AN INVESTIGATION INTO THE CAUSES AND EFFECTS OF COST OVERRUNS IN PUBLIC SECTOR INFRASTRUCTURE PROJECTS IN NIGERIA

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Abstract
The economic activities of any country largely depend on its level of infrastructure developments. However, delivery of infrastructure projects is often confronted with challenges such as time and cost overruns that often followed with disputes and litigation. Therefore, this study seeks to investigate the causes and effects of cost overruns in public sector infrastructure projects in Nigeria. A questionnaire survey was structured from literature and administered to civil and structural engineers, architects, quantity surveyors, project managers, contractors within the South-South Geopolitical zone of Nigeria. Data was electronically manipulated using frequency aggregation, mean score method and subsequently ranked accordingly. Findings from the survey results revealed that the major causes of cost overruns in public sector infrastructure projects in Nigeria are bribery and corruption in form of political patronage, frequent design change, contractors' inexperience, the use of traditional procurement method (accepting the lowest tender), change in scope of projects and poor contract management. The findings also indicated major effects such as increased project cost due to extension of time, total project abandonment, disputes and litigation between clients and contractors, effected contractors suffer insolvency or bankruptcy, and wastage of tax payers' money. The study suggests that cost overruns in public sector infrastructure projects could be reduced through visible leadership and commitment. The study recommends further that the use of traditional procurement method in public sector projects should be discouraged and involved designers and suppliers during the early project design stage.

Key words: Cost overruns, development projects, infrastructure, Nigeria.

1.0 Introduction

The public sector infrastructure projects are considered to be the leading drivers of any country's economy development. According to Toor and Ogunlana (2008: 397); Memon et al. (2012:7) the socio-economic growth of any country depends to a large extent on the quality of existing infrastructure facilities such as roads, telecommunication, transportations, electricity, water supply, airports, power stations, hospitals, schools and other infrastructural developments that promotes economic and social welfares of the citizens. Dantata (2007: 72), stressing the importance of quality infrastructure facilities in a country, particularly in the developing nations states that almost all other sectors of the economy depend on its products and services. Towey (2012: 29) simply summed up the importance of public infrastructure facilities to the nations' economic growth and social welfare as the second most important

commodity after food. Thus, the sectors provide the physical infrastructures that are fundamental to the national development.

The sectors also contribute significantly to the county's gross domestic product (GDP) (World Health Organization, WHO, 2012: 13). The wealth of any nation has been linked by the quality and performance of her infrastructural facilities. The WHO (2012:13) further maintains that the socio-economic development of developing nations depends on the quality and availability of public infrastructures. The intangible services provided by the public infrastructure facilities cannot be over emphasized. The public infrastructures have been noted for its immense contributions towards the improvement of citizens' quality of life as creators of wealth. It is, therefore, imperative for all the stakeholders to demonstrate visible leadership and commitment towards all stages of its delivery chain in order to eliminate unnecessary additional costs on the tax payers and reduce the ugly sights of abandoned projects common in our urban cities.

Infrastructure development projects are complex in many respects (Al-Momani, 2000: 54; Morledge and Smith, 2013: 16), and the complexity is compounded by the extensive use of imported technologies that are subjected to foreign exchange monetary policy (Okorie, 2014: 211). In addition, delivery of infrastructure projects generally is influenced by time driven and environmental factors. For instance, one of the environmental influences on the provision of public sector projects is the fiscal and monetary policy that impact on the price of goods and services, particularly the imported materials and technologies. Winch (2010) points out that fluctuation in prices of imported materials and technologies for infrastructure projects development in the developing countries contributed significantly to cost overruns. However, there are other major factors contributing to cost overruns in public sector projects such as corruption (kickback) (Jagboro, 2016: 8), and change in scope of project, inaccurate time and cost estimation, and change of government (Ubani and Ononuju, 2013: 80). Therefore, planning and execution of these projects required prudent management of scare resources both at the design stages and construction phases.

However, many research studies have been conducted on effective management of public sector infrastructure projects for many years, but most projects either failed or suffered cost overruns or total project abandonment. Therefore, this paper builds on previous studies to investigate the causes and effects of cost overruns in public sector infrastructure projects in Nigeria.

2.0 Literature review

2.1 Government as the major client of public sector infrastructural projects

The provision of public sector infrastructure projects is the responsibility of the Local, State and Federal governments of Nigeria. The value and quality of such projects are of particular importance to the governments and her citizens as the initiator and financier. In addition, the governments have roles and responsibilities toward the development and the transformation of the construction industry, including civil and heavy engineering sector (Jagboro, 2016: 8). The development and transformation of the

sector must be achieved within an acceptable value and quality norms. Against this background, it is important to investigate some of the challenges/ problems confronting the public sectors (Governments) from achieving its set aims and objectives in terms of delivery valuable and quality standard infra-structure projects to the society.

Value determination in construction project is a very complex and subjective issue, but it is recognized that its quality performance is a key component of perceived value (Ogunsemi, 2002: 102; Towey, 2012: 16). According to Construction Industry Development Board (CIDB, 2011), South Africa, lack of quality in construction is manifested in poor or non-sustainable workmanship, and unsafe structure, and in delay, cost overruns and disputes in construction contracts. Therefore, to give clients value for their money, the projects must be of high quality completed within the initial budget cost, and time and without any dispute what so ever.

2.2 Causes of cost overruns in public sector infrastructure projects

Several studies into the causes of cost overruns in public sectors infrastructure projects in Nigeria over the past forty (40) years, particularly after the civil war followed by the oil-boom of 1970s have been conducted. Research conducted by Mansfield et al. (1994:257) identified the followings as the major causes of cost overruns in public sector construction: variation order, price fluctuations on materials, traditional procurement method, cash flow problem, inaccurate time and cost estimation, and change in scope of project. Although the study was comprehensive then, but other causes have emerged in the recent times. Recent research conducted by Mamman and Omazokpia (2014: 33) to determine the causes of cost overruns in public sector construction projects in Nigeria reports that bribery and corruption is becoming one of the major factors contributing to cost overruns in construction projects. Bribery and corruption in forms of political interference and institutional barriers are becoming more dominant in public sector projects, particularly during projects procurement and contracts award. Ameh et al.(2010: 67) investigated 42 cost overruns cases and found that bribery and corruption (fraudulent practices and kickbacks), lack of experience of contractors, high cost of materials, fluctuation in the prices of materials, frequent design changes, high interest rates charged by banks on loans and mode of financing, bonds and payments as well as inaccurate time cost estimation were the dominant factors causing cost overruns in Nigeria. In addition, Isiandionso (1988: 19) contends that a project which let out in a hurry without adequate planning for operational modalities will definitely cost more than another for which adequate time was allowed for planning and execution. Thus, their studies corroborated Majid (2006: 67); Lee (2010: 60) and Ubani et al.(2013: 81) findings that public sector infrastructure projects carried in the following developing countries (Nigeria, Saudi Arabia, Malaysia and Indonesia) suffered from significant construction cost and time overruns.

Bribery, corruptions and nepotism have eaten deep into the fabric of our national life. The Guardian Newspaper, 23 February (2017: 3) reported on the cases of allegations concerning outrageous contracts awarded under the watch eyes of

the present Minster of Power, Infrastructure and Housing. The paper reports that corruption has constituted a serious threat to good governance, rule of law, and has also impacted negatively on the procurement process aimed at providing public infrastructure projects that could reduce poverty and economic backwards in the country. Bribery and corruption according to the CIDB (2011: 2) does not necessary mean financial inducement, but also it takes the form of political patronage and interference in the tender process. These instructional barriers have been linked to awarding of contracts to contractors who are not capable to carry out the works. The consequences have been cost and time overruns, disputes or total project abandonment. The CIDB (2011: 2) further stated that there were more cases of cost overruns than time overruns, particularly in public sector infrastructure projects in developing countries as a result of bribery and corruption in the public sectors.

Table 1: Causes of cost overruns in public sectors infrastructural projects

S/No.	Most significant causes of cost overruns	Citation
1	Change in scope of project	CIDB (2011)
2	Cash flow problem	Mamman and Omazokpia (2014)
3	Corruption (kick back)	Ameh et al. (2010)
4	Inaccurate time and cost estimation	Lee (2008)
5	Change of Government	Ubani and Ononuju (2013)
6	Frequent design change	Ubani et al. (2013).
7	Traditional procurement system	Majid (2006)
8	Incessant variation order	Mansfield et al (1994)
9	Fluctuation in prices of materials	Memon, et al.(201)2

In fact corruption and poor leadership permeates across all the stakeholders in public sector projects delivery chain. This makes the problem of cost overruns to be of great significance to researchers and scholars.

The problem of cost overruns is more evident in the traditional procurement method where contract is awarded to the lowest bidder. This type of contract-awarding strategy common in public sector projects according to Ubani et al. (2013; 81) has contributed significantly to poor projects performance such as cost and time overruns. Jagboro (2016: 8) argues that improving the poor performance in the public sector infrastructure projects requires visible and transparency leadership in all the stakeholders involved in public projects delivery chain.

2.3 Effects of cost overruns in Public sector infrastructure projects

In the present global economic recession, construction projects clients insist to get

value for their money. Projects should be completed within time and cost. According to Winch (2010: 35) and Ubani et al. (2013: 80) project that were not completed within time incurred additional cost to both the clients and contractors. Kasimu (2012: 775) contends that there are nine out of ten chances of construction projects been abandoned due to cost overruns. Beside the project abandonment, tax payers' money is being tied down that could have been used for other social and economic development (Lee, 2008: 61).

The economic effects of cost overruns resulting from public sector infrastructure projects are of serious concerns to the society and construction companies alike. From the business standpoint, the effected contractors suffered bad debts and insolvency or bankruptcy that may lead to total closure. This has ripple effects on the economy of the country as both skilled and unskilled workers employed by the effected companies will be lid off. On the society, the children of the lid off workers may drop out of school because of financial difficulties faced by their parents to pay their school fees (WHO, 2010: 4). Time and cost overruns in public sector projects should be reduced. It behooves on government officials, contracting firms and suppliers to demonstrate commitment and visible leadership at all stages involved in procurement and execution of public projects in Nigeria.

2.4 Measures to improve cost overruns in public sector infrastructure projects in Nigeria

The CIDB (2011: 2) reports that improvement of cost overruns in public sector infrastructure development projects could only be achieved through committed leadership. Achieving value and quality in public sector projects is largely depends upon the quality of leadership. For instance in the UK, excellence in public building leads to the establishment of Better Public Building in the Office of Government Commerce (OGC) 2000. The Better Public Building initiative aimed to ensure that high standard of design; construction, delivery and performance were widely achieved in public buildings and infrastructure projects (Chartered Institute of Building CIOB, 2006: 2). The UK Better Public Building initiative discouraged the use of traditional method of procurement in public sector projects, which still the common practice for public sector infrastructure procurement in Nigeria. The traditional procurement system encouraged the acceptance of lowest tender, which could lead to selection and appointment of contractors without the technical know-how (Ubani et al. 2013: 80). The consequences have been poor projects performance such as poor quality of work, extension of time and cost overruns, and in some cases disputes and projects abandonment (Ogunsemi, 2002: 201; Lee, 2008: 60).

Kasimu (2012: 777) identified the following as measures to improve cost overruns in Nigeria: adequate planning, proper design of the project during design stage so as to avoid undue on-project variations, bulk purchase of material, and establishing a fraud detecting system or a system of individual accountability to discourage pilfering, stealing and other related vices. UbanI and Ononuju (2013: 73) pointed out that cost overrun in Nigerian construction projects can be mitigated by the following: proper planning, involvement of designers and suppliers during early project design stage.

Bribery and corruption should be discouraged during the selection and appointment of contractors in all public sector infrastructure projects (Jagboro, 2016: 8).

3.0 Research Methodology

To achieve the aim and objectives of this study, quantitative research method was adopted. The assumption underlying quantitative method to research is that it seeks to gather factual data and study the relationships between them. According to Leedy and Ormrod (2010: 102) the information gathered is therefore coded in the form of numbers that can be quantified and summarised. Thus, the analysis of data collected yields empirical results and conclusions are drawn from the observation of the results based on theory and surveyed literature. A questionnaire survey was used to seek the perception of the respondents. Stratified method of sampling was used. Consequently, the respondents were randomly selected from group of practicing civil and structural engineers, architects, quantity surveyors, project managers and contractors, who are registered members of their various Professional Bodies. Hence, the data analysis was based on the category of these responses.

The research made use of the 65 completed and returned questionnaire out of the 70 administered, this represents 81.3% response rate. The questionnaire consists of two parts; first part deals with the demographic data of the respondents and the second part concerns with the questions on those factors that contributing to the causes and effects of cost overruns in public sector projects as perceived by the respondents.

3.1 Data analysis

The majority of the responses (35%) were received from the contracting firms, (21%) were architects, (24%) were quantity surveyors, and (13%) were project managers and (7%) were civil and structural engineers. The average construction industry work experience for all the respondents is twelve (12) years. Also all they respondents are corporate members of their various Professional Bodies (100%). The respondents rated the variables which they perceived to be the likely contributing factors to the causes and effects of cost overruns in public sector infrastructure projects by responding on a scale from 1 (insignificant) to 5 (extremely significant). The five-points rating scale was 1 insignificant, 2 slightly significant, 3 moderately significant, 4 very significant and 5 extremely significant. This five point scale is used to calculate the mean score for each factor and element, which is then used to determine the relative ranking of each factor by assigning ranking to the mean score, such mean score with low magnitude is assigned low rank while those with the highest score is allocated the highest rank, accordingly. The mean score for each factor is computed by using the following formula:

$$MS=\Sigma (f\times s)/N \quad (1)$$

Where **s** is the score given to each factor by respondents and ranges from 1 to 5,
f is frequency of responses to each rating (1 - 5) for each factor;
and **N** is the total number of responses concerning that factor.
Percentage Response with respect to a particular factor is computed as

(n/N) x 100% (2)

Were **n** = number of responses with respect to each score,
N = Total number of responses concerning that factor.

4.0 Presentation of Survey results

Table 2 indicates that the most highly rated factor contributing to the cause of cost overruns in public sector projects was bribery and corruption with 46.2%. Bribery and corruptions could be in the form of political patronage, political interference or institutional barriers and kick-back/financial inducement leading to award of contracts to contractors without experience. The findings corroborated literature in Majid (2006: 37); Lee (2008: 61) and Ubani et al. (2013: 75) findings that public sector infrastructure projects carried in the following developing countries (Nigeria, Saudi Arabia, Malaysia and Indonesia) suffered from significant construction cost and time overruns due to bribery and corruption that permeate across all stakeholders involved in public sector project delivery chain. Also, the Nigerian Guardian Newspaper, 23 February (2017: 3) states that corruption has constituted a serious threat to good governance, rule of law, and including developmental projects aimed at reducing poverty and economic backwards in the country. The second most highly rated factor was frequent change in design with 43.1%. The third highly rated factor was contractors' inexperience with 38.5%, and followed with changes in scope of projects with 33.8% and poor contract management with 33.8% each respectively. Poor leadership and lack of commitment among government officials in all sectors of governance is a serious challenge to infrastructure projects development in Nigeria.

Other subsequent causes which were rated relative low by the respondents, but were also factors contributing to causes of cost overruns in public sector projects: changes in government with 30.8%, inaccurate time and cost estimation with 23.1%, incessant variation order with 23.1%, fluctuations in price of materials with 23.1%, and cash flow problem with 15.4%. The frequency aggregation has clearly shown that the causes cannot be ignored since they can negatively affect project performance such as cost and time overruns leading to total project abandonment and disputes between clients and contractors.

Table 2: Respondents' rating of factors contributing to the causes of cost overruns in public sector projects [Respondents (N=65)]

S/N	Factors	Frequency Aggregation (Rating of Factors)				
		1	2	3	4	5
1	Bribery and corruption	0	5(7.7%)	10(15.4%)	20(30.8%)	30(46.2%)
2	Incessant variation order	5(7.7%)	12(18.5%)	20(30.8%)	18(27.7%)	10(15.4%)
3	Change in scope of projects	3(4.6%)	10(15.4%)	15(23.1%)	15(23.1%)	22(33.8%)
4	Change in Government	2(3.1%)	3(4.6%)	14(21.5%)	16(24.6%)	20(30.8%)
5	Cash-flow problem	5(7.7.1%)	20(30.8%)	18(27.7%)	12(18.5%)	10(15.4%)
6	Inaccurate time and cost estimation	5(7.7%)	15(23.1%)	12(18.5%)	18(27.7%)	15(23.1%)
7	Poor contract management	1(1.6%)	8(12.3%)	13(20.0%)	21(32.3%)	22(33.8%)
8	Frequent design change	0	5(7.7%)	10(15.4%)	22(33.8%)	28(43.1%)
9	Traditional procurement method (Policy of accepting lowest tender)	5(7.7%)	2(3.1%)	21(32.3%)	13(20.0%)	23(35.4%)
10	Contractors' inexperience	1(1.6%)	6(9.2%)	12(18.5%)	21(32.3%)	25(38.5%)
11	Fluctuations in price of materials	2(3.1%)	12(18.5%)	15(23.1%)	21(32.3%)	15(23.1%)

Further analysis of the factors and ranking was computed to obtain their mean score values. Table 3 indicates the ranking of the causes of cost overruns in public sector projects. Bribery and corruption was ranked the first cause with the highest mean score value of 4.23, while frequent design change was ranked the second cause with the mean score value of 3.76. The third ranked cause was the contractors' inexperience with mean score value of 3.56, followed by traditional procurement method (policy of accepting lowest tender) with the mean score value of 3.55. Winch (2010: 16) noted that the use of traditional procurement method, which entails accepting the lowest tender price, should be discouraged due to uncertainty and the use of sophisticated technologies associated with public sector infrastructure projects. The firth factor was change in scope of projects with mean score value of 3.48. It can also be seen from the Table 3 that poor contract management and change in government were ranked as the sixth and seventh factors each with mean score value of 3.48 and 3.34. Inaccurate time and cost estimation has mean score value of 2.76. The least three contributing factors as rated by the respondents were incessant variation order with mean score of 2.54, fluctuations in price of materials with mean score of 2.54, cash flow problem with mean score value of 2.53. The findings corroborated literature in that researchers and scholars amongst others Majid (2006: 67); Lee (2008: 59); Ubani et al. (2013: 73) and Mamman and Omazokpia (2014: 33) identified these factors as impacting negatively on public sector infrastructure projects performance.

Table 3: Respondents' Ranking of factors contributing to the causes of cost overruns in public sector projects [Respondents (N=65)]

S/N	Factors	Σ Mean score (MS)	Ranking
1	Bribery and corruption	4.23	1
2	Frequent design change	3.76	2
3	Contractors' inexperience	3.56	3
4	Traditional procurement method (policy of accepting lowest tender)	3.55	4
5	Change in scope of projects	3.48	5
6	Poor contract management	3.48	6
7	Change in Government	3.34	7
8	Inaccurate time and cost estimation	2.76	8
9	Incessant variation order	2.54	9
10	Fluctuation in prices of materials	2.54	10
11	Cash-flow problem	2.53	11

4.1 Effect of cost overruns in public sector infrastructure projects

Table 4 indicates the respondents' perceptions of the effects of cost overruns in public sector projects Increased in project cost due to extension of time was rated as the most effect of cost overruns in public sector projects with 56.4%. The finding was in agreement with the study conducted by Aibinu and Jagboro (2002: 583) to determine the effects of cost overruns in construction project delivery in Nigerian. The study concluded that one of the major effects of cost overruns in construction projects, particularly government projects was increased in cost due to extension of time. The second effect was total project abandonment with 50.3%. Beside tax payers' money being tied down as a result of abandoned projects, the beauties of urban cities are defaced (Lee, 2008: 59). Winch (2010: 56) states that total project abandonment result in delay in getting financial returns from the projects and this impact negatively on citizens' quality life. The third highly rated effect was reduced profit to contractors with 45.3%. The idle equipment and plants on sites due to extension of project time translated to reduced profits to contractors, suppliers and subcontractors.

Other effects identified by the respondents were delay in getting financial returns from the projects with 35.3% and wastage of tax payers' money with 32.6%. The least rated effect was loss of public confidence with 15.3%. However, the two lowest rated effects were disputes and litigation and loss of public confidence. Though, the factors were rated low by the respondents, researchers amongst others Winch (2010: 56); Ubani and Ononuju (2013: 75); Mamman and Omazokpia (2014: 33) identified these variables in their studies as factor that have negative effects on public sector infrastructure development projects.

Table 4: Respondents' rating of factors contributing to the causes of cost overruns in public sector projects [Respondents (N=65)]

S/N	Factors	Frequency Aggregation (Rating of Factors)				
		1	2	3	4	5
1	Increased in project cost due to extension of time	1(12.4%)	2(23.3%)	10(23.3%)	24(23.3%)	28(56.4%)
2	Total project abandonment	0	3(34.4%)	12(23.3%)	23(32.2%)	27(50.3%)
3	Reduced profit to contractors	2(23.2%)	5(23.6%)	15(23.5%)	18(45.5%)	25(45.3%)
4	Delay in getting financial returns from the projects	5(23.1%)	4(21.6%)	13(23.2%)	20(23.1%)	23(35.3%)
5	Disputes and litigation	4(23.4%)	9(23.5%)	19(21.4%)	17(34.3%)	16(15.7%)
6	Wastage of tax payers' money	6(23.7%)	17(12.7%)	23(32.2%)	14(12.4%)	15(32.6%)
7	Loss of public confidence	4(23.1%)	7(12.7%)	13(23.2%)	18(23.5%)	23(15.7%)

Table 5 indicates further analysis of the factors and ranking computed to obtain their mean score values. It shows that increased in project cost due to extension of time was ranked the first effect with the highest mean score value of 5.12. The second ranked effect was total project abandonment with mean score value of 4.78, followed by reduced profit to contractors with the mean score value of 4.21. The forth ranked effect was delay in getting financial returns from the projects with the mean score value of 3.79. The firth effect was wastage of tax payers' money with 3.44. The two least rated effects were disputes and litigation and loss of public confidence with mean score values of 2.44 and 2.34 respectively. The seven identified effects of cost overruns in public sector projects could have been prevented had be prudent and committed leadership during planning and execution. According to Isiandinso (1988: 13) and Aibunu and Jagboro (2002: 585), project which let in a hurry without adequate planning for operational modalities will definitely cost more than another for which adequate time was allowed for planning and execution.

Table 5: Respondents' Ranking of effects of cost overruns in public sector projects [Respondents (N=65)]

S/N	Factors	∑ Mean score (MS)	Ranking
1	Increased project cost due to extension of time	5.12	1
2	Project abandonment	4.78	2
3	Reduced profit to contractors	4.21	3
4	Delay in getting financial returns from the projects	3.79	4
5	Wastage of tax payers' money	3.54	5
6	Disputes and litigation	2.44	6
7	Loss of public confidence	2.34	7

5.0 Conclusions and recommendations

Based on the analysis and interpretation of the survey results it shows that eleven factors were identified as causes of cost overruns in public sector projects and seven factors were also identified as the effects. Thus, the most highly rated causes of cost overruns in public sector infrastructural projects in Nigeria were bribery and corruption in form of political patronage and institutional barriers with 54.2% and mean score value of 4.23, frequent design change as the second highly rated cause with 43.1% and mean score value of 3.76, followed by contractors' inexperience with 38.5% and mean score of 3.8. The fourth rated cause was traditional procurement method (policy of accepting the lowest tender) with 35.4% and means score value of 3.55, while the fifth and six rated causes were poor project management and change in scope of project with 33.8% and mean score value of 33.8 each respectively. Based on the six highly rated factors contributing to causes of cost overruns in the Nigerian public sector infrastructure projects delivery, poor leadership and lack of commitment among government public official that manifested in forms of bribery and corruption, frequent design change, contractors' inexperience, poor project management and change in scope of project. The most highly rated effects were increased in project cost due to extension of time with 56.4% and mean score value of 5.12, followed with total project abandonment with 50.3% and mean score value of 4.78 and reduced profits to contractors with 45.3% and mean score value of 4.21. The identified causes and effects of cost overruns in public sector infrastructure projects need to be addressed by the government at all levels, contractors and suppliers. The study therefore, R**ecommends:**

- The appointed government officials responsible for the procurement and execution of public sector infrastructure project should demonstrate visible and transparent leadership in all stages of public projects procurements, contracts award and execution.
- Traditional procurement method in public sector infrastructure projects, where the lowest tender is accepted for the work should be discouraged.
- Contractors, designers and suppliers should be involved during the early project's design stages.
- Institutional barriers such as political interference, nepotism and cronyism should not be allowed to exist in the procurement and award of public sector infrastructure projects.

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Answers to reviewer's comments

1) The novelty in this work is that it identifies bribery and corruption in form of political patronage, nepotism and cronyism as one of the most causes of cost overruns in the public sector infrastructure projects in Nigerian.

1b) Majority of works have been done on causes and effects of cost of overruns, delay on construction projects in Nigeria, but little or no research has been conducted on causes and effects of cost overruns in public sector infrastructure projects and this also added to the novelty of the work.

2) More citations and references have been added to the work.

3) The research started since June 2016 by sending out questionnaire to potential respondents, and three month was taken for questionnaire collection, literature review and analysis followed.

4) Yes, the work did, fluctuation in prices of materials was rated 23.1% and ranked 10 position in Table 2 and 3 respectively. Also, in the introduction see paragraph 3 Winch (2010) points out that fluctuation in prices of imported materials and technologies for infrastructure projects development in the developing countries contributed significantly to cost overruns.

5) As earlier stated, the paper was on public sector infrastructure projects see literature review section **2.1 Government as the major client of public sector infrastructure projects**. The questionnaire was structured to elicit information on bribery and corruption and among others causes. Therefore, the appointed supposed governments' client may not be willing to answer the questionnaire, stakeholders were contacted see abstract section.

6) Comment number 6 noted.

7) Also noted.

8) The typographical errors have been addressed.