International Journal of Engineering & Technology, 7 (4.26) (2018) 305-310

International Journal of Engineering & Technology

Website: www.sciencepubco.com/index.php/IJET

Research paper



Factors Affecting Construction Dispute: Testimonies from Indian Construction Projects

Asra Fatima[1], BellamSivarama Krishna Prasad[2], T.SeshadriSekhar[3]

[1]Research Scholar, GITAM University , campus, Department of Civil Engineering, Hyderabad.
[2]Professor & HOD,Professor & Dean, GITAM University , campus, Department of Civil Engineering, Hyderabad.
[3]Professor & HOD,Professor & Dean, GITAM University , campus, Department of Civil Engineering, Hyderabad.

Abstract

This paper introduces the discoveries of a poll study led on the variables influencing development debate of Indian development ventures. Factor investigation of the reaction on the 53project question attributeseffecting cost are recognized through writing audit and individual meeting removed are four components. Basic elements got after investigation are Time stages and imperative contracting enactment, Venture financials and customer contractual worker banding together, Quality and hazard the board under equivocalness and Non responsive proprietor and unlikely temporary worker rules.

Keywords: *Project dispute attributes; Cost; Factor analysis.*

1. Introduction

The Development business is dynamic and has contending condition. Constructionprojects moderate in size for the most part are multidisciplinary in nature and they include support ofdesigners, temporary workers, subcontractors, pros, development chiefs, and advisors. With increment in size of the undertaking, number of individuals in the venture additionally increments. The relationship inside development, between customers, contractual workers, sub-temporary workers and providers, are frequently adversarial. The dangers related with development activities can be high, the procedure is tangled and commitments are regularly difficult. Question goals in the development business has been topical in view of the developing worry over the ever increment in the board assets to manage development debate. Creative debate goals forms, conventionally portrayed as elective question goals, have been produced and acquainted with encourage friendly goals. ADR is a non antagonistic system which is gone for settling question without turning to the conventional types of either suit or discretion. Analysts in the past have recognized different causes or reasons (called "qualities" in this paper) for projectdispute. Ellis and Baiden express that question between undertaking members have been distinguished as the main sources of poor execution in development ventures and that debate regularly lead to delayed deferrals in usage, intrusions and in some cases suspensions.These qualities, ifnot took care of appropriately mayaffect the achievement of the task. This investigation attempts to distinguish all such undertaking question characteristics for the development extends in a creating nation like India. Therefore the destinations set for the examination are given beneath [6].

2. Objectives and Methodology

The objectives of the study set are as follows:
• To recognize venture question traits from Writing audit
• To distinguish the general significance of task debate properties in Indian development extends as perceived by the experts including proprietors and contractual workers of the development business.
Due to unavailabilityof archived information of finished projectsin India for the investigation, a poll review approach isconsidered to set up the effect of different attributeson venture fulfillment. Characteristics influencing venture question are rattled off through writing surveyand interviews with select experts from constructionindustry. Pilot overview is then wandered and necessarymodifications in the survey are conveyed out.Questions are encircled to learn the effect of theseattributes independently on projectcost.

3. Literature Review

"Task debate or strife prompts cost and time overwhelm" has been the beginning of many research
contemplates around there since 1980s and These investigations rangefrom thinking work dependent on experience of researcheron one end to organized research take a shot at the otherend. A portion of the past specialists have adopted up questionnairesurvey strategy for gathering of information and employedmathematical instruments like AHP, Neural systems and statisticaltechniques like factor examination and multivariateregression, and so forth., for investigation and drawing conclusions.But these scientists appear to utilize their very own criteria for estimating debate and very little commonalityappears among different execution criteria received bythese analysts. The criteria incorporated the traditionalones like timetable, cost, quality to late criteria likeanticipated execution, fulfillment of customer, and so on. Summariesof imperative finishes of past examinations are given belowto give a diagram.
WillaimH.Ross ,Jr expressed that A review was directed to research the convictions of elective question goals (ADR) proficient about the effect of different situational factors on the probability of arranging an assention . The creators think about the overview

Copyright © 2018 Authors. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

reactions of 119 work relations and 44 non work middle people and referees. All respondents revealed that when disputants have pervious bartering background and due dates are close, understanding is almost certain, and that when one disputants has good options outside the relationship assentions is more outlandish. A few contrasts developed the reactions of those working in labor relations and those in nonlabour fields, notwithstanding and the creator talks about the ramifications of summing up discoveries from ADR in mechanical connection to different settings [1].

Charles T. Jahren,1 Part, ASCE, and Bruce F. Dammeier, this paper reports the consequences of an examination that was conductedto survey proficient sentiment with respect to the course of development debate, thetypes of proprietors regularly associated with question, the lawyer's job in disputeresolution and the keys for maintaining a strategic distance from debate. The data introduced is theresult of 30 organized meetings: Ten with contractual workers, ten with structure professionals,and ten with lawyers. All meetings were directed in the Puget Soundarea of Washington State. The discoveries are as per the following. Some development industryparticipants are reluctant to acknowledge hazard. At the point when surprising poor outcomes happen, adispute regularly creates; and since development is an inalienably unsafe business, thereare numerous debate. Private proprietors or proprietors with development ability are lesslikely to be engaged with a question. Development experience is an attractive qualificationfor a lawyer will's identity engaged with development debate resolution.Construction question might be evaded by utilizing great administration systems regardingpeople, approach, and interchanges [2].

S. O. Cheung, C. M. Hat, and F. C. Harris, expressed that a counterfeit neural system examination helps in deciding the vital elements influencing the development question goals forms in Hong Kong. Question goals in the development business has been topical in light of the expansion in the board assets to manage development debate. The task information were gathered through meeting and poll studies, to give the preparation to the working of a Multi-Layer Perceptron fake neural system [4].

The essential methods in utilizing the Multi-Layer Perceptron (MLP) include the arrangement of the information record, indicating the neural topology covering the quantity of shrouded layers. In the fundamental investigations, preliminary keeps running with one and two concealed layers were performed to look at the impact of expanding the quantity of shrouded layers.The top nine positioned variablesDesign Changes ,Choice Criteria, Inclusion of Senior Administration amid Goals Procedure ,Motivation of Customer to Settle ,Involvement of Contractual worker with Kind of Work, Utilization of Same Temporary worker for Future Works ,Utilization of Outer Case Counselors, Delicate Value List, Arranging Expertise of Customer's Goals Group

The creators inferred that grouping through Multi-Layer Perceptronis a convenient and valuable displaying instrument to isolate extends as per their DRS.However, the utilization of task explicit factors alone couldn't give an agreeable generalizationImprovement in the system coming about because of screening input factors outlined the significance of killing excess factors to improve characterization exactness when inconspicuous precedents are connected. The last MLP demonstrate organize created a 100% right testing outcome for Unfriendly DRS extends in the inconspicuous example, which is indispensably imperative in having an exact evaluation in this appreciation.

Ibrahim Yitmen&EbrahimSoujeri, expressed that the reason for this paper was to recognize the negative effect of progress arranges on development profitability, which prompts decline in labor effectiveness, loss of worker hours. These progressions requests can raise debate between proprietors, temporary workers and subcontractors which thus influence venture execution. This investigation considers an ANN Display which assesses the plausible question which might be maintained a strategic distance from or settled before case happens. The different components that depict the unfavorable impacts ofchange arranges on venture execution have been distinguished from a foundation look into and a review was led to the contractual workers in North Cyprus development industry. The ANN demonstrate that was produced to oversee change arranges through all periods of an undertaking to such an extent that development operationscan proceed with minimal measure of intrusion that normally results from of debate betweendifferent parties engaged with a task [7].

The ANNmodel considers two maincomponents for example recognizing the antagonistic impacts of progress arranges on task execution andprobability of debate. The model was produced in three principle stages. An information test of 11parameters was considered and the comparing likelihood of debate has been utilized for preparing the NN utilizing back-spread calculation. Sixty cases (11 input 1 yield sets) were utilized tofor preparing purposes. The preparation brought about an acceptable mistake esteem.

N. B. Chaphalkar and Sayali S. Sandbhor, expressed that the utilization of counterfeit neural systems can be a savvy strategy to conjecture the result of development cases and question, based on attributes of various cases and the comparing court decisions.This think about centered the likelihood of executing neural systems in settling debate emerging out of acceleration claims.Disputes emerging in Indian development industry are explained by assertion whereby the named authority/s gives choice as an honor Central point influencing basic leadership are distinguished as Heightening payable to the contractor,increase in wages after receipt of delicate before initiation of work, postpone inferable, vagueness in conditions, error of terms and conditions and miscount of acceleration sum. It was presumed that to determine any case dependent on acceleration, it should be characterized dependent on the elements recognized in the investigation [8].

4. Identification of Atributes Affecting Project Dispute

Literature Writing audit uncovers various basic attributesfor diverse kinds of activities viz., development ventures, innovative work ventures, defenceprojects, and so on. It tends to be seen from Table 1 that most ofthese thinks about have concentrated on explicit debate measuringparameters, and the question factors inferred areeither relevant to a specific industry or contracttype. It very well may be likewise seen from Table.1 that almostall the investigations have been completed in the financially developedcountries setting and their discoveries may not be relevantto the creating nations. Be that as it may, taking lead fromabove ponders and through close to home meetings with constructionprofessionals of India, 53 venture question properties were recognized. In spite of the fact that the listof 53 traits may not be called comprehensive due tothe tremendous size and divided nature of constructionindustry, the rundown secured ascribes relating to alarge assortment of development ventures. A study was thenframed to get respondents sees on effect of theseattributes on venture result (achievement or disappointment). Theperformance assessment parameters considered to measurethe effects of these traits were confined tocost and time to constrain the extent of the survey. Notwithstanding, just the applicable segment of the questionnaireis given in Supplement A. A five-point scale wasused to quantify the characteristics impact on expense and time impact on task execution.

In this scale, 1 speak to Emphatically deviate; 2.represent Dissent; 3. representNeutral; 4.represent Concur; 5.represent Unequivocally concur.

An aggregate of 200 polls were sent to top Indianconstruction industry experts covering about40 best and medium size associations, chose randomlyfrom the nation over. A sum of 75 finished responseswere got .The reactions are put away and examined utilizing SPSS software.The responders incorporate the proprietors, contractorsand experts. Since the specialists were utilized bythe

proprietors to considerthe proprietors' interests, and that the advisors reactions practically same as that of proprietors, they were converged with proprietors' responses.The following stage was to rank the characteristics in theorder of their criticality. From the five point scale usedin the survey, the mean scores of reactions (μ)for diverse task characteristics are deciphered in the manneras given in Table 1. Contingent on the mean scoresof reactions for different characteristics, the qualities werethen isolated in three gatherings: the principal gathering (withμ>4.0) that demonstrated positive commitment; the secondgroup (with 4.0< μ< 3.5) which was unbiased and aloof having no noteworthy effect on the venture result and the third gathering (with μ<3.5) showing negative effect. An aggregate of 30 traits rose in first group(μ>4.0), just 3 qualities in gathering 2 (4.0< μ<3.5),and remaining 23 properties fell in group3 (μ<3.5). So it was chosen to drop the undertaking qualities of the second gathering (with 4.0< μ<3.5).

Table 1: Mean values of project attributes

Interpretation of various ranges of mean values of responses pertaining to project attributes			
Project dispute attributes	Range of mean values		
	Group 1 μ≥4.0	Group 2 4.0≤ μ≤3.5	Group 3 μ≤3.5
Cost	Helps in saving	Neutral	Adversely affecting
Time	Helps in saving	Neutral	Adversely affecting

Chan and Kumaraswamy [9] are of the feeling that the mean and standard deviation of every person

quality isn't appropriate measurements to survey the general rankings since they don't mirror any connection among them and in like manner they have utilized the "relative significance file" (RII) technique to decide the overall positioning of the characteristics. The RII is assessed usingthe following articulation:

Relative significance index(RII) = ∑w

AxN

where w is the load given to each characteristic by the respondents and extents from 1 to 5, An is the most elevated weight (i.e., 5 for this situation), and N is the all out number of respondents. The characteristics of the primary gathering (with μ>4.5) were masterminded on their plummeting request of RII values and positioned. The most noteworthy RII shows the most basic achievement traits with rank 1 and the following demonstrating the following most basic achievement property with rank 2, etc. Then again, characteristics of the third gathering (with μ<3.5) were orchestrated in the climbing request of the RII and positioned. The least RII demonstrates the most basic disappointment trait with rank 1, the following showing the following most basic disappointment factor 2, etc. Separate arrangements of the achievement characteristics and the disappointment qualities are given alongside their RII and positions in Tables 3and 4, individually.

Table 2: Dispute attributes of projects (μ<4.0)

S.no	Project Attributes	All Reponses	Rank	owner	Rank	Contractor	Rank
1	Technical inadequacy of the contractor	0.803278689	1	0.86111	1	0.72	6
2	Payment delays	0.783606557	2	0.78888	3	0.776	1
3	Availability of resources	0.786885246	3	0.79444	2	0.776	2
4	Failure respond to issues in a timely manner	0.770491803	4	0.77222	4	0.754	5
5	Restrictions placed on contractors working method	0.767213115	5	0.76666	6	0.768	3
6	Lack of information from design team/client	0.754098361	6	0.77222	5	0.76	4
7	Client budget	0.698360656	7	0.7	10	0.68	9
8	Client experience	0.68852459	8	0.71667	7	0.648	14
9	Previous working	0.685245902	9	0.7	9	0.664	12
10	Ambiguities in contract documents	0.675409836	10	0.6667	12	0.688	8
11	Work availability	0.672131148	11	0.7111	8	0.632	15
12	Quality of works	0.672131148	12	0.68333	11	0.656	13
13	Risk allocation	0.668852459	13	0.65	14	0.68	10
14	Escalation of due to price variation during contract period	0.668852459	14	0.667	13	0.696	7
15	The relationship of the client with the prime contractor	0.659016393	15	0.65555	15	0.68	11
16	Lack of construction legislation	0.632786885	16	0.65	16	0.632	16
17	Escalation payable to the contractor as per the provision in contract	0.619672131	17	0.6222	17	0.616	17
18	Non refund of retention money	0.567213115	18	0.5555	18	0.6	18

5.Project Dispute Attributes

Utilizing the RII, the rank requests of qualities were obtainedfor all reactions, independently for proprietor also, temporary worker reactions. The high positioned attributes(top 5 in Table 2) that are seen in three categoriesof reactions: all reaction, proprietor, and contractual worker are discussedbelow. The all reaction segment (sections 2 and 3in Table 2) demonstrates the basic factor to be Specialized Insufficiency of the temporary worker with RII = 0.8032, followedby Installment delays

,Accessibility of assets, and Disappointment react to issues in an opportune mannerasindicated by their diminishing RII's. The proprietors see (segments 4 and 5 in Table 2) theTechnical Insufficiency of the temporary worker as the most basic characteristic with RII = 0.8611followed by the Accessibility of assets, Paymentdelays and Disappointment react to issues in an auspicious way. In contractual worker's view(columns 6 and 7 in Table 2) is observed to be the Installment delays with (RII = 0.776) followedbyRestrictions put on temporary workers working technique and Absence of data from configuration group/customer.

The Factor Examination was connected for the ID of the center variables influencing the venture question properties. This procedure was viewed as appropriate as it requires no point of reference useful connections and is a broadly perceived for information decrease. It is intended to diminish extensive number of factors into a less quantities of center elements.

5.1 Test Ampleness of Test

The Kaiser-Meyer-Olkin is the measure for examining sufficiency, which goes somewhere in the range of 0 and 1. The qualities nearing to 1 are better and the estimation of 0.6 is the prescribed as least. The Bartlett's Trial of Sphericity is the test for invalid theory to such an extent that the connection grid has a personality framework. In view of this thought, these tests give certain base standard to continue for Factor Investigation.

5.2 Test theory with respect to interrelationship between the factors.

5.2.1 Invalid Theory H0

There is no factually huge interrelationship between factors influencing the undertaking question characteristics.

5.2.2 Substitute Speculation H1

There might be a measurably noteworthy interrelationship between factors influencing the undertaking question characteristics.

Table 3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.715
Bartlett's Test of Sphericity	Approx. Chi-Square	564.299
	df	153
	Sig.	.000

Normally,0 < KMO < 1 If KMO > 0.5, the example is skilled. Here, KMO = 0.715 which shows that the example is satisfactory and we may continue with the Factor Investigation. Bartlett's Trial of Sphericity is exceedingly Huge, $\alpha = 0.00$. The p-esteem (Sig.) of (not exactly < 0.05), in this manner the Factor Investigation is legitimate.

As $p < \alpha$, we in this manner dismiss the invalid theory H0 and acknowledge the substitute speculation (H1) that there might be measurably critical interrelationship between factor. The Kaiser-Meyer Olkin (KMO) and Bartlett's Test proportion of inspecting sufficiency was utilized to investigate the propriety of Factor Examination. The inexact of Chi-square is 564.299 with 153 degrees of opportunity, which is noteworthy at 0.00 Dimension of hugeness. The KMO measurement of 0.715 is likewise substantial (more prominent than 0.50). Thus Factor Examination is considered as aproper method for further investigation of the information.

The undertaking disputeattribute informational collections were then exposed to factor investigation. At first, the extricated elements, which were all symmetrical to one another in nature, were not responsive for understanding. Thusly a slanted pivot of the reference tomahawks, called varimax turn, was directed and determined variables and their corresponded loadings were gotten. A sum of four elements were removed dependent on their eigenvalues. The removed variables had the eigenvalue >1 as alluded by Kaiser paradigm of factor extraction which is generally utilized. The elements with their names portraying their normal and inactive properties, the fluctuation illustrated by every one of them, and the factor loadings of different qualities developing in each factor are outlined in Table 2. Factor loadings < 0.5 are smothered in the investigation and those having stacking values >0.5 are just appeared in this table. The four factors all in all clarify 66.50% of the complete change. The unwavering quality of the factor show was likewise checked with the communalities of every factor. Communalities of the considerable number of factors are observed to be a lot more noteworthy than 0.3 that infers that the factor show is solid in the present investigation. Names were chosen to these elements which are talked about in the accompanying passages

Table 4: Factor profile of project dispute attributes

Factor format	Loading	Variance explained
Time phasing and requisite contracting legislation		34.95%
Technical inadequacy of the contractor	0.743	
Availability of resources	0.737	
Lack of construction legislation	0.69	
Payment delays	0.684	
Work availability	0.682	
Client experience	0.527	
Project financials and client contractor partnering		12.13%
Escalation payable to the contractor as per the provision in contract	0.68	
Escalation of due to price variation during contract period	0.68	
non refund of retention money	0.672	
Previous working	0.654	
Client budget	0.59	
The relationship of the client with the prime contractor	0.52	
Quality and risk management under ambiguity		11.13%
Ambiguities in contract documents	0.736	
Risk allocation	0.724	
Quality of works	0.688	
Non responsive owner and unrealistic contractor rules		8.29%
Failure respond to issues in a timely manner	0.783	

Lack of information from design team/client	0.738	
Restrictions placed on contractors working method	0.573	
	Cumulative variance explained	66.50%

The four components created from the investigations are describedbelow.

5.3 Time Staging and Essential Contracting Enactment

As observed from Table 3this factor explains34.95% of change, the most elevated all things considered and thiscontains six qualities with high factor loadings(>0.5). The characteristics under this factor essentially explaineither the distinction of sentiment or absence of intelligence insome way notwithstanding a couple of traits. The temporary worker must devise appropriate measure to avoidtime staging.

5.3.2 Project Financials and Customer Contractual worker Joining forces

This factor represents 12.13% of differences explained.The attributes having high stacking in this factorare: acceleration payable to the contractual worker according to the arrangement in contract, Heightening of because of value variety amid contract period, non discount of maintenance cash, pervious working, customer spending plan and the relationship ofFor this factors contractor has to manage the project efficiently to avoid price escalation, which can merely help in getting his retention amount from client. Contracting organizations are well advised to keep a good relationship with owner which can help in completion of project with the budget.

5.3.3Quality and hazard the board under uncertainty

The factor represents 11.13% change clarification. This factor focuses to three general classes of attributes.The first classification has venture explicit attributesviz Ambiguities in contract reports, chance designation and nature of works. These components can be constrained by well drafting the agreement archive with legitimate direction of requirement, nature of work can be accomplished bymaintaining three dimension of value check by selecting a Task Chiefs Specialists furthermore by designating an outsider quality controllers lastly guaranteeing the contractual worker prime in charge of the every day standard check.

5.3.4.Non responsive proprietor and impossible contractual worker rules

The factor represents 8.29% fluctuation explanation.The properties stacking in this factor are:Failure to react in convenient way, absence of data from structure or customer and limitation set upon contractual worker working strategy. These variables can be maintained a strategic distance from by having a legitimate coordination between customer, temporary worker and originator which can be accomplished by directing week after week gatherings

6. Synopsis and Ends

Poll overview on a broad undertaking question attributesthat influence the execution of task has done. The task disputeattributes are: Specialized deficiency of the temporary worker, Installment postpones Accessibility of assets, Confinements put on contractual workers working technique and Disappointment react to issues in an opportune way. There is high understanding in the positioning of basic debate properties by the two gatherings of respondent's viz. temporary workers and proprietors. As the KMO measurement esteem acquired is 0.715 which more noteworthy than 0.50 subsequently the inspecting ampleness is said to be suitable. Thus for further examination factor investigation was considered as it is a legitimate system for information decrease .It found that a sum of four elements were removed dependent on their eigen esteems. The separated variables had the eigen esteem >1 as alluded by Kaiser paradigm of factor extraction which is generally utilized. The elements with their names depicting their normal and inert properties, the change clarified by every one of them, and the factor loadings of different qualities developing in each factor are outlined in Table 2. Factor loadings < 0.5 are stifled in the investigation and those having stacking values > 0.5 are just appeared in this table. The four factors by and large clarify 66.50% of the complete change. The dependability of the factor show was additionally checked with the communalities of every factor. Communalities of the considerable number of factors are observed to be a lot more noteworthy than 0.3 that infers that the factor demonstrate is solid in the present examination.

Factor examination of reactions on the projectattributeshas extractedas basic question properties. Time stages and imperative contracting enactment, Venture financials and customer contractual worker banding together Quality and hazard the board under uncertainty Non responsive proprietor and improbable temporary worker rules are the four basic debate factors [3, 5]. Distinguishing proof of basic question factors by this examination additionally drives one to understand that in the event that appropriate and successful control is guaranteed upon the debate factors, at that point positive outcomes can be accomplished which thusly minimizeunnecessary cost and time in suit and even shields the notoriety of the company.The most essential factor among all is coordination among undertaking participants;this can be accomplished by having customary gatherings among the task members and building up an affinity among themselves [10].

References

[1] WillaimH.Ross ,Jr “situational factors and alternative dispute resolution”, the journal of applied behavioural science vol.24/No.3 1988; 0021-8863.

[2] Charles T. Jahren, Member, ASCE, and Bruce F. Dammeier ”Investigation into construction disputes”, J. Manage. Eng. 1990.6:39-46.

[3] S. Mahendran, R. Benita, S. Nandhini and J. Nandhitha. "Fault Detection in Power Transmission Line ." International Journal of Communication and Computer Technologies 5 (2017), 46-47.

[4] S. O. Cheung, C. M. Tam, and F. C. Harris (2000)” Project dispute resolution satisfaction classification through neural network.” *J. Manage. Eng*., ASCE.,16,70-79.

[5] Joshi, K. (2016). Application of Energy Concepts for Green Buildings.

[6] Ellis, F. and Baiden, B.K. (2008), ‘A Conceptual Model for Conflict Management in Construction Firms’, RICS & CIB International Research Conference (COBRA), Dublin, 4-5 September.

[7] Ibrahim Yitmen& Ebrahim Soujeri (2010) “An artificial neural network model for estimating the influence of change orders on project performance and dispute resolution”., Proceedings of the International Conference on Computing in Civil and Building Engineering.

[8] N. B. ChaphalkarandSayali S. Sandbhor(2015)”Application of Neural Networks in Resolution of Disputes for Escalation Clause Using Neuro-Solutions,”*KSCE Journal of Civil Engineering (2015) 19(1):10-16.*

[9] Chan, D. W., & Kumaraswamy, M. M. (1999). Modelling and predicting construction durations in Hong Kong public housing. Construction Management & Economics, 17(3), 351-362.

[10] Israel K. (2001), quoted in William J. Baumol,(2015) ‘Return of the Invisible Men: The Microeconomic Value Theory of Inventors and Entrepreneurs.’.

Appendix A. Questionnaire on project attributes

Listed below are some of the **attributes responsible for construction dispute** .Please indicate the effect of these attributes on the project dispute evaluation criteria of cost and Please give your opinion below by rounding the number mentioned on the **five-point scale: 1. Strongly disagree; 2. Disagree; 3. Neutral; 4. Agree; 5. Strongly agree**

S.NO	Project dispute attributes	Effect on cost
1	Variations initiated by the owner	1 2 3 4 5
2	Late giving of possession	1 2 3 4 5
3	Unrealistic expectations	1 2 3 4 5
4	Payment delays	1 2 3 4 5
5	Delays in work progress	1 2 3 4 5
6	Time extensions	1 2 3 4 5
7	Financial failure of the contractor	1 2 3 4 5
8	Technical inadequacy of the contractor	1 2 3 4 5
9	Tendering	1 2 3 4 5
10	Quality of works	1 2 3 4 5
11	Design errors	1 2 3 4 5
12	Inadequate / incomplete specifications	1 2 3 4 5
13	Availability of information	1 2 3 4 5
14	Ambiguities in contract documents	1 2 3 4 5
15	Risk allocation	1 2 3 4 5
16	Lack of communication	1 2 3 4 5
17	Site conditions	1 2 3 4 5
18	The relationship of the client with the designer	1 2 3 4 5
19	The relationship of the client with the prime contractor	1 2 3 4 5
20	Non refund of retention money	1 2 3 4 5
21	Liquidated damages claimed by client	1 2 3 4 5
22	Extension of time and cost and expenses claimed by contractor	1 2 3 4 5
23	Restrictions placed on contractors working method	1 2 3 4 5
24	Poor construction coordination	1 2 3 4 5
25	Poor design coordination between consultants/subcontractors	1 2 3 4 5
26	Defective material.	1 2 3 4 5
27	Lack of information from design team/client	1 2 3 4 5
28	Extra contractual third party coordination	1 2 3 4 5
29	Failure respond to issues in a timely manner	1 2 3 4 5
30	Tendering guidelines and procedures	1 2 3 4 5
31	Lack of experience of consultants	1 2 3 4 5
32	Poor consultation and briefing	1 2 3 4 5
33	The domination of government projects in the market	1 2 3 4 5
34	Lack of construction legislation	1 2 3 4 5
35	Breach of Contract	1 2 3 4 5
36	Failure to Settle & Appeal	1 2 3 4 5
37	Insurance & Indemnity	1 2 3 4 5
38	Obtaining approvals	1 2 3 4 5
39	Site Access	1 2 3 4 5
40	Availability of resources	1 2 3 4 5
41	Failure to determine responsibility in accordance with the contract	1 2 3 4 5
42	Failure of plan and implementation of change of work	1 2 3 4 5
43	Inflation	1 2 3 4 5
44	Tender price	1 2 3 4 5
45	Work availability	1 2 3 4 5
46	Client experience	1 2 3 4 5
47	Client budget	1 2 3 4 5
48	Previous working	1 2 3 4 5
49	Contractor work load & consciousness	1 2 3 4 5
50	Escalation payable to the contractor as per the provision in contract	1 2 3 4 5
51	Escalation of due to price variation during contract period	1 2 3 4 5
52	Delay beyond control of respondent, hence proper extension granted (excusable/ non compensable delay)	1 2 3 4 5
53	Force majeure (Natural or Man-made)	1 2 3 4 5