

Effective Project Preparation Process: A Key Factor to a Successful PPP Infrastructure Development

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Abstract: Management of PPP project preparation process according to WEF (2013) is quite complex because it involves large team and multiple stakeholders such as ministries, regulatory organs and regulations, engineering firms, banks as well as multiple interfaces between different project functional feasibility studies. It is therefore very important at this stage to put together capable and experienced cross-functional project team supported by committed political and project leadership in order to achieve a sustainable PPP project preparation process. The main feature of a PPP project preparation process includes; project planning, project coordination and project monitoring. This process according to Adamu *et al.* (2015) can be cost intensive, therefore the public sector needs to ensure sufficient upfront funding of the entire process. This study is aimed at assessing the effectiveness of road project preparation process in the development of road infrastructure under PPP concession. In order to achieve this aim, the study examined the concept of PPP models for infrastructure development and project preparation process in a PPP framework. Data collection was through administration of well-structured questionnaire on the target population. Data collected were analysed using both descriptive and inferential statistic analytical techniques. The study revealed that there is urgent need to review the current Nigeria National Policy on PPP, institutional structure and individual capacity building in the area of PPP project preparation in order to encourage more private sector participation in the drive for provision and development of road infrastructure facility.

Keywords: Public-Private Partnership, Development, Project, Preparation Process

Background

Ijigah *et al* [1] and Amobi [2] also reiterated that the most pressing road infrastructure development challenges under PPPs in Nigeria are lack of effective PPP project preparation and acceleration towards bankability, while the development investors also held substantial assets in the road project under their management, for which they will be seeking attractive long-term infrastructure investment opportunities in the road project. As a result of this, many road projects became stalled in the project pipeline. This according to Bovis [3], and Federal Ministry of Works [4] is as a result of the road project preparation process and management gap which include;

- the shortage of well-prepared bankable PPP road projects where investors are sufficiently reassured by the commercial and technical feasibility,
- the inadequate risk allocation,
- the public sector's contractual commitment and capacity,
- poor demand forecasts, and
- institutional and legal regulatory framework for infrastructure projects.

In a related development, the World Economic Forum [5] and Adamu [6] noted that the major reason for most PPP challenges and limitations is inadequate project preparation which was attributed to ineffective PPP framework in the areas of inadequate or unskilled project team, poor project governance and management, and lack of sufficient project preparation funding.

PPP Concepts

Globally, the Public-Private Partnerships (PPPs) approach to infrastructure development and maintenance has continued to grow tremendously as a result of the financial constraints being experienced by public sectors in the provision of required infrastructure facilities. In practice according to Lubi & Majid [7], most governments adopt PPP

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principles as a matter of ideological persuasion and need by implementing and utilizing private sector expertise to lever greater efficiency and change management in infrastructure provision thereby boosting social-economic growth and development. Because according to Muralidhar & Koteswaea [8], Public-Private Partnerships provides opportunity for private sector participation in financing, designing, construction, operating and maintenance of public sector services, programmes and projects. Hence the creation of a structure that is bankable and to minimize the stakeholder's risk by allocating certain risks to parties that can better manage the risks in the infrastructure development.

Cui *et al.* [9], described Public-Private Partnerships as an agreement between a public agency (Federal, State and Local Governments) and a private sector in a contractual manner. Furthermore Cui *et al.* [10] stated that the PPP arrangement involves bringing in creative skills and management efficiency from business practice and by reducing government risk involvement in the development and provision of public services by using private companies for effective approach in enhancing project delivery. For example by providing a right-of-way and the right to collect user fees by the public sector while the private partner also provides financing, technological innovation, and on-going services or infrastructure. Similarly, Lubis & Majid [7], stated that the World Bank also gave a broad definition of Public-Private Partnership as a procurement strategy covering management and operating contracts, lease/*affermage*, concessions and joint ventures as well as partial divestiture of public assets. Bult-Spierung & Dewulf [11] and Ibrahim *et al.* [12] stated that practices such as Joint Venture (JVs) and Build-Own-Transfer (BOT) strategies and its several variants, which hitherto do not qualify as Public-Private Partnerships have evolved to involve some of the core features of partnerships such as shared authority and responsibility, joint investment, sharing liability/risk-taking and mutual benefits, and are now accordingly considered as such. The partnership variants are commonly used in the global construction industry in procuring infrastructure facilities which are classified as: Develop and Construct; Package Deal; Turn-Key; Management Contracting; Construction Management; Design-Build-Operate; Build-Own-Operate; Build-Own-Operate-Transfer; Lease and Operate Contract; Buy-Build-Operate; Build-Own-Operate-Transfer; and Design-Build-Operate-Finance [13-16]. Meanwhile, the primary objective of PPPs is to facilitate the economic delivery of high-quality public facilities and services by the private sector over an extended period of time at a cost that represents value for money, whilst at the same time transferring an appropriate level of risk to the private sector [17, 12, 18].

On the implementation of PPPs, Cui *et al.* [10] noted that PPP has a long history in many countries of the world, but became more popular worldwide in the 1980s. Furthermore Cui & Lindly [9] cited in Cui *et al.* [10] opined that United Kingdom and Australia are widely recognized as forerunners in the implementation of PFI in the world having been employing PFI strategies in various sectors of facility development and maintenance since the 1980s. In a related development according to Cui & Lindly [10], in the United State of America due to an increasing funding shortfall in the transportation sector, more states have started to embrace PPPs in the development and maintenance of transportation infrastructure.

According to BPD [19], Public-Private Partnerships (PPP) has four key characteristics which includes;

- Involvement in an efficacious sharing of risks between public and private sector;
- Providing public services;
- Offering value for money; and
- Long term partnership over many years.

The PPP arrangements involve competitive tendering while successful bidder (or franchisee) is selected on the basis of the value for money (VfM) outcome from the investment for public sector. VfM is determined using both quantitative and qualitative criteria [20]. Quantitative analysis involves the comparison of private investor's bids with a risk-weighted model often referred to as "public sector comparator" (PSC) after adjustment for competitive neutrality, risk transfer, and retention [21]. Similarly, the qualitative test examine or assess the bidding consortium's capabilities and track record, the innovation and new technology brought in for delivery solution, and a comprehensive public interest test.

Project Preparation Process and Management

The management of PPP project preparation and implementation process is a key to facilitating a good PPP implementation in a PPP concession. In order to achieve this, there must be an experienced cross-functional team as well as steady leadership provided by the public sector, a clear governance structure and management style for road project preparation process to coordinate the various work streams in the road project development and delivery, and adequate funding for the management of the entire process [22, 23].

The success of PPP concession in road infrastructure development according to WEF [22] and WBI [23] depends on the competent construction teams preparing and executing the road infrastructure project, because PPPs

typically have more complex dimensions than any other public procurement arrangements because all responsibilities are packaged in one long-term contract arrangement. In view of this, Adamu *et al.* [6] opined that an assembly of an experienced cross-functional team, complemented with quality leadership, dedicated and clear governance structure, adequate project management techniques, project preparation funding and facilities is required in the development of efficient road infrastructure. Figure 1.1 depicts a typical PPP road project preparation management process.

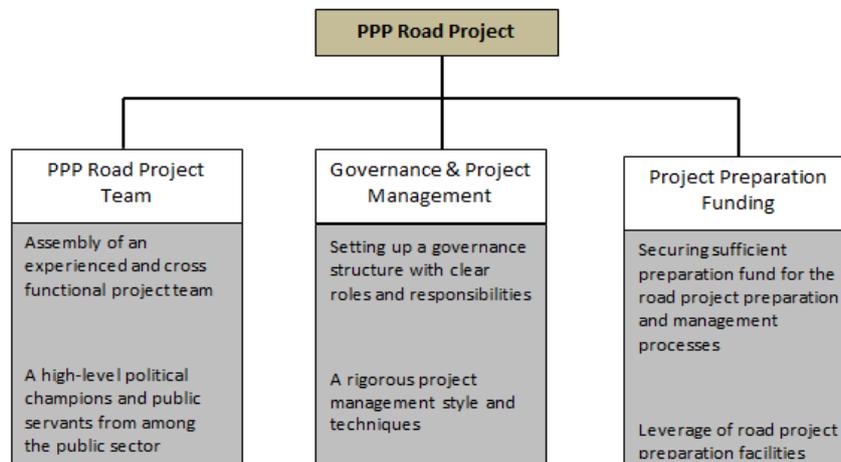


Fig-1.1: PPP Road Project Preparation Management Process

RESEARCH METHODOLOGY

Drawing from review of relevant literature which involves various epistemological paradigms leading to adoption of quantitative research approach, data collected through structured questionnaire were analysed using quantitative analytical procedures. The results from the analysed data were interpreted in the study.

In order to obtain an effective measurement tool, the questionnaire was revised in two stages i.e. pre-test and pilot study for a better understanding of various questions therein by the respondents. The pre-test process utilized a convenience sampling method by selecting 20 respondents who were assumed to have been involved in road infrastructure development through PPP in Nigeria for an in-depth interview. The result of these interviews revealed that the meaning and interpretation of some questions in the proposed questionnaire was unclear. Sentences and wordings of the questions were therefore rephrased while different relevant terms were used.

A total of 320 questionnaires was distributed through a convenience sampling method see table 1.1. The highest number of questionnaires was distributed to Abuja, the Federal Capital City of Nigeria and its environs where greater numbers of PPP road projects are ongoing while quite a number of road projects have been completed in the same locality and a greatest proportion of valid questionnaires were also returned from the city. After eliminating all the invalid questionnaires, a total of 276 valid questionnaires representing a return rate of 86% of the distributed questionnaires were found suitable and considered sufficient for the study which was subsequently analysed.

The general administration of the survey questionnaire was personally carried out by the researcher with the help of other professional colleagues within the study area. The personal influence of professional colleagues within their respective place of work and organizations was of great benefit in obtaining reliable and suitable data for the research work. The questionnaires were administered on the identified respondents who have been involved in PPP road projects. Table 1.2 depicts the valid questionnaires from respondents within the study area.

Table-1.1: Questionnaire Distribution within the Study Area

Distribution	Number Distributed	Percentage Distributed
Abuja (FCT)	122	38%
Kogi State	50	16%
Nasarawa State	45	14%
Niger State	43	13%
Plateau State	31	10%
Kwara State	29	9%
Total	320	100%

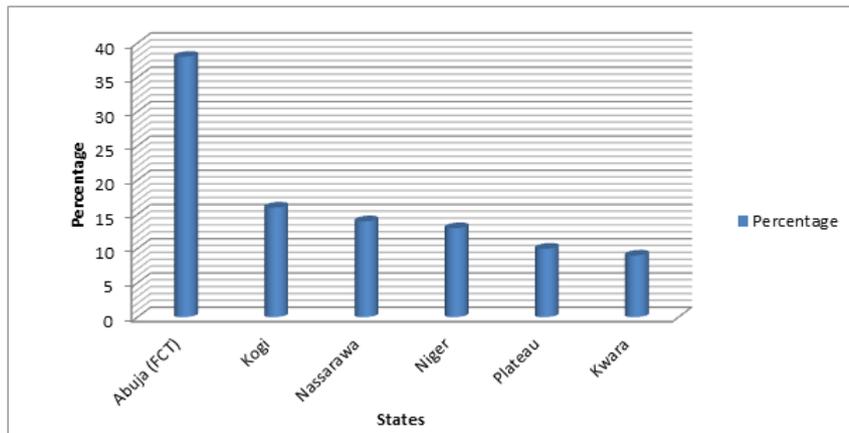


Fig-1.1: Percentage Distribution of Questionnaires

Table-1.2: Valid Questionnaires from Respondents

Respondents	FCT	Kogi	Nasarawa	Niger	Plateau	Kwara	Total
Public Agencies-MDAs	25	6	7	5	6	5	54
Concessionaires	20	10	9	10	5	5	59
Banks-Lenders/Sponsors	15	8	6	5	3	3	40
Architects	10	4	4	3	2	2	25
Engineers	14	5	5	7	6	5	42
Quantity Surveyors	28	6	5	7	5	5	56
Total	112	39	36	37	27	25	276

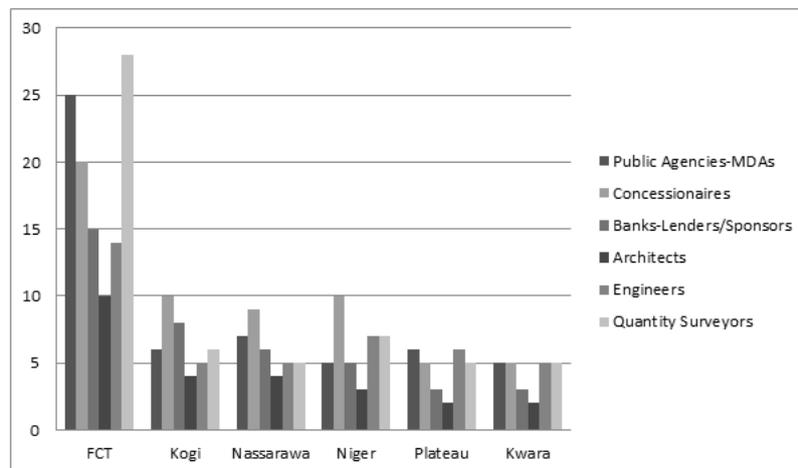


Fig-1.2: Valid Questionnaire for Analysis

Data Presentation, Analysis and Interpretation

Data collected from the quantitative research approach was analysed using both descriptive and inferential statistic analytical techniques. In the descriptive statistics, data were analysed as uni-variants inform of measures of central tendency, percentiles, and bar-charts which were used in analysing professional competency of the respondents and the general expert opinion of the respondents on the implementation of PPP for road infrastructure development while the inferential statistics was carried out using Mean Score (MS).

The application of means score (MS) in this study involves allocating numerical values to respondents' variables ranking for example; highly significant, highly important, highly frequent, highly effective, and excellent at 5 point, very significant, very important, very frequent, very effective, good at 4 point, significant, important, frequent, effective, and average at 3 point, slightly significant, slightly important, slightly frequent, slightly effective, and fair at 2 point, and not significant, not important, not frequent, not effective, and poor at 1 point. The mean score (MS) for each ranked factors are then calculated from the equation bellow;

$$MS = \sum \frac{(f \cdot xs)}{N} \quad 1 \leq MS \leq 5 \quad \dots\dots\dots 1.1$$

Where s stands for the given score of each factor as ranked by the respondents while the ranges depend on the ordinal scale in use for the ranking i.e. 1-5; similarly, f is the frequency of responses to each ranking of 1-5 values for each variables and N stands for the total number of responses relating the variables.

Table 1.3 and 1.4 depicts the professional working experience of the respondents and also the numbers of road projects handled within their respective years of professional experience. The aim is to assess the professional competency of the respondents in the subject area of the research work. The summary of the survey in the table shows that a total of 82 out of the 276 respondents have between 21-25 years of professional working experience which stands at 29.7% of the total respondents, while 77 respondents have between 26-30 years of professional working experience which also stands at 27.9%. This clearly indicates that over 57.6% of the respondents have acquired reasonable and adequate years of professional working experience in road infrastructure development under PPP concession. In a related development, table 1.4 indicate that a total of 82 and 86 respondents have handled between 21 and 25; and above 30 road infrastructure development under PPP concession respectively under survey. These also indicate that reasonable number of the respondents have been involved in sufficient number of road infrastructure development under PPP concession thereby acquiring adequate knowledge in PPP transactions. In view of this, the above information therefore clearly confirms that the respondents have adequate and or sufficient knowledge and experience in PPP transaction whilst the data provided by the respondents are adjudged to be suitable and reliable for the purposes of analysis in this research work.

Table-1.3: Respondents Year of Experience

Respondents	1-5	6-10	11-15	16-20	21-25	26-30	Above 31	Total
Public Agencies-MDAs	-	1	6	6	20	15	6	54
Concessionaires	2	3	5	7	17	20	5	59
Bankers	4	3	6	4	10	10	3	40
Architects	1	1	1	2	12	6	2	25
Engineers	-	5	5	8	10	13	1	42
Quantity Surveyors	-	6	9	8	15	13	5	56
Total	7	20	33	35	82	77	22	276

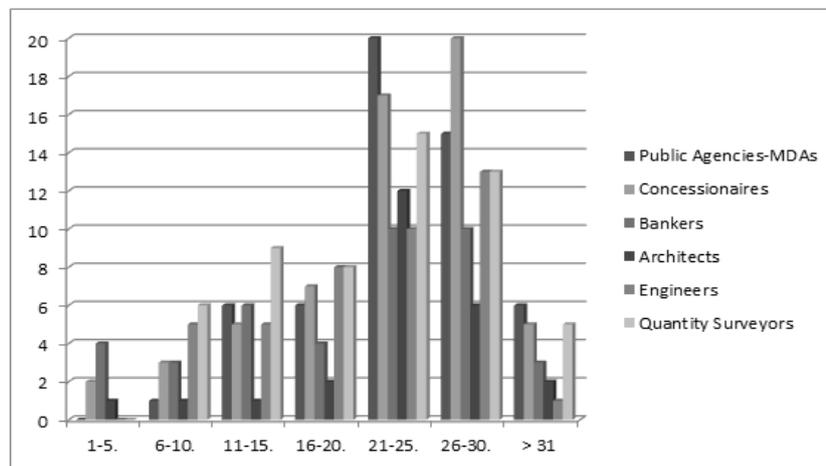


Fig-1.3: Respondents Years of Experience

Table-1.4: Number of Road Projects Handled

Respondents	1-5	6-10	11-15	16-20	21-25	Above 26	Total
Public Agencies-MDAs	6	4	6	6	17	15	54
Concessionaires	2	3	5	7	17	25	59
Bankers	4	3	6	4	13	10	40
Architects	1	2	2	2	12	6	25
Engineers	2	5	5	8	8	14	42
Quantity Surveyors	2	6	9	8	15	16	56
Total	17	23	33	35	82	86	276

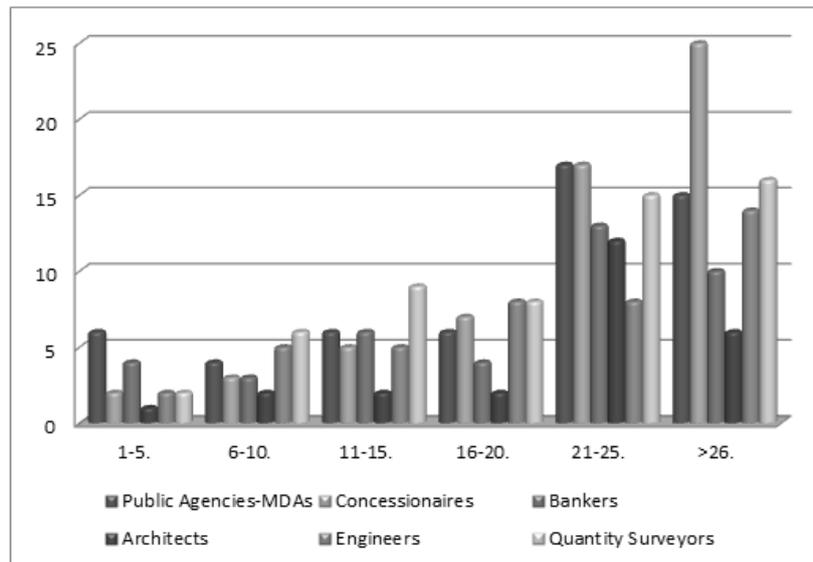


Fig-1.4: PPP Road Project Handled by Respondents

The result in table 1.5 depicts respondent’s opinion on the effectiveness of road infrastructure development preparation process and management in north-central region of Nigeria. The effectiveness of PPP project preparation process depends on the competency of construction team in a PPP concession according to WBI [23] which centres on experienced cross-functional professionals or team, quality of leadership etc. It is clearly evidenced from the result in table 1.5 bellow indicates that PPP project management preparation for road infrastructure development in north-central region of Nigeria is grossly ineffective. As indicated in the table, the only slightly effective factor under consideration is the leveraging of preparation facilities with MS at 2.34 which is observed to be below average it’s obvious that a large number of respondents rated project preparation management very low in the survey which indicates the ineffectiveness of the conceptual PPP framework in the road infrastructure development in the study area. The respondents’ opinion is hereby supported by the views of Ijigah *et al.* [1]; Amobi [2]; and WEF [22]. The researchers in their different studies noted that the most pressing and fundamental problem of PPP transaction in Nigeria is project preparation process especially in the area of acceleration toward bankability and demand forecast. Other variables under this heading were therefore rated to a MS of between 1.68 and 1.94 which were believed to be very poor and inadequate.

Table-1.5: PPP Project Preparation Management for Road Infrastructure Development

Project Preparation Criterial	Respondents Mean Score on PPP Project Preparation						Rank
	1	2	3	4	5	MS	
• Provision of experience and cross-functional team	25	26	3	0	0	1.59	5
• Secure buy-in and leadership	19	19	16	0	0	1.94	2
• Effective governance structure	32	20	2	0	0	1.44	6
• Project planning and management	18	29	7	0	0	1.80	3
• Preparation funds	21	28	4	0	0	1.68	4
• Leveraging project preparation facilities	13	29	11	0	0	2.34	1

Conclusion and Recommendation

This study has explored the concept and implementation of PPP models in the provision and development of infrastructure facilities as an alternative procurement method to traditional procurement method in an attempt to measure up with the demand for more infrastructures by the teeming Nigeria populace. However, in spite of the efforts of Nigerian government at encouraging private sector participation in the provision of infrastructure facilities, the ambition was impacted by many challenges which were attributed to inadequate project preparation process and management as evidenced in an empirical survey conducted on road infrastructure development north-central region of Nigeria.

In order to achieve the aim of the research work, the study start with the review of relevant literature on the concept and adoption of PPP models for infrastructure development in Nigeria with emphasis on road project preparation

process. This was aimed at assessing the effectiveness of the road project preparation process and management in readiness for the road project. Quantitative research method was employed in the study; data collection was through administration of well-structured questionnaire on the target population. Data collected was analysed using both descriptive and inferential statistical analytical techniques. In the descriptive statistics, data were analysed as uni-variants in form of measures of central tendency, percentiles, and bar-charts while the inferential statistics was carried out using Mean Score (MS).

The study revealed that there is urgent need for the Federal Government of Nigeria to review the current Nigeria National Policy on PPP, institutional structure and individual capacity building in the area of PPP project preparation in order to encourage more private sector participation in the drive for provision and development of road infrastructure facility. The study is of the view that the lingering problems affecting PPP implementation in road infrastructure development is as a result of poor and inadequate project preparation process.

The study therefore recommends that the Federal Government of Nigeria should take a giant step in calling for the review of the current National Policy on PPP and development or formulation of a sustainable and robust PPP framework in order to enhance the provision of infrastructure facilities which serves as the bedrock to national economic growth.

REFERENCES

1. Ijjigah, E.A., Oloruntoba, K. & Mohn, H.R. (2012) "Towards Accomplishing Millennium Development Goals (MDGs) in Abuja, FCT Nigeria: The Project Management Consultant Roles. International Journal of Research in Management & Technology, 2(10), pp.142-149.
2. Amobi, I.C. (2013) "Public-Private Partnership as a Model for Infrastructural Development in Nigerian Universities" A paper presented at the Maiden Lecture of the Annual Lecture Series of the Department of Economics, NnamdiAzikiwe University, Akwa Nigeria, African Heritage Institution, pp.1-10
3. Bovis, C. (2010). Public-Private Partnerships in the 21st Century. ERA Forum, 11(3), pp.379-398.
4. Federal Ministry of Work (2013) "Compendium Report on Road Infrastructure and Related Development in Nigeria" PISION Abuja.
5. World Bank Institute (2013) "Disclosure of Project and Contract Information in Public-Private Partnerships" Washington DC: World Bank Institute.
6. Adamu, M., Lowe, J. & Manase, D. (2015) "Public-Private Financed Road Infrastructure Development in north-central region of Nigeria" Journal of Management and Sustainability, 5(4), pp.58-67.
7. Lubis, H. A. & Majid, N.N. (2013) "Developing a Standardized Assessment for PPP Infrastructure Project", Proceedings of the Eastern Asia Society for Transport Studies, Vol.9
8. Muralidhar, D. & Koteswara, R.M. (2013) "Development of Public Library through Public-Private Partnership in India: Issues and Challenges". Journal of Library and Information Technology, 33(1), pp. 21-24
9. Cui, Q. & Lindly, J.K. (2010) "Evaluation of Public-Private Partnership Proposals" University Transportation Center for Alabama Report, pp.730-941.
10. Cui, Q, Sharma, D.,Farajian, M., Perez, M. &Lindly, J. (2010) "Feasibility Study Guideline for Public-Private Partnership Projects" UTCA, Alabama.
11. Bult-Spiering, M. &Dewulf, G. (2006) "Strategic Issues in the Public-Private-Partnership: An International Perspective. Blackwell, Oxford.
12. Ibrahim, A.O, Price, A.D.F. & Dainty, A.R.J. (2006) "The Analysis and Allocation of Risks in Public-Private Partnerships in Infrastructure projects in Nigeria", Journal of Financial Management and Construction, 11(3), pp.149-163.
13. Akintoye, A. & Beck, M. (2009). Introduction Perspectives on PPP: RICS Research, Policy, Finance and Management for Public-Private Partnerships, ed. West Sussex, Blackwell.
14. Babatunde, S.O., Opawale, A. & Ujadugbe, I.C. (2010) "An Appraisal of Project Procurement Methods in the Nigerian Construction Industry".Civil Engineering Dimension, 12(1), pp.1-7.
15. Ojo, S.O., Aina, O. &Adeyemi, A.Y. (2011) "A Comparative Analysis of the Performance of Traditional Contracting and Design-Build Procurements and Implications for the Engineering Practice on Client Objectives in Nigeria", Journal of Civil Engineering and Management, 17(2), pp.227-233.
16. Adamu, M. (2016) "Infrastructure Development: A Public-Private Partnership Option in the Attainment of Value for Money, Journal of Mechanical and Civil Engineering, 13(2) pp. 05-13.
17. Lane, M. & Gardiner, J. (2003) "Risk Management and Insurance issues. In: Public Partnerships – A review of key issues, European Construction Institute, pp. 61-70.
18. Haran, M., Adair, A., Berry, J., Cord, M., Mc Greal, Smyth, C., Kashyap, A. & Hutchison, N. (2013). The Global Infrastructure Challenge: The Role of PPP in a New Financial and Economic Paradigm, www.rics.org/research

19. Best Practices Document (2009) "Fostering the Development of PPP Models in COMESA Region" Biz Clim.
20. Smyth, H. & Edkins, A. (2007) "Relationship Management in the Management of PFI/PPP Projects in the UK" International Journal of Project Management, **25**pp.232-240.
21. European Commission, (2003) "Guidelines for Successful Public-Private-Partnership". European Commission, Brussels.
22. World Economic Forum (2013) "Strategic Infrastructure: Steps to Prepare and Accelerate Public-Private Partnerships" May Edition, Boston Consulting Group.
23. Barber, P., Sheath, D., Tomkins, C. & Graves, A. (2000) "The Cost of Quality Failures in Major Civil Engineering Projects". International Journal of Quality and Reliability Management, **17**(4/5), pp.479-492.