

## Research Article

## Perception Based Assessment of Bidding Practices and Effectiveness of E-Bidding System in Nepal

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### Article History

Received: 25.06.2020

Accepted: 08.07.2020

Published: 16.07.2020

### Journal homepage:

<https://www.easpublisher.com>

### Quick Response Code



**Abstract:** The Purpose of this research is to assess the current bidding practices & effectiveness of e-bidding system based on stakeholder perceptions. Structured questionnaires survey was conducted with 72, 45 and 39 numbers of clients, contractors and consultants respectively. Five focused group discussion were made for discussing practices, current rules and regulations, cartellig and ways to improvement further. Most of the respondents agreed that there is low & collusive bidding. E-Bidding reduces collusive bidding and this saves huge time and money of public entity. Poor regulatory environment as prime reason followed by Poor ethics and corporate governance were the causes of collusive bidding. Advantages of e-bidding, respondents gave their ideas with their own thinking as w-index found is 0.045. This suggests contractors think just opposite of that employer. The bidding practice could be revised to average bidding method as a solution of low bidding and promotion of e-bid requires even more up to technologically advanced e-payment for contractors. This research would be useful for those who are involving in policy making and governing & implementing agencies like Public Procurement Monitoring Office, Department of Roads and for making necessary amendment in existing rules.

**Keywords:** E-bidding, Collusive Bidding, Relative Importance Index, Kendell's w-test.

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## INTRODUCTION

Infrastructure development, operation and maintenance of physical infrastructure is the basic criteria for the development of nation and national economy to prosper. Legal provisions are there in order to make procedures, processes and decisions relating to public procurement much more open, transparent, objective and reliable, obtain the maximum returns of public expenditures in an economical and rational manner by promoting competition, fairness, honesty accountability and reliability in public procurement processes and ensure good governance in an economical and rational manner (*Public Procurement Act, 2007*). E-GP has become a common business practice for many governments around the world such as Argentina, Australia, Albania, Bangladesh, Brazil, Chile, Finland, Hong Kong, India, Italy, Mexico, Norway, Romania, Singapore, South Korea, Philippines, Indonesia, Albania and Nepal. There is a single e-government portal for all the procurement of Nepal Government called Public Procurement monitoring Office (PPMO), e-GP I/II (*Bista & Mishra,*

2019). There is a lot to do to achieve a reasonable, transparent, non-corrupt and completely accomplished public procurement system and for this e-bidding is followed.

Collusive, poor and ineffective public procurement practices in Nepal are challenges not only for country, where contractors motive of profit making is also the root cause of bidding to be ineffective. Low bid award system fosters competition amongst contractors attempting to secure the projects (*Bhattarai, 2015*). In Road Divisions, Department of Roads, bidders bid differently in various categories of contracts according to the nature of works (General road works or structural works or maintenance works) and also having knowledge to size of works.

Collusive practices can be found in some projects which helped profit motive contractors through contractual links and loop-holes in existing procurement law, but introduction of e-bidding with most of the advantages drastically reduced that problem except exceptional cases.

### Statement of Problem

Massive financial investments (30-50 % of National development budget annually) are made in road, bridges and transport projects (KC and Mishra, 2019) and that contract price is inversely proportional to the financial risks involved. Modification on current public procurement system of the country to select the appropriate contractors for the execution of the development projects like road, bridges and maintenance related projects.

In Road Divisions, bidders bid differently in various categories of contracts according to the nature of works. Numerous research have been conducted in this area without separating the bid awarding trends based on its type and size of works with effect of number of bidder's involvement. It is necessary to do qualitative research on possible stakeholders involved in procurement, study and analyze to detect and minimize bid collusion, determine right level of competition during bidding, to find the flaws in existing rules and regulations, to achieve better performance in implementing the construction projects and to recommend best method of procurement based on ground study.

### Research Objectives

The objective of this research is to know the views and suggestions of stakeholders on current bidding practices & effectiveness of e-bidding system. Statistical analysis of primary data (different questionnaires for different types of stakeholders and various focused group discussion on bidding practices and trends here) and conclusions are drawn for achieving better performance in implementing the construction projects.

## LITERATURE REVIEW

Several factors (i.e. nature of work contrasting the technicality and span coverage of project, bidding requirement, socio-economic conditions, rivalry, need for work, probability of winning, number of bidders, accuracy of estimate, amount of data & information available, etc.) influence a contractor's participation in bid and bid awarded price (Hong & Shum, 2002). Contractor winning the contract through traditional bidding procedure generally raises dispute and trends to compensate the loss through claims, existing bidding procedure guarantees the substantially evaluated lowest cost project but not necessarily the best and higher the number of bidders, higher will be the chance of low bidding & civil works having cost estimate up to two million can be awarded to the bidder having lowest bidding price (Bista & Mishra, 2019).

With 10 to 15% of Gross domestic product (GDP) in developed countries, and up to 20% in developing countries, some 60 percent of the annual national budget goes to procurement (UNPCDC, 2012). Government has

increasing investment volume on 22 mega projects giving the national identification as "Rastriyagauravkaaayojanaharu". Public Procurement Act (PPA), 2007 and Public Procurement Regulation (PPR), 2007 are the governing act and regulation for the execution of contract administration by public sector in our country. On the basis of PPA (2007) and PPR (2007), Public Procurement Monitoring Office (PPMO) has prepared the standard bidding documents which are followed by public sector for the executing of the construction project in public sector.

E-bid follows a formal competitive tendering procedure in which a number of contractors submit bids through electronic media based on complete plans, bill of quantities, bid data sheets and GCC, special specifications. According to Mishra (2020), E – Bidding has the possibility of removing some of the hurdles of fair bidding as fairness, competitiveness, reliability, capacity enhancement, equitability, favorable time to bid, reduction of traveling and resources associated and process is argued as eco friendly and free from muscle power.

It is considered an innovative bidding method which overcomes the drawbacks of traditional low-bidding system and emphasizes on the quality of end product rather than cost alone (Sidney, 2006). The prequalification process of best value method considers determination of capacity of contractors to deliver quality products and not just quantitative financial evaluation.

Lack of healthy competition i.e. low bidding in contracting is affecting contractors negatively in their financial capacity along with various disputes & poor performance of contractors and projects.

Cartelling is one of the negative and usually illegal trends. Cartelling involves grouping or association of contractors working jointly to control the price and outcome of bidding in order to obtain monopoly in particular construction sector and dummy companies and the contractor submit bid prices that are very close to each other and pull the average towards their own price (Ioannou & Lou, 1993). Welsch & Furth (1983) who suggested the bid rigging analysis for investigator, auditor and attorney in US. They found that the initial screening method consisted of the reviewing all bid tabs and selecting those projects from five or fewer bidders which the lowest bid price was within 5 percent of the state engineer's estimate. Bista and Mishra (2019), stated that, considering criteria of detecting collusive bidding/bid rigging/cartel bidding, in Division Road Office, Nepalgunj, in an average 24% bids were found as collusive bids; whereas in Division Road Office, Mahendranagar, percentage of collusive bidding were found as 33%.

There is a provision in PPR, rule 65 to minimize the effect of low bid which could be asking the contractor who has bid low to submit rate analysis of items which might either low bid or items which are front loaded in certain numbers of days assigned in the bid document. If the contractor's logic of rate analysis is not found satisfactory the bid might be rejected and subsequently the next bidder might get the tender. If the rate analysis submitted by the contractor is found to be satisfactory then the public organization might ask for extra Performance Bond in addition to 5 % for those projects, so that if the contractor bidding low fail to complete the work, the public organization could blacklist that contractor and carry out rest of the work through another contractor. Although such provisions exist there is still a huge risk for the clients who hire the contractors and are often questioned by the auditing agency on accepting higher bid.

As per Public Procurement (First Amendment) Ordinance, 2015 performance security amount is:

- If Bid Amount is greater than or equal to 85% of Estimated Amount: 5% of Bid Amount
- If Bid Amount is less than 85% of Estimated Amount:  $0.05 \times \text{Bid Amount} + 0.5 \times (0.85 \times \text{Estimated Amount} - \text{Bid Amount})$

## METHODOLOGY

This was a qualitative research to look up and to be decided on trends nowadays on the bidding process, participation, effects and results for public procurement. The method involved review of primary information sources that led to identification of research questions, setting out the study objectives and identification of the appropriate sets of tools (different questionnaires, formal/informal interview of technical/non-technical persons who are involving or might be involved on procurement/bidding by any means and focused group discussions) were used to collect primary information.

In structured different sets of questions, some were given to rank with labeling in Strongly Agree (5), Agree (4), Neutral (3), Disagree (2) and Strongly Disagree (1) to collect different views. Responses were produced by calculating Relative Importance Index (RII) presenting individual and combined rank and deciding factors were presented with the help of respective RII rank.

Kendell's w-test (Kendell & Smith, 1939) for determining the ranking association between the three types of raters i.e. stakeholders clients, consultants and contractors during questionnaire survey analysis. The test statistic value:

$$W = \frac{12 \cdot S}{m^2(n^3 - n)}$$

Where, S=sum of squares of mean deviation of sum of ranking among the raters

m= number of raters

n= no. of ranking options for the question

Interpretation of w value would be if the test statistic W is 1, then all the survey respondents have been unanimous, and each respondent has assigned the same order to the list of concerns. If W is 0, then there is no overall trend of agreement among the respondents, and their responses may be regarded as essentially random. Intermediate values of W indicate a greater or lesser degree of unanimity among the various responses.

Various stakeholders including employer, contractors, consultants and even public and social front liners and conducted a meeting type group discussion about the bidding system, trends, outcomes and performances of contracts in existing system. Discussions also held in agenda like advantages and disadvantages of current provision and possible measures. The discussions were held frequent times until it gets similar conclusions of agendas stated above. After doing five FGD the results started to come similar and discussions was ended.

### Study Area & Population

Various stakeholders including employer, contractors, consultants of Road and Bridge projects of Road Divisions Butwal and Shivapur which consists Rupandehi, Nawalparasi, Arghakhanchi and Kapilvastu districts were considered for this research study.

### Sampling and Data Collection

This study included all data of the study area for better analysis and results for given objectives. No single appropriate method of the sample selection for such type of research was found. So, it was done on the basis of unbiased theory. The primary data was collected in various ways like in questionnaires 52 respondents from client, 30/30 respondents from consultants & contractors each and five FGDs were conducted. Experience of respondents was also accessed by questionnaire which is found to be suitable for research objectives.

### Data Analysis and Presentation of Data

After the data collection, the data was categorized. In structured different sets of questions, some were given to rank with labeling in Strongly Agree (5), Agree (4), Neutral (3), Disagree (2) and Strongly Disagree (1) to collect different views. Responses were produced by calculating Relative Importance Index (RII) presenting individual and combined rank and deciding factors were presented with the help of respective RII rank. RII was calculated using total number of respondents and weighted total of responses and ranking was done based on higher RII giving first rank.

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## RESULTS AND DISCUSSIONS

Specific information was collected from clients, contractors and consultants who are frequently involving in various stages of procurement of projects. For data collection 72,45& 39 clients, contractors & consultants were asked respectively upon which 52, 30, 30 replied giving 72% overall response rate. Data were analyzed to explore bidding practices/trends, level of competition, nature and extent of bidders participation, causes of collusive bid, low bid, existing rules and flaws in it, e-bidding and its advantages, method for best recommendation.

### Perception of Different Stakeholders on how Bidders Bid

#### A) Bidders participation in bidding

Table 1. Bidders participation on the projects

	Client(%)	Consultant(%)	Contractor(%)
Normal bidding	21.15	16.67	26.67
Low bidding	73.08	80.00	73.33
Cartelling	5.77	3.33	0

According to this survey it is found that 73.08 % of clients agreed that the contractors bids low bid on their projects, whereas 80% consultants agreed for low bidding and contractor itself agreed 73.33 % that they are bidding low.

And on survey it is also found that cartelling occurs in bidding and client agreed to tell 5.77% of contracts in works were to be collusive and consultant agreed to tell 3.33 % of contracts in works were to be

collusive contractors say that they were not agreed for works to be collusive.

#### B) Satisfaction in bidding practice.

According to this survey researcher has found that only 9.62% of clients, 23.33 % of consultants and 10% of contractor itself are satisfied with the way of participation of bidders to bid any projects occurred in road divisions. Similarly 44.23% of clients, 36.67% of consultants and 43.33% of contractor itself saidthey are not satisfied with the way of bidder’s participation.

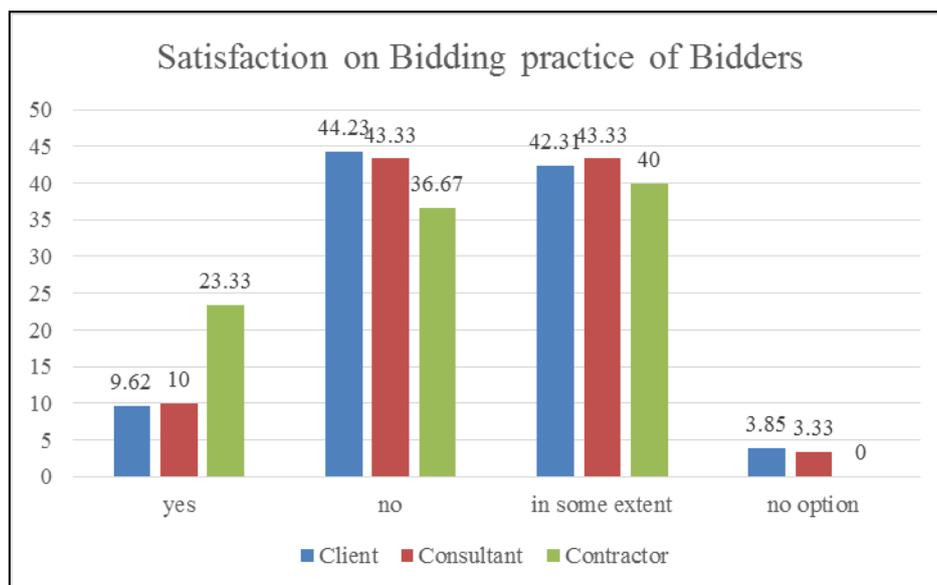


Figure 1: Satisfaction on Bidders participation by various respondents

**C) Causes of Collusive bidding**

In this question of questionnaire, specific information about contractor’s tendency of cartelling/ Collusion during bidding were collected from clients, consultants and contractors. In question of questionnaire are given to rank with scale Strongly Agree (5), Agree(4), Neutral(3), Disagree(2) and Strongly Disagree(1) to collect different views. Responses are analyzed by calculating Relative Importance Index (RII) as given in table 2 below.

Considering contractors tendency of cartelling/ Collusion during bidding individual ranking of stakeholders, clients' respondents were focused on

- i. Cartelling is occurred mainly due to Contractor’s greed i.e. to make profit from a single project.
- ii. Second most important reason of cartelling is Poor ethics and corporate governance.
- iii. According to the table stated above ranking of 1-17 for various reasons of cartellings are stated where the least important reason found accordingly is Period given to prepare tender documents.

**Similarly, contractors' respondents were focused on**

- i. Cartelling is occurred mainly due to Poor procurement management i.e. contractor said due to poor procurement of management government they are willing to do cartel on bidding. Second most important reason of cartelling is Size of project where they have more advantage if project size increases for direct or indirect benefits.

- ii. According to the table stated above ranking of 1-17 for various reasons of cartellings were stated where the least important reason found accordingly is Period given to prepare tender documents.

**Similarly, consultant’s respondents are focused on**

- i. Cartelling is occurred mainly due to High number of contractual links.
- ii. Second most important reason of cartelling is Poor regulatory environment.
- iii. According to the table stated above ranking of 1-17 for various reasons of cartellings are stated where the least important reason found accordingly is poverty of contractors. Because of this reason contractors were not intended to cartel.

**Considering combined ranking, all respondents focused on**

- i. Contractor wants to cartel due to Poor regulatory environment as most important reason, Poor ethics and corporate governance is second most important reason of cartelling of contracts.
- ii. Contractor is emphasized on showing weaknesses of regulatory bodies or government and clients are not satisfied with unusual profit making practice of bidders.
- iii. Combined ranking is little bit different in individual’s ranking, it means individual thinking could be biased to others but group effect of decision can make slight unbiased decision in any surveys.

**Table 2.** Causes of contractor’s tendency of cartelling/ Collusion during bidding

SN	View of respondents	Client		Contractor		Consultant		Combined	
		RII	Rank	RII	Rank	RII	Rank	RII	Rank
1	Why do contractors have tendency of cartelling/Collusion during bidding								
a	Contractor's Greed	0.77692	1	0.64	10	0.6933	8	0.717857	5
b	Political influence	0.65385	9	0.65333	8	0.6467	11	0.651786	9
c	Poor ethics and corporate governance	0.77308	2	0.73333	4	0.7467	3	0.755357	2
d	Size of project	0.71538	6	0.71333	5	0.72	5	0.716071	6
e	Poor regulatory environment	0.76538	3	0.76	2	0.7533	2	0.760714	1
f	Favoritism in awarding	0.56538	12	0.58	14	0.6533	10	0.592857	11
g	Ignorance of clients	0.53462	14	0.56667	16	0.6	14	0.560714	14
h	Poor procurement management	0.65769	8	0.77333	1	0.7333	4	0.708929	7
i	High number of contractual links	0.73462	4	0.75333	3	0.7667	1	0.748214	3
j	Entrenched interest	0.72692	5	0.71333	5	0.7133	6	0.719643	4
k	Inconsistency of anti - corruption policies	0.66154	7	0.71333	5	0.7067	7	0.6875	8
l	Period given to prepare tender documents	0.48846	17	0.57333	15	0.62	12	0.546429	15
m	Poor oversight and supervision	0.56923	10	0.65333	8	0.6667	9	0.617857	10
n	Too many stages of procurement procedure	0.54231	13	0.64	10	0.62	12	0.589286	13
o	Separation of key functions	0.56923	10	0.63333	12	0.5867	15	0.591071	12
p	Incomplete designs	0.50769	15	0.62667	13	0.5133	17	0.541071	16
q	poverty	0.49231	16	0.5	17	0.5267	16	0.503571	17

To know the association between the suggestions given by three groups of respondents clients, consultants and contractors Kendall's coefficient of concordance (w) is calculated with the method as described in section methodology and is found to be 0.89. It indicated there is strong association between suggestions among three groups of respondents on question Causes of Collusive bidding which is in same direction with significance.

**D) Causes of Low bidding**

In this question of questionnaire, specific information about contractors tendency to bid as low bidding were collected from clients ,consultants and contractors. In question of questionnaire were given to rank with scale Strongly Agree (5), Agree(4),

Neutral(3), Disagree(2) and Strongly Disagree(1) to collect different views. Responses are analyzed by calculating Relative Importance Index (RII) as given in table 3 below.

Considering contractors tendency to bid low bidding individual ranking of stakeholders, clients' respondents were focused on.

Clients said main reason for low bid is insufficient knowing on Project scope and no site visit before bidding by bidders. Which means without knowing scope and site of projects contractors bids haphazardly low and in long run it will have effects on performance of projects for its completion with better TQC.

**Table 3:** Causes of low bidding

SN	View of respondents	Client		Contractor		Consultant		Combined	
		RII	Rank	RII	Rank	RII	Rank	RII	Rank
1	Why do contractors have tendency to bid as low bidding.								
a	To utilize idle own resources	0.75385	4	0.73333	4	0.68	4	0.728571	4
b	To take advance payment and utilize it in other business	0.76538	3	0.76667	2	0.76	3	0.764286	3
c	Due to current legal provision of awarding low bid	0.80385	2	0.78667	1	0.84	1	0.808929	1
d	Insufficient knowing on Project scope and no site visit before bidding by bidders.	0.81538	1	0.76	3	0.7733	2	0.789286	2
e	To utilize Human resources they have	0.73077	5	0.72	5	0.6667	5	0.710714	5

Likewise contractors itself acceptsto bid low according to questionnaire survey and here they point out the main reason of low bidding is Due to current legal provision of awarding low bid, if they bid normally there is no chance of winning bid. Hence they were forced to low bid.

Similarly Consultants have their view the main reason of low bidding is also Due to current legal provision of awarding low bid. And the least important reason for ow bidding is found as to utilize Human resources they have according to consultants view.

**Considering combined ranking, all respondents focused on**

- i. Contractor wants bid low primarily due to Due to current legal provision of awarding low bid as most important factor as on analysis ranking found is 1 and similarly lest important factor among the stated factors above is contractors bid low with reason of to utilize Human resources they had.
- ii. Contractor are emphasized on showing weaknesses of regulatory bodies or government and clients were not satisfied with unusual profit making practice of bidders.

**E) Flaws of PPA, 2063 and PPR, 2064 in promotion of low bidding?**

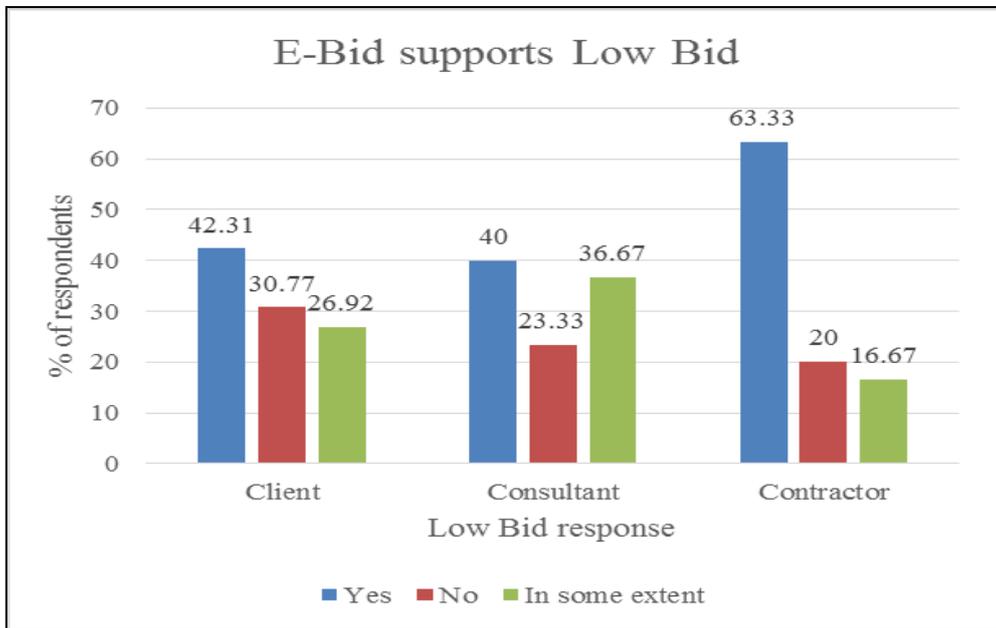
**Table 4.** Parameter in PPA, 2063 and PPR, 2064 to promote Contractors to bid low

	Client(%)	Consultant(%)	Contractor(%)
A. Bid evaluation based on bid price and responsiveness (Lowest evaluated substantially responsive bidder will get the contract)	88.46	66.67	80
B. Advance payment up to 20 % of contract value on the submission of bank guarantee	11.54	30	13.33
C. Price escalation for the project exceeding contract time period 12 months	0	3.33	3.33
D. Unclear and ambiguous provision for contract administration	0	0	3.33

On this note 88.46% of clients, 66.67% of contractors and 80% of consultants were agreed that the provision on PPA 2063 & PPR 2064 itself promoted the

low bid as the main reason Bid evaluation based on bid price and responsiveness (Lowest evaluated substantially responsive bidder will get the contract).

**F) Adequacy of Rules & regulations for controlling Low Bidding**



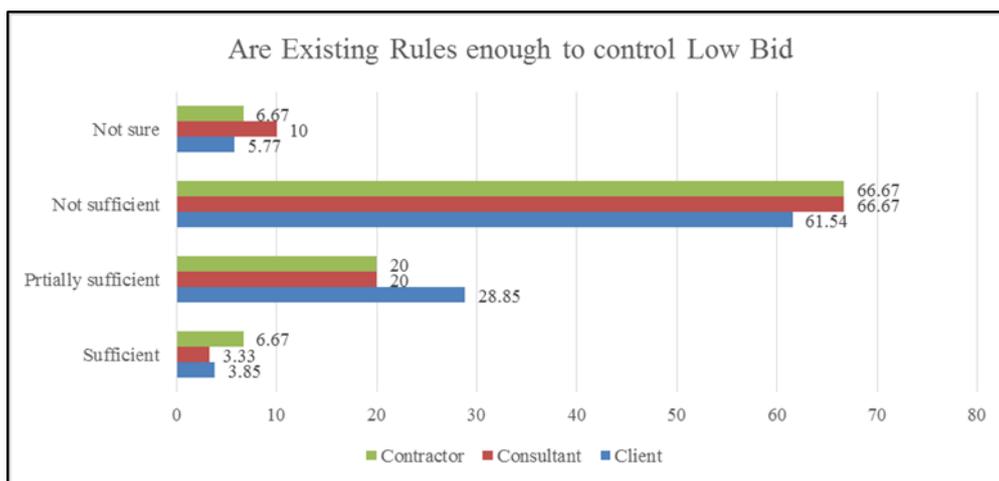
**Figure 2** adequacy existing rules and Regulation for controlling low bidding

On this question majority of respondents i.e. 61.54% of clients, 66.67% of contractors and same 66.67% of consultants were agreed that the provision on

PPA 2063 & PPR 2064 itself promoted the low bid and the existing rules and regulations were not sufficient for controlling low bidding.

**Views on E-Bidding**

**A) e-bidding response towards low bidding**



**Figure 3.** In Procurement practice, e-bidding has supported low bidding

On this question majority of respondents i.e. 42.31% of clients, 62.33% of contractors and 40% of consultants were agreed that the introduction of e-Bid in procurement system supports low bids. The possible causes might be easier and fastest method and technology friendly methods where no physical

obstruction occurs and can also saves travel costs and promotes low bid.

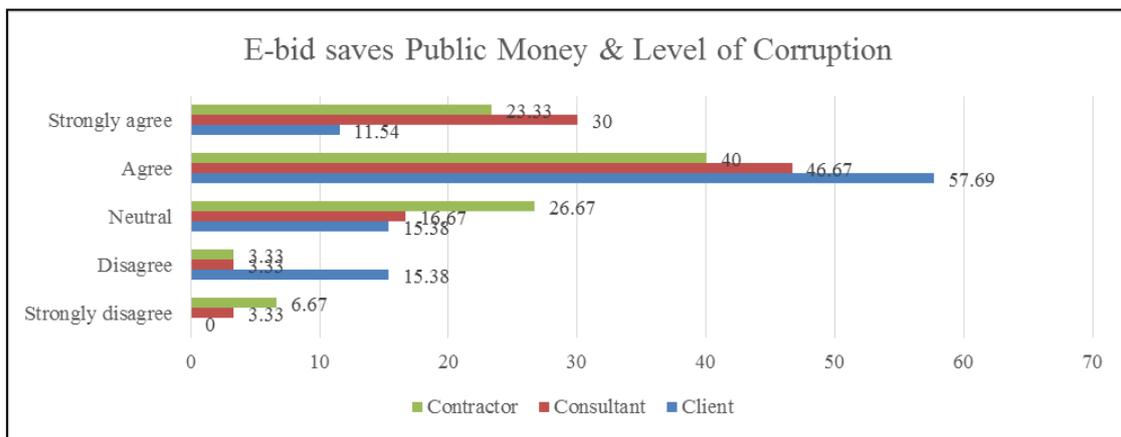
The graphical presentation of results with responses of various respondents with various options of analysis is presented in Fig3.

**B) E-bidding for saving public money and minimizing level of corruption and cartelling**

As normal viewer researcher can say that trend of e-Bidding can save transportation costs, other printing costs and thus saves huge proportion of money for the bidders and also there was easier method of bidding, it can also help to reduce corruption as well as collusive tenders.

In data analysis provided by different road divisions there are decreasing trend of collusive bidding where the main cause is introduction of e-bidding system in procurement.

In field survey of studying Existing e-bidding trend saves huge proportion of public money and minimizes level of corruption and corbellings many respondents were asked giving them options as Strongly disagree, Disagree, Neutral, Agree, Strongly agree. And responses found are majority of the respondents are agreed on this question as 57.69 % of clients, 46.67% of consultants and 40% of contractors are agreed and there on 15.38 % of clients, 16.67% of consultants and 26.67% of contractors are sitting as option on Normal and 11.54 % of clients, 30% of consultants and 23.33% of contractors are sitting as option on Strongly agree option.



**C) Choice of contract award method**

In this question of questionnaire, specific information about method of contract award for

recommendation in context of Nepal were collected from clients, consultants and contractors.

**Table 5.** Recommended method of contract award.

	Client	Consultant	Contractor
Existing Lowest bid method	15.38	6.67	16.67
Average Bid Method	50	60	46.67
Threshold % value apply	32.69	26.67	33.33
Others	1.92	6.67	3.33

This gives result as existing bid awarding method is only 15.38, 6.67&16.67% okay respectively for clients, contractors and consultants. Where they gave

suggestion of revised method for award as Average Bid method of award as 50.00% of clients, 60.00% of contractors and 46.67% of consultants.

**D) Advantages of E-Bidding**

**Table 6.** Advantages of E-Bidding

SN	View of respondents	Client		Contractor		Consultant		Combined	
		RII	Rank	RII	Rank	RII	Rank	RII	Rank
1	Advantages of E-Bidding are								
a	Time & cost savings	0.80769	3	0.78	3	0.7867	2	0.794643	2
b	Accuracy	0.83077	1	0.79333	2	0.72	6	0.791071	3
c	Real time & mobility	0.81154	2	0.80667	1	0.7667	3	0.798214	1
d	Traceability	0.77692	4	0.77333	5	0.7533	4	0.769643	5
e	Automated Process	0.76154	5	0.78	3	0.7933	1	0.775	4
f	System aided evaluation process	0.75	7	0.72667	7	0.7133	7	0.733929	7
g	Lesser hassle of communication and administration	0.75769	6	0.76667	6	0.7533	4	0.758929	6

Considering Advantages of E-Bidding, individual ranking of stakeholders, clients' respondents were focused on.

Clients said main advantage is its accuracy with most RII 0.83 on its value, similarly Real time and mobility in no.2 ranks and System aided evaluation process as last ranking as in no.7.

Likewise contractors accepted advantage of e-bidding as a real time and mobility as a first rank with RII 0.80 and Accuracy as a second ranking options similarly System aided evaluation process in a last rank among the given options.

Similarly Consultants have their view the main advantage of e-Bidding may also be real time and mobility and least ranked advantage among provided options is System aided evaluation process.

All respondents in combined have revealed their view that the main advantage of e-Bidding may also be real time and mobility and least ranked advantage among provided options is System aided evaluation process. The reason behind the least ranked system might be there is e-Bidding process and tender can be opened through online system too but with many restrictions there still to come in a stage that all the evaluation would be done by system itself. There are some restrictions and contractors are to be awarded manually with the help of e-bidding technology. Combined ranking is little bit different in individual's ranking, which means individual thinking could be biased to others but group effect of decision can make slight unbiased decision in any surveys.

To know the association between the suggestions given by three groups of respondent clients, consultants and contractors, Kendall's coefficient of concordance ( $w$ ) is calculated with the method as described in section methodology and is found to be 0.045. It indicated that there is very weak association between thinking among three groups of respondents on question advantages of e-bidding which supports that the contractor thinks opposite that of the clients and consultants.

FGD has been conducted separately for clients, consultants and contractors. So, the common views could not be accessed. After five FGD the responses started to be repeated and hence no more FGD is conducted. They (Clients and Contractors) admit that their objectives are different for the project and based on conflict of interest views and suggestions have been given. And views of consultant are found in between. In some questions they have common views with clients and in some cases their views mostly resembled with contractors.

## CONCLUSIONS

Various stakeholders were asked with different questionnaire for contractors, employers and consultants about the procurement practices, adequacy of existing rules, causes of collusive practices, e-bidding advantages and effectiveness and best system for procurement in our context. Most of the respondents agreed that there is low bidding and they are not satisfied with current practices. E-Bidding reduces collusive bidding and this saves huge time and money of public entity. For finding causes of collusive bidding 17 causes were there and found that poor regulatory environment is the most RII ranked cause and to get association between respondents answers Kendall's  $w$ -test was done and found strong association for collusive cause but in case of advantages of e-bidding, respondents gave their ideas with their own thinking as  $w$  index found is 0.045. This suggests contractors think just opposite of that employer. The bidding practice could be revised to average bidding method as a solution of low bidding and promotion of e-bid requires even more up to technologically advanced e-payment for contractors.

## Recommendations

It should be asked the contractors who takes project with low bidding for the method of statement, work schedule and clarification for low bidding and promotion of e-bidding helps bids not to be more collusive and to be more competitive and extra technological advance on e-bidding system from bid awarding to e-payment to contractors may also help in fair practice.

## Acknowledgements

I would like to express my deepest thanks to road divisions and concerned respected senior divisional engineers, contractors, clients and consultants for providing research data without which this work would not have been completed. This research is dedicated to all the people affected from COVID 19 and hope the world is going to come over this problem.

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