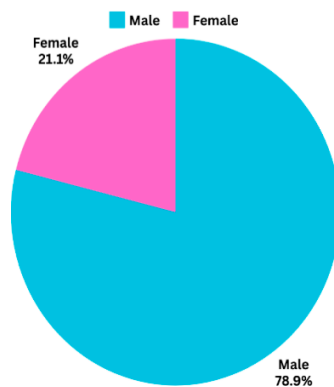
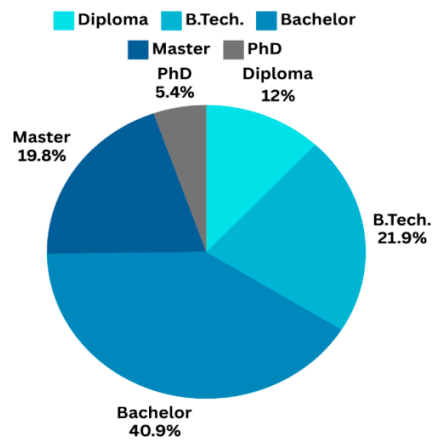


Table S2. Academic Qualification

Education	Frequency	Percentage
Diploma	57	23.60
B.Tech.	42	17.40
Bachelor	72	29.80
Master	26	10.70
PhD	45	18.60
Total	242	100.00

**Figure S2.** Graph showing academic qualification.**Table S3.** Type of Company

Construction Firms	Frequency	Percentage
Architectural Firm	78	32.20
Engineering Firm	27	11.20
Construction Firm	70	28.90
International NGO	29	12.00
Government Department	38	15.70
Total	242	100.00

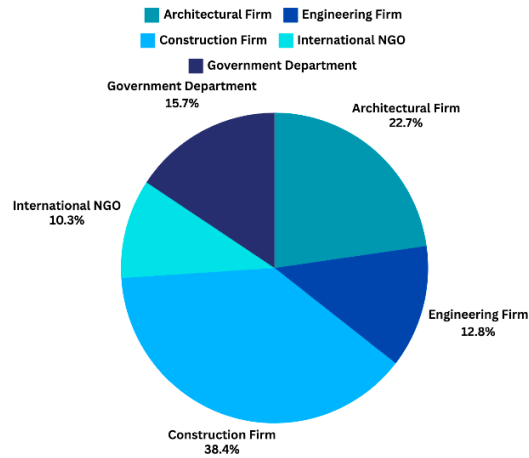


Figure S3. Various type of company take part in survey.

Table S4. Experience within construction industry

Age Group	Frequency	Percentage
Less than 5 years	71	29.30
5-10 years	17	7.00
10-20 years	66	27.30
20-25 years	48	19.80
Greater than 25 years	40	16.50
Total	242	100.00

Table S5. Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Standard Deviation
Cost	242	1.00	5.00	3.2025	1.53396
Quality	242	1.00	5.00	2.8554	1.58826
Time	242	1.00	5.00	3.0579	1.28701
Weather Conditions	242	1.00	5.00	3.7025	1.22995
Project Success	242	1.00	5.00	3.4545	1.24574

Table S6. One Sample Statistics

Variables	N	Mean	Std. Deviation	Std. Error Mean
Cost	242	3.2025	1.53396	.02861
Quality	242	2.8554	1.58826	.03210
Time	242	3.0579	1.28701	.03273
Weather Conditions	242	3.7025	1.22995	.02906
Project Success	242	3.4545	1.24574	.03008

Table S7. Item- Total Statistics

Variables	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Cost	13.0702	11.651	.230	.504
Quality	13.4174	14.319	.135	.475
Time	13.2149	10.916	.452	.364
Weather Conditions	12.5702	10.130	.610	.269
Project Success	12.8182	11.826	.355	.426

Table S8. Summary of Literature Review

Citation	Contribution	Limitation	Foreground	Issues
(Uvarova, Orlov et al. 2023)	Explored the impact of weather on triple constraints	Limited to specific case studies	Emphasizes the need for weather-adapted project management	Regional focus limits the generalizability
(Wuni 2024)	Highlighted significant delays and cost overruns due to weather	Generalized findings without specific project contexts	Reinforces the importance of risk management	Lack of project-specific details
(Araújo and Lucko 2022)	Identified common time management issues	Focused on theoretical aspects	Highlights the need for improved planning	Does not provide practical solutions
(Shrivastava, Jain et al. 2022)	Discussed resource mismanagement and external delays	Limited empirical data	Stresses the importance of resource optimization	Lack of real-world examples
(Abdelalim and Elnaggar 2023)	Proposed BIM and lean construction for schedule management	High implementation cost	Suggests advanced technologies for delay mitigation	Cost and technical expertise required

(Omran, Saleh et al. 2023)	Addressed cost overruns due to unforeseen circumstances	Did not consider macroeconomic factors	Emphasizes financial planning and cost monitoring	Overlooks broader economic influences
(Jin, Senaratne et al. 2023)	Highlighted effective financial planning strategies	Limited to small-scale projects	Stresses continuous cost monitoring	The scale of projects affects applicability
(H. Assaad, El-adaway et al. 2022)	Discussed quality compromises for meeting deadlines and reducing costs	Focused on specific project types	Highlights long-term negative outcomes of poor quality	Narrow project focus

Online google form Link of Questionnaire:

<https://forms.gle/C1kb64L6nNTprAwH7>

The equation used to calculate Cronbach's Alpha value is given below:

$$\alpha = \frac{N}{N-1} \left(1 - \frac{\sum \text{Var}(X_i)}{\text{Var}(T)} \right)$$

Where:

- N = Number of items,
- $\text{Var}(X_i)$ = Variance of each individual item,
- $\text{Var}(T)$ = Variance of the total test scores (sum of item scores).

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