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The Implementation Status of E-Procurement in Government Sector. A Case Study on Department of Urban Development and Building Construction (DUDBC), Nepal

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ABSTRACT
The existing implementation status of the e-GP system in DUDBC is effective. Trainee who got the training from PPMO and NHSSP/MOHP has applied their knowledge and skills in working area. DUDBC Officials, DUDBC divisional engineers / trainee and contractors are the main stakeholders under study. These all stakeholders are quite satisfied with the current benefits of using e-GP system. Collusion, intimidation and manipulation free, fast process, competitive and transparent are the benefits of using e-GP system. However, there are some limitations on e-GP related to technical limitations like tedious in uploading especially large volume of drawing), System error, difficult to verify all document etc. Contractors and bidders also found the e-GP system is effective than manual bidding system. Their perspective highlights the e-GP system as trustable, less paper work, easy for information and time saving. However, some limitations have been pointed out like the e-GP system is process oriented, difficult to prepare document, system error, tedious in uploading documents. It is seen than the limitations of e-GP have been understood commonly by the government entity and private contractor.

Key words: *e-GP system, implementation status, DUDBC, NHSSP/MOHP*

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I. INTRODUCTION

Procurement is a purchase process used to secure services, goods and work from external sources (Flicker, 2014). Procurement addresses the issues such as transparency, competitiveness and accountability and financial administration. The first law related to public procurement introduced in 1958/59 (Adhikari, 2015) in Nepal. It addresses the issues such as transparency, competitiveness and accountability and financial administration. It is related to rules and regulation which is influenced by time. The financial administration rules 1985/86, 1995/96 and 1999, Public Procurement Act 2063 (PPA) were enforcement (PPMO, 2017).

The public procurement process differs from one country to another as it is governed by procurement laws and regulations

Globally, public procurement is a key function performed by Government that directly influences Government performances (UNDP, 2006).

In Nepal, before 2066 BS all project were done by traditional hardcopy system. Later than 2066 BS to 2074 BS all activities of organization were done by individual web portal which is as a single portal of this organization. After 2074 BS all activities of organization are done by e-GP portal which is a single portal of GON under PPMO.

In Nepal most of the building construction projects are constructed under the DUDBC. Before 2066 BS all project was done by traditional hardcopy system. Later than 2066 BS to2074 BS, all activities of DUDBC were done by www.edudbc.gov.npweb portal which is a single portal for DUDBC. Now after 2074 BS all activities of DUDBC are done by e-GP portal which is a signal portal of all different sector of development to non-development activities for purchasing of goods, works and services. e-GP acts as a main door for different sector of country. The activities of e-GP are monitoring and evaluation by Public Procurement Monitoring Office (PPMO, 2018).

Statement of the Problem

Nepal is a developing country where various infrastructure and procurement process are ongoing in a rapid pace. The improper procurement and documentation system has increased the problem of time, cost overrun and various other issues like collusion, intimidation, difficult access of bidders in procurement and curtail.

e-procurement have numerous advantages over tradition procurement system like paperwork reduction, less errors, easy recording, original information, and easy inventory management with quicker delivery for successful implementation of project.

Despite of numerous advantages of e-procurement, it is still not under effective implementation due to various reasons. The system error due to disturbances in server and internet and the difficulties in uploading large sized file are the major problems reducing the effectiveness of e-procurement in Nepal. In addition to this, lack of technical capacities, delay in response from PPMO is also the problems related to the use of e-procurement system. If the problems are not solved quickly then we would not be able to take the scent percent merits of e-procurement.

Based on the discussion above, the purpose of this study is to achieve insight in the procurement in DUDBC and the effectiveness on the DUDBC, thus the research problem is 'To analysis the effectiveness of e-procurement in DUDBC'.

Research Objective

General Objectives

- The overall objective of this study is to assess the existing e-procurement system and its effectiveness.

Specific Objectives

- To find out the existing implementation status of e-GP system in DUDBC
- To find out the stakeholder's perspective on effectiveness of e-procurement system.
- To recommend, areas of future improvement of e-procurement system in DUDBC.

Significance of the Study

This study mainly focuses to assess the effectiveness of e-procurement system and to recommend any areas of improvement in the existing one. There are few relevant studies and analysis made upon the particular topic. The study will help to draw some conclusions and recommendations which will be beneficial for the policy makers, planners, and engineers who are involved in the field of procurement process and construction. It is very essential to conduct the study in order to identify the role and contribution of e-procurement practices in effective implementation of infrastructure and development sector.

Research Questions

The research has been based on the following questions:

- What is the implementation status of e-GP in DUDBC?
- What is the stakeholder's perspective on significance of e-procurement in promoting effectiveness, efficiency and transparency in public procurement?
- What are the shortcomings of the existing system and how it can be made more effective?

Scope and Limitation of Research

Scope:

The implementation status of e-GP, procurement process, effectiveness of e-procurement and the areas of improvement was studied in detail. The study was carried out in relation to the various views of different user under department of urban development and building construction (DUDBC), NEPAL. Since e-GP is procurement system and the stakeholders are almost common, this can be same in other cases as well.

Limitation:

The study is focused on the case of DUDBC only because of which it may not resemble with the overall effectiveness of e-GP procurement process of entire public entity. The representations for contractors in this study are those who worked for DUDBC in building construction project. In addition to this, time limitation, financial constraints as well the limitation of data were also common during the whole study process.

II. MATERIALS AND METHODS

Study Area

The study area is Department of Urban Development & Building Construction (DUDBC) which is situated in Babarmahal, Kathmandu, Nepal. The objectives of DUDBC can be defined in terms of objectives of the three divisions. They are:

- Housing Division
- Building Construction Division
- Urban Development Division

Sampling Method

A self-administered questionnaire was developed for data collection. There were 3 different sets of relevant questionnaire for different respondents. The primary data was collected mainly through questionnaire

survey, interview, focus group discussion and practical observation of e-procurement process. The statistics and background of the respondents are mentioned below:

- Trainee of the e-GP procurement system, staff of DUDBC from different division office (Total population 52, Sample size 30).
- Officer of DUDBC (Total population 61, Sample size 32).
- Officer PPMO (IT department officer, goods department officer and work department officer) (Total population3, sample size 3).
- Class 'A' Bidder registered in DUDBC (Total population 262, sample size 54).

Table 1: Professional background of Respondents

Professional background of Respondents	Population size	Sample size	Percent of sample size
DUDBC trainee	52	30	25.21
DUDBC officer	61	32	26.89
DUDBC registered bidder class A)	262	54	45.38
PPMO officers	3	3	2.52
Total	385	119	100

Source: Field survey, 2018.

Sample Sizes

A total of 119 respondents were interviewed from different background responsible for construction and procurement process, trainee of e-GP procurement system given by NHSSP (a national programme funded by DFID) under MOHP, and relevant officer from PPMO

Cochran equation as given below is used to calculate sample size with 90% confidence level and confidence interval of 10. This sample was taken for the selection of all sample size.

For a finite sample,

$$n_0 = \frac{Z^2 pq}{e^2} \qquad n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

This formula is modified as

Here,

n_0 = Size of infinite population,

Z = Area of normal curve and its value is 1.64 for 90% confidence level.

e = Desired level of precision (Confidence interval) p = Estimated proportion of an attribute that is present in the population, and q is 1-p.

N= Population Size

Since the variability in the proportion is not known, therefore, maximum variability of 0.5 (i.e. p=q=0.5) is assumed.

Nature of data

Primary Data

The data is control and supervise by investigator. Researcher will be used self-prepared questionnaires. Direct interviews will be collected from the resource person engaged on the project as the engineer / bidding document maker/ tender document maker / project manager / procurement officer, contractor, consultant and the client.

Secondary Data

Secondary data is the data collected by someone else before the research starting. It is interpretation of the primary data. Secondary data will be collected by published statistical data from the sources, paper media, internet, journal articles, government reports, books, government records, budget freeze list; variation of project could be taken from the responsible project agencies. It is always useful to the user because it saves time and efficiency of the user. These all data could be used to analyze the reason of project delay, budget freeze and cost fluctuation in any project.

Data analysis

Both qualitative and quantitative methods were adopted for primary and secondary data collection. The qualitative research aims to provide new knowledge about how things work in real- life business context relies on several methods of data collection and analysis based on experiences. The empirical data was collected through interviews.

The essential information related to the research problem was identified by focusing and reducing the data. Finally, when all the data was thoroughly analyzed and focused to answer the research questions, the last part was drawing conclusions.

Research process

To achieve the objective, study was carried out upon the data collected from primary and secondary sources. Questionnaire surveys, focus group discussions, review of available literature and documents from DUDBC, PPMO and NHSSP/MOH were studied for the research.

Methodological framework

For the purpose of research plan or to obtain the findings from the systematic structured way of collecting the primary data and the secondary data from the online/offline sources with the methodological framework has been described here. The research framework for the proposed study is shown in Figure 1.

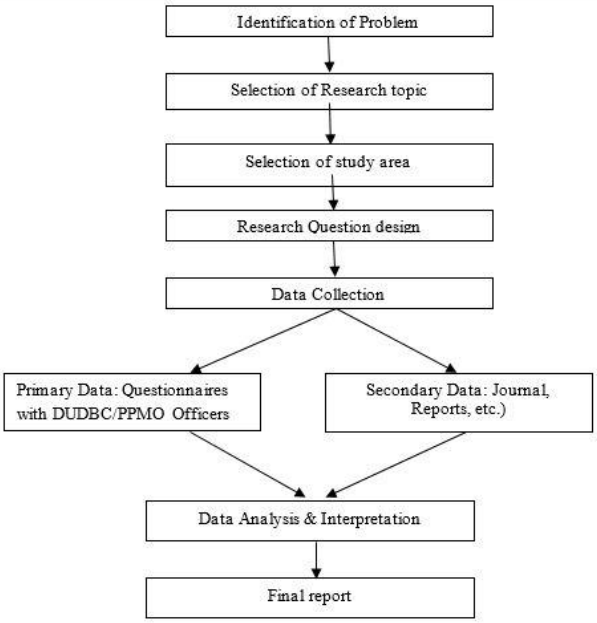

Figure 1

Ethical consideration

Ethics refers to the standard that distinguish between wrong and right conducts which to distinguish between acceptable and unacceptable behaviors while conducting a research. The public and the reader wants to get confirm upon the ethical conduct of researcher regarding the issues such as human rights, compliance with the law, conflicts of interest and so on. Ethical issues are essential in all type of research regardless of the type of research.

Similarly, the proposed study is concerned with the issues of public procurement. While collecting the primary data have to deal with all the types of people irrespective of their thought, views, experience, qualification and so on respecting their autonomy and dignity considering the maximum benefits to the research participants. In addition to this, the participants from those groups of people will be selected whom the research will benefit following the guiding principles of "Do no Harm".

III. RESULTS AND DISCUSSION

PROCUREMENT IN DUDBC: ORGANIZATION OVERVIEW

Department of Urban Development and Building Construction DUDBC), Babarmahal, Kathmandu is one of the largest public sector organizations in Nepal entrusted for planning and implementation of Housing Division, Building Construction Division and Urban Development Division's infrastructure development

programs. DUDBC works closely with the local stakeholders to ensure people's participation and bottom–up planning in all stages of project implementation cycle. DUDBC promotes labor-based technology to create employment opportunity at local level and uses local materials in construction and maintenance to optimize the project implementation cost with preserving the desired quality.

DUDBC is highly decentralized organization where ninety-nine percent of total manpower works at District level. The Director General is the head of the organization supported by six Deputy Director, sixteen section chief with forty officer engineer with subsequent supporting manpower. The total manpower is under permanent payroll is 111 at DUDBC headquarters.

The function and responsibilities of DUDBC are:
Formulation, planning &implementation of housing plans and policies
Design construction, repair and maintenance of the government buildings
Roles and Responsibility of DUDBC and its Institutional Set-up
The long term vision of the department is:
Safe, economical and environmentally friendly building construction
Affordable housing
Sustainable urban development
Development and management of local infrastructure for increasing farm/non-farm production, generating employment, improving socio-economic condition, promoting local governance, reducing poverty and acting as agent of change at the local level.

Application of knowledge into working area

PPMO and NHSSP/MOHP jointly provided training of e-GP for DUDBC staff in two different events in 15th to 18th May 2018 and 21 to 24th May 2018. The main focus of this training was to provide e-GP knowledge to all trainees as a part of capacity enhancement program. The total numbers of trainee were 52 and sample size calculated as 30. PPMO announced that all project should be done by e-GP system from 17 July, 2018. Table 2 shows the percentage of trainees who applied the knowledge in their working area.

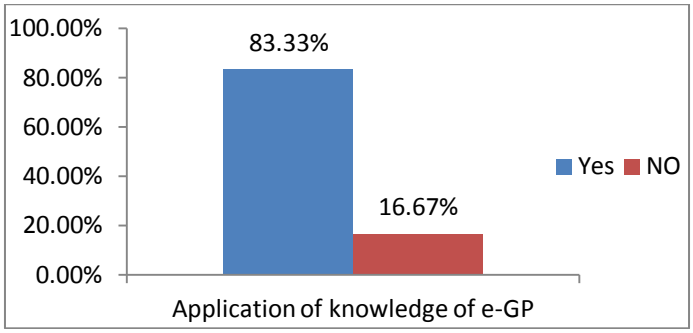

Figure 2: Application of knowledge into working area

The table 2 and figure 2 provides the information about the percentage of respondents who applied the knowledge from the training program into their areas of work. Majority of the trainee responded with 83.33% has applied the knowledge gained from training program and remaining 16.67% of trainee did not.

4.2.2 Number of Project carried out after e-GP Training

The PPMO announcedthat all project and its procurement should be done by e-GP system from 2075/04/01. The number of projects where the trainee applied their knowledge obtained from e-GP training is shown in table 2 and figure 2.

Table 2: Number of projects done after taking e-GP training knowledge

Number of project done by trainee	Number	Percent
0	5	16.67
1-3	16	53.33
>3	9	30
Total	30	100.0

Source: Field Survey, 2017.

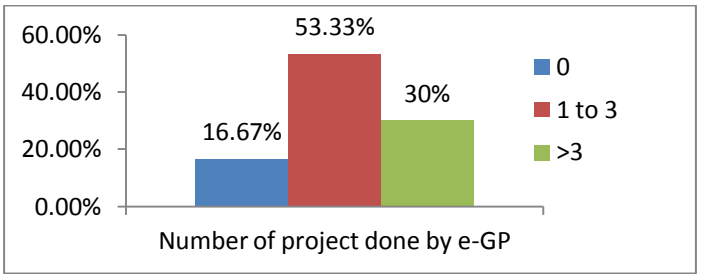

Figure 3: Number of projects done after taking e-GP training knowledge

Table 2 and figure 3 shows that majority 83.33% have a carried out at least one project after getting e-GP training and minority 16.67 % have not carried out any project through e-GP. The training program was essential to increase capacity of DUDBC divisional officers for carrying e-GP.

4.2.3 Types of procurement

There are different types of procurement depending upon the nature of projects which are work, goods and services. Table 3 shows the ratio of application of training knowledge into various working areas namely goods works and services.

Table 3: Application of knowledge in to working area

Types of procurement	Number	Percent
Works	25	100
Goods	0	0
Services	0	0
Total	25	100

Source: Field Survey, 2018.

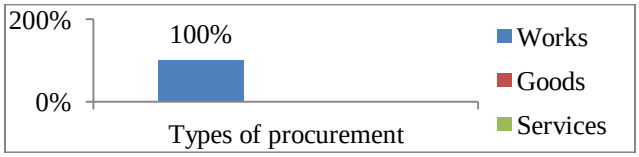

Figure 4: Types of procurement

The table 3 and figure 4 provides information on the type of procurement that respondents carried out after getting training program on e-GP. 25 respondents out of 30 respondents have carried out procurement through e-GP system. Out of 25 respondents, 100% utilized them the knowledge of e-GP System for the procurement of works. Other remaining types of procurement like goods and services were not actually done.

4.2.4 Types of projects

The objective of this questionnaire was to assess natureand types of projects like construction of government building, community building and urban infrastructure that trainee carried out through e-GP system utilizing training knowledge. The type of project respondents did using e-GP procurement system is shown in table 4 and figure 3.

Table 4: Types of project done by e-GP system

Types of projects	Number	Percent
Government building	23	92
Community building	0	0
Urban infrastructure	2	8
Total	25	100

Source: Field Survey, 2018.

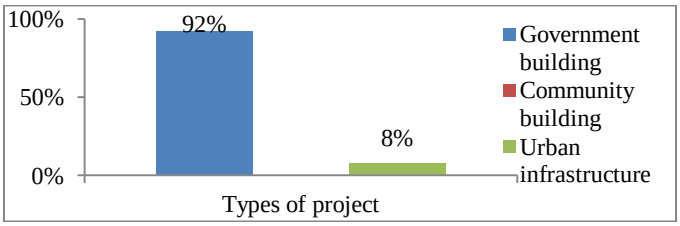

Figure 5: Types of project done by e-GP system

The table 3 and figure 5 provide the information about the type of project that respondents carried out using e-GP system. Out of 25 respondents who carried out procurement through e-GP system, 92% have carried out government building project and 8% respondent for urban infrastructure and none for community buildings.

4.2.5 Benefit of e-GP system

There are several benefits of using e-GP system. Among them some important ones were highlighted by the respondents. The benefits of using e-GP system as responded by interviewees have been highlighted in table 5 and figure 6.

Table 1: Benefit of e-GP

Benefit of e-GP	Number	Percent
Transparent	12	40
Competitive	4	13.33
Fast process	6	20
Collusion, intimidation and manipulation free	8	26.67
Total	30	100

Source: Field Survey, 2018.

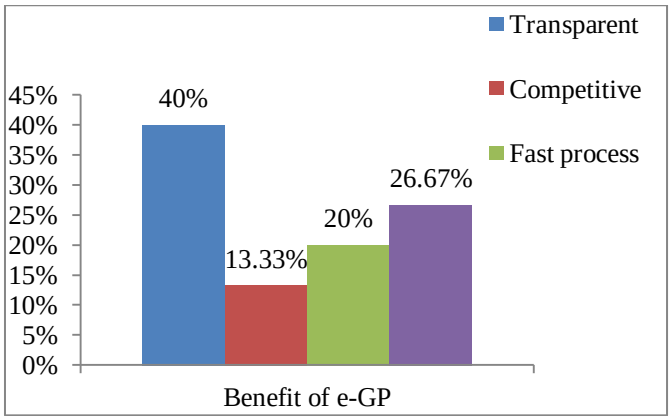

Figure 6: Benefit of e-GP as

The table 5 and figure 6 provides the information that the trainee responded about the benefit of using e-GP system. The majority of 40% have highlighted transparent andCollusion, intimidation and manipulation free as benefit of e-GP by 26.67% respondent. The 20% responded is the fast process and competitive by 13.33% respondent.

4.2.6 Familiarity of Bidders with e-GP

The familiarity of bidders to e-GP system is most essential part of its effectiveness. The numbers of bidders who are or are not familiar with e-GP is shown in table 6.

Table 6: Familiarity of bidders with e-GP

Familiarity of bidders with e-GP	Number	Percent
Yes	23	76.66
No	7	23.34
Total	30	100

Source: Field Survey, 2018.

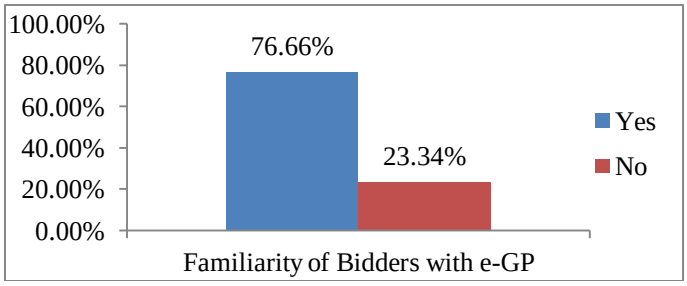

Figure 7: Familiarity of Bidders with e-GP

The table 6 and figure 7 provides the information about the benefit of e-GP system. Out of the trainee who responded, maximum 76.67% are familiar with e-GP system and remaining 23.33% are not familiar with e-GP system and process. It shows that maximum is familiar with the system and usage process of e-GP.

4.2.7 Bidders response

The feedbacks from bidders after using e-GP system could be both positive and negative.The feedback both positive and negative obtained from bidders as perDUDBC staff has been presented in table 7 and figure 8.

Table 7: Positive aspects of using e-GP

Positive response by bidder	Number	Percent
Trustable	13	43.33
Less paper work	2	6.67
Easy for information	10	33.33
Time saving	5	16.67
Total	30	100

Source: Field Survey, 2018.

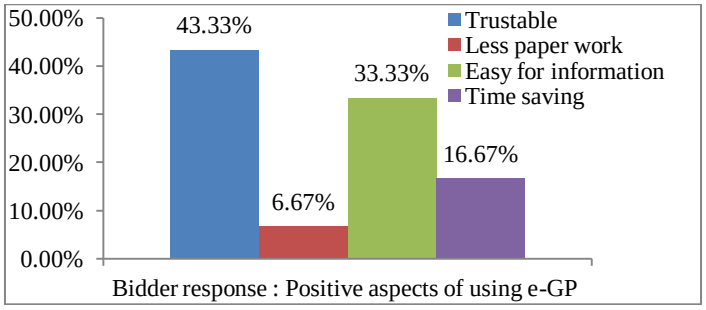

Figure 8: Positive aspects of using e-GP

The table 7 and figure 8 provide information about the positive response made by bidder after using e-GP system as obtained by DUDBC. Majority of respondent with 43.33% marked e-GP as trustable and 33.33% marked e-GP as easy for information access. The remaining 16.67% and 6.67% highlighted time saving and less paper work.

Negative aspects of using e-GP

Among all negative response that the DUDBC staffs are getting through the bidders after using e-GP system have been highlighted in table 8 and figure 9.

Table 2: Negative aspects of using e-GP

Negative response by bidder	Number	Percent
Lack of resources	5	16.67
Internet problem	20	66.67
Insufficient training	2	6.66
Delay response by PPMO	3	10
Total	30	100

Source: Field Survey, 2018.

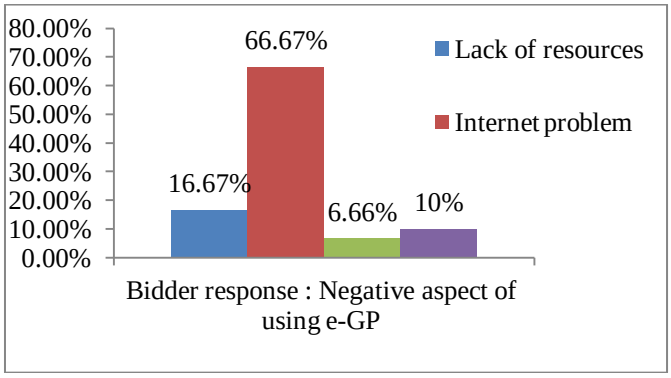

Figure 9: Negative aspects of using e-GP

The table 8 and figure 9 provides the information about the negative response of bidder about using e-GP system. Majority 66.67% responded internet problem as the highlighted negative aspect. Likewise, 16.67% responded lack of resources, 10% responded delay in response from PPMO and 6.66% as insufficient training.

4.2.8 Limitation of e-GP recorded by trainee

The e-GP system could have both pros and cons. The limitations of e-GP as responded by trainee have been highlighted in table 9 and figure 10.

Table 9: Limitation of e-GP recorded by trainee

Limitation of e-GP	Number	Percent
Process oriented	5	16.67
Difficult to verify all document	6	20
System error	15	50
Tedious in uploading specially large volume of drawing)	4	13.33
Total	30	100

Source: Field Survey, 2018.

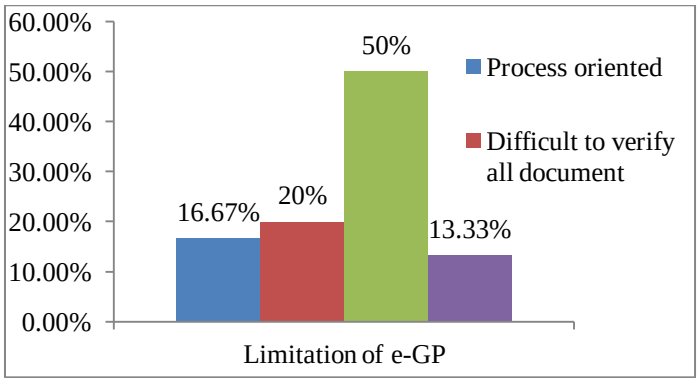

Figure 1: Limitation of e-GP

The table 9 and figure 10 provides the information about the limitation of e-GP system. Out of the trainee who responded, majority with 50% have marked system error, 20% stated difficult to verify all document, process oriented e-GP system by 16.67% and 13.33% stated tedious in uploading especially large sized file.

4.2.9 Area of improvement of e-GP

The trainees havesuggested the areas of improvement of e-GP to increase its effectiveness. The areas of improvement are mentioned in table 10 and figure 11.

Table 3: Area improvement of e-GP

Area of improvement of e-GP	Number	Percent
Make user friendly	14	46.67
Solve server problem	6	20
Improve software	8	26.67
Increase capacity of software	2	6.66
Total	30	100

Source: Field Survey, 2018.

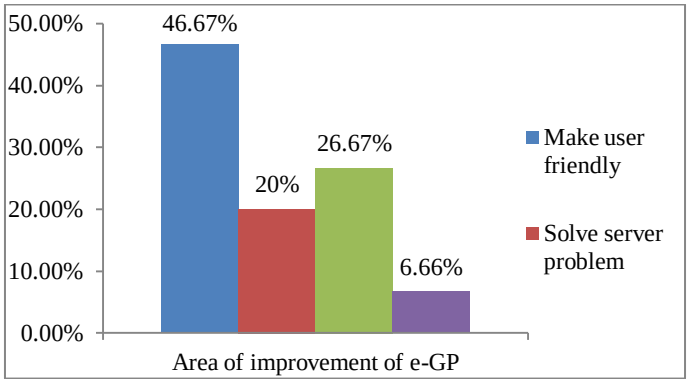

Figure 2: Area of improvement of e-GP

Table 10 and figure 11 provides the information about the improvement in the field of e-GP system suggested by the e-GP trainee. Majority 46.67% suggested to make the system user friendly e-GP system and 26.67% suggested some improvement in software system. The remaining 20% suggested to solve existing server problem of e-GP whereas 6.66% to increase capacity of software.

4.3 DUDBC officer as Respondents

A different set of questionnaire was developed for DUDBC officer and the data obtained have been analyzed and discussed below.

4.3.1 Benefit of e-GP as per respondent

The response obtained while the respondents were asked about the benefits of using e-GP is shown in table 11 and figure 12.

Table 4: Benefit of e-GP

Benefit of e-GP	Number	Percent
Transparent	12	37.5
Competitive	5	15.62
Fast process	7	21.88
Collusion, intimidation and manipulation free	8	25
Total	32	100

Source: Field Survey, 2018.

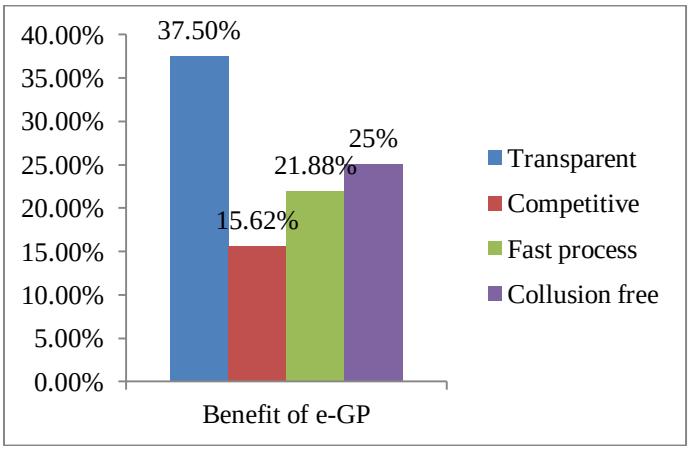

Figure 3: Benefit of e-GP

The table 11 and figure 12 provides the information about the benefit of e-GP system as per the DUDBC officer. Maximum 37.5% told the transparency of e-GP system as the main benefit whereas 25% feel collusion, intimidation and manipulation free. The remaining 21.88 % and 15.62% responded fast process of e-GP andfairly competitive as the benefit.

4.3.2 Sufficiency of e-GP single portal

e-GP system is a one door system. It is implemented by PPMO. The response over the adequacy of the e-GP single portal system is shown in table 11 and figure 12.

Table 51: Sufficiency of e-GP single portal

e-GP single portal is enough or not	Number	Percent
Yes	28	87.5
No	4	12.5
Total	32	100

Source: Field Survey, 2018.

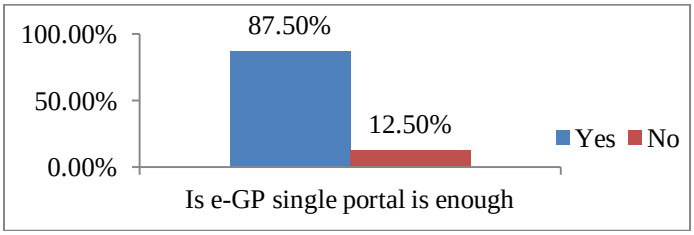

Figure 12: e-GP single portal is enough or not

The table 11 and figure 12 provides the information about whether or not the single e-GP portal is enough. Maximum 87.5% of respondent feel that e-GP single portal is enough and remaining 12.5% feel single portal of e-GP is not enough.

4.3.3 Rationale behind adopting e-GP

The rationale behind adopting e-GP single portal is shown in table 12.

Table 6: Rationale behind adopting e-GP

Rationale/s behind adopting e-GP	Number	Percent
For fair decision making	11	34.37
For safety of document	7	21.88
Technological adoptive	5	15.63
For one door control and monitoring system	9	28.12
Total	32	100

Source: Field Survey, 2018.

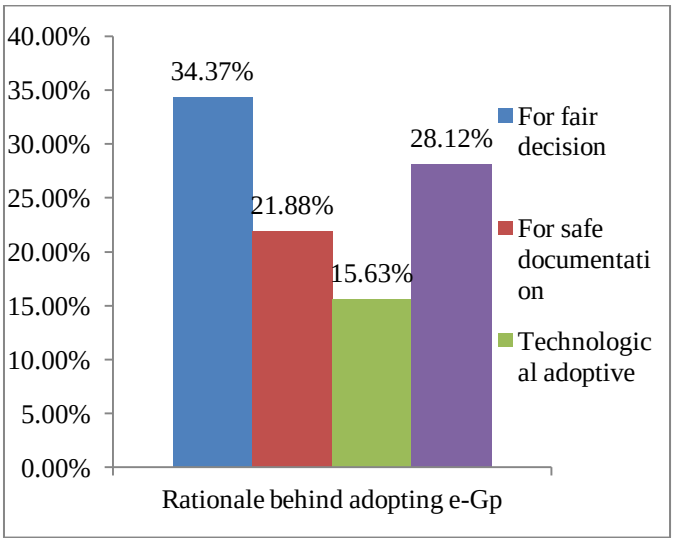

Figure 4: Rationale behind adopting e-GP

The table 12 and figure 13 provide information about the rationale for adopting e-GP portal. Majority with 34.37% state fair decision making process, 28.12% for one door control and monitoring system of e-GP, 21.88% stated for safe documentation and 15.63% for technological adoptive.

4.3.4 Response DUDBC officer about the aspects of e-GP system

Positive aspects of e-GP system

The both positive and negative feedbacks from DUDBCOfficer after using e-GP system been presented in table 13 and figure 14.

Table 13: Positive aspects of e-GP as per DUDBC Officer

Positive response by bidder	Number	Percent
Trustable	13	40.62
Less paper work	6	18.75
Easy for information	5	15.63
Time saving	8	25
Total	32	100

Source: Field Survey, 2018.

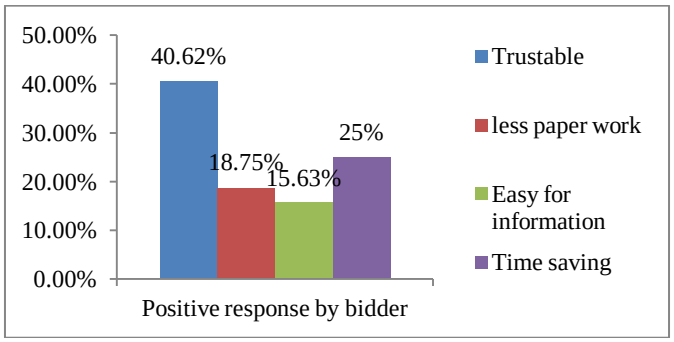

Figure 5: **Positive aspect of e-GP as per DUDBC Officer**

The table 13 and figure 14 provides the information about the positive aspects of using e-GP system. Majority of respondent with 40.62% have stated e-GP as trustable mechanism, 25% respondent have stated e-GP as time saving system than paper documentation. The remaining 18.75%, 15.63% respondent have stated less paper work and easy for information as the positive aspects of using e-GP.

Negative aspects of current e-GP system as per DUDBC Officer

The negative aspects of using e-GP system have been presented in table 14 and figure 15.

Table 7: Negative aspects of current e-GP system as per DUDBC Officer

Negative response by bidder	Number	Percent
Lack of resources	7	21.88
Internet problem	8	25
Insufficient training	11	34.37
Delay response by PPMO	6	18.75
Total	32	100

Source: Field Survey, 2018.

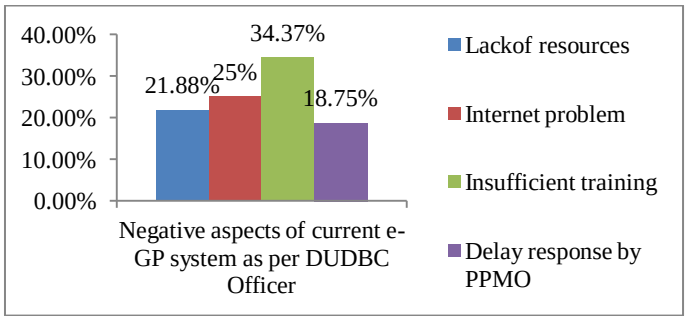

Figure 15: Negative aspects of e-GP system

Table 14 and figure 15 provides the information about the negative response that DUDBC officer highlighted about e-GP system. Maximum of 34.37% stated that insufficient training as the negative aspect of current e-GP system whereas 25% stated internet problem. The remaining has stated 21.88% due to lack of resource and 18.75% due to delay response by PPMO.

4.3.5 Limitation of e-GP

The Limitation of current e-GP system has been highlighted in table 15 and figure 16.

Table 15: Limitation of e-GP

Limitation of e-GP	Number	Percent
Process oriented	8	25
Difficult to verify all document	7	21.87
System error	5	15.63
Tedious in uploading specially large volume of drawing)	12	37.5
Total	32	100

Source: Field Survey, 2018.

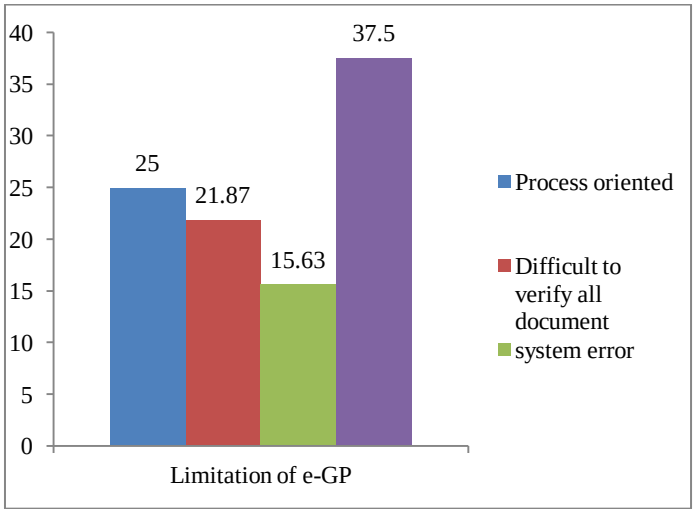

Figure 6: Limitation of e-GP

The table 15 and figure 16 provides information about the limitation of current e-GP system. Majority with 37.5% have responded about difficulty of uploading file of large size, 25% responded e-GP is process oriented and the remaining types 21.87% ,15.63% stated difficult file verification, system error as the limitation of current e-GP system.

4.3.6 Problem encountered during implementation of e-GP

The problem found by officers after using e-GP is. Among all problems which is more affecting is found after asking DUDBC staff as per their experience. The trainee size of respondents is shown in table 16.

Table 8: Problem encountered during implementation of e-GP

Problem encountered during implementation of e-GP	Number	Percent
Disappearing of upload document	5	15.62
While downloading from system of DUDBC, some of the uploaded document comes blank. However it is seen from the system of PPMO	12	37.5
Sometime technical and financial proposal can be seen in the period of technical bid opening	8	25
System failure	7	21.88
Total	32	100

Source: Field Survey, 2018.

The table 16 and figure 17 provide information about the limitation of existing e-GP system. Majority with 37.5% have stated the problem of blank documentation during the time of downloading from system of DUDBC although it has been uploaded.25% responded the error in viewing the file during the bid opening as the limitation of e-GP. The remaining 21.88% and 15.62% responded that system failure and disappearing of upload document as the limitation of e-GP in the current status.

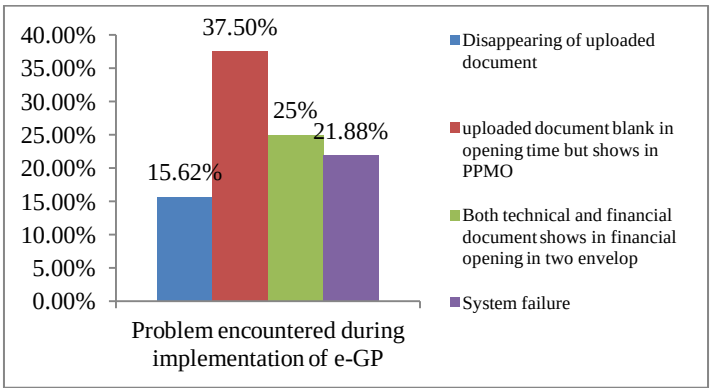

Figure 7: Problem encountered during implementation of e-GP

4.3.7 Response from different stakeholders to e-GP system

The response from different stakeholders such as banking sector and oversight agency after using e-GP system has been mentioned in table 17 and figure 18 and 19.

Table 17: Response from different stakeholders to e-GP system

Response from different stakeholders to e-GP system	Number	Percent
i) Banking Sector		
Response in time	9	28.12
Delay response	14	43.75
Information leakage	6	18.75
Fraud document	3	9.38
Total	32	100
ii) Over sight agency:		
More transparent way	8	25

positive	14	43.75
System audit is accessible and easy	6	18.75
Over site agency are not competent to over site the system	4	12.5
Total	32	100

Source: Field Survey, 2018.

The table 17, figure 18 and figure 19 provides the information about the response of different stakeholder.
For banking sector: majority with 43.75% have stated delay response delay response by bank and 28.12% stated the responseis on time, 18.75% stated the worry about the chances of information leakage and chances of fraud document by 9.38% respondents.
For over sight agency: Majority with 43.75% among the responders of over sight agency have positive response and 25% stated e-GP as more transparent way, 18.75% stated that system audit of e-GP is accessible and easy. Finally, 12.5% of over site agency are not competent to the system.

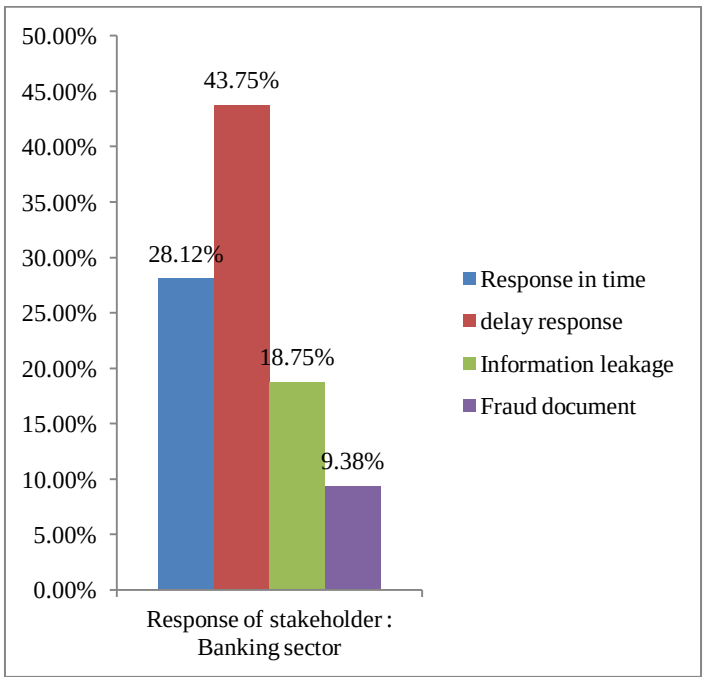

Figure 8: Response of stakeholder: banking sector

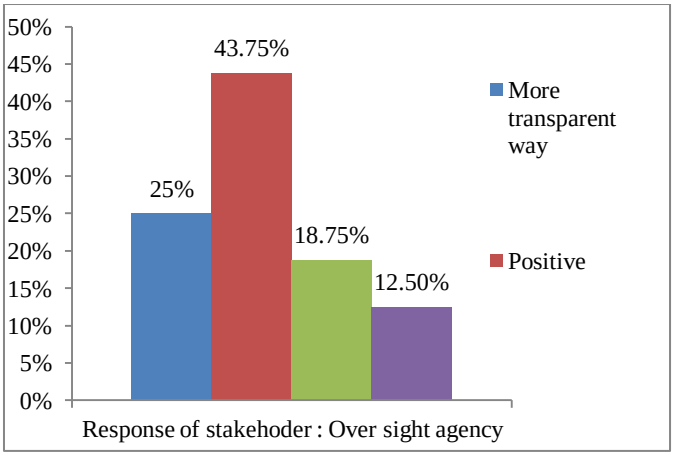

Figure 19: Response of stakeholder: Over sight agency

4.3.8 Mitigation measures to the existing problem of e-GP system

The reliable mitigation measures of the existing problems of e-GP from the view of different stakeholders have been presented in table 18, figure 20 and figure 21. The solutions were drawn after asking with the DUDBC Officer.

Table 18: Mitigation for different stakeholders to e-GP system

Mitigation for different stakeholders to e-GP system	Number	Percent
iii) Banking Sector		
Tie up the uploaded bid guarantee	7	21.87
Fixed time to react them.	3	9.38
There should not be limited bank	13	40.63
PPMO should direct all participation banks for earlier response	9	28.12
Total	32	100
iv) Over sight agency:		
Provide easy for check for all uploaded document	12	37.5
Provide training for them how to monitoring	6	18.75
Encourage for maximum participation	10	31.25
Reward system for their positive response	4	12.5
Total	32	100

Source: Field Survey, 2018.

For banking sector: majority with40.63% suggested that for the financial procedures there should not be limited bank,28.12% suggested that PPMO need to direct all participating banks for earlier response.21.87% suggested to tie up the uploaded bid guarantee and 9.38% suggested to have a fixed time to react upon.

For over sight agency: Majority 37.5% suggested to make checking and uploading process easier, 31.25% suggested to encourage for maximum participation of over sight agency, 18.75% suggested to provide the training upon the monitoring systems and 12.5% suggested to establish a rewarding system for the quick response.

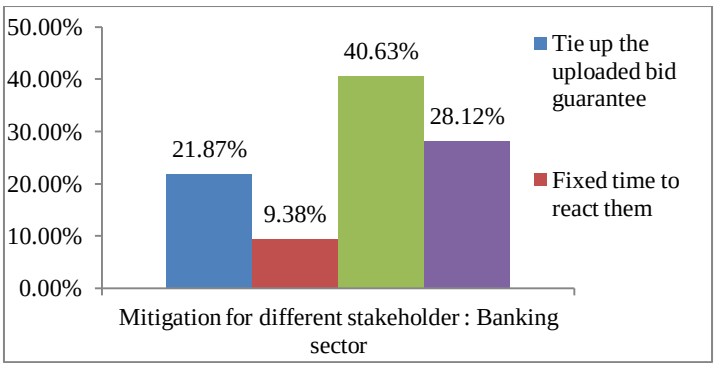

Figure 9: Mitigation for different stakeholder: Banking sector

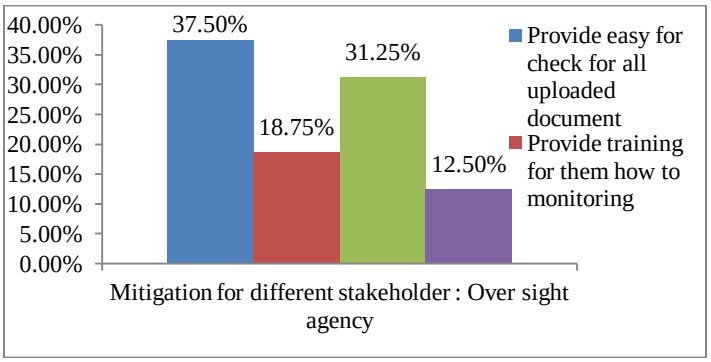

Figure 10: Mitigation for different stakeholder: Over sight agency

4.3.9 Area of improvement of e-GP system

The area of improvement of e-GP as suggested by DUDBC Officers on the basis of their experience is mentioned in table 19 and figure 22.

Table 9: Area of improvement to e-GP system

Area of improvement to e-GP system	Number	Percent
Sufficient internet facility urban to remote area	12	37.5
24 hours helpline should provide for bidder	6	18.75
System online) evaluation should be made	10	31.25
System should be made more user friendly	4	12.5
Total	32	100

Source: Field Survey, 2018.

The table 19 and figure 22 provides the information about the improvement in the field of e-GP system on the basis of the suggestions of DUDBC Officers. Majority with 37.5% suggested in the management of sufficient internet facility from urban to remote area, 31.25% suggested improvingonline system evaluation. The 18.75% of respondents suggested making arrangement for 24 hours' helpline facility and 12.5% respondent suggested to make the system more users friendly.

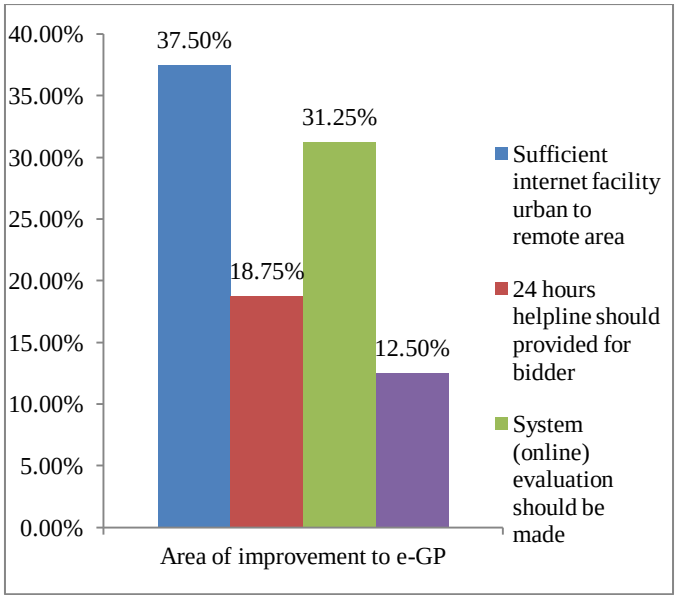

Figure 11: Area of improvement to e-GP

e-GP system is transparent and fast method over traditional manual method. However, contractors should be trained to upload only required document as per the provided bidding document. Also for traditional period it is good to submit the hardcopy as uploaded soft copy.
e-GP procurement system has been effective in promoting transparency in procurement process. It is equally important for enhancing efficiency and effectiveness of the public procurement process. It provides access to all bidders there by providing equal opportunity to all bidders.

4.4 Bidder who are registered in DUDBCoffice as Respondents

4.4.1 Benefit of e-GP

The benefit of using e-GP as per bidders registered in DUDBC office is mentioned in table 20 and figure 23.

Table 20: Benefit of using e-GP

Benefit of e-GP	Number	Percent
Trustable	21	38.89
Less paper work	7	12.96
Easy for information	15	27.78
Time saving	11	20.37
Total	54	100

Source: Field Survey, 2018.

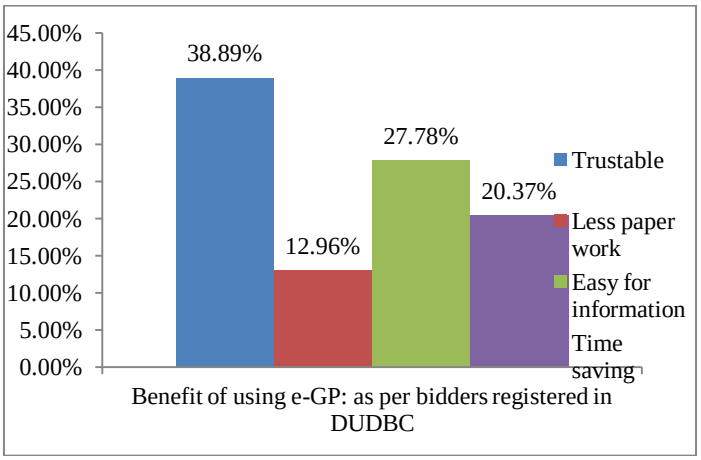

Figure 23: Benefit of e-GP: as per bidders registered in DUDBC

Table 20 and figure 23 elaborates the various benefits of e-GP system as stated by the bidders who are officially registered in DUDBC. Majority 38.89% of respondents stated that e-GP system is trustworthy enough. Likewise, 27.78% respondents stated that it is a good platform for information sharing and 20.37% stated time saving as the major benefit of e-GP.

4.4.2 Sufficiency of e-GP single portal

e-GP system is a one door system. It is implemented by PPMO. The response over the adequacy of the e-GP single portal system is shown in table 21 and figure 24.

Table 10: Sufficiency of e-GP single portal

e-GP single portal is enough or not	Number	Percent
Yes	43	79.63
No	11	20.37
Total	54	100

Source: Field Survey, 2018.

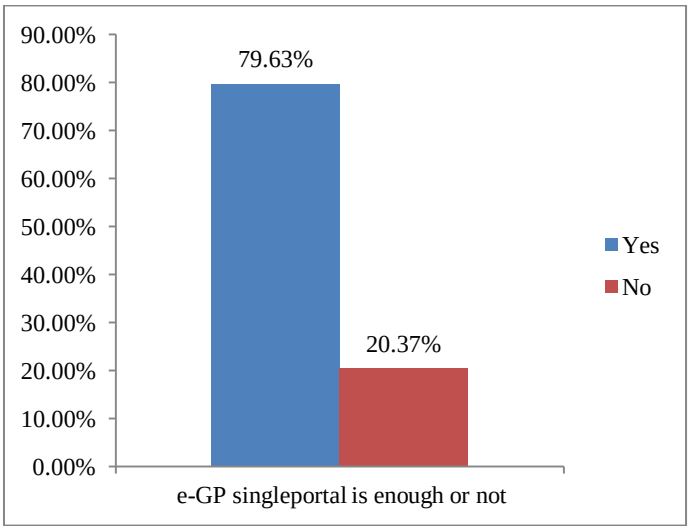

Figure 12: Sufficiency of e-GP single portal

The table 21 and figure 24 provides the information whether or not the single e-GP portal is enough. Maximum 79.63% feel that the e-GP single portalis enough and 20.37% feel single portal of e-GP is not enough.

4.4.3 Limitation of e-GP

The limitations of e-GP system as per the bidders officially registered in DUDBC are elaborated in table 22 and figure 25.

Table 11: limitation of e-GP

Limitation of e-GP	Number	Percent
Process oriented	8	14.82
Difficult to prepare document	10	18.52
System error	13	24.07
Tedious in uploading	23	42.59
Total	54	100

Source: Field Survey, 2018.

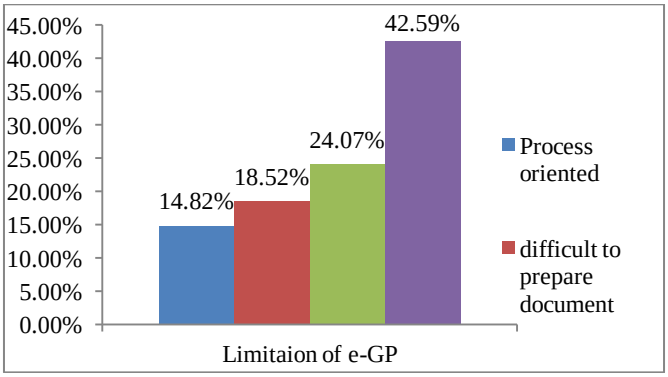

Figure 13: Limitation of e-GP

Table 22 and figure 25 shows the limitation of e-GP as per the responses by bidders which are officially registered in DUDBC. Majority 42.59% respondents highlighted the difficulties of uploading large sized file. Similarly, 24.07% stated the problem of system error and 18.52% stated difficulties in preparation of documents. Finally, remaining complained that the e-GP system is process oriented.

4.4.4 Problem encountered during implementation of e-GP

The problems encountered by bidders during the use of e-GP system are illustrated in table 23 and figure 26.

Table 23: Problem encountered during implementation of e-GP

Problem encountered during implementation of e-GP	Number	Percent
Disappearing of upload document	12	22.22
While downloading from system of DUDBC, some of the uploaded document comes blank. However it is seen from the system of PPMO	8	14.82
Sometime technical and financial proposal can be seen in the period of technical bid opening	10	18.52
System failure	24	44.44
Total	54	100

Source: Field Survey, 2018.

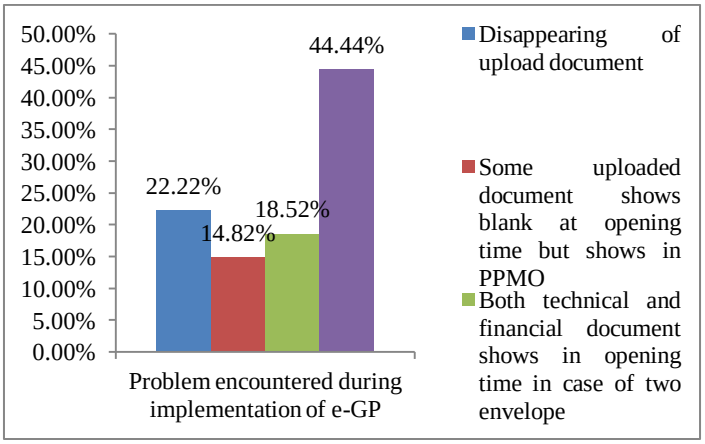

Figure 14: Problem encountered during implementation of e-GP

Table 23 and figure 26 illustrates the various problems encountered by bidders during, before, after the tender submission using e-GP. Majority 44.44% have the problems of system failure whereas 22.22% have the problem of document that disappears even after submission. 18.52% of respondents have the problem of vanishing of technical and financial proposal in the meantime of tender opening. Remaining 14.82% respondent have suffered from the problem of bank document even after the submission but that document appears in PPMO.

4.4.5 Area of improvement to e-GP system

The areas of improvement of e-GP as per the bidders on the basis of their experience are highlighted in the table 24 and figure 27. Despite numerous benefits there is some suggestion s for the improvement in the system.

Table 12: Area of improvement of e-GP system

Area of improvement to e-GP system	Number	Percent
Sufficient internet facility urban to remote area	21	38.89
24 hours helpline should be provided for bidder	17	31.48
System for online evaluation should be made	7	12.96
System should be made more user friendly	9	16.67
Total	54	100

Source: Field Survey, 2018.

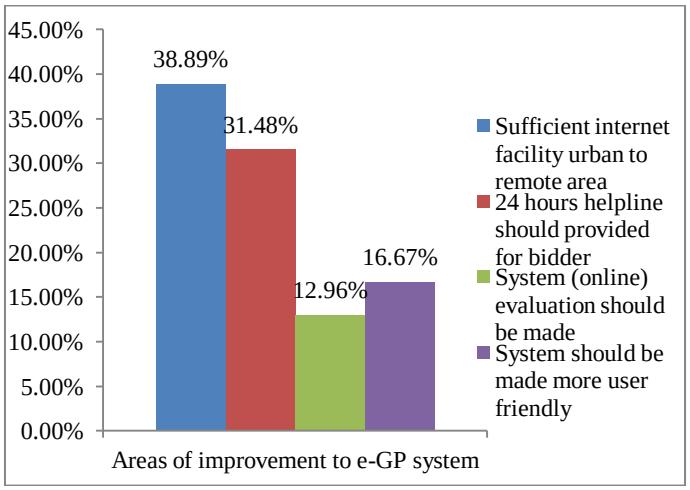

Figure 15: Areas of improvement to e-GP system

For the given questionnaire, most of respondents with 38.89% were worried about the reliability of internet facility in rural areas in comparison to urban areas. Similarly, 31.48 % of respondent suggested for the 24-hour helpline service, 16.67% suggested for making the system more user friendly. Remaining suggested improving the online system evaluation of the e-GP system.

4.5 PPMO officer (open ended questionnaire) (IT department officer, goods department officer and work department officer)

4.5.1 Rational behind adopting e-GP system in procurement

PPMO officer highlighted the following justifications for using the e-GP procurement system.

- Competition
- Transparency
- Fast data analysis
- Minimize collusion
- Improve monitoring and evaluation
- Time saving
- Process efficiency

4.5.2 e-GP system need to emphasize proper procurement documentation

PPMO Officer stated the followings points that need to be emphasized for having proper project documentation.

- It provides systematic documentation platform
- Each and every information will be saved in digital form
- By creating e-GP software
- By uploading the document in PPMO website
- By distributing the data publically

4.5.3 e-GP procurement system directs public entity towards the effective procurement planning

- Provide integrated data of procurement
- Procurement planning phase included in e-GP system without completing this phase are can't move forward for tendering process.
- Provide well format of acts, regulation guideline and documentation of the procurement planning
- Giving act, regulation, guideline and documentation with technical aspect

4.5.4 The laggings in current procurement or guidelines

Not having sufficient guideline for all special documentation
Required more training
Required compressive amendment on public procurement as regulation with international base practice.
e-procurement law
End to end Paperless system)
Institutional problem
Lack of profession

Lengthy process
Training and capacity building can't be appropriate

4.5.5 Response of different sector to e-GP

i)	Banking sector:
a	Co-operative
b	Taking positively
ii)	Over sight agency:
a	Encourage and appreciate
b	Will be included provision not implemented
c	Taking positively

Mitigation in different sector

i) Banking sector:
System integration with banking software
ii) Over sight agency:
Improve PPMIS Public procurement management information system) of e-GP system

4.5.6 Fasten the current e-GP system by

Improve decision capacity of public employee
Improve professional of private sector
Improve e-GP system
Procurement process make more easy
By efficient use of IT digitized procurement)
Adopt short step and reduced lengthy step
Enhancement of the capacity develop of stakeholders

IV. CONCLUSION

The existing implementation status of the e-GP system in DUDBC was found effective. Majority of the trainee who got training from PPMO and NHSSP/MOHP has applied their knowledge and skills in working area.

DUDBC Officials, DUDBC divisional engineers / trainee and contractors are the main stakeholders under study. These all stakeholders are quite satisfied with the current benefits of using e-GP system. Collusion, intimidation and manipulation free, fast process, competitive and transparent are the benefits of using e-GP system. However, there are some limitations on e-GP related to technical limitations like tedious in uploading (especially large volume of drawing), System error, difficult to verify all documents etc.

Contractors and bidders also found the e-GP system effective than manual bidding system. Their perspective highlights the e-GP system as trustable, less paper work, easy for information and time saving. However, some limitations have been pointed out like the e-GP system is process oriented, difficult to prepare document, system error, tedious in uploading documents.

It is seen than the limitations of e-GP have been understood commonly by the government entity and private contractor.

The stakeholder's suggestion in improving the e-GP system is quite foreseeing. The areas of improvement of existing system e-GP system from the finding of study are:

- Sufficient internet facility urban to remote area
- 24 hours helpline should be provided for bidder
- System for online evaluation should be made
- System should be made more user friendly

The roles of third party like Banking sector needs to improve in terms of timely response. It has been found that banks might leak the bidding information in some context, these needs to be control.

Despite the above result was obtained from the study, there is a portal problem in DUDBC. Similarly, there is an internet and server problem in division offices of DUDBC, which has not given the expected outcomes.

V. RECOMMENDATIONS

It could be observed and analyzed from the study that stakeholder's have variant level of understanding in e-GP process. The effectiveness of e-GP procurement process is found effective from the viewpoint of all

stakeholders. The perspective of all respondents towards e-GP is quite good though some recommendations have been drawn which are mentioned as follows:

To increase the participation of the contractors for e-GP, seven different factors has been recommended as:

- Good Governance Leadership
- 24 hours' electricity
- Availability of Bank branches
- Renderers Training
- Simplified software.
- High speed internet service
- Online payment and evaluation

It has been recommended from the study that there is a portal problem in DUDBC so, PPMO has to improve the portal problem in DUDBC. Similarly, internet and server problem in division offices needs to be updated and upgraded from DUDBC for efficient e-GP implementations, which increases the further effectiveness of e-GP system in DUDBC.

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