Strengthening of Governorning Practice in Construction Industry

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Abstract: The construction industry is one of the most important contributors to the national economy, with a market metabolism that includes constructors, customers, material manufacturers, technical service providers, and construction enterprises, among others. Inter-organizational partnerships based on professional practice and behavior are critical in a highly diversified industry like construction. Unfortunately, due to unethical practices, health and safety disasters, and environmental harm, the construction industry has been identified as an industry with low ethical performance. As a result, if the construction industry is not managed by an ethical framework, it will cause long term harm to the economy, society, and environment. There are a variety of unethical practices in the construction industry that have an impact on project efficiency, the environment, project budget, project timeline, and project safety. the goal of this study was to identify and study the possible form of unethical practices, the reason behind these unethical practices and to strengthening construction practices by ensuring project management &Construction Environment by ensuring quality practices This project has a large scope because every industry has to grow over time. Every project in the construction industry is unique. So, there is a lot of uncertainty around every project, but the key to success is organizations, as well as personal moral practice, which affects the project's outcome directly or indirectly. According to the findings, in order to improve construction standards, the construction industry requires professional ethics. The most commonly reported unethical practices, stage-by-stage occurrence of unethical practices, level-by-level promoters, most commonly reported sub-sectors, numerous essential factors that promote impact practices, pre-contract & execution phase elements with potentially hazardous project effects were all discovered in this study.

Index Terms **- Construction Industry, Strengthening Practices, Unethical Practices, RII Method**

I. INTRODUCTION

In most of the countries, the construction sector is one of the most important contributors in countries economy. Contractors, Manufacturers, Technical Service Providers, Construction Firms, and Suppliers are all part of the construction sector's vast market etc. Inter-organizational partnerships based on professional practice and behaviour are critical in a broadly diverse Sector-like construction sector. The construction industry has a reputation for having low ethical standards. People's health, safety management, and the environment are all harmed as a result of these unethical practices. As a result, if the construction industry lacks an ethical framework for governing construction sector, it will direct & indirect effect on nation economy, construction environment and construction industry (B.Schombo, 2019)

There are unethical practices which exists in industry like Poor work, Kickbacks, bill modifications, professional Ethical issues in the construction sector should be taken seriously this would help to highlight the fact that certain issues are insignificant to the construction industry. Ethical conduct provides things smooth in other side unethical activates like breach of law, stealing of material etc. actions that can restrict growth construction sector in the construction industry, there are a wide range of unethical practices that have an impact on project efficiency, the environment, project budget, project timeline, and project safety. (M.Suresh Babu, March-2017)

II. NEED FOR THE STUDY

The construction industry is affected by unethical practices, as well as a lack of reporting of these activities promote these practices. The Finding and studying these unethical practices is necessary for the construction sector development and provide remedies.

III. OBJECTIVES

The objective of this research to identify and study the possible form of Unethical Practices in construction industry also for in-depth investigation here research work carried on to identify the reason behind these unethical practices and Strengthening construction practices at last research carry forward to ensuring the Project Management & Construction environment by ensuring Quality Practices

IV. RESEARCH METHODOLOGY

Figure 1. Flow Chart of Research Work

V. LEARNING FROM LITERATURE

In Research paper Researcher mainly focus on identifying most reported corruption forms in construction industry. form of corruption like Fraud, Bribery, collusion, Nepotism, Extortion. also, in this literature conceptual formwork is developed. Study of this research would helpful for industry practice nor authorities, anticorruption firms to grow proper anticorruption policies and techniques to successful combat with unethical practices in industry in another Researcher study focus on code of ethics, Bribery act, Fraudulent act, in all of this acts researcher develop framework and showcase form of corruption and their channels in industries.

Researcher reviewed their objective by case study in this they compare organizations with each-other in this they mentioned one organization who works with ethics and another organization who work with lack of ethical behavior and show progress of project by comparing them, the researcher also provides some recommendations to break the chain of this behavior.

VI. DATA COLLECTION

For any research, Data collection process is crucial for research growth.in data collection process responder expressed their facts/Point of views related to research topics. there are two stage first primary data collection and secondary data collection. The quantitative methodology is adopted in the data collection process. In Quantitative method following techniques may be used to explore research by Unstructured direct in-depth interviews, Participant's observation of the group, Films, Photographs, video-taps for the group under study, Case Study of Document &Records, Focus Group, Experience Surveys, Secondary Data Analysis, Two Stage Design

Data collection procedure is highly popular particularly when interacting with huge queries. Survey form is e-mailed to participants for better understanding before answering of survey form When it comes to answering the questions, the participants are according to their own. Using a questionnaire, A questionnaire is sent to people with the requirement that they answer the questions and return it. Questions are printed in a specific order and mailed to samples who are supposed to read, understand, and respond to the questions in the space given.

6.1 Questionnaire Design

For Questionary, Question was framed after reviewing literature, Journal papers, articles, some research design books, legal acts, and company reports, a question was formulated. Selected variables were also discussed with experts. Essentially, the question was posed in light of current issues in the construction industry.

Validated Questionnaire was framed in 4-Phases

1. Respondent's basic information
2. Preliminary information about topic
3. Identification of Problems /Causes
4. Possible Solutions

6.2 Sample Size Analysis

The Construction Companies were targeted for the survey. These details were considered to be the population size to determine the sample size of the study. For a representative population statistical sample, the formula shown below.

$$SS = \frac{Z^2 * p * (1-p)}{c^2}$$

Total Population (P)=246
Where,
Z=Statistic Value for confidence Level
P=Percentage picking a choice, Expressed as Decimal
C=Confidence Interval

$$New\ SS = \frac{SS}{1 + \frac{SS-1}{pop}}$$

For this Sampling Calculation
Value of Z for 95% Level=1.96
Confidence Interval (C) =10%; Sample Size=69

VII. DATA ANALYSIS

7.1 Data Analysis Method

For Data collection Questionnaire was circulated with industry experts and open network study approach was carried out for secondary data For Data analysis here Relative Important Index (RII) Method with Frequency Analysis method was carried out for data analysis. with the help of a software named SPSS.by the survey's cut-off date, a total number of 89 answers had been received. 20 non-responsive surveys were removed from the analysis after the initial screening. The responses from the remaining 69 usable survey replies were evaluated to derive the findings. There were 69 responses to the survey. The survey results from stakeholders and specialists in the construction industry provided a realistic assessment of the sector from various perspectives.

7.2 Reliability Test &Result

A reliability test in the SPSS software is required prior to analysis. To determine the reliability of a Likert scale questionnaire, a reliability test known as Cronbach's Alpha (α) must be performed. It denotes the scale's inner regularity Cronbach's Alpha(α) ranges from 0 to 1, with a range approaching 1 signifying extremely reliable data.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of items
.954	.955	62

Table 7. 1 Reliability Analysis

The SPSS Programme includes the reliability test formula. Cronbach's Alpha (α) is a scale reliability indicator that ranges from 0 to 1, with a score near 1 suggesting higher scale reliability and a score near 0 suggesting very low scale reliability in this analysis Cronbach Alpha was **0.954**, indicating that the 5-point scale used in the questionnaire was extremely consistent

7.3 Relative Important Index (RII) Method

After confirming the data's reliability, the responses' frequencies were analyzed, and the ranking was done using the RII (Relative Importance Index) method. Here Likert Scale is used for Data Collection in which The Scale order as 5=Very High, 4=High ,3=Medium ,2= Low ,1=Very Low

The Relative Important Index was calculated using the formula below.

$RII = \sum \frac{W}{A*N}$ Where; W - Weightage assigned to each response

A – Maximum weightage
N – Total Number of Samples

7.4 Data Analysis by Relative Important Index (RII) & Frequency Analysis

7.4.1 According to you which form of Unethical practices are most reported in construction industry?

Factors	RII Value	Rank
1.6 Over Billing	0.7420	1
1.2 Bribery	0.7101	2
1.5 Bid Rigging	0.6522	3
1.7 Money Laundering	0.6522	3
1.4 Collusion	0.6319	4
1.8 Cover Pricing	0.6261	5
1.1 Fraud	0.6174	6
1.3 Extortion	0.5507	7

Table 7. 2 Most Reported Unethical Practice Analysis by RII

Scale	Frequency	Percent
Very Low	3	4.3
Low	9	13.0
Medium	12	17.4
High	26	37.7
Very High	19	27.5
Total	69	100

Table 7. 3 Over Billing

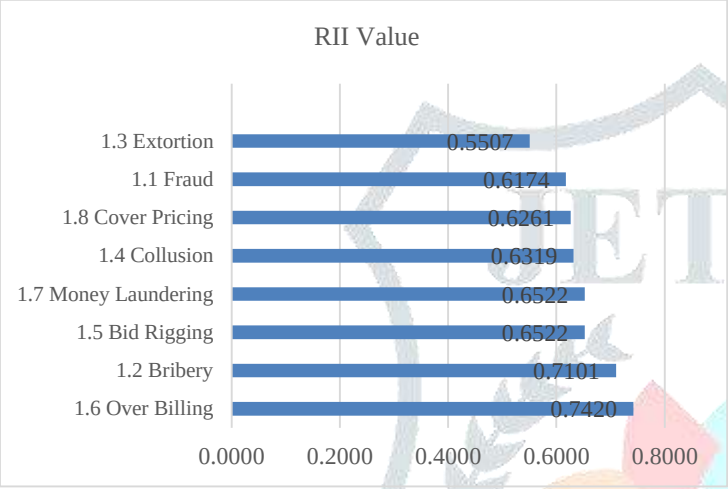

Chart 7. 1Most Reported Unethical Practices Analysis

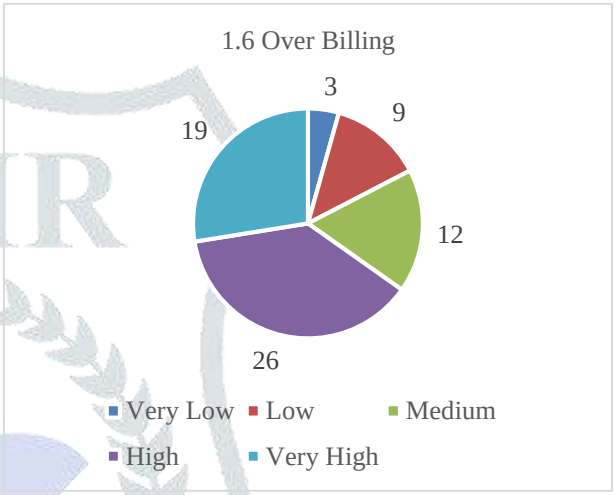

Chart 7. 2 Over Billing

Here in Chart-7.1 demonstrate the most reported unethical practices analyzed by RII method in which values of various factor are display. Chart-7.2 indicate overbilling factor frequency analysis in which 37% respondent rated overbilling factor as High

7.4.2 According to you at which stage unethical practices occur more?

Factors	RII Value	Rank
2.2 Project Execution Stage	0.7159	1
2.1 Pre-Contract Stage	0.687	2
2.3 Handing Over	0.6609	3
2.4 Operation & Maintenance after Project	0.6609	3

Table 7. 5. Stagewise RII Analysis

Scale	Frequency	Percent
Very Low	2	2.9
Low	8	11.6
Medium	17	24.6
High	32	46.4
Very High	10	14.5
Total	69	100

Table 7. 4. Project Execution Stage.

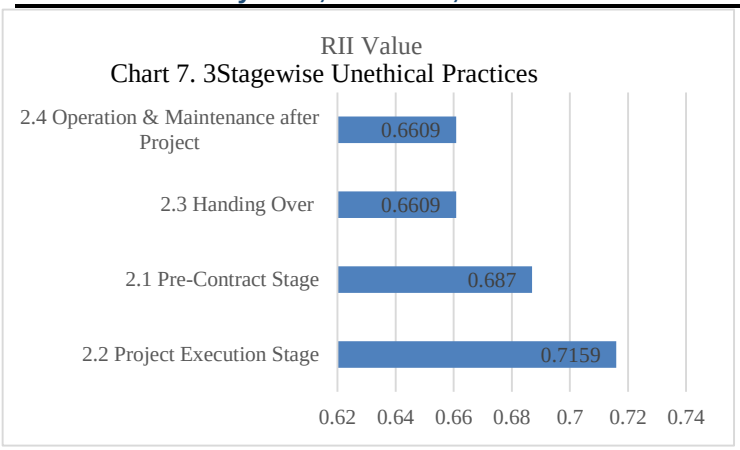

Chart 7. 3Stagewise Unethical Practices

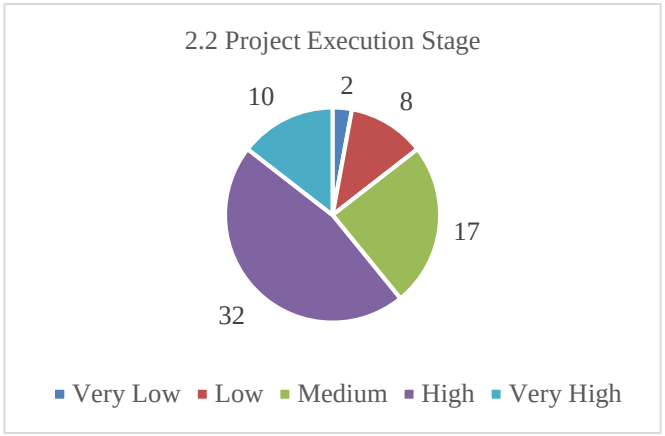

Chart 7. 4 Project Execution Stage

In Chart-7.3 demonstrate the Stagewise analysis by RII method in which values of various stages are display. Chart-7.4 indicate Project Execution Stage factor frequency analysis in which 46.4% respondent rated Project Execution stage as High for promoting unethical practices

7.4.3 According to you, who promotes the unethical conducts the most?

Factors	RII Value	Rank
3.1 High Level	0.7826	1
3.2 Middle Level	0.6493	2
3.3 Lower Level	0.5275	3

Table 7. 6 Level -By-Level Analysis.

Scale	Frequency	Percent
Very Low	3	4.3
Low	7	10.1
Medium	10	14.5
High	22	31.9
Very High	27	39.1
Total	69	100

Table 7. 7High Level

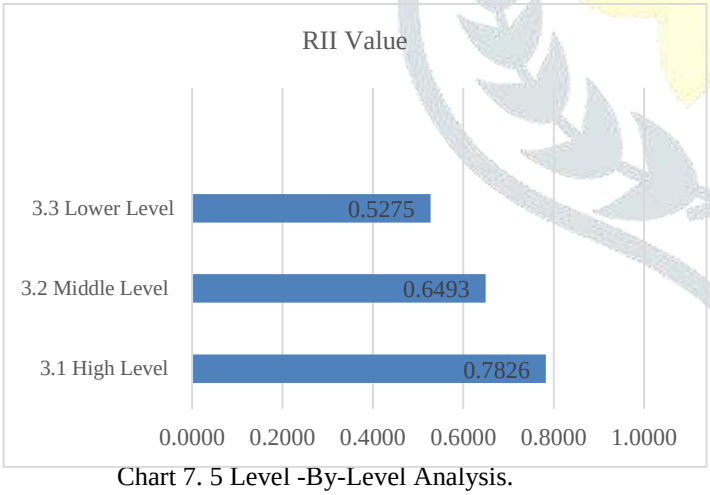

Chart 7. 5 Level -By-Level Analysis.

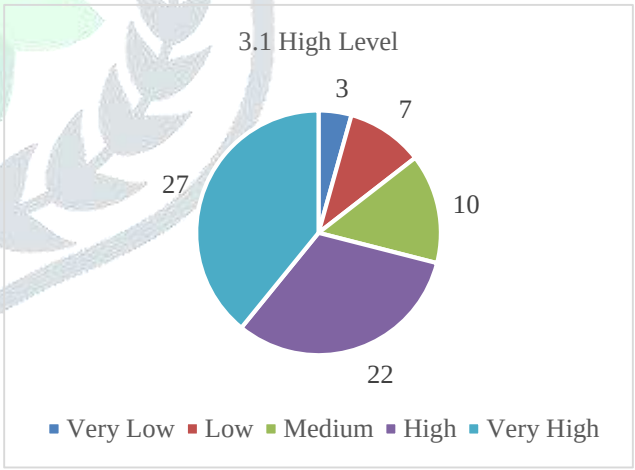

Chart 7. 6 High Level

In Chart-7.5 demonstrate the Level-by-Level Analysis by RII method in which different Level of organizations are show. Chart-7.6indicate that High level frequency analysis in which 39.1%respondent agrees that high level of organization promotes more unethical conducts.

7.4.4 In Today's scenario keeping unethical practice at the center, which sub-sector of the construction industry do you think promotes unethical practices?

Factors	RII Value	Rank
4.1 Contractor	0.7652	1
4.2 Sub-Contractor	0.6986	2
4.3 Manufacture & Consultancy	0.6145	3
4.4 Suppliers	0.6203	4
4.5 Client	0.6116	5

Table 7. 8 Sub-Sector wise RII Analysis

Scale	Frequency	Percent
Very Low	3	4.3
Low	3	4.3
Medium	16	23.2
High	28	40.6
Very High	19	27.5
Total	69	100

Table 7. 9 Contractor

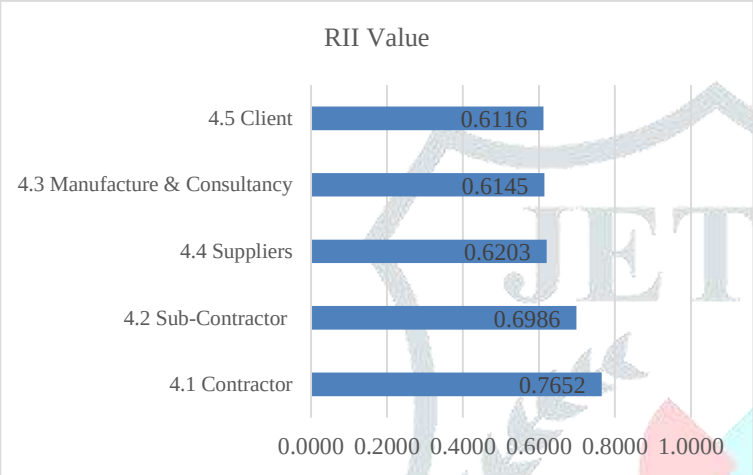

Chart 7. 7 Sub-Sector wise RII Analysis

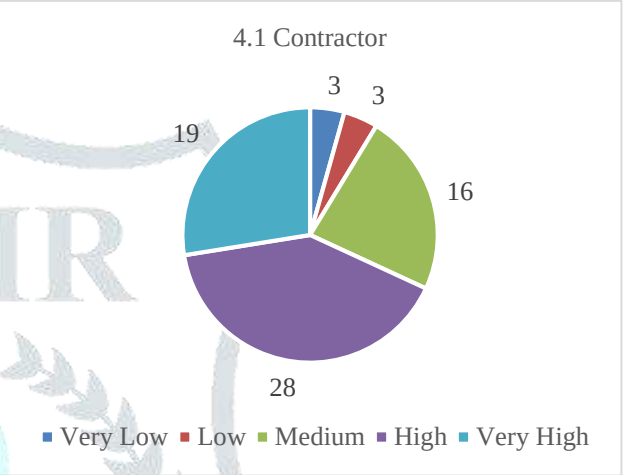

Chart 7. 8 Contractor

In Chart-7.7 shows the Sub-sector wise RII analysis in which Contractor ranked as most reported factor which promotes unethical practice in construction industry. Chart-7.8 demonstrate frequency analysis of Contractor in which 40.6% respondent agrees on this.

7.4.5 According to you which factors promote the unethical Practices more?

Factors	RII Value	Rank
5.8 Political Instability	0.7652	1
5.9 Culture of Construction Industry	0.7072	2
5.10 Lack of Transparency by clients & project promoters	0.6957	3
5.11 Economic instability	0.6841	4

Table 7. 10 Factor by Factor Analysis

Scale	Frequency	Percent
Very Low	3	4.3
Low	5	7.2
Medium	15	21.7
High	24	34.8
Very High	22	31.9
Total	69	100

Table 7. 11 Political Instability

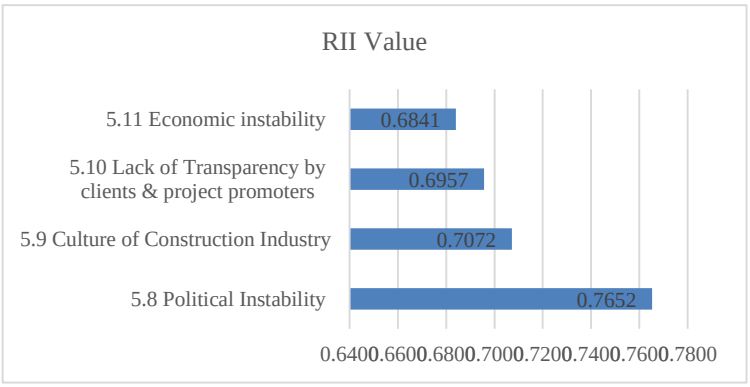

Chart 7. 9 Factor by Factor Analysis

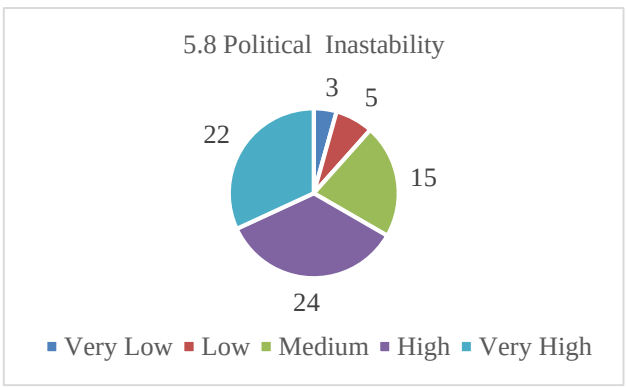

Chart 7. 10 Political Instability

Chart-7.9 demonstrate the factor-by-factor analysis in which

Political Instability ranked most for promoting unethical practices. Also, Chart-7.10 shows frequency analysis of Political instability factor in which 34.8% respondent rated as high and 31.9% ranked very high on this.

7.4.6 In pre-contract phase which unethical practices do you find more from below?

Factors	RII Value	Rank
6.2 Over billing for recovery cost	0.7536	1
6.6 Sharing vital information to parties which are interested	0.7478	2
6.1 System to award contract	0.7072	3
6.3 Under bidding to challenge viability of project	0.6928	4
6.5 Bid rigging	0.6754	5
6.4 Bid Shopping	0.6493	6

Table 7. 12 Factor by Factor Analysis in Pre-Contract Stage

3	Frequency	Percent
Very Low	-	-
Low	7	10.1
Medium	19	27.5
High	26	37.7
Very High	17	24.6
Total	69	100

Table 7. 13 Over Billing for recovery cost

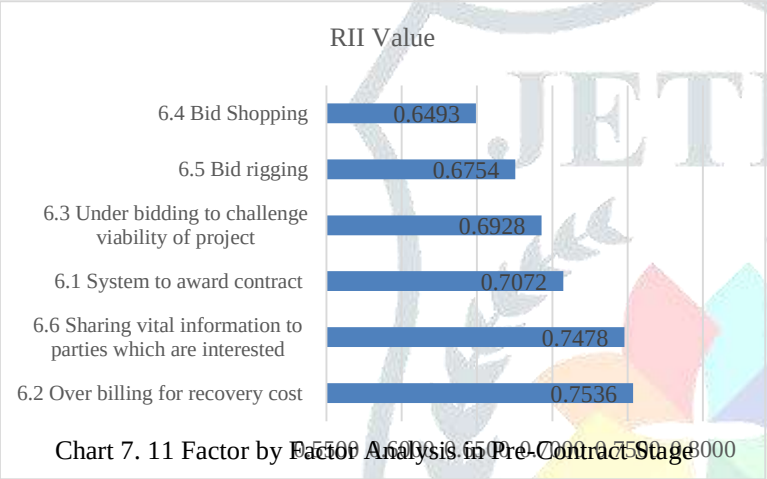

Chart 7. 11 Factor by Factor Analysis in Pre-Contract Stage

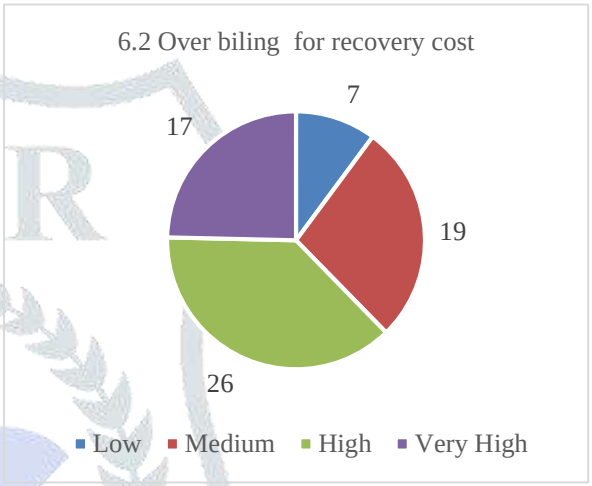

Chart 7. 12 Over Billing for recovery cost

In Chart-7.11 demonstrate the factor-by-factor analysis of Pre-contract stage by RII analysis in which Overbilling for recovery cost ranked as most reported factor which promotes unethical practice in construction industry. Chart-7.12 shows frequency analysis of overbilling for recovery cost in which 37.7% respondent agrees on this.

7.4.7 Which factors derive unethical behavior during the construction execution phase?

Factors	RII Value	Rank
7.5 Provide Material without Tax invoice (Tax Evasion)	0.7130	1
7.3 Request for time extension to increase project cost	0.7072	2
7.4 Lack of Safety Ethics & Supervision	0.6986	3
7.6 Miscalculating Quantity of Project Items	0.6899	4
7.1 Breach of professional responsibility	0.6812	5
7. 2 Miss Management of Material	0.6609	6

Table 7. 15 Factor by Factor Analysis during Execution Phase

Scale	Frequency	Percent
Very Low	5	7.2
Low	6	8.7
Medium	16	23.2
High	29	42.0
Very High	13	18.8
Total	69	100

Table 7. 14 Tax Evasion

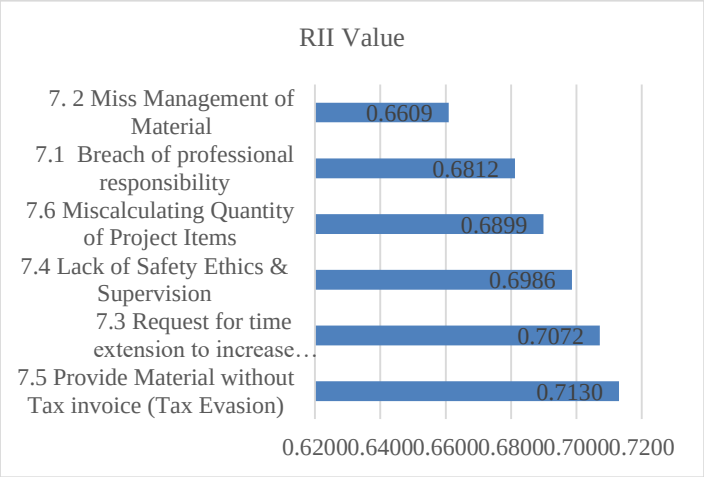

Chart 7. 13 Factor by Factor Analysis during Execution Phase

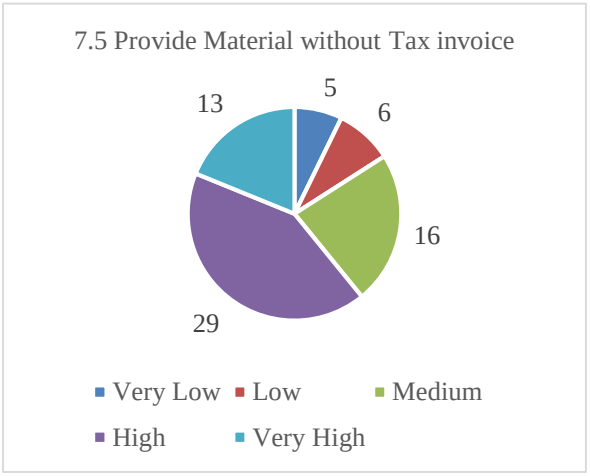

Chart 7. 14 Tax Evasion

Chart 7.13 shows the factor-by-factor analysis during execution stage in which Provide material without tax invoice ranked most. Chart 7.14 present frequency analysis of tax evasion in which 42.0%respondent rated as high.

7.4.8 Which factors derive unethical behavior during the construction execution phase?

Factors	RII Value	Rank
8.2 Project Cost	0.7884	1
8.4 Compromising in safety efforts	0.7884	1
8.1 Project Quality	0.7768	3
8.3 Activities related to the project time	0.7072	4

Table 7. 16 Hazardous Affect Analysis

Scale	Frequency	Percent
Very Low	1	1.4
Low	4	5.8
Medium	14	20.3
High	29	42.0
Very High	21	30.4
Total	69	100

Table 7. 17 Project Cost

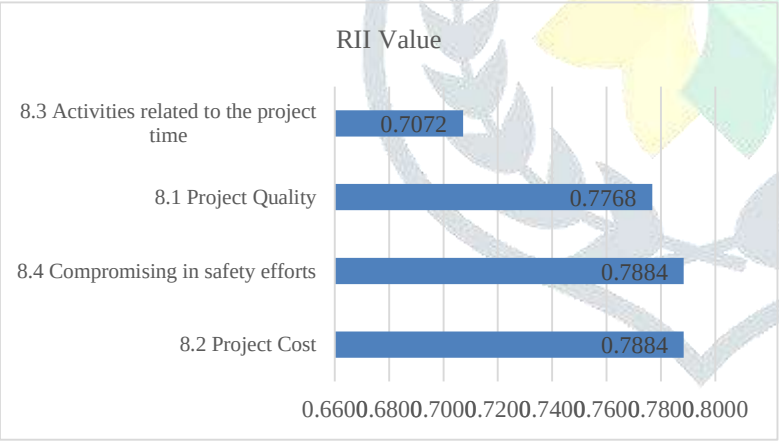

Chart 7. 15 Hazardous Affect Analysis

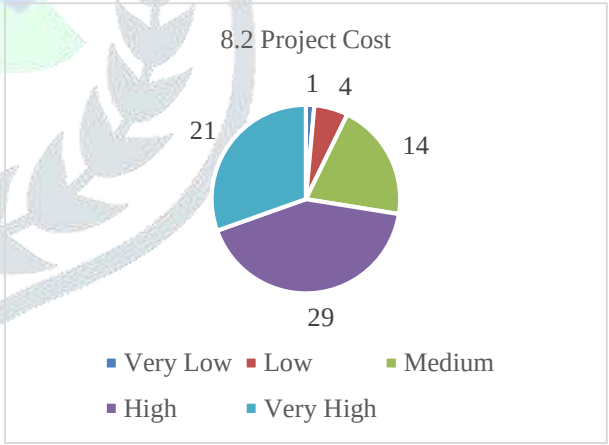

Chart 7. 16 Project Cost

Here in Chart-7.15 demonstrate the factor which damage by unethical behavior during execution stage. in which Project cost and compromising safety efforts are most ranked factors according to RII analysis Chart-7.16 indicate Project cost frequency analysis in which 42% respondent rated Project cost factor as High derive factor.

7.4.9 What kind of measures government /Public should make so as prevent unethical practices?

Factors	RII Value	Rank
9.3 Long Term Measures (Implement law /acts should be emphasized by govt.)	0.8116	1
9.4 Disallowing them to go abroad &publishing their details on government website.	0.7507	2
9.2 Medium Term Measures (Allocation of Funds for ethical training program, Auditing)	0.6899	3
9.1 Short Term Measures (Penalties, Cancellation of License, Blacklisting etc.)	0.6841	4

Table 7. 18 Preventive Measures Analysis

Scale	Frequency	Percent
Very Low	2	2.9
Low	4	5.8
Medium	12	17.4
High	21	30.4
Very High	30	43.5
Total	69	100

Table 7. 19 Long-Term Measures

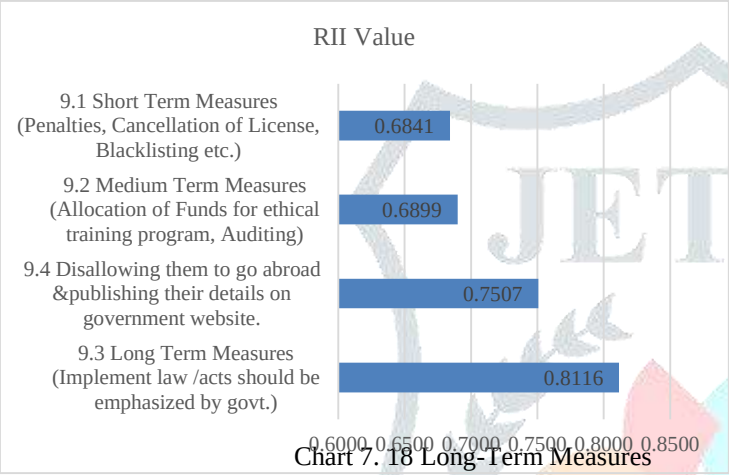

Chart 7. 18 Long-Term Measures

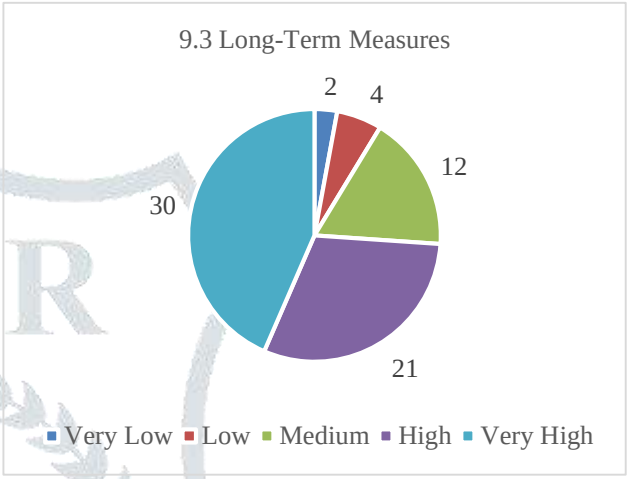

Chart 7. 17 Preventive Measures Analysis

According to Chart-7.17 here preventive measures analysis was carried out by RII Method.in which majority respondent rank long-term measures as most preferable solution also, in Chart-7.18 present frequency analysis of long-term measures in which 43.5% respondent agree on this and rated as very high as preventive measure.

7.4.10 What do you think to reduce unethical conduct and practices which practices/Technique does impact most?

Factors	RII Value	Rank
10.5 Penalties	0.7855	1
10.3 Technical Auditing	0.7710	2
10.1 Blacklisting Contractor	0.7681	3
10.2 De- registration of consultants	0.7507	4
10.4 Conducting Training session on unethical conduct & Practices	0.7362	5

Table 7. 20 Most Impacted Technique for reduce Unethical Practice

Scale	Frequency	Percent
Very Low	2	2.9
Low	6	8.7
Medium	14	20.3
High	20	29.0
Very High	27	39.1
Total	69	100

Table 7. 21 Penalties

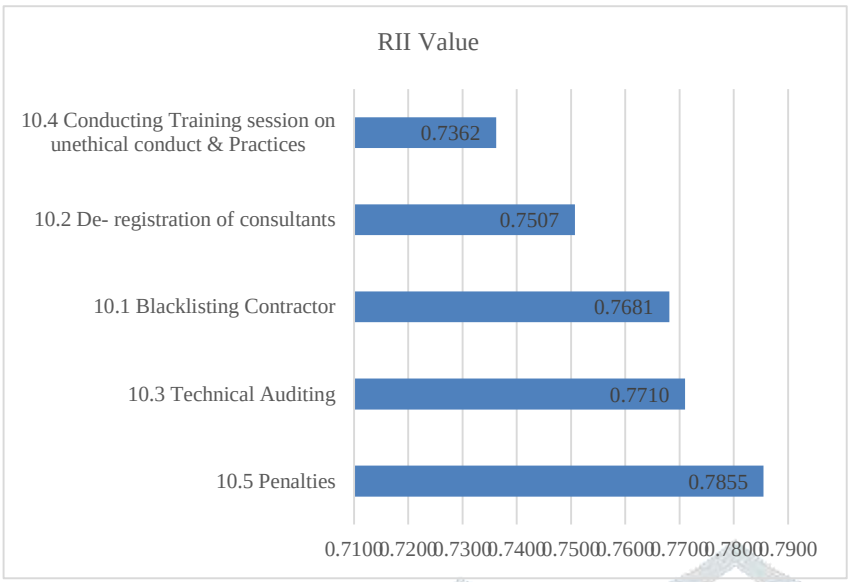

Chart 7. 19 Most Impacted Technique for reduce Unethical Practice

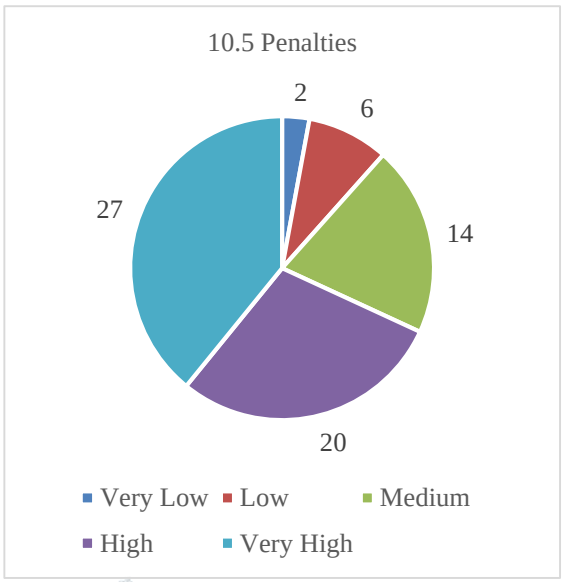

Chart 7. 20Penalties

Chart-7.19 demonstrated the most impacted technique to prevent unethical practices.in which Penalties with 78.5% and technical auditing get 77.10% were ranked first and second, respectively, in terms of reducing unethical practices and Chart-7.20 shows frequency analysis in which 39.1%respondent rated penalties as very high for preventing unethical practices also in this technical auditing 42% respondent rated as high preventive measure technique.

7.4.11 What do you think? at which stage of construction project technical audit should conduct?

Factors	RII Value	Rank
11.2 Post contract stage	0.7507	1
11.1 Pre-Contract Stage	0.7217	2

Table 7. 22Technical Auditing Stage by Stage

Scale	Frequency	Percent
Very Low	1	1.4
Low	5	7.2
Medium	20	29.0
High	27	39.1
Very High	16	23.2
Total	69	100

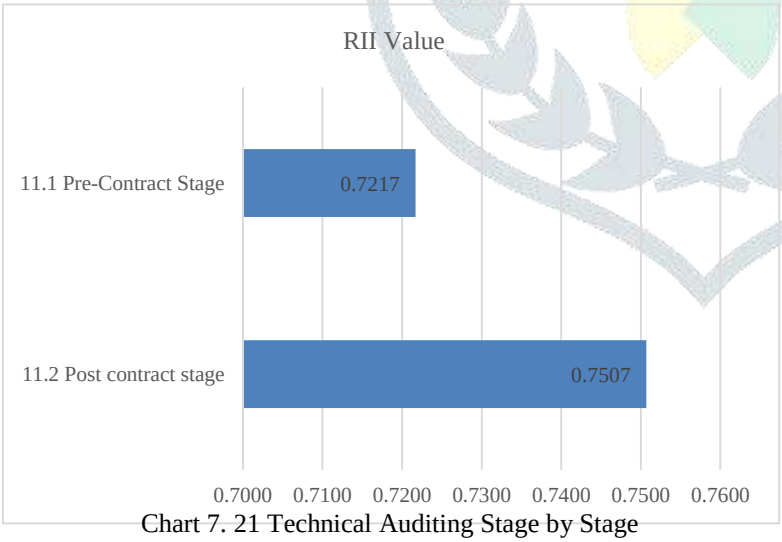

Chart 7. 21 Technical Auditing Stage by Stage

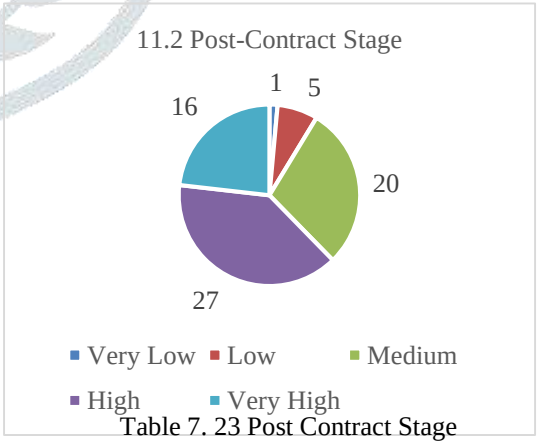

Table 7. 23 Post Contract Stage

According to Chart -7.21 RII Analysis demonstrated that Technical Auditing should be conduct at post-contract stage. Also, in Chart -7.22 shows frequency analysis with 39.1% respondent rated as High for conducting technical auditing on post contract stage

7.4.12 What are the benefits of Conducting audit on project?

Factors	RII Value	Rank
12.1 Improved Quality on Project	0.7942	1
12.4 Getting good value for money on the project	0.7855	2
12.2 Lowering project finance by Elimination of Corruption, Fraud.	0.7768	3
12.3 Boost up the confidence of owner and getting value of money	0.7681	4

Table 7. 24 Benefits of Conducting Technical Audit on Project

Scale	Frequency	Percent
Very Low	-	-
Low	8	11.6
Medium	12	17.4
High	23	33.3
Very High	26	37.7
Total	69	100

Chart 7. 22Post Contract Stage

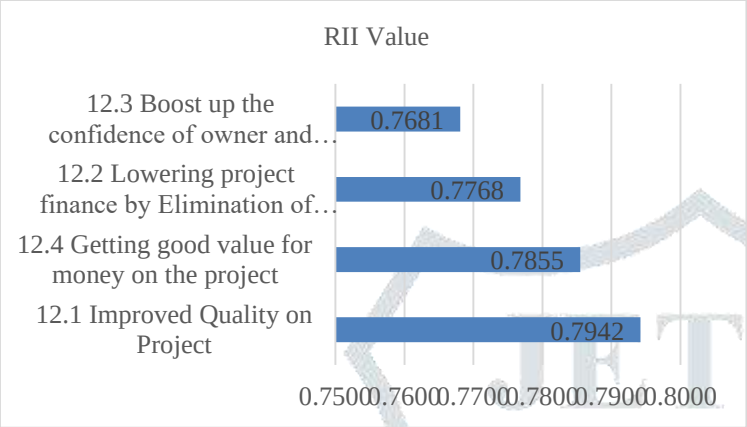

Chart 7. 23 Benefits of Conducting Technical Audit on Project

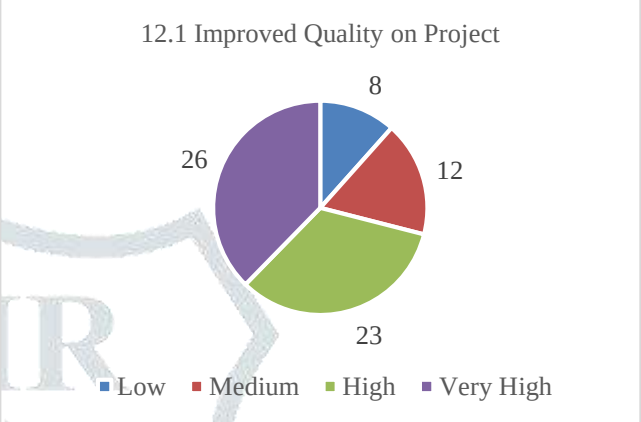

Table 7.24 Improved Quality on Project

Here, in Chart-7.23 Benefits of Conducting Technical Auditing on project were demonstrated by RII Analysis in which Quality Improvement on Project ranked most by respondents. Further in Chart-7.24 shows Frequency Analysis of Improved quality on project in which 37.7 %respondent rated as Very High.

VIII. CONCLUSION

According to the findings, the construction industry requires ethical behavior to improve construction practices. Most reported unethical practices, stagewise occurrence of unethical practices, level by level promoters, most reported sub-sectors, numerous essential factors that promote impact practices, pre-contract & execution phase elements with hazardous effects on project were discovered in this study. In this survey, overbilling was the most commonly reported unethical practice.in this survey project execution stage was most ranked factor. Also, at organization level high level was ranked most for promoting unethical practices. Furthermore, in the construction industry's sub-contracting sector, the contractor sector was the top-ranking reason for unethical behavior, as was political instability. The most common reason for unethical behavior in the pre-contract phase was overbilling for recovery, according to respondents. Furthermore, providing material without a tax invoice was the most ranked unethical conduct during the construction execution phase. According to the responses, unethical behavior and practices are more harmful to the project, resulting in higher project costs and a Compromising in safety efforts ranked most. The majority of survey respondents rank Long-term measures are the best approach to prevent unethical behavior. Penalties & Technical Auditing selected most for reducing false practices in industry technical audits should be carried out in the post-contract stage to prevent unethical acts, according to the respondents. According to the respondents, technical auditing improves project quality and provides good value for money.

According to the survey results, 74.20% believe that overbilling was the most commonly reported form of unethical practice, and according to frequency analysis, Cover pricing was identified as High with 39.1 percent response. Now further analysis according to stage by stage in which Project execution stage was ranked most with 71.59% similarly in frequency analysis 46.4%respondent believe project execution stage was highly influenced by unethical practices. Then let's take at the level-by-level analysis. High level authority was ranked first with 78.26%. Contractor sector was ranked most with 76.52% similarly in frequency analysis rated High with 40.6% In addition, Political instability was ranked high for promoting false practices with 76.52% and in frequency analysis 43.5% respondent believe that Law enforcement unwillingness was rated High for promoting false practices. Now in the pre-contract stage, the most important factor was sharing vital information, which received most ranked with 74.78%, and underbilling to challenge the project's viability was rated high and received 42 %of the response in frequency analysis. now with 71.30 %of responses, the most common unethical conduct throughout the construction execution phase was providing material without a tax invoice. also, during the execution stage, the lack of safety ethics and supervision was rate high, with 43.5%. Now come on to hazardous effect on project due to unethical practices project cost ranked most with 78.84% same as in frequency analysis with 42%.

In addition, talk about possible solution for prevent unethical practices what kind of step should government should take in this majority people ranked Long-term measures most with 81.16% and in frequency analysis Long-term Select as Very High with 43.5% response. Penalties with 78.5% and technical auditing get 77.10% were ranked first and second, respectively, in terms of reducing unethical practices and frequency analysis. The majority of people 42 % rate technical audits as a high priority technical auditing should be conducted at the post-contract stage was ranked most, according to 75.07 % of respondents, and frequency findings shows

a high respondent rate of 39.1%. The advantages of doing a project audit include, Improved project quality was the most important aspect, receiving 79.42 %of the vote, as well as boosting the owner's confidence and getting value for money get 44.9 % rate.

8.1Recommendation

Government & Policy makers should made strong policy and review that policy time to time. People Should stopped exploitation of laws The government should include ethical education on subjects such as legal activities, correct practices, and so on, so that people's mindsets can be changed. To educate students about ethical and unethical behavior and to demonstrate the cause and effect of unethical behavior. Arrange consulting for students and practicing engineer for sensitize their views on unethical behavior Technical Auditing Should carried out for proper monitoring at regular interval Before beginning of any work, an undertaking should be signed, and any breach of this obligation should result in legal action. Whistleblower policies exist to defend an individual's rights, but their execution has not been observed in practice, therefore ensuring that this policy protects whistleblowers is essential.

8.2Future Scope

In this study, the most frequently reported form of unethical practices, as well as a level-by-level analysis of unethical behaviors, a phase-by-phase analysis, and a discussion of measures and procedures, were carried out. In the future, researchers can focus on additional types of unethical practices, with improved monitoring procedures and effective evidence. Scholars can also focus on anticorruption laws, analyzing their impact on unethical practices and monitoring. whether they are effective or not. In the future, researchers could do a cause-and-effect study on construction practices.

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