



## Developing Framework for Risk Allocation of Selected Concession-Based Construction Contracts in Lagos State, Nigeria

SANNI, G.A.<sup>1</sup>; JAGBORO, G.O.<sup>2</sup> and OJO, G.K.<sup>2\*</sup>

<sup>1</sup>Department of Quantity Surveying, Auchi Polytechnic, Auchi, Edo State, Nigeria

<sup>2</sup>Department of Quantity Surveying, Obafemi Awolowo University, Ile-Ile, Osun State, Nigeria

**ABSTRACT:** The performance of concession contracts is largely influenced by optimality of risks allocation between the public and private partners. Individual partner needs post-mortem-based knowledge of operating concession contracts to serve as a guide in risks preference. This paper examined risk allocation of two concession contracts in Lagos State with a view to developing a framework for enhanced risk allocation using case study research method. Lekki Infrastructure Project (LIP) and General Aviation Terminal Building of Murtala Mohammed Airport (MMA2) project were used as case studies. Study population comprised key public and private sectors participants who were principals, regulatory agencies, promoters, contractors, consultants, credit lenders and facility users. The study made use of primary data collected through structured questionnaire and unstructured interview. The survey responses were statistically analysed using Risk Allocation Index (RAI) which is simple majority rule of e"50% consensus among respondents. Twenty five (25) risks associated with concession projects were identified, and evaluated by surveyed respondents on how the risks should have been allocated based on the performance of the projects since inception to date. Findings revealed that nine risks were preferred to the private sector; six to the public sector; five to be shared between the public and private sectors; while five were to be determined by project portfolios. Finance and construction-related risks were preferred to be allocated to the private sector; political and macro-economic risks were preferred to the public sector; post construction and operating risks should be shared among the sectors whereas design-related risks were to be project-specific. Therefore, extensive risk management is recommended for project-specific risks.

**Keywords:** Allocation, Concession, Framework, Public and Private Partners, Risks

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### INTRODUCTION

In Nigeria, most infrastructures are provided by government and usually financed using fiscal budg *et al.* locations, bilateral and multilateral loans or donor funds. Increasing government expenditure has led to fund scarcity to meet the growing demand for public infrastructure. The previously built infrastructures are not adequately maintained and provision of new ones is not meeting current demand and quality (Fashina, 2010). To overcome the budgetary

constraints, and the severe need for new or upgraded infrastructure, Public Private Partnerships (PPPs) have become a major structure in delivering public infrastructure (Hodge and Greve, 2007; Kwak, Chih and Ibbs, 2009; Carbonara, Costantino and Pellegrino, 2014). Likewise in Nigeria, government is partnering with the private sector to provide the infrastructure through Public Private Partnerships (PPP). According to Ma, Du and

\*Correspondence to: Ojo, G.K.; [graceo2010@yahoo.co.uk](mailto:graceo2010@yahoo.co.uk)

Wang (2018), PPP (Public-Private Partnership) refers to a partnership between government and private investors, which cooperate during the construction period of public facilities projects, or to provide public goods and services.

PPP is a generic concept encompassing numerous forms of collaboration between the public and private sectors with the goal of producing an asset or delivering a service (Zhang, 2006; Adegoke, Olaleye and Araloyin, 2010; Dominic, Ezeabasili, Okoro, Dim, and Chikezie, 2015; Sanni *et al.*, 2016; Sanni and Adebisi, 2017). Concession is a variant of PPP (PPI, 2004; Demirag, Khadaroo, Pamela and Stevenson, 2011 and Sanni, 2012) and takes the form of Build-Own-Operate-Transfer (BOOT) and other variants. Concession contract has social, economic, legal and environmental linkages and consequently more complicated, time-consuming and expensive business. This adds to risks previously experience in traditionally procured construction projects. To improve the performance of PPP, risk allocation between parties must be clearly identified and specified in the contract (Glaister, Scanlon and Travers, 2014).

The Federal Government of Nigeria commissioned Bi-Courtney Aviation Services Limited (BASL) to procure General Aviation Terminal Building of Murtala Mohammed Airport (Ikeja, Lagos State) under a BOOT concession agreement. Also through BOOT, the Lagos State Government commissioned Lekki Concession Company (LCC) to procure Lekki-Epe Expressway. The Phase I of the two projects has been completed and commenced operation but there have been series of litigations on both projects (FAAN, 2013 and Lagos State PPP Bureau, 2014). In MMA2, the litigation is between Federal Aviation Authority of Nigeria (FAAN) (which is the overseeing parastatal under the Federal Ministry of Aviation) and BASL over collection of revenues. In LIP, it is between Lekki Residents Association and LCC

over the 'legality' of the project. Lagos State government paid tolls when court injunction restrained LCC from collecting toll at Phase I in 2011 and has suspended tolling at Phase 2 toll till further notice in 2015. FAAN kernel of contention is that BASL gets more revenue that it deserves because the memorandum of concession is skewed in favour of BASL (FAAN, 2013) (Sanni, 2012; Jagboro, Ojo, Opawole and Sanni, 2014). In both cases, the financing responsibility that the public sector is trying to avoid through PPP has not been adequately achieved because the public sector is still indirectly paying for these infrastructures. The two projects confirm that concession contract risks are numerous and high, coupled with long and extensive negotiations or litigations (Tiong, 1995 and Zhang, 2004).

The paper mainly attributed these litigations to contractual misunderstanding that have not been adequately forecast and mitigated in the agreement. These litigations increase expenditure of both sectors, shrink the profit of private investors, discourage future investors and portray Nigeria government's political support or guarantee for concession projects as weak. Vassallo, Ortega, and Baeza (2012) established that the private sector, having realize what concession contracts entail, regarded concession contracts as an attractive but highly risky business; whereas concession contracts are also risky for the government in that public guarantees by the government are provided.

Researches on PPP projects and risks associated abound in literature globally (Juan, 2006; Phillips, 2008; Vassallo, *et al.*, 2012; Chan, 2014; Yevstafyev and Yevstafyev 2014; Song, Song and Zhang, 2015); Arata, Petrangeli and Longo, 2016; Ayalew, 2017; Nguyen, 2017; Kumar, 2018) and especially in Nigeria (Awodele, Ogunlana and Motawa, 2010; Fashola, 2010; Tolani, 2013). However, study whose research method employed post mortem analysis of risk allocation to develop a framework for enhanced concession

contracts Lagos State is scarce. Hence, this paper appraised risks allocation between the public and private sectors and developed a

framework which could enhance the performance of concession contracts.

## LITERATURE REVIEW

### Private sector participation in infrastructure provision

In most cases, the primary aim of involving the private sector in infrastructure provision is to improve service delivery to the citizens (Akintoye *et al.*, 2003, Kwak *et al.*, 2009, Carbonara, *et al.*, 2014) and the private sector sees such as investment opportunity. To achieve this aim, private sector tends to render a level of service that is timelier, more cost efficient and, higher in quality than if the public sector had retained the provision responsibility; although Opawole and Jagboro (2017) identified barriers private sector performance on concession contracts. According to Adegoke, *et al.* (2010), international experiences have shown that there are many issues determining the success of PPP, despite its widely acknowledged advantage for better service delivery than public sector initiatives. Loosemore and Ng (2007) and Sanni (2012) identified efficient risk allocation between the partners as a major critical success factor (CSF). Governments have traditionally been responsible for providing infrastructure, including its maintenance and financing based on the conviction that infrastructure constitutes the nature of the social contract that the public is statutorily required to make available. Nigerian government at all levels is procuring infrastructure and services in one form or the other through PPP (Awodele, *et al.*, 2010) therefore encouraging private sector participation in infrastructure provision to ease the challenges of infrastructure needs of the citizenry. Liddle (1997) cited in Ranasinghe (1999) identified three basic approaches to private sector participation; these are contract out the operation and maintenance of an existing project; sell existing facility; and undertake BOO

or BOOT a new project for an agreed concession period after which the ownership is transferred to the public sector. However, PPP has also been used as a construction procurement technique. Economy-induced rural-to-urban migration has created high urban population leading to utility consumption strain on public infrastructure. Given the high infrastructure investment needs of nation and government's limited resources, government is incorporating the private sector through PPP in enhancing infrastructure stock. Investment-driven orientation enables the private sector to actualize what budgetary and bureaucracy would not have made possible (European Commission, 2003). PPP models are procurement mechanisms where contract payments are structured in such a way that public authority and/or users pay only for services rendered to standards by private sector. Brook and Murray (2003) pointed out that in PPP models, project-related risks are largely transferred to the private entity that recoup their investments and transferred the facility back to government after the contract period at no cost. The most essential feature, according to Ma *et al.* (2018), in determining the time span of various rights, obligations and responsibilities between the government and concessionaire is concession period of PPP projects.

### Risk

Construction projects have an abundance of risk, contractors cope with it and owners pay for it (Flangan and Norman, 1993). This statement attests to the prevalence and implication of risk in construction project. In general, risk is unintended event that has the potential to divert certain objectives of a planned system from threshold targets if it occurs. There are various descriptions of risk; however, Laryea (2008)

believed that disagreements still exist on the issues relating to definitions and what constitutes risk. In his own opinion risk is generally focused on deviations from expected outcomes. Project Management Institute (PMI, 2008) defined project risk as an uncertain event or condition with its occurrence having positive or negative effect on at least one project objective, such as time, cost, scope, or quality. As opined by Jayasudha and Vidivelli (2016), Risk could be either acceptable or unacceptable; an acceptable risk negatively affects a task on the non-critical path while an unacceptable risk negatively affects the critical path. To support Jayasudha and Vidivelli (2016) assertion, Ojo (2012); Ibrahim and Kagara (2014); Emmanuel and Anjiba (2015); Luka and Ibrahim (2015); Odediran (2016) agreed that risk is inevitable; nonetheless some risks are within acceptable limit. In the context of infrastructure procurement, it could be the likelihood of the occurrence of a definite event/factor or combination of events/factors which occur during the whole process of construction to the detriment of the project. Some authors have studied risk and gave it conceptual description (Bohharey *et al.*, 2010).

Risk and uncertainty are contextually similar in that uncertainty is expressly or impliedly used in describing risk. However, there seem not to be a consensus on the existence of distinction between risk and uncertainty, and between positive and negative impact of occurred risk. On one hand, there are those who consider risk and uncertainty as distinct concepts. The argument for existence of distinction is based on the premise that risk can be measured in term of the impact and probabilities, while uncertainty is hard to measure objectively, especially from probability perspective (Abdou *et al.*, 2004). On the other hand, others view risk and uncertainty as strongly related to each other and highly synonymous. Abdou *et al.* (2004) said the counter argument to the dissimilarity of risk and uncertainty is premised on the logic that they

are mutually defined (dependent) in terms of one another and to dissociate them might be hard and even unhelpful. Also, the concept of risk seems differs along the impact of occurrence. While some authors see risk as negative-end event, others see it as having capacity to be both negative and positive. This research adopted the definitions of Ansell and Wharton (1992) cited in Hyunchan *et al.* (1997) because this research scope is limited to negative impact. This view is based on Ward and Chapman (2003) conclusion that risk is commonly associated with adversity and Smith (2003) definition as risk is adverse but unknown by its nature and can have both positive and negative ends. Ojo (2010) pointed out that the distinction between risk and uncertainty is of less or no importance when it comes to construction projects risk. The important thing to understand, according to Laryea (2008), is that the future is unpredictable; construction industry participants are risk disinclined and; risk and uncertainty have the same end result.

#### **Risk Allocation in concession contracts**

Risk in concession contracts reflects the inability of the stakeholders to know in advance the change in the variables that determines the value of the concession business throughout the life of the contract (Vassallo, *et al.*, 2012). Risk in concession was classified into global risk and project risk. Global risk according to Vassallo, *et al.*, (2012) is predictable while project risk is manageable by the project operator. Appropriate allocation of risk to the stakeholders in concession contracts will enhance contract performance at all levels. Risk allocation involves the distribution of contractual obligations guiding the procurement terms. Typically, the parties to concession contracts are numerous, the risks are high and contract duration spans more economic cycles (Tiong, 1995). The performance of concession contracts is enhanced if its risks are appropriately distributed between the public and private sectors; This is

usually strategically difficult due to technical, legal, political and economic complexities of individual contract requirements and this makes PPP to be more prone to risks than traditionally procured construction contracts (Bokharey *et al.*, 2010). The public and private sectors need to understand the risks and how it should be allocated. Ma *et al.* (2018) noted that there is dispute avoidance and cooperation stimulation where risk is appropriately allocated between the government and concessionaire. Public-private partnership (PPP) concessions, according to Vassallo *et al.* (2012), have a high degree of risk exposure and complex nature of risk profile; therefore suggested that the allocation of risks in concession contracts should be made according to two criteria. The risk should be allocated to the stakeholder best able to manage the risk outcome and the risk should be borne by the stakeholder best able to handle it at the lowest cost. Effect of risk allocation on the financial cost of the project is enormous, in that when the allocated risk to the concessionaire is very high, the cost implication on the project is high to the extent that it threatens the ultimate financial feasibility of the project. Vassallo, *et al.*, (2012) and Tolani (2013) opined that in PPPs, there should be a balance in the risk transferred to the public sector and the risk retained by the public through adequate and appropriate risk allocation.

This paper argues that given not-too-long adoption of concession and fewer cases to enhance evaluation, Nigeria still lack sufficient expertise because some concession contracts are still being experimented and still evolving. Even the limited evolving knowledge is inadequately documented. Therefore, there is need for post-mortem examination of operating concession contracts involving significant construction activities with a view to developing a framework for enhanced risk allocation. To achieve efficiency in allocation of concession project risk, the risk must be given detailed analysis to determine the most appropriate party

to bear it in tune with the project goals (Glaister, Scanlon and Travers (2014). No sector should transfer risks that are under its control to other partner, nor should it assume the risks that are beyond its control. Thus the risks left with the Concessionaire must be capable of being managed by the Concessionaire (Phillips, 2008). Allocation of risk to the private sector tends to increase the cost of the project because premium is charged on every risk accepted to compensate their investment (Vassallo *et al.*, 2012). This usually increase construction cost – concession cost ratio. Successful PPP project will also benefit from workable, commercially viable and cost-effective risk sharing. Given the different interests and objectives of the parties involved, effective risk allocation will be an essential part of the drafting of the project document and integral parts of the project success (Zayed and Chang, 2002; Loosemore and Ng, 2007). Risk allocation can take three forms; retained by the public client; assigned to the private sector; and shared between the public and the private sectors. A cursory survey of literature reveals that in most cases, more risks are ceded to the private sector and the risks usually have high impact capability (Tiong, 1995). The private sector is assumed to have the capacity to manage such risks and in most cases they do not have. This premise is attributed to performance of PPP projects across the world. In PPP model, the public sector purchase a relatively risk-free long-term service and the government accepts no asset-based risk, does not pay or is entitled to reduce payments, abatements and compensation if service provided is below benchmark. According to Jeffries, Gameson and Rowlinson (2002), risk allocation is based on these three factors; (1) which party can manage the risk mostly cheaply, efficiently and easily, (2) which party benefits most from its management, and (3) who has the greatest incentive to manage it. Asenova (2010) cited in Marques and Berg (2010) reported existence of evidence that risk allocation is

critical in PPP contracts for three basic reasons; which included improved risk allocation reduces economic costs, provision of incentives for sound management of partnerships, and reduction of the need to enter a renegotiation process. This paper consider that risk allocation should be periodically appraised to accommodate piecemeal review if necessary rather than making bulk renegotiation that is capable of threatening the project performance. This is based on the fact that concession usually takes long time to mature, some of the contractual provisions might be weakened by prevailing laws, market conditions or technological innovations.

According to Li (2004), in PPP/PFI construction projects, public client provides a risk allocation scheme before the contract goes for tender. The allocation of each type of risk should be shared

between private and public sectors to promote economic cost minimization. Allocation of risks depends on the particular project and on different contextual issues, such as the technical expertise available to the procuring authority, macro-economic context and others (Marques and Berg, 2010). Whenever the public party controls an event leading to negative outcome, the public sector should bear the risk (for example, risk associated with unilateral changes in environmental rules or regimes). Some risks are transferred to the private sector. For example, allocation of construction risk to the private sector reduces cost overruns and project delays which often characterize public works. Moreover, an inappropriate or excess transfer of risk to the private sector may reduce the numbers of bidders and foster the opportunism of the remaining tenders (Zitron, 2006 in Marques and Berg, 2010).

#### **CASE STUDY PROJECTS**

Two (2) concession projects in Lagos State were selected for the study. The selection criteria were projects involving significant construction and commissioned for operation. Operating projects were selected because they came closest to completing build, operate, and transfer cycle of a typical concession contracts (Sanni, 2012; Jagboro *et al.*, 2014). These were Lekki Infrastructure Project (LIP) (Lekki-Epe Expressway) and Murtala Mohammed Airport General Aviation Terminal Building II (MMA2). The main sources of information of selected projects were Lagos State PPP Bureau, Lagos State Ministry of Works, Lekki Concession Company (LCC), Asset and Resources Managers (ARM), Hitech Construction Company, Federal Airports Authority of Nigeria (FAAN), Infrastructure Concession Regulatory Commission (ICRC), Bi-Courtney Aviation Services, Maevis-Unisys Limited, Pane Express Services Limited and I-Cube West Africa Limited official publications and informal interviews/enquiries from personnel of these organizations.

##### **Lekki Infrastructure Project (LIP)**

LIP is a concession project between Lagos State Government (LASG) and Lekki Concession Company (LCC) (Sanni and Adebisi, 2017) to design, build, finance, operate and transfer the Eti Osa-Lekki-Epe expressway in Lagos Island, Lagos State. The concession contract involves construction/expansion of the 49.2 Kilometres long road in 3 years, operate for 30 years. The objective of the project according to Lagos State Public-Private Partnerships, LA-PPP (2010), is to eliminate the severe traffic gridlock on the expressway corridor and open up to access these proposed projects: Eko Atlantic City, Lekki Free Trade Zone, Lekki Seaport, and Federal Government of Nigeria-owned petrochemical refinery. The private sector fully took the market risk; and finance is to be recouped from user-based tolls, advert placement on the road corridor, and service ducts/infrastructure laid along the road. The project was contracted between LCC and LASG on Tuesday 4th April 2006 (concession execution date), financial close

was attained by LCC in 18 months in November 2008 (concession effective date), and transfer date is November 2038 (concession expiry date). The project was recognised by Lagos State Roads (Private Sector Participation) Authority Act No. 7 of 2007 and later repealed/replaced by Public-Private Partnerships Act (2011). LASG participated through Lagos State Ministry of Works and Lagos State Public-Private Partnerships Bureau, LCC is promoted by Asset and Resources Management (ARM) Company Limited. The concession contract is in two (2) phases; Expansion and upgrade of EtiOsa-Lekki-Epe expressway from 2 to 3 lanes including expanded ExxonMobil Bridge, ramp bridge connecting the road to Falomo Overhead Bridge; and Construction of the 20Km coastal road with the option to develop the Southern Bypass. The contract terms permit the concessionaire to execute the project in these three (3) sections; Section 1 (Km0-Km6), Section 2 (Km6-Km15), and Section 3 (Km15-Km23) with 1 toll point in each section. Section 1 (Km0-Km6) stretches from Ozumba Mbadiwe Avenue (Falomo Bridge). This comprises Ramp Bridge, Pedestrian Bridge, and 22-Lane Toll Plaza. Construction work has been completed on the Section I and II. Tolling has commenced in Section I but suspended in Section II (LASG is paying the tolls). In terms of financing, Lagos Infrastructure Project (Lekki-Epe expressway) is a N50 billion concession toll road with full market risk to the private sector. The N50 billion comprise construction cost, debt financing cost, maintenance, operating, consultancy fees, insurances, taxes, profit. According to LA-PPP (2010), the development fund came from public, private, local and foreign-credit lending institutions. These are; a) Lagos State Government invested N5 billion in a 20-year mezzanine tranche. b) African Development Bank (AfDB) through its subsidiary African Infrastructure Investment Fund provided N10 billion in 15-year senior debt term; c) Standard Bank of London (UK) solely arranged N11 billion 15-year international tranche, underwritten by

Standard Bank London and Stanbic IBTC Bank Plc. d) Nigeria local banks provided 12-year note facility of N9.4 billion. these banks are; Diamond Bank Plc, Fidelity Bank Plc, First Bank Plc, Stanbic IBTC Plc, United Bank of Africa Plc, and Zenith Bank Plc.

### **Murtala Mohammed Airport General Aviation Terminal II (MMA2)**

MMA2 concession project was conceived in 2003 between Federal Government of Nigeria (through Federal Airports Authority of Nigeria, FAAN) and Bi-Courtney Aviation Services Limited (BASL) and is located at about 1Km distance from the International terminal of Murtala Mohammed Airport complex in Ikeja District of Lagos State. It is a build, finance, operate and transfer concession contract. It is a user-based fee-paying facility; investment cost is to be recouped from passenger service charge, aircraft landing and parking charges, parking garage fees, rent from leased spaces. It consists of construction and operation of; i) General Aviation Terminal and parking garage with the contract cost of USD250 milion (N33 bilion) and the concession duration of 36 years; ii) Six-storey 4-star 148-room Hotel complex and multi-storey conference centre with the concession duration of 45 years.

In terms of financing, BASL arranged N20 billion (USD150 milllion) syndicated medium term financing credit in 2004. Guaranty Trust Bank Plc led other four Nigeria banks in mobilizing finance for the project development. These other banks are; Access Bank Plc, First City Monument Bank Plc, Oceanic Bank Plc, and Zenith Bank Plc. The concessionaire is to recoup the investment made on MMA2 from the services it renders to the public (users) who are air passengers and the charges are paid through the airline operators, advert placement, vehicle parking charges, spaces leased to restaurants, backs, shopping lounge etc. (BASL, 2011; Sanni, 2012, Jagboro *et al.*, 2014).

## RESEARCH METHOD

The research method adopted in this study was a case study approach. This method is appropriate where the case in question represent an extreme, unique, isolated or has not previously been a subject of detailed scientific investigation (Sanni, 2012 and Yin, 2017). It is suitable for investigating complex social phenomenon (Dominic *et al.*, 2015; Sanni and Adebisi, 2017). Population for the study comprised thirty nine (39) key organisations/ individuals involved in the contracts. These were 2 principals, 2 promoters, 2 PPP regulatory agencies, 2 main construction contractors, 5 construction sub-contractors, 3 operating & maintenance (O&M) contractors, 6 consulting firms, 7 financial institutions and 10 facility users. Primary and secondary data were used for the study. Primary data were collected using survey questionnaire and oral interviews with key project stakeholders from public and private sectors. The survey questionnaire administered on the targeted respondents contained the same questions and response options while interviews were conducted for eight (8) of the respondents comprising 2 promoters, 2 principals, 2 regulatory agencies and 2 O&M contractors (asset managers). Secondary data involves documentary analysis of public and private sector reports, objective newspaper and

journal articles and conferences proceedings. The objectives of the data collection were to identify the main project risks and how the risks should have been allocated as might be different from how it was actually distributed. An attempt was made to enhance questionnaire response rate for the study; this is due to the nature of the research method (case study approach) with few respondents and low response rate of survey questionnaire which usually characterize construction research. Three (3) to seven (7) copies of structured survey questionnaire were directly administered to 29 organisations (in LIP and MMA2) and five (5) corporate facility users in MMA2. One (1) copy each was directly administered on 5 owner-drivers using LIP. The most suitably filled questionnaire was selected for each organisation based on the position of respondent in the organisation, years of professional experience and significant completion of survey questions. The multiple-questionnaires-per-organisation approach yielded 34 copies of questionnaire returned and this represent 87.17% response rate. The Eight (8) organisations selected for unstructured interview were successfully covered for the interview. Interview was mainly used to amplify the responses in the questionnaires or corroborate some reports.

## RESULTS AND DISCUSSION

General information of respondents revealed that 52.94% of respondents were construction professionals. Respondents having minimum academic qualification of HND/BSc were 79.41% while 73.52% were members of their professional bodies. The average years of working experience was 14.29 while average year of working in their current places of employment was 8.45 years. The two projects were brown concession (existing facility refurbished, expanded or both) and 61.76% of respondents in public and private sectors have been involved in the projects from pre-operation (conception and construction) stage of the contract.

### Framework for allocating risks

The study adopted Risk Allocation Index (RAI) method. Index, according to Gray & Carton-Kenny (2004) cited by Augustine, Ajayi, Ade and Edwin (2013), is a number derived from the collection of a large range of generated values from individually ratings that are used to describe specific feature of the research constructs. Indices, as acknowledged by Bell and Morse (1999) and Augustine, *et al.* (2013), are widely used in performance evaluation and have proven useful in locating weaknesses in overall design systems. This method is used by Li *et al.* (2004a, b) as Fifty Percent Majority method in risk



allocation preference in PPP/Private Finance Initiatives (PFI) projects in United Kingdom. It involves allocating a particular risk to the sector that minimum of 50% of the respondents considered most suitable to manage it, that is, Risk Allocation Index, RAI  $\geq$  50%. In this study, If more than 50% of respondents indicated that a certain risk should be allocated to a private sector, it is allocated to the private sector and deemed most suitable to be allocated the risk. The same principle is applied in allocating risk to the public sector and risk shared by the public and private sectors. However, if the percentage of respondents that indicated that it should be allocated to the private sector, public sector, and shared between private and public sector is less than 50%; the risk allocation is considered situational or project-specific. Out of twenty five (25) risks identified for allocation between the private and public sectors; nine (9) representing 36% were preferred to be allocated to the private sector, six (6) which is 24% were suitable for the public sector, five (5) representing 20% were recommended for sharing between public and private sectors while five (5) which is 20% were considered situational or contract-specific (Table 1). Risk is usually defined as the product of probability and impact of occurrence. In corollary, no party should actually accept the risk without negotiation of some key clauses in the Memorandum of Concession. Comparison of risk allocation in MMA2 and LIP and preferred is presented in Table 2, however, the sharing ratio of risks is outside the scope of this study.

#### **Risks allocated to the private sector**

Risks preferred to be allocated to the private sector include low construction and service quality (76.47%), scarcity of finance (74.51%), ineffective distribution of risks (61.76%) and unavailability of materials and labour (60.61%). The mean percentage of the preferred risks to the private sector is 70.13%, this is justifiable because opinion of the two-third (or 66.67%) is the majority in simple decision analysis. The

finding corroborates Ng and Loosemore (2007) argument that construction and finance risks are best allocated to the private sector. Allocating these risks to the private sector will minimize cost and time overruns. This is necessary given the prevalence of construction project abandonment coupled with weak maintenance culture of public projects in Lagos State. Also, post-construction participation of private sector will promote good maintenance and construction practices.

#### **Risks allocated to the public sector**

Risks considered to be allocated to the public sector were mainly political and legal-related. These were unstable government (83.87%), strong political opposition (72.73%), weak policy framework (70.59%), delay in project approval (69.23%), foreign exchange rate fluctuation (64.71%) and encumbrance in land acquisition (61.76%). The mean percentage of these risks allocation is 70.21% and represents two-third simple majority rule common in boardroom decisions making process. The litigations in the two contracts indicated fear of political opposition and delays in project approvals in the face of volatility of Nigeria economy to inflation. The essence of allocating weak policy framework is to secure the commitment of the public sector by discouraging action detrimental to the contract. One of the safest ways to secure the commitment of an organization is allocate significant responsibility for risks and rewards to it. Land acquisition encumbrances might have been preferred to be allocated to the public sector because constraints associated with land processing in Lagos State.

#### **Risks to be shared between the public and private sectors**

Five of the twenty five (20.00%) of the risks are usually outside the control of private or public sector and were all recommended for joint sharing between the sectors. Toll/rent below expectation, force majeure and ineffective partnership structure with RAI of 71.88%, 69.67%, 64.71%

respectively were the most canvassed risks to be shared between the private and public sectors. Others were inflation rate fluctuation (60.00%) and maintenance cost overrun 58.62%. Sharing of maintenance expenditure overrun was preferred because design responsibility was undertaken by the public sector and good maintenance will minimize cost of future of maintenance works which is undertaken by the private sector.

Private and public sector sharing of force majeure and inflation risks conform to Grimsey and Lewis (2004) and Li *et al.* (2005) position on risk

preferences. This is because the cause and impact is not within the immediate control of any partner. Furthermore, they are difficult to accurately forecast (Ranasinghe, 1999). Responses on legislation, complex finance structure, construction cost overrun, construction time delay and variation in design specification risks cannot be categorically classified because percentage indices fell below 50%. However, the index of each allocation option still determines risks preferences.

#### Risk allocation based on project

**Table 1: Framework for Allocating Risks between Private and Public Sectors**

Risks	Percentage (%) of Respondents that Indicated			
	Private	Public	Shared	
Low construction/service quality	<b>76.47</b>	8.82	14.71	Private
Scarcity of finance	<b>74.51</b>	17.65	7.84	
Operating cost overrun	<b>73.54</b>	17.64	8.82	
Unsustainable construction/design	<b>72.73</b>	17.03	21.21	
Inadequate experience in concession	<b>72.22</b>	11.76	16.02	
Low operation productivity	<b>70.58</b>	11.77	17.65	
High finance cost	<b>68.75</b>	25.00	6.25	
Ineffective distribution of risks	<b>61.76</b>	35.29	2.95	
Unavailability of Material/Labour	<b>60.61</b>	21.21	18.18	Public
Unstable Government	9.68	<b>83.87</b>	6.43	
Strong political opposition	21.88	<b>72.73</b>	5.39	
Weak policy framework	17.65	<b>70.59</b>	11.76	
Delay in project approvals/permits	11.76	<b>67.65</b>	20.59	
Foreign exchange rate fluctuation	17.64	<b>64.71</b>	17.65	
Land acquisition encumbrances	23.53	<b>61.76</b>	14.71	Shared
Toll/rent below expectation	11.49	16.63	<b>71.88</b>	
Force majeure	18.88	12.15	<b>69.67</b>	
Ineffective partnership structure	20.58	14.71	<b>64.71</b>	
Inflation rate fluctuation	10.00	30.00	<b>60.00</b>	Dependent
Maintenance cost higher than expected	20.69	20.69	<b>58.62</b>	
Legislation change	35.71	42.86	21.43	
Complex finance structure	34.38	34.37	31.25	
Construction cost overrun	41.38	27.59	31.03	
Construction time delay	46.87	31.25	21.88	
Variation in design specification	18.19	36.36	45.45	

Risk Allocation Index (RAI) for legislation change, complex finance structure, construction cost overrun, construction time delay and variation in design specification is less than 50%. Therefore, it cannot be exclusively allocated to any of the partners or shared between the partners. However, this conforms to earlier finding that construction-related risks should be allocated to the private sector. Construction time delay (46.87%) and construction cost overrun (41.38%) were close to 50% needed for allocation to the private sector. The interview conducted with the key participants revealed that construction time and cost overrun could not be exclusively caused by the private sector.

Therefore, they should not fully bear the risks. For instance, delay in design or approval by the public sector could lead to time overrun and the private sector should not be held responsible for this. Interview with ICRC, LA-PPP, FAAN and LAMW revealed that it is better to allow individual project to determine which partner accepts risks for change in legislation. This is premised on the fact the government could change legislation as a penalty for contractual breaches of the private sector. Furthermore, it is believed transferring the risks to the private sector would encourage policy reversal that is prevalent in Nigeria.

**Table 2: Comparison of Risk Allocation in MMA2, LIP and preferred**

Risk Factors	Risk Allocation in		
	MMA2	LIP	Preferred
Unstable Government	Public	Public	Public
Strong political opposition	Public	Public	Public
Weak policy framework	Shared	Public	Public
Land acquisition encumbrances	Private	Public	Public
Inflation rate fluctuation	Shared	Shared	Shared
Interest rate fluctuation	public	Shared	Shared
Legislation change	Shared	Shared	*
Force majeure	Shared	Shared	Shared
Complex finance structure	**	Private	Private
High finance cost	shared	private	*
Scarcity of finance	Private	Private	Private
Delay in project approvals/permits	shared	Shared	Public
Unsustainable construction methods	public	private	Private
Low construction/service quality	Private	Private	Private
Construction cost overrun	Private	Shared	Private
Construction time delay	private	Private	*
Unavailability of Material/Labour	private	Private	Private
Variation in design specification	public	Private	*
Operating cost overrun	private	Shared	Private
Toll/rent below expectation	shared	Public	Shared
Low operation productivity	private	**	Private
Maintenance cost higher than expected	Private	Shared	Shared
Inadequate experience in concession contract	**	Shared	Private
Ineffective distribution of risks	Private	Private	Private
Ineffective partnership structure	Private	Private	Shared

\* allocation depends on individual project peculiarity

\*\* conflicting responses from questionnaire and/or interview

Variation in design specification risk (46.15%) came close to meeting the condition for sharing among the partners because initial design responsibility is allocated to the public sector. Interview revealed that there is a clause in the Memorandum of Concession (MoC) that permits the private sector to undertake supplementary design duties due to technology upgrade, the right of private sector to choose equal and approved' specification where the actual specification is not readily available and unsustainable design or component specification might have made the risk undecided. Also, Complex financial structure risk has RAI of 34.38%, 34.37% and 31.25% in favour of private, public and shared respectively. Interview revealed that every project has its funding peculiarity and in all cases the public sector guarantees the private sector in order to encourage the credit lenders to make finance available. Risk allocation in MMA2 and LIP

Risks allocation in MMA2, LIP and the framework (preferred allocation) is presented in Table 2. The ratio of sharing and the actual stakeholder (individual organization forming the public and private sectors) is outside the study. Generally, there is no significant difference in the allocation except delay in project approvals/permits risk that is preferred to be allocated to the public sector. This is attributed to delays encountered in obtaining approval from the highly bureaucratic Nigeria civil service. If the risk is allocated to the public sector, it would hasten approvals because of associated liability attached to the delay from the sector. In MMA2, the conflicting response of complex finance structure risk and project-specific as preferred allocation for high finance cost might be responsible for revenue issues that is the crux of litigation. Toll/rent below expectation risk that is preferred to be shared and Low operation productivity that is unknown due to conflicting response were responsible for payment of tolls by Lagos State Government in LIP.

Out of the twenty five risks factors to be allocated to the private and public partner, nine are to be allocated to the private sector, six to the public sector and five to be shared between the public and private sectors, and five should be allocated based on project contractual peculiarities. The framework conforms to the principle of PPP that allocate more risks to the private sector. The most significant deviation in risk is delay in project approval/permit; though shared by the public and private sectors in MMA2 and LIP, it is preferred to be allocated to the public sector than the private sector. It is recommended that the public sector should accept this obligation and establish mechanisms for giving speedy processing to all permits and approval relating to concession contracts. This will encourage the private partners and minimize loses incidental to such delays. Approvals are needed in securing funding from creditors agencies and government demonstration of effective commitment to concession in Lagos State. This is more necessary because land administration is statutorily government responsibility.

Weak policy framework is shared between the public and private sectors in MMA2 but preferred to be solely allocated to the public sector. The litigation between BASL and FAAN might be avoided if weak policy risk had been exclusively allocated to the public sector. If FAAN inability to protect the concession contract with existing PPP would attract penalty, it would have demonstrated better commitment to protecting the contract. Weak policy framework risk should be allocated to the public sector to attract private investors like promoters, financiers, contractors to participate in PPP in Lagos State. Policy reversal and abandonment is prevalent in Nigeria, there is need for government to strengthen or fully implement PPP laws in order to enhance the performance. The success of such PPP is largely dependent on the optimality of risk allocation between the private and public sector. The findings of the study should assist private and public sectors risk preference in concession contracts in Lagos State.

## CONCLUSION

Concession contracts are highly risky and effective risk allocation enhances success of concession contracts. This paper developed a framework for enhanced risks allocation in concession contracts based on the two case study projects - (LIP) and MMA2 projects. Out of the twenty five risks factors to be allocated to the private and public partner, nine are to be allocated to the private sector, six to the public sector, five to be shared between the public and private sectors while five should be allocated based on project contractual peculiarities. The

framework conforms to the principle of PPP that allocate more risks to the private sector. The most significant deviation in risk is delay in project approval/permit; it is shared by the public and private sectors in MMA2 and LIP but preferred to be allocated to the public sector than the private sector. Weak policy framework is shared between the public and private sectors in MMA2 but preferred to be solely allocated to the public sector. The findings of the study should assist private and public sectors risk allocation preference in concession contracts in Lagos State.

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