



An Evaluation of Factors Constraining the Implementation of Public Private Partnerships (PPPs) in Construction Infrastructure Projects in Nigeria

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Abstract- The aim of this paper is to investigate the factors constraining the implementation of Public Private Partnerships (PPPs) Projects in the Nigerian construction industry. The study is motivated by the Nation's inability to adopt and utilize the PPPs approach in its project delivery in the country which has created obvious problems of economic waste and end user dissatisfaction given the obvious advantages of the PPP. The study sampled the opinion of fifty-five selected project professionals who had worked on PPPs related construction outfits in the Federal Capital Territory, Abuja, Nigeria. An objective realization instrument developed using twelve (12) factors identified in the literature as possible constraints to the implementation of PPPs projects were ranked based on the Likert five-point scale. The score of respondents to the factors were analyzed using descriptive and inferential statistics and factor analysis as the major tool. Results of the analysis among others show that the Dearth of transparency in partnership arrangements is the most critical and impeding factor constraining the implementation of PPPs projects in the Nigerian construction industry. This is followed by in that order, lengthy bidding processes associated with PPPs, cost overruns, differences in interests and expectations of the stakeholders, inappropriate feasibility studies by contractor/consultants, excessive risks associated with PPPs, forecasting errors, lack of support and political will, inability of the public sector to appreciate partnerships in a PPP environment, not enough due diligence, poorly defined sector policies and public oppositions.

Keywords- *Public Private Partnerships, Project, Project Management, Project Implementation, Factor Analysis.*

I. INTRODUCTION

The growth in infrastructure project in Nigeria has been too slow compared to her counterpart in other parts of the world. The absence of power, poor transportation facilities, to mention but a few, has contributed in dragging the country's economic growth backwards. PPPs has come to the rescue as a major player in fast tracking the delivery of infrastructure projects (Kwak et al, 2009). They further stated that if properly

managed and formulated could provide a lot of benefit such as alleviating of financial burden, risk transfer and provision of value for money spent.

The traditional method of procuring infrastructure by the public institutions via fiscal budgeting has increasingly become unviable most especially in a developing country like Nigeria. According to Charles,(2006) microeconomic instability, as well as growing investment requirement has depicted the lapses in public financing to be volatile and inefficient. This assertion necessitated the introduction of PPPs as a viable option that may dominate in years to come the infrastructure and other service delivery sectors of developing countries.

PPPs has received wide publicity as to its effective and efficient modes of delivery of infrastructure projects in the developed countries like the U.S, Europe and the U.K, but in the developing or third world countries like Nigeria, little or none of it has been considered in this part of the world. This paper is going to shed more emphasis on the identification of key critical factors constraining the implementation of PPPs in the Delivery of construction projects in Nigeria.

Nigeria as an oil dependent country, whose proceeds from that sector accounts for about 40 percent of the country's GDP and also accounts for about 85 percent of her foreign exchange earnings (Akerle and Gidado, 2003). Akerle and Gidado, (2003) further stated that with Nigeria's large reserve of human and natural endowment, the country has the where with all to build a healthy, wealthy economy, thus providing health, education and infrastructure for its citizen and reduced poverty to its barest minimum. With the attendant and corresponding wealth in the oil sector, the country is still bedeviled with wide spreads poverty and placed amongst the poorest countries of the world. Akerle and Gidado (2003) however opined that economic mismanagement corruption as well as over reliance on oil have been the reasons for such poor economic indices and astronomical rising poverty level in the life of its citizens.

II. PUBLIC PRIVATE PARTNERSHIPS (PPPs) –DEFINITION

Colverson and Perera (2012); Kwak et al (2009) and Batran et al (2005), opined that there is no clear definition of PPPs. This is as a result of its problematic nature via contextual

concept, response to legal, Institutional as well as investing in different jurisdictions bearing in mind various individual agreements of parties concerned. Not minding the impasse as a result of the contextual nature of PPPs. According to Cheung et al (2010) PPPs is defined as a method of procurement where both the public and private sector participants agree to bring in their resources to deliver a facility via the sharing of risks. Other authors Chinyere and Lin (2008) also defined PPPs as an agreement /arrangement where the public and private sector service providers agree to be involved in the provision of infrastructure using both parties' resources to their advantage. Different Definition of PPPs abounds, but the most specific lies around the concessioning of most PPPs. According to Batran et al (2005) the US-based National Council for Public-Private Partnerships, defined PPP as "a contractual agreement between a public agency (federal, state or local) and a for-profit corporation. Through this agreement, the skills and assets of each sector (public and private) are shared in delivering a service or facility for the use of the general public.

III. PPPs AND THE CONSTRUCTION SECTOR IN NIGERIA

The Nigeria construction industry is a significant sector of the country's economy contribution to its GDP Asuquo (2011). However, the country's performance in the construction sector has not been encouraging, between the late 80's and late 90's. The only period where there was an appreciable increase in the nation's GDP was during the era of "oil boom" that is in the early 80's. Asuquo (2011) further stated that the underperformance of the nation in the construction sector is largely attributed to the weakness of the economy and the over dependence of the country on its oil to the detriment of the construction sector and other viable sectors of the economy. Colverson and Perera (2012) further opined that in the last 20 years, there were about 1300 PPP contracts worth over £5 million signed in the E.U stating the U.K. Spain, Germany, Italy, France and Portugal as major proponents of PPP in that order. While in the U.S, funded PPP projects between 1985 and 2010 was to the tune of \$59.5 billion for a total of 363 projects. While developing countries according to Colverson and Perera (2012), Asuquo (2011) and Akintoye et al (2011) have gradually found their ways into the PPPs market throughout the 1990s. In the Sub-Saharan Africa, where Nigeria lies, has had a feel of the PPP with a 7 percent improvement in its PPP projects from 1999 to 2009 with 43 out of the 48 member nations adopting PPPs. With a total project of 238, the average number of projects in the countries for a period of 10 years is abysmally low giving conditions attached to PPPs arrangements. Nigeria and South Africa account for more than 25 percent of the region's investments mainly in the areas of Energy and Telecommunication (Colverson and Perera 2012). The table below shows a list of ongoing and proposed PPPs projects in Nigeria.

[See Table 1](#)

In Nigeria, the involvement of the private sectors in construction business is not new, although such activities were initially restricted to the housing sectors. With the dawn of democracy in 1999, with its attendant benefit and incentives

associated with integrated solution brought about by the private sectors involvement in government business, so many reforms were introduced for the private sectors to be involved in government affairs and business (Asuquo 2011). Ogunsemi and Aje (2006) in a statement, stated that the procurement system in Nigeria has been bedeviled by series of abuses in the ways and manners such project are delivered either to cost and time targets. In their assertion, these abuses have led to failure to deliver such projects and their subsequent abandonment. The figures below depict this statement as stated by Izuwah, 2011. Figure 1 a, is the conventional public procurement while 1 b, is PPP procurement.

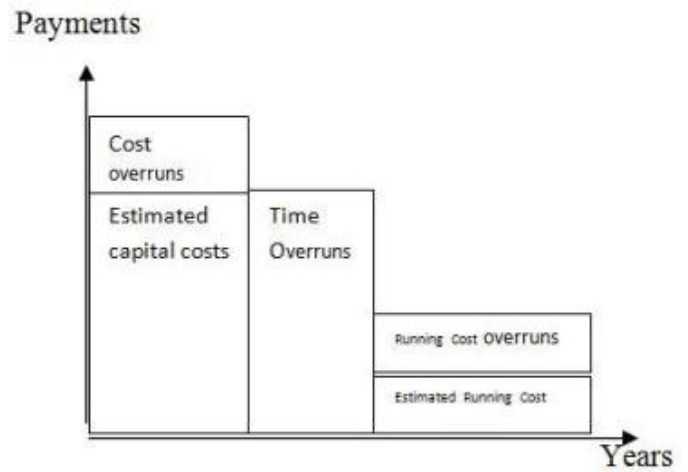


Figure 1-a

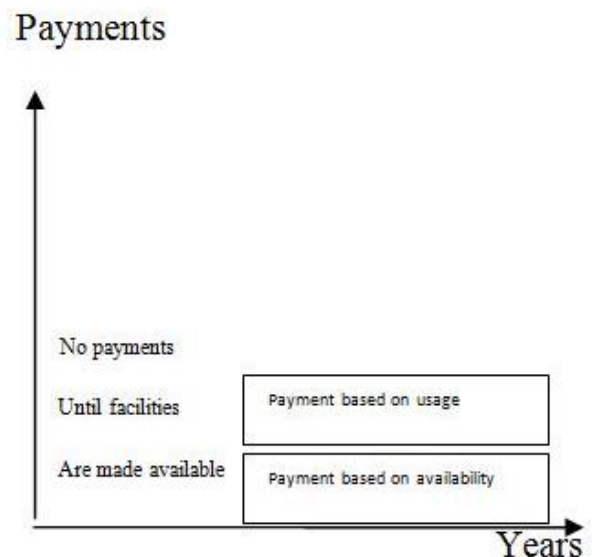


Figure 1-b

The objective this study intends to achieve includes;

1. Identify the factors constraining Nigerians in adopting PPPs in realization of the objectives of their construction projects as well as the perception of stakeholders about the PPPs.

A cursory look at these objectives would proffer far reaching measures in curbing the problems identified.

IV. VARIANTS OF PPPs

According to Kwak et al (2012), there are different types of PPPs that have been implemented to portray various objectives and requirements. The partnership arrangements in most cases differ in terms of both the private and public entity involvement. This assertion by Kwak et al (2012) also collaborates with Chinyere and Lin (2011) views on the degree of involvement of both private and public entities as well as the riskiness of both parties involvement.

- i. Build-Operate-Transfer (BOT): Is a type of PPPs, where the private entity has the sole responsibility for funding, designing, and operating the project. The project is finally transferred by way of ownership to the public entity after a concession period.
- ii. Build-Own-Operate (BOO): In this type of PPPs, the private entity funds, builds, owns, and operates an infrastructure in perpetuity, while the public entity provides avenues for delivering the facility/project.
- iii. Build-Own-Operate-Transfer (BOOT) -: In this method of PPPs, the characteristics of BOO and BOT comes to play. But in this case, the private entity introduces a service charge throughout the concession period, before the facility is handed over to the public entity in perpetuity.
- iv. Design-Build-Finance-Maintain (DBFM): The DBFM type of PPPs is similar to the BOOT. In the DBFM method, the private entity designs, builds and funds a project and then after carry out maintenance works as part of the contractual obligations before transferring it to the public entity.
- v. Design-Build-Finance-Operation (DBFO): in this type of PPPs arrangement, the private entity funds the project by way of debt financing or lending while operating the facility during the concession period before transferring it to the public entity.
- vi. Build Lease or Own Operate (BL) : In the BL method, the private entity possess land through lease and goes ahead to build and operate the facility.
- vii. Buy- Build-Operate (BBO): In this type of PPPs, an already exists public asset is transferred from the public sector entity to the private entity under a contract and then stipulating that the asset be upgraded and operated for a specific period.
- viii. Operation License (OL) -: In this type of PPPs, the private entity is granted license under an agreement to operate a public service for a specific period.
- ix. Finance Only (FO) -: In a FO PPPs arrangement, the private entity usually in the form of a financing company is granted rights to finance a project by way of long term leasing or bonds.
- x. Design Build (DB)-: In a DB arrangement, the private entity designs and builds an infrastructure to meet the need of the public entity for a fee which on completion the public entity assumes full responsibility for the operation invariably transferring the risks of cost overruns to the private entity. It is pertinent to state that most authors do

not consider DB as a variant of PPPs, but Jatto, (2011) argued that in a PPPs arrangement, the public entity does not purchase an asset, but rather engaging certain services under specified terms and conditions and as such DB possessed a far reaching PPPs characteristics such as integration and output based performance specification compared to other conventional procurement approaches that are cost and schedule based.

- xi. Design-Build-Maintain-(DBM) –In this type of PPPs, the private entity assumes the obligation to design, construct and maintain a facility under a long term maintenance arrangement. The public entity retains ownership and operation of the infrastructure.
- xii. Operations and Maintenance Contracts (O and M)- A type of PPPs, where the private entity is constrained to the operation and management of a publicly owned facility or other infrastructure related service over a period of time.
- xiii. Concessions-This type of PPPs arrangement takes place where a private entity assumes exclusive rights to construct, operate and maintain a facility for a long period of time based on the requirements set by a public entity. The public entity retains the facility in perpetuity while the private entity retains ownership within the concession period.
- xiv. Joint Ventures-In this type of PPPs, both the public and private entities jointly finance, own and operate an asset under the same contract.

V. CONSTRAINING FACTORS TO PPPS IMPLEMENTATION

A detailed literature search was conducted and 45 constraints were identified as inhibitors to the realization of construction projects using PPPs.

Kwak et al (2009) identified lack of clear government objectives and commitment, complex decision making, poorly defined sector policies, inadequate legal/regulatory frameworks, poor risks management, low credibility of government policies, inadequate domestic capital markets, lack of mechanisms to attract long-term finance from private sources at affordable rates, poor transparency as well as lack of competition and efficiency. Other constraints as enumerated by Kwak et al (2009) also include; high tendering costs, political debates, public oppositions, and complex negotiation processes amongst others. While Izuwah (2011), identified various constraints to include; political involvement at the implementation level of projects, not enough due diligence by contracting firms, improper evaluation of financial models and risks, lack of transparency and competition in procurement processes, lack of institutional frameworks and legislation to foster PPPs and finally the inability of the public sector to appreciate partnerships in a PPP environment. Cheung (2009) on her part, identified factors constraining PPPs as unstable political environment, high bidding costs, cost overruns, excessive risks as well as lengthy bidding processes associated with PPPs. While Kaplan et al (2012) in a World Bank Report posited that lack/poor regulatory authorities as well as poor capacity building and institutional strengthening are inhibitors

to the delivery of PPPs in Liberia. Double taxation as perceived by the general public, high consumer prices on the part of consumers, the continuous reliance on external consultants as well as misconceptions on the side of government officials are said to be constraining the implementation of PPPs. (Colverson and Perera 2012). While Zou et al (2008) opined complexity in contractual structure, inappropriate feasibility study, poorly defined sector policies, differences in interest and expectations, lack of a reliable concessionaire consortium with strong technical strength as well as unfavourable economic conditions as impeding factors to PPPs implementation. Shendy et al (2011) identified lack of legislative and institutional framework, underdeveloped PPPs pipeline, and lack of coordinated public sector strategies as hindrances to PPPs. Susilawati and Armitage (2004) also found difficulty in managing partnership as a result of their mode of incorporation as partners and the dearth of transparency in partnership arrangements as impediments to PPPs. Helmy (2011) further identified long contractual procedures on the part of public agencies, lack of awareness on PPPs laws and regulations, public agency lacking experience and knowledge of PPPs, lack of land and its acquisition procedures, and frequent conflicts between consultants and clients as constraints to PPPs in Kuwait. Michael (2012) in his study in Queensland, identified dearth of specialized PPP unit, lack of independence, lack of support and political will, forecasting error as well as misplacement of risks markets in PPPs as constraints to PPPs. Wambalaba et al (2012) in a study in Dakar, also identified political interference, vested interest, corruption, distrust, lack of contract transparency and lack of supportive legal structure as impediments to PPPs implementation.

VI. QUESTIONNAIRE SURVEY

An empirical research survey questionnaire that solicit the perceptions of the key project stakeholders on applying PPPs approach in terms of the factors leading to non-realization and constraining of PPPs projects implementation. Key participants in the PPPs projects were the targets of the survey. Self-administered questionnaires were distributed to target respondents and they include Architects, Engineers, Project Managers, Builders, Quantity Surveyors and other related professionals in the construction related as well as government agencies, private property developers, project consultants and main contractors with abundant hands-on experience in participating in PPP projects within the FCT, Abuja. The research adopted a thorough and deterministic method by way of responses. The list of constraining factors to PPPs implementation obtained from the literature provided an opinion on the extent of influence of the factors on the Likert five-point scale. The principal component for data collection is the questionnaire where seventy (70) respondents were sampled from valid responses, while fifty-five (55) responses from the respondents was actually used for the analysis with a response rate of 78.6%. Forty-five (45) constraining factors to PPPs implementation in the construction industry were used in developing the questionnaire. In addition, the data collected were also used to compare the opinions between clients, organizations, project consultants and main contractors in

applying PPPs approach. Results of the questionnaire survey were analyzed to investigate the participants' views and opinions on PPPs by using different statistical techniques with the aid of SPSS 17.0. First, a descriptive statistics of the major respondents in terms of their frequency as regards their fields of study, years of experience, academic qualification as well as professional affiliations were presented. The second analysis was intended to explore and detect underlying relationships among the constraints to the implementation of PPPs using factor analysis.

Factor analysis is a statistical technique used to identify a relatively small number of factors that can be used to represent relationships among sets of many interrelated variables (Amade, et al, 2012, (SPSS 17.0), (Landau & Everitt, 2004), (Guar & Guar, 2009). The principal component analysis for factor extraction is used in the analysis, the distinctive characteristic being its data-reduction capability.

[See Table 2](#)

In analyzing the data collected, the score for respondents to each of the constraining factors were generated. For the purpose of this study, a factor analytical technique was adopted to assess the extent of the respondent's perception to the forty-five constraining factors to PPPs implementation. Factor analysis is a method of quantitative multivariate analysis with the sole objective of representing the interrelationships among a set of continuously measured variables (usually represented by their interrelationships) by a number of underlying linearly independent variables called factors.

Factor analysis therefore seeks to collapse the numerous operating variables into fewer dimensions of interrelated attributes called principal components. The eigenvalue determines the principal components, which are orthogonally varimax, rotated to obtain more evenly distributed variables among the components. Various tests are required for the appropriateness of the factor analysis for the factor extraction, including the Kaiser Meyer Olkin (KMO) statistic, and Barlett test of sphericity. The results of these tests are shown in the Table 9.2. The 45 factors were subjected to factor analysis, with principal component analysis and varimax rotation. The first stage of the analysis is to determine the strength of the relationship among the variables.

The mathematical procedure of factor analysis assumes that an $n \times n$ matrix A has eigenvalue

λ if there exists a non-zero vector x , called an eigenvector associated with λ , for which:

$$Ax = \lambda X \dots\dots\dots 1$$

From the above model, it follows that the matrix $A - \lambda I$ is singular and therefore that

$$\det(A - \lambda I) = 0 \dots\dots\dots 2$$

This is a polynomial equation in λ of degree n from which it follows that A has at most n eigenvalue. The polynomial $\det(A - \lambda I)$ is called the characteristic polynomial of A .

Some roots of this characteristic equation may be repeated and we talk about the (algebraic) multiplicity of the eigenvalue

in the same way as the multiplicity of roots of polynomials. In the event that the multiplicity of an eigenvalue is greater than the dimension of the vector space spanned by its associated eigenvalue, then the matrix is said to be defective.

Solving the eigenvalue problem, that is eigenvalues and associated eigenvectors, is, in general best achieved by methods other than solving the characteristic equation.

VII. DATA ANALYSIS

Descriptive Statistics of the Respondents

Table 3. Frequency Table

Field of Study					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ARCHITECT	9	16.4	16.4	16.4
	PROJECT MANAGER	9	16.4	16.4	32.7
	BUILDER	12	21.8	21.8	54.5
	QUANTITY SURVEYOR	23	41.8	41.8	96.4
	ENGINEER	2	3.6	3.6	100.0
	Total	55	100.0	100.0	

From the frequency table above, (41.8%) 23 respondents are made up of Quantity Surveyors. This is followed by Builders (21.8%) 12, Architects and Project Managers (16.4%) 9 each and Engineers (3.6%) 2.

Table 4

Years of Experience					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	11 -15 YEARS	18	32.7	32.7	32.7
	16 -20 YEARS	20	36.4	36.4	69.1
	20 YEARS AND ABOVE	17	30.9	30.9	100.0
	Total	55	100.0	100.0	

From the table above, (36.4%) 20 respondents had put in 16-20 years in the construction business. This is followed by (32.7%) 18 respondents spending within 11-15 years as well as (30.9%) 17 of the respondents spending 20 years and above.

Table 5

Academic Qualification					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	HND/BSC	22	40.0	40.0	40.0
	MSc/MEng	29	52.7	52.7	92.7
	PhD	4	7.3	7.3	100.0
	Total	55	100.0	100.0	

From the table above, (52.7%) making 29 of the respondents had Master's degree related qualifications. While (40%) 22 had Bachelor's related degrees and finally (7.3%) 4 had Doctorate degrees in their respective areas of specialty.

Table 6

Professional Affiliation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N.I.A.	10	18.2	18.2	18.2
	P.M.I.	8	14.5	14.5	32.7
	N.I.O.B.	12	21.8	21.8	54.5
	N.I.Q.S.	23	41.8	41.8	96.4
	N.S.E.	2	3.6	3.6	100.0
	Total	55	100.0	100.0	

From the table above, (41.8%) making up 23 of the respondents are professional members of Nigeria Institute of Quantity Surveyors (N.I.Q.S.). While (21.8%) 12 of the respondents are professional members of the Nigeria Institute of Building (N.I.O.B.). Others are (18.2%) 10, (14.5%) 8 and (3.6%) 2 for Nigeria Institute of Architects (N.I.A.), Project Management Institute (P.M.I.) and Nigeria Society of Engineers (N.S.E.) respectively.

VIII. ESTIMATION OF THE POSSIBLE INTENSITY OF THE CONSTRAINING FACTORS TO PPPs IMPLEMENTATION

The estimation of the possible intensity of the constraining factors to PPPs implementation is done using the communality extraction as shown on Table 4.3. The least extraction of 0.618 is associated with factor DST (Distrust), while the highest extraction of 0.915 factor IFS (Inappropriate Feasibility Study). It therefore shows that each of the factors has indicated high potentials of affecting the implementation of PPPs projects.

[See Table 7](#)

IX. VARIANCE IN LEVEL OF THE CONSTRAINTS TO PPPS IMPLEMENTATION

Using the scores generated based on the maximum likelihood extraction of the Factor Analysis tool of SPSS.

[See Table 8](#)

A total of fifteen (15) principal components have been extracted. These fifteen components generated cumulative variance explanation of 79.762% as shown by the extracted sums of square loading.

Factor Loading Matrix

[See Table 9](#)

The results show that the above 45-factors can be grouped in fifteen (15) decision matrix (components) constraining the implementation of PPPs projects. However, 5-principal components were extracted for effectiveness. In the first component, 2 factors DPA and LBP, in that order loads positively maximally, in the second component, 4 factors; COO, DIE, IFS, and EXR, loads positively maximally. In the third component 3 factors FOE, LSP, and IPP loads positively maximally. While in the sixth component, 2 factors NDD and PDP loads positively maximally. And finally in the eight component, only 1 factor PUO loads positively maximally also.

Table 10. Test of Reliability - KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.181
Bartlett's Test of Sphericity	Approx. Chi-Square	1790.744
	Df	990
	Sig.	.000

The Kaiser-Meyer-Olkin (KMO) measure of sampling accuracy, anti-image correlation, and measure of sampling activities (MSA) as well as the Bartlett's Test of Sphericity displayed as follows; the KMO value of 0.181, is not too satisfactory because of its inability to equate to 1. In a nut shell, it depicts that factor analysis (principal component analysis) alone, may not be appropriate for the analysis, except in combination with other analytical method like principal axis factoring. The Bartlett's test of sphericity value of 1790.744 with an associated significant level of 0.000 indicating that the population correlation matrix is not an identity matrix. The correlation matrix of the factors constraining the implementation of PPPs projects indicates that they all have a significant correlation at a 5% level implying the need not to exclude any of the variables from the principal component analysis.

X. DISCUSSION OF RESULTS

In estimating the possible intensity of the constraints to PPPs implementation using the communality extraction as shown on Table 4.3. The least extraction of 0.618 was associated with factor DST (Distrust), while the highest extraction of 0.915 factor IFS (Inappropriate Feasibility Study).

It therefore implies that each of the constraining factors has indicated high potentials of affecting the implementation of PPPs projects. In Nigeria for instance, the corruptible tendencies of contractors and clients in construction business is inevitable and this has consistently led to projects being abandoned.

A total of fifteen (15) principal components were extracted from the forty-five (45) original factors after being subjected to the principal component analysis. These fifteen components generated cumulative variance explanation of 79.762% as shown by the extracted sums of square loading. Furthermore, the results show that the 45-factors that were grouped in fifteen (15) decision matrix (components) constraining the implementation of PPPs projects led to the extraction of 5-principal components for purposes of effectiveness. In the first component, 2 factors DPA (Dearth of transparency in partnership arrangements) 0.618 and LBP (Lengthy bidding processes associated with PPPs) 0.582, in that order loads positively maximally, this assertion of lack of transparency in partnership arrangements agrees with (Ayangade, et al 2009) while also the issue of lengthy bidding processes has always been the case with PPPs. In the second component, 4 factors; COO (Cost overruns) 0.592, DIE (Differences in interests and expectations) 0.560, IFS (Inappropriate feasibility studies) 0.548, and EXR (Excessive risks) 0.515, loads positively maximally, Excessive risks and cost overruns are factors adjudged to be constraints as stated by Cheung, (2009) and Cheung, et al (2010 pg 21). In the third component 3 factors FOE (Forecasting errors) 0.625, LSP (Lack of support and political will) 0.595, and IPP (Inability of public sector to appreciate partnerships in a PPPs environment) 0.511 loads positively maximally. While in the sixth component, 2 factors NDD (Not enough due diligence) 0.624, contracting bodies lacking the wherewithal to do a thorough technical, financial analysis on proposed PPPs arrangements as stated by Izuwah, (2012) and PDP (Poorly defined sector policies) 0.545 loads positively maximally. And finally in the eight component, only 1 factor PUO (Public oppositions) 0.510 loads positively maximally too.

In the case of the respondent's frequency with relation to their profession, years of experience in the construction industry, requisite academic qualifications, and professional membership, the following were however articulated, (41.8%) 23 of the respondents being the majority are made up of Quantity Surveyors. While in the area of the respondent's years of experience, (36.4%) 20 of the respondents had put in substantially 16-20 years in the construction business. It implies that most of the respondents are highly experienced and are bound to elicit genuine response in the course of carrying out the research. On the part of the respondent's academic qualification, (52.7%) making 29 of the respondents had Master's degree related qualifications. This also is a credit to this work as it depicts the respondents are well educated and their judgment cannot be questioned. And finally, (41.8%) making up 23 of the respondents are professional members of Nigeria Institute of Quantity Surveyors (N.I.Q.S) indicating that they are also qualified and can contribute meaningfully without any form of bias. The results expressed the generation of adequate opinion of the construction industry as the entire

construction professionals are adequately represented in the study.

XI. CONCLUSION

Based on the results of the analysis, the following conclusions were arrived at;

1. The five (5) principal components factors based on the (45) decision factors are impediments to the implementation of PPPs construction projects in Nigeria.

2. The use of the five principal component factors explains 79.762% of constraints to the implementation of PPPs in construction projects in Nigeria.

3. The Dearth of transparency in partnership arrangements from the study is the most critical and impeding factor constraining the implementation of PPPs projects in the Nigerian construction industry. The lack of transparency and accountability in procurement activities gave rise to the setting up of the due process policy by the Federal Government of Nigeria. This is followed by in that order, lengthy bidding processes associated with PPPs, cost overruns, differences in interests and expectations of the stakeholders, inappropriate feasibility studies by contractor/consultants, excessive risks associated with PPPs, forecasting errors, lack of support and political will, inability of the public sector to appreciate partnerships in a PPP environment, not enough due diligence, poorly defined sector policies and public oppositions.

Based on the conclusions arrived at from the study, it is pertinent to state that the Nigerian government can borrow from this study as a way of creating the platform for the realization of their PPPs activities for purposes of meeting up their infrastructural challenges. Other developing countries in Sub Saharan Africa and beyond can also pitch tent with these findings as a way of launching their countries into the PPPs business.

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TABLE 1

	Project title	Handling company	Status of project	Period of conclusion
1	Murtala Mohammed Airport 2 Lagos (BOT)	Bi-Courtney Aviation services	Operational	36 years
2	Lekki-Epe Expressway toll road concession	Lekki concession company LCC	Ongoing (under construction)	
3	DBOT Federal Toll Roads	Bi – country consortium	Negotiation ongoing	
4	Warri, Calabar and Onne Seaports	Intels Nigeria LTD	Operational	
5	FM of Agric Silos and Reservations facilities	National food Reserve Agency	Under construction	
6	Cross River state theme parts project	Jack Rose America	Under construction	
7	Kuje water supply ppp project	_	Design consultants wanted.	
8	Erekesan market Akerre	Akerre council /spring Bank	Operational	
9	Garki/Wuse market, Abuja	Abuja market management Ltd	Operational	
10	Tinapa Biz Resort, Calabar	State tourism Board, Calabar	Operational	Concluded
11	Lagos /Ibadan Expressway(DBOT)	Bi-Courtney consortium	Yet to Kick off project yet to achieve financial close.	25 years

Sources : Asuquo, 2011 and Izuwah, 2011

TABLE 2. DESCRIPTIONS OF THE CONSTRAINING FACTORS

S/N	Code	DESCRIPTION
1.	LCO	Lack of clear government objectives and commitment
2.	CDM	Complex decision making
3.	PDP	Poorly defined sector policies
4.	PRM	Poor risk management
5.	LCG	Low credibility of government policies
6.	IDC	Inadequate domestic capital market
7.	LMF	Lack of mechanisms to attract long term finance from private sources at affordable rate
8.	HTC	High tendering costs
9.	PUO	Public oppositions
10.	PII	Political involvement at the implementation level of projects
11.	NDD	Not enough due diligence by contracting firms
12.	IEF	Improper evaluation of financial models and risks
13.	LTC	Lack of transparency and competition in procurement processes
14.	LIF	Lack of institutional frameworks and legislation to foster PPPs
15.	IPP	Inability of the public sector to appreciate partnerships in a PPP environment
16.	UPE	Unstable political environment
17.	COO	Cost overruns
18.	EXR	Excessive risks
19.	LBP	Lengthy bidding processes associated with PPPs
20.	PCB	Poor capacity building and institutional strengthening
21.	DTP	Double taxation as perceived by the public
22.	HCP	Higher consumer prices on the part of consumers

23.	CRC	Continuous reliance on external consultants
24.	MPP	Misconceptions on the part of public officials
25.	IFS	Inappropriate feasibility study
26.	DIE	Differences in interests and expectations
27.	LRC	Lack of a reliable concessionaire consortium with strong technical strength
28.	UEC	Unfavourable economic conditions
29.	UPP	Underdeveloped PPPs pipeline
30.	LCP	Lack of coordinated public sector strategies
31.	DMP	Difficulty in managing partnerships as a result of their mode of incorporation
32.	DPA	Dearth of transparency in partnership arrangements
33.	LAP	Lack of awareness on PPPs laws and regulations
34.	LEK	Lack of experience and knowledge of PPPs on the part of public agencies
35.	LLA	Lack of land and its acquisition procedures
36.	FCC	Frequent conflicts between consultants and clients
37.	DSP	Dearth of specialized PPP unit
38.	LOI	Lack of independence
39.	LSP	Lack of support and political will
40.	FOE	Forecasting error
41.	MRP	Misplacement of risks markets in PPPs
42.	VEI	Vested interests
43.	COR	Corruption
44.	DST	Distrust
45.	LCT	Lack of contract transparency

TABLE 7. COMMUNALITIES

Communalities			Communalities			Communalities		
	Initial	Extraction		Initial	Extraction		Initial	Extraction
LCO	1.000	.817	UPE	1.000	.689	DMP	1.000	.836
CDM	1.000	.812	COO	1.000	.763	DPA	1.000	.852
PDP	1.000	.837	EXR	1.000	.874	LAP	1.000	.764
PRM	1.000	.799	LBP	1.000	.868	LEK	1.000	.860
LCG	1.000	.768	PCB	1.000	.798	LLA	1.000	.757
IDC	1.000	.822	DTP	1.000	.771	FCC	1.000	.763
LMF	1.000	.773	HCP	1.000	.780	DSP	1.000	.695
HTC	1.000	.797	CRC	1.000	.828	LOI	1.000	.620
PUO	1.000	.818	MPP	1.000	.846	LSP	1.000	.838
PII	1.000	.840	IFS	1.000	.915	FOE	1.000	.903
NDD	1.000	.849	DIE	1.000	.723	MRP	1.000	.776
IEF	1.000	.662	LRC	1.000	.840	VEI	1.000	.848
LTC	1.000	.760	UEC	1.000	.888	COR	1.000	.823
LIF	1.000	.768	UPP	1.000	.877	DST	1.000	.618
IPP	1.000	.795	LCP	1.000	.814	LCT	1.000	.749

Extraction Method: Principal Component Analysis.

TABLE 8. TOTAL VARIANCE EXPLAINED

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.443	14.317	14.317	6.443	14.317	14.317
2	4.258	9.462	23.779	4.258	9.462	23.779
3	3.546	7.881	31.660	3.546	7.881	31.660
4	2.736	6.080	37.739	2.736	6.080	37.739
5	2.469	5.487	43.226	2.469	5.487	43.226
6	2.345	5.212	48.438	2.345	5.212	48.438
7	2.167	4.815	53.253	2.167	4.815	53.253
8	1.981	4.402	57.655	1.981	4.402	57.655
9	1.863	4.141	61.795	1.863	4.141	61.795
10	1.734	3.854	65.649	1.734	3.854	65.649
11	1.500	3.333	68.983	1.500	3.333	68.983
12	1.416	3.146	72.128	1.416	3.146	72.128
13	1.231	2.736	74.865	1.231	2.736	74.865
14	1.195	2.656	77.520	1.195	2.656	77.520
15	1.009	2.242	79.762	1.009	2.242	79.762
16	.896	1.991	81.753			
17	.836	1.859	83.611			
18	.786	1.747	85.358			
19	.729	1.620	86.978			
20	.720	1.599	88.577			
21	.633	1.408	89.984			
22	.523	1.163	91.147			
23	.493	1.095	92.242			
24	.464	1.031	93.273			
25	.450	1.001	94.274			
26	.379	.842	95.116			
27	.345	.766	95.882			
28	.285	.633	96.515			
29	.263	.584	97.099			
30	.220	.489	97.587			
31	.180	.400	97.987			
32	.159	.354	98.341			
33	.141	.314	98.655			
34	.122	.271	98.926			
35	.110	.244	99.170			
36	.087	.194	99.364			
37	.068	.150	99.514			
38	.063	.141	99.655			
39	.049	.110	99.765			
40	.039	.087	99.852			

41	.025	.055	99.907			
42	.021	.046	99.953			
43	.014	.032	99.985			
44	.005	.011	99.996			
45	.002	.004	100.000			
Extraction Method: Principal Component Analysis.						

TABLE 9. COMPONENT MATRIX A

Component Matrix^a															
	Component														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LCO	-.528	-.047	-.307	.468	.126	-.089	-.100	-.132	.190	-.027	.191	.183	.245	.058	-.035
CDM	.315	-.372	-.214	.375	.119	-.201	.062	-.065	.317	-.229	-.157	-.054	.346	-.093	.132
PDP	.390	-.047	-.072	-.157	-.404	.545	-.106	-.006	.223	-.225	.084	.068	.222	.132	-.050
PRM	-.133	-.435	.329	-.170	-.261	-.147	.315	-.094	-.164	.322	-.144	.027	-.015	.254	-.199
LCG	.357	.259	-.177	-.159	.363	.057	-.244	.021	.222	.071	.080	.319	.120	.188	-.332
IDC	-.138	.460	.398	-.272	-.257	.083	.190	.038	.227	.081	-.260	.132	.218	-.241	.000
LMF	.437	.213	.497	.015	-.110	-.155	.198	-.146	.345	.073	.119	-.211	.013	.049	-.081
HTC	.424	.260	.178	.234	.149	-.222	.220	-.143	.076	-.126	.331	-.318	-.196	.083	-.213
PUO	-.378	-.019	.126	-.053	.238	-.060	.038	.510	.098	.180	.361	.172	.156	-.327	.033
PII	.292	-.505	-.267	.330	.041	.143	.123	.472	-.056	-.009	.019	-.105	-.034	.189	-.088
NDD	.189	-.562	-.029	.136	.212	.624	-.055	.008	.089	.002	-.128	.006	-.123	.036	.018
IEF	.000	-.629	.105	-.057	.319	.092	.034	-.077	.109	-.166	-.130	.090	-.051	-.260	.035
LTC	.085	-.503	.026	.243	-.161	-.037	-.014	-.018	.372	-.114	-.192	.331	-.330	.041	.065
LIF	.256	.294	.347	.396	-.101	.126	.151	-.257	.136	-.185	-.120	.218	-.117	.113	.287
IPP	.321	.347	.511	.359	.082	.140	.176	.093	-.003	-.290	-.114	.078	-.012	.108	-.021
UPE	.414	.368	-.125	.013	-.013	.289	.009	-.049	-.318	-.376	-.086	.084	.139	-.048	-.039
COO	-.399	.592	-.063	.295	.094	-.011	-.099	-.030	.039	.071	.019	.054	-.074	.259	.247
EXR	.336	.515	-.156	-.033	.109	.117	-.314	.131	.044	.281	-.257	-.386	-.050	.151	.093
LBP	.582	.108	-.115	-.381	.483	.029	.028	.133	.045	.135	-.131	-.183	.048	-.160	.087
PCB	.318	-.046	-.109	-.265	.448	-.007	.273	-.035	.321	-.236	.129	-.319	-.179	-.166	.019
DTP	-.451	-.049	.450	.193	.254	-.099	-.062	.035	.309	-.155	.050	-.151	.230	.187	.115
HCP	-.273	-.217	.491	-.042	.148	-.024	.089	.409	.178	.010	-.406	-.080	.097	-.071	-.001
CRC	-.530	-.076	.306	.045	-.160	.321	-.052	.173	.040	.094	-.144	-.180	.360	.023	-.301
MPP	-.111	-.075	.022	.229	.204	.149	-.349	-.611	-.107	-.053	.017	-.305	.282	.018	-.168
IFS	-.611	.548	.051	-.084	.111	.155	.251	-.053	-.057	-.219	-.083	.109	-.051	-.209	-.118
DIE	-.317	.560	.057	-.087	.118	.189	.406	-.155	-.138	-.106	-.120	.061	-.058	-.066	-.056
LRC	.463	.225	-.113	-.177	.104	.047	-.107	-.056	.282	.391	-.154	.223	.289	.155	.300
UEC	.406	-.138	-.084	-.610	-.058	.035	.302	-.164	-.050	-.146	.062	.252	.124	.286	-.117
UPP	.411	-.338	.345	-.413	.369	-.147	-.050	-.125	-.053	-.059	.115	.254	.017	.207	.029
LCP	.190	-.017	.493	.101	.431	-.125	-.352	-.167	-.190	.105	.222	.244	-.003	-.115	-.037

DMP	.468	.228	.264	.421	-.043	-.200	-.179	.048	.224	.202	-.152	.118	-.116	-.162	-.272
DPA	.618	.208	.182	.227	.028	.120	-.164	.346	.016	.003	-.153	.118	-.230	.070	-.292
LAP	.340	.454	-.035	-.149	-.093	.205	-.263	.375	.032	-.119	.286	-.008	-.071	-.010	.234
LEK	.186	-.221	.117	-.041	-.617	.338	-.054	.080	.214	-.069	.406	-.145	-.059	-.128	.034
LLA	-.516	-.011	.108	.183	.197	.491	.104	.005	.091	.164	.227	-.058	-.036	.249	.026
FCC	-.431	-.100	-.183	.117	.313	.361	.411	-.141	-.006	.175	-.072	.079	-.216	.008	.117
DSP	.144	-.005	.037	-.069	-.369	-.104	.013	-.444	.269	.456	-.022	-.051	-.130	-.142	.059
LOI	.342	-.218	.332	.059	.026	.197	-.291	-.228	-.282	.056	-.087	-.090	-.068	-.248	.037
LSP	.255	-.180	.595	-.084	.068	.488	-.104	-.146	-.209	.102	.016	-.078	.040	-.093	.185
FOE	-.530	.017	.625	-.249	.061	-.045	-.271	.073	-.017	-.164	.058	.026	-.139	.184	-.014
MRP	-.576	-.109	.357	-.274	-.095	-.107	-.350	.054	.098	-.039	.153	.018	-.183	.067	.108
VEI	.300	-.084	.127	.359	.029	.004	.255	.197	-.534	.426	.087	.041	.074	.090	.105
COR	.329	.059	.198	.203	.069	.198	.473	-.039	.142	.290	.427	.146	.160	-.160	-.046
DST	.312	-.061	.104	.264	-.260	-.255	-.073	.053	-.332	-.244	.048	.176	.191	-.199	.130
LCT	.331	-.134	.367	-.036	-.040	-.340	.333	.142	-.126	-.168	-.017	-.256	.177	.231	.208

Extraction Method: Principal Component Analysis.

a. 15 components extracted.