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Price Adjustment Practices and Their Impacts on Bridge Construction Contracts

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Abstract: This paper assesses the patterns and trends of price fluctuations and price adjustment practices in RCC T-beam and pre-stressed bridge construction contracts. Using a questionnaire survey, we conducted a descriptive research to document the existing practices. The perceptions of clients and contractors were measured using mean score and standard deviation on issue, followed by a consistency check. We then analysed the major components of price adjustments to identify trends. Price adjustment provisions are planned during the procurement planning and bid preparation stages of procurement cycle, and are used as necessary during the contract implementation stage. These provisions are meant to give protection to the contractor against price escalation. In the absence of any compensation provision in bridge construction contracts, price fluctuation can affect the time, cost and quality parameters of construction projects. This may lead to delays or cancellation of projects, reduced number of bidders, poor quality, problems with cash flow, and loss of interest of stakeholders in the project. The research draws attention to the serious issues of price adjustments among bridge projects to ensure constructability. This is the first attempt to address the issue in bridge contracts of Nepal and can serve as a starting point for further research on this topic.

Keywords: Price Fluctuation, Trends, Issues, RCC T-beam, Pre-stressed Bridges, Provisions

1. INTRODUCTION

There are risks and uncertainties in Nepal's construction sector. The common risks are: tight project schedule, design variation, excessive approval procedures in administrative government department, high performance/ quality expectations, inadequate programme scheduling, unsuitable construction programme planning, variations in construction programmes, low management competency of sub-contractors, variations by the client, incomplete approval and other document, incomplete or inaccurate cost estimate, lack of coordination between project participants, unavailability of sufficient skilled professionals, bureaucracy of government, general safety accident occurrence, inadequate or insufficient site information, occurrence of dispute, price inflation of construction materials, and pollution caused by construction works (Qadeer, Menon, Leghari, & Menon, 2019).

Risks in any construction project should be divided among the parties who are capable of handling them. When preparing a model contract for construction work, many employers are convinced that application of appropriate provision results in an effective transfer to the contractor the consequences of unforeseen circumstances. This is possible to achieve due to a properly constructed content of the construction contract and close cooperation of the

parties, consistent compliance with the provisions defined (Apollo, 2017).

Most of the contracts are equipped with provisions to deal with situations resulting in increase in costs of construction materials. FICIC MDB and FIDIC 1999 provide such, provisions under "Variations and Adjustment – Clause 13". Sub-clauses 13.7 and 13.8 under the same clause; provide price adjustment provisions under the title "Adjustment in Changes in Legislations" and "Adjustment in Changes in Cost". The public procurement Act, 2063 specifies that for a contract that has a contract period of more than 12 months price adjustment may be applied. It should be noted that the Act also emphasises that at national bidding level, provisions need to be made in the contract for any increase or decrease in the price of construction materials. In applying so, 10% of the risks need to be borne by either party as per increase or decrease in price of construction materials. The second provision under the Act came into being after the Federation of Contractors Association of Nepal (FCAN) protested that the price escalation in the context of Nepal was an unprecedented affair and could not be determined as per standard norms. The reason FCAN cited was the increase in construction materials during 2060/2061 when the price of cement and steel doubled over a short span of time and that for contractors, whose contracts had no price adjustment provisions, were in a state of absconding because of heavy financial losses they were suffering then (Sharma, 2016).

2. STATEMENT OF THE PROBLEM

No matter which formula is used, price adjustment provision signifies that adjustment will be made according to the provisions provided in the contract. It is left to the bidder to decide how he should bid as per the provisions provided.

The simplest formula can look like:

Price to be adjusted = P1 = P0 (Pc – 1) and

$$Pc = Ac + Bc \ (Imc/Ioc)$$

Where,

Pc = Price adjustment factor,

Ac= Co-efficient (non-adjustable) specified in the contract data (taken as 15%)

Bc = Adjustable portion specified in the contract data (taken as 85%)

Ioc= Base rate/indices submitted as specified in the contract

Imc= Current rate/ indices submitted as specified in the contract

P1 = Price to be adjusted

Po= Payment during the period under consideration.

The index may be taken as the National Wholesale Price Index for Construction Material published by Nepal Rastra Bank for the period under consideration.

The highlighted formula is a simple one where there is a possibility of payment being made for activities that are not carried out at the time of payment. To avoid such a possibility, proper determination of price escalation depends on the accuracy of the formula used. But for more accurate determination of price adjustment, the more is the complexity of the formula. Price adjustment formula can be extended as and also further: (ADB, 2018)

$$P_n = A + b \frac{Ln}{Lo} + c \frac{Mn}{Mo} + d \frac{En}{Eo} + etc$$

Where,

pn = price adjustment factor

A = Coefficient. This is also a fixed coefficient. Generally its value is 0.15.

b = labour coefficient or proposed weightage of labour in escalation.

c = Construction material coefficient. Shall be submitted by contracted while bidding.

d = Equipment coefficient. Shall be submitted while bidding.

Ln= Current labour index value

Mn = Current construction material index value

En = Current equipment index value

Lo = Base period labour index value

Mn= Base period construction material index value

En = Base period equipment index value.

The value of b, c and d are submitted by the contractor while bidding. Many options need more decisions and this assumes needs of research to know the existing patterns or trends of price fluctuation and practice of price adjustment. Considering the access of data availability cases of RCC T-beam and

prestressed bridges construction contracts and practices are assessed. This study was also designed to understand the price fluctuation trends/patterns of construction materials, labour and equipment over three fiscal years and also to understand the price adjustment provisions and issues in Nepal's construction industry.

3. OBJECTIVES

To assess the existing patterns/ trends of price fluctuation and practice of price adjustment in RCC T-beam and prestressed bridge construction contracts.

4. LITERATURE REVIEW

4.1 Pricing in Construction Contract in Nepal

Price adjustment is provided to take account of price fluctuation. Price adjustment protects both clients and contractors from unforeseeable price fluctuations. Price adjustment provision planning is done during the procurement planning and bid preparation stages of procurement cycle. Price adjustment provisions are meant to give protection to the contractor against price escalation. If there is a contract with a long delivery and completion period, price fluctuation issues become significant. Contracts that include large, price-sensitive materials or commodities can also experience abrupt and significant increases in price. Price adjustment may also pass on savings to the borrower due to the downward movements in price.

It may be tempting for borrowers to assign the risk of input price fluctuation to contractors, but this usually comes at a higher overall cost for two reasons. First, contractors will build in price contingencies for input price increases over the life of a contract. Over time, this will result in higher average prices being paid for the same works. Second, a competitive bidding process will reward the bidder that takes the highest risk, significantly increasing the risk of nonperformance and default should input prices rise significantly (ADB, 2018).

Price adjustment provisions include formulas designed to address problems, and can protect both the clients and contractors from price fluctuations. If price adjustment provision is provided, contractors offer realistic price at the time of bidding. Price adjustment provision may cause budget uncertainties but it will estimate the actual cost implications that will be encountered. The indexes used in price adjustment formulas can be used for cost projection.

In price adjustment formulas, there are two cost components: One is a fixed or non-adjustable component and the other is an adjustable component. Each cost component has a coefficient or weight that is calculated based on its proportional value to the total contract amount as per the engineer's estimate. A price index is used to estimate the periodical adjustment of unit price of each cost component included in the formula (ADB, 2018).

The fixed portion of a price adjustment formula is calculated based on estimates of overhead costs, profit level, and price contingencies. It may also include (i) other cost components over which the contractor has reasonable control; (ii) a stable price trend, such as costs for rental equipment and miscellaneous materials; and (iii) those cost components that are strictly regulated. The default non-adjustable portion used in the Standard Bidding Document is 0.15, but the actual figure will depend on the calculation made above and may vary between 0.1 and 0.2 (ADB, 2018).

The adjustable component includes the cost of those items over which the contractor has no control such as cost of labour, equipment, and materials. The components subject to price adjustment will be set out in tables of adjustment data included in the bidding documents and submitted as part of the bids. The bidding documents will specify how information in "Tables of Adjustment Data" is to be provided. Bidders will provide coefficients for an adjustable portion for payment. In a civil works contract, costs of materials are significant and subject to prevailing market conditions; hence, they are commonly included in the adjustable portion of the contract. Many of these are indirect costs and will not appear as items in the bill of quantities, such as labour and fuel. Each of these costs will be given a coefficient or weight in the price adjustment formula, calculated based on its estimated portion out of the total cost estimate (ADB, 2018).

4.2 Legal Provision Related to Price Adjustment

In most of the contracts, provisions are provided to incorporate the provision of price fluctuation. FICIC MDB and FIDIC 1999 provide such provisions under "Variations and Adjustment – Clause 13". Sub-clauses 13.7 and 13.8 under the same clause; provide price adjustment provision under the title "Adjustment in Changes in Legislations" and "Adjustment in Changes in Cost".

Similarly, the Procurement Act 2063, under clause 55, states: "Price Adjustment in Procurement

Contract: (PPMO, 2063)

(1) Unless otherwise provided in procurement contract, if price needs to be adjusted in the course of implementation of a procurement contract having duration exceeding 12 months the client may adjust price. If price of any construction material is increased or decreased unexpectedly by more than 10% of the previous price, price shall be adjusted as prescribed by deducting ten percent in the amount so increased or decreased.

(2) Notwithstanding anything contained in sub-section (1), price adjustment cannot be made where the work under the contract is not completed within the allocated time and has taken more time due to the delay by contractor or if contract type is a lump sum contract or fixed budget."

The maximum amount of price adjustment to be made pursuant to PPA & PPR shall not generally exceed 25% of the original contract prices. The procurement contract may also provide that if the value of price adjustment exceeds that price, the public entity may terminate the procurement contract, negotiate with the construction entrepreneur, supplier, service provider or consultant in order to keep the contract price within the approved budget or adopt other measures to minimise costs or arrange for additional budget.

The sources of indices should be asked to be submitted at the time of bid submission. The sources of indices can also be presaged out by the employer at the time of tendering; it can also be left to the bidder for submission. Either way the employer should note the following in determination of sources of indices;

a) Indices should be determined on the basis of availability of materials.

b) For import materials indices should be derived from the country of origin with source taken from official publication. Avoid using indices or sources from an agent. In many countries indices on expatriate labour, constructional plants, and materials are available officially in the website. It is necessary to utilise indices of materials at ex-factory prices because the detailed formula of price adjustment already considers fixed overheads and miscellaneous expenditures.

c) For local materials try as much as possible to use ex-factory prices published by the manufacturers or prices listed and published by the Government of Nepal or Nepal Rastra Bank. Avoid prices from private parties or agents. If no such prices are available, use district rates provided by the districts.

d) For payment resulting in different currency other than the currency of the source of index, make a habit of applying currency corrections factor. Currency correction factor can be applied by: Correction factor = Z_o/Z where, Z_o = number of units of currency payment on the date of base index Z = number of such corresponding units on the date of current index Generally, the correct procedure is to use index of the country and make payment in the same currency. Use of correction factor avoids distortion due to differential rate of price variation and also avoids distortions due to periodic exchange rate changes. To use correction factor, it is necessary to address it in the contract document.

5. METHODOLOGY

5.1 Method of Data Collection

Both primary and secondary data were acquired for the fulfillment of the purpose of this research. Primary data were collected by office visits, holding focus group discussions and interviews of the beneficiaries (clients and contractors) related to the price adjustment provision in bridge construction projects. A questionnaire was developed to address the project objectives. Opinions of experts were taken in the form of key informant interviews with senior divisional personnel, namely, Engineer, Project Engineer and Contractor, to find the relevance of single specific price adjustment coefficient in the price adjustment clause.

A questionnaire is a good way of collecting information quickly and relatively cheaply. The question were sent to the persons concerned i.e. client, contractor and consultant through Google forms. Information about the respondents was sought first and the questionnaire followed. There were questions where respondents had to choose between different options and the questions based upon Likert's Scale where each option was given weightage from 1 to 5 and respondents had to rank them. Questionnaires were based on the knowledge about the effect of price adjustment among construction contract personnel i.e. client, contractor

and consultant and their views regarding Price Adjustment Practices (Bell, 1996).

The questions were distributed through online site of the 'Department of Local Infrastructure (DoLI)', 'Local Infrastructure Development Project Office, Janakpur', 'Suspension Bridge Division' and to the contractors to know their view of price adjustment. Total respondents were 40, out of which 20 were clients and 20 were contractors. We also collected the data from the price index published by NRB.

5.2 Data Analysis

Data analysis **summarises the collected data**. It involves the interpretation of data gathered through the use of analytical and logical reasoning to determine patterns, relationships or trends.

Analysis of Primary Data:

Data collected from questionnaire was used to know the view of Client and Contractor regarding price adjustment.

Table 1: Analysis of Primary Data

To know the view of client and contractor on price adjustment.	Questionnaire survey	Client and contractor	Qualitative analysis	Understanding the view of client and contractor on price adjustment.

Table 2: Responses from Questionnaire Survey

	Asked	Replied	% Replied	Average % of reply
Client	32	20	62.50	**76.70**
Contractor	22	20	90.90	

For understanding the view of client and contractor on price adjustment, hypothesis testing was done.

Steps adopted for testing of hypothesis were:

Step 1: In this step a null hypothesis was specified i.e. there was no significant difference between the responses from respondents (clients and contractors).

Step 2: In this step an alternative hypothesis was specified i.e. there was significant difference between the responses from respondents (clients and contractors).

Step 3: In this step the significance level (5%) was set up. This means that there is a 5% chance that alternative hypothesis would be accepted when null hypothesis was actually true.

Step 4: In this step, test statistic and corresponding p-value were calculated. Hypothesis testing generally uses a test statistic that compares

groups or examines associations between variables.

Step 5: In this step conclusion was drawn.

P-value <= significance level (a) then reject your null hypothesis in favour of your alternative hypothesis.

P-value > significance level (a) then fail to reject your null hypothesis.

6. RESULTS AND DISCUSSION

6.1 Assessment of Price Adjustment issues in contractual practices

A list of seventeen questions were prepared and circulated to clients (Senior Divisional Engineer, Engineers, Sub-engineers) and contractors of Department of Local Infrastructure. The responses obtained from client and contractor are listed in Annex 2 and Annex 3. The average of responses obtained from clients and contractors were tabulated as:

Table 3: Responses from Stakeholders

S.N.	Questions	Client		Contractor		Combined	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
1.	The provision of price adjustment in construction contract is a must.	4.7	0.46	4.8	0.4	4.75	0.43
2.	The price adjustment provision is there to favour the contractor.	2.7	0.73	2.3	0.69	2.5	0.74
3.	Amount paid as price adjustment adds burden to the contract.	3.9	0.79	3.3	0.46	3.6	0.70
4.	The contractor tries to use price adjustment provision	4.5	0.59	2.9	0.65	3.7	1.01

S.N.	Questions	Client		Contractor		Combined	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
	for his/her benefit.						
5.	Client thinks that because of price adjustment provision unnecessary payment is taken by contractor.	4.1	0.74	2.7	0.64	3.4	0.97
6.	Because of price adjustment provision, contractor is benefitted and Nepal government is in loss.	3.1	0.62	2.6	0.60	2.85	0.61
7.	Price adjustment provision tries to address the price fluctuation issues to a great extent	4.8	0.43	4.8	0.40	4.8	0.42
8.	Practice of price adjustment provision in Nepal is good.	4.2	0.65	3.6	0.49	3.9	0.65
9.	There is still confusion in using price adjustment formulas among clients and contractors.	4.6	0.49	3.6	0.49	4.1	0.72
10.	Price adjustment provision needs to be made more systematic.	4.7	0.56	4.8	0.40	4.75	0.48
11.	Because of non-uniformity in price adjustment coefficients, either client or contractor suffers.	4.6	0.49	4.8	0.40	4.7	0.47
12.	Most of the bridge projects are suffering and one of the reasons is price adjustment provision.	4.1	0.59	4.5	0.50	4.3	0.59
13.	Contractor thinks that current price adjustment does not address price fluctuation issues.	3.7	0.73	3.5	0.49	3.6	0.63
14.	If appropriate price adjustment provision is provided, then construction of bridge project accelerates.	3.7	0.64	4.6	0.49	4.15	0.73
15.	If price adjustment is provided, time overrun in project occurs.	4.6	0.49	3.5	0.49	4.05	0.76
16.	If price adjustment is provided, cost overrun occurs.	4.6	0.59	3.5	0.49	4.05	0.77
17.	If price adjustment is provided, project is completed with approved specification and quality.	4.5	0.49	4.6	0.48	4.55	0.50

Interpretation of views of Stakeholders:

The questions had been designed to suit the scope of study in this research. In sections of questionnaires, specific information on price adjustment provisions, views regarding price adjustment provisions, positive and negative price adjustment practices, trends and impacts of price fluctuation were collected from clients and contractors. Seventeen structured questions were given to rank on a scale Strongly Agree (5), Agree (4), Undecided (3), Disagree (2) and Strongly Disagree (1) to collect different views. As mentioned in the research methodology, responses received were synthesised and conclusions were drawn.

Views of Stakeholders:

Responses on necessity of price adjustment were collected. Average client response was 4.7 with deviation of 0.46. Similarly, average contractor response was 4.8 with deviation of 0.4 and combined average score was 4.75 with deviation of 0.43. This indicated that both the parties of contract highly agreed upon the necessity of price adjustment provision in the contract. This could also be justified by the provision in Public Procurement Act, 2063 and Public Procurement Regulation, 2064. Because of its necessity in construction contracts, this provision is compulsorily included in contracts more than 12 months duration and also there is a provision for other contracts if there is unexpected rise of price of materials more than 10%. Hence price adjustment provision was found as compulsory as other provisions in construction contracts.

Responses on the usages of price adjustment provision were collected. Based on responses of concerned stakeholders, it was found that there was disagreement for the statement "Price adjustment

provision is kept to favour the contractor". Average response for this question was 2.7 from client with deviation of 0.73. Similarly, average contractor response was 2.3 with deviation of 0.69 and combined average score was 2.5 with deviation of 0.74. Price Adjustment provision is a necessary provision so just to say that it is kept to favour contractor may be biased. In addition to the delay, it was also found out that cash flow problem of contractors, profit loss and poor quality output may result as a result of unpredicted price fluctuation. Therefore, it can be seen that price fluctuations can result in poor project performance by delaying project time, by increasing the project cost and by making contractors to deliver poor quality projects (Ababa, 2008).

Responses on the relation of performance of construction contracts with price adjustment provision were collected. Based on responses of concerned stakeholders, it was found that there was agreement for the statement "If appropriate price adjustment provision is provided, then construction of bridge accelerates." Average response for this questionnaire was 3.7 from client with deviation of 0.64. Similarly, average contractor response was 4.6 with deviation of 0.49 and combined average score was 4.15 with deviation of 0.73. In the absence of any compensation strategy, the major effects of price fluctuation can be Delays or cancellation of projects, Reduced number of bidders, Poor quality, Problems of the cash flow, Loss of interest of stakeholders in the project (Ababa, 2008).

As per Clause 53.1 of Standard Bidding Document for Works, there is the provision of adjusting price before deduction of price adjustment. This provision should be revised as there is no need to provide price adjustment for advance payment amount. Because of it, utilisation of advance payment in the given project may increase. This advance payment could also be utilised as funds for creating advance purchase agreement which helps to avoid skyrocketing of construction materials price.

Accordingly, the surveyed contractors have indicated that the price fluctuations that occur unpredictably have impacted both the capacity of the contractors to undertake their projects and on the overall performance of the project itself. To this end, 51.11% of the surveyed contractors have shown that such price fluctuations result in delay of the projects, 26.67% have shown that such price fluctuations result in increase in project cost, 8.89% have shown

that it results in decrease of the quality of work and 13.33% have shown that it results in conflict between client and contractors. Here it can be seen that price fluctuation is also one cause of delays in projects, which is one of the major problems in our country's civil engineering construction projects. In addition to the delay, it was also found that cash flow problem of contractors; profit loss and poor quality output might result as a result of unpredicted price fluctuation. Therefore, it can be that price fluctuations can result in poor project performance by delaying project time, by increasing the project cost and by making contractors to deliver poor quality projects (Mishra & Regmi, 2017).

If price adjustment provision is provided in construction contracts, construction process accelerates -- this can be justified by the responses given by client and contractor and also from the conclusion drawn by Mishra &Regmi, Effects of price fluctuation on Financial capacity of class 'A' contractor, 2017.

Test of Hypothesis:

Null Hypothesis: There is no significance difference between the responses from respondents (clients and contractors).

$$H_0: \mu_1 = \mu_2$$

Alternative Hypothesis: There is significance difference between the responses from respondents (clients and contractors).

$$H_0: \mu_1 \neq \mu_2$$

All the necessary calculations are presented in

tcalc= 1.485

ttabulated= 1.694

Comparison and Decision:

Here, tcalc<ttabulated. So, accept Ho and reject H1.

Hence, there is no significant difference between responses of client and contractor.

Price Fluctuation Trends in Construction Industry

In construction industry, fluctuation of prices in labour, equipment and materials play vital roles. One of the objectives of this paper is to study the price fluctuation trends in construction industry in Nepal. For this, price indices for construction materials, labour and equipment published by NRB were assessed.
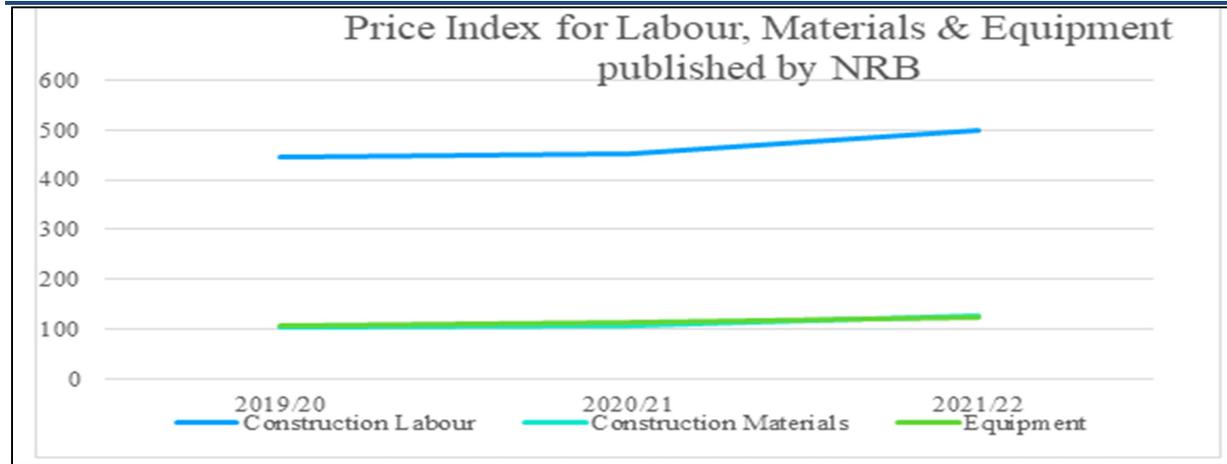
Fig 1: Price Index of Construction Labour, Materials & Equipment published by NRB

From the above graph, it was seen that price index for construction labour had been increased by 11.92% in F.Y. 2021/22 with respect to F.Y, 2019/20. Because of such increment, construction activities had been hindered as weightage of labour in construction activities is significant.

From the above graph, it was seen that price index for construction materials had been increased by 22.89% in F.Y. 2021/22 with respect to F.Y, 2019/20. Major weightage of bridge construction works (almost 60%) is covered by construction materials. So, slight fluctuation in price of construction materials significantly affects the construction project performance.

The cost of construction materials normally increases annually due to inflation (an issue that contractors faced even prior to the pandemic). However, the inflation that accompanied the pandemic has been significantly different and has largely impacted construction costs. The U.S. construction industry is heavily dependent on foreign construction materials such as steel and stone. Because COVID-19 is a global pandemic, it caused closures and delays at international factories that produce these materials. As a result, the supply of construction materials dramatically decreased in the U.S, and what remained became much more expensive (Marcum, 2021).

During the initial stages of the pandemic, contractors bid less just to stay in business. According to the Associated General Contractors (AGC), bid prices and input costs have increased by 0.5% and 12.8% respectively since the onset of the pandemic. AGC's survey also demonstrated that the unexpected increase in the cost of materials significantly reduced the profit margins in the construction industry and even resulted in some firms incurring losses. Contractors with fixed-price contracts have had to cut a share of their profits to make up for the increased construction costs (Marcum, 2021).

Generally, there is a significant amount of time between when a contract is signed and when contractors deliver final products to customers. But unlike manufacturing or retail companies, it is not easy to increase cost after the contract is signed. The cost of a project is estimated beforehand and the bid for the estimated costs is made. As a result, it has always been a challenge for contractors to deal with unforeseen additional costs. The emergence of the COVID-19 pandemic negatively affected many contractors since this was something they couldn't anticipate. Thus, the pandemic also justified the necessity and importance of price adjustment provisions in construction contracts.

7. CONCLUSION

Price fluctuation in bridge contracts is an important provision. Price fluctuations can result in poor project performance and can hinder project progress by delaying project time and by increasing the project cost. In the absence of any compensation provision in bridge construction contracts, price fluctuation can affect the time, cost and quality parameters of construction projects and may also lead to Delays or cancellation of projects, Reduced number of bidders, Poor quality, Problems of the cash flow, Loss of interest of stakeholders in the project. Because of the necessity of price adjustment in construction contracts, this provision is kept compulsory for inclusion in contracts of more than 12 months duration and also there is provision for other contracts if there is unexpected rise of price of materials more than 10%. Hence price adjustment provision was found as compulsory as other

provisions in construction contracts.

It was seen that price index for construction labour had increased by 11.92% in F.Y. 2021/22 with respect to F.Y, 2019/20. Because of such increment, construction activities had been hindered as weightage of labour in construction activities is significant. Similarly, it was seen that price index for construction materials had increased by 22.89% in F.Y. 2021/22 with respect to F.Y, 2019/20. Major weightage of bridge construction works (almost 60%) is covered by construction materials. So, slight fluctuation in price of construction materials significantly affects the construction project performance.

8. RECOMMENDATIONS

Following are the recommendations.

- Consultants should timely submit the corrected drawing with any information on location to work with smooth execution of work and settle on brief choices in regards to the specialized and legally binding issues by taking business endorsement where fundamental in determined time as required.

- Specialists ought to sort out a post agreement grant meeting mutually with workers for hire (counting specialised group) to affirm material accessibility, constructability and different limitations hailed up by project workers before their site preparation.

- Claims arise due to design error and quality of works can be reduced by strict enforcement of standard specification and Quality Assurance Plan (QAP).

- The project monitoring / evaluation and control system should be enforcing strongly.

- A dispute settlement unit after the amicable (i.e. negotiation) stage should be one of conciliation/mediation/adjudication for to facilitation on the basis of evidence before the arbitration as arbitration is time and resource consuming.

9. ACKNOWLEDGEMENT

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