

EVALUATION OF RISKS MANAGEMENT STRATEGIES IN LEKKI-EPE CONCESSION PUBLIC-PRIVATE PARTNERSHIP (PPP) PROJECT, LAGOS, NIGERIA

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Abstract

The study evaluates risk management strategies in Lekki-Epe concession public-private partnership (PPP) project. The study analysed risk using the following variables: identification of risk, classification of risk, allocation of risk. Purposive survey research methods, which involved using structured questionnaire was used to obtain the opinions of experts with PPP experience. The data collected were analysed using descriptive statistics. The findings show that political opposition risk, construction cost overrun and operational revenue are below expectation risk. Therefore, it was recommended that in order to effectively manage political opposition risk in a project of this nature, the process of award of contract should be transparent and more competitive. It was also recommended that for a project of this nature, a less optimistic approach regarding revenue should be adopted.

Keywords: Public-Private-Partnership, Project Management, Risk Management, Road Construction

INTRODUCTION

Public-Private-Partnership (PPP) is a method of procurement, which is used most frequently for major infrastructure procurements. It involves the use of private sector capital to fund an asset, which is used to deliver outputs for a government agency. Emphasis is placed on the service or capability that the public sector requires rather than the assets used to provide them.

The private sector is required to invest in the creation or acquisition of the assets required to facilitate the delivery of a service or capability. On the other hand, the public sector provides to the private sector payments that are contingent on their performance, allowing them to recover their initial investment. The arrangements are long-term in nature, typically extending over 15 to 30 years.

There are some underlying principles for PPPs. The core principle is value-for-money (VFM), which refers to the best available outcome after taking account all benefits, costs and risks over the whole life of the procurement. With VFM, a service or capability could be delivered at a lower cost, an expected financial outcome could be achieved with greater certainty due to less exposure to significant risks, and the end-users could receive increased benefits due to the public sector's focus on service delivery rather than asset procurement. Risk transfer, whole-of-life costing, innovation, and asset utilization are usually stated as the VFM drivers for PPPs (Owen, 2006). Many different arrangements have been developed for PPPs with various degrees of partnership and shared control.

In this study, PPPs are referred to as concession-based methods. The terminology and acronyms used to describe concession-based project are not used consistently though concession-based approaches are the oldest forms of PPPs, whilst a number of terms are virtually synonymous, different project that apparently use the same terms may vary significantly in the actual contractual arrangements. The most commonly used variants since the emergence of PPPs include BOT (Build- Operate-Transfer), BOO (Build-own-Operate), BOOT (Build-Own-Operate-Transfer), and DBFO (Design-Build-Finance-Operate).

Driven by acute fiscal problems and growing disenchantment with the performance of state-provided infrastructure services, more and more governments around the world are turning to private solutions for financing and providing telecommunications, energy, transport and water services (Dailami and Klein 1997).

According to Annez (2006), ever since the mid -1990s, no discussion of urban infrastructure finance could be complete without discussing Private participation in infrastructure. Shen (2006) points that Public- Private Partnerships (PPP) technically is nothing other than a long-term agreement of transfer of risks which was traditionally borne by the public

sector to the private sector for which the latter is financially compensated for its willingness to bear the risks.

Smith (1997); Grimsy and Lewis (2004) all noted that in contrast to traditional public procurement which involves the public sector purchasing an asset, the PPP system involves the purchase of a stream of services, defined in detailed service agreement under specified terms and conditions.

Forms of Public-Private Partnership

Jones (2002) described basic potential PPP structures to include:

1. Privatization Models which consist of
 - Outright privatization and
 - Build, Operate and Own (BOO)
2. Concession Models which can be in forms of
 - Build, Operate and Transfer (BOT)
 - Design, Build, Finance and Operate (DBFO)
 - Concession Lease (strictusensu)
 - Concession Lease (affermage)
 - Corporatisation.
 - Build, Transfer and Operate (BTO)
 - Lease.
3. Operation and Maintenance Models which consist of
 - Operations and Maintenance contract (O&M)
 - Service Contract

A Public - Private Partnership is an effective approach to enhance project productivity by bringing management efficiency and creative skills from business practice and reducing government involvement by using private sectors in the provision of public services. (Shen 2006)

Concession Models of Public -Private Partnership

Given the acute shortage of government revenues, many governments, especially in developed nations, increasingly turn to the private sector for assistance. In most cases, this will entail permitting the private sectors to Build and Operate these infrastructures, most especially roads, under concession agreements (African Transport Technical Notes, 1996).

Concession models of Public -Private Partnerships (PPPs) allocates control of all or some of the core assets to the private sector while at the same time ownership remains that of the public sector. The private participants are responsible for financing the investment and managing the operations.

A concession contract according to Ng and Loosemore (2006) involves a host government granting a license or concession to a private consortium (concessionaire, promoter or sponsor) which sets up a single purpose entity known as a SPECIAL PURPOSE VEHICLE (SPV) using contracts secondary to the concession, to finance, design, build, operate and maintain an infrastructure project for a set period of time known as the "concession period". The concession period is mostly a minimum of thirty (30) years.

During the operating period, the Special Purpose Vehicle (SPV) receives income based on the usage of the facility (which may be guaranteed to be in form of toll charges as in the case of road infrastructure projects). At the end of the operating period, the fully operational project is transferred back to the host government, usually at nominal or no cost.

According to Ghislain et al (1995), the most important aspect of designing a concession is the identification and allocation of risks, rewards and responsibilities built into a specific scheme, not whether it is labeled as a concession, a BOT, a privatization, or by any other name.

Risks in Public-Private Partnership

Every construction project, including road construction has inherent risk, which needs to be identified, addressed and mitigated in traditional forms of procurement. These risks are even more magnified in Public-Private Partnership projects due to the various contracts involved.

It is therefore important that in order to achieve project profitability (for the private sector) and efficiency (in delivering public sector objectives) for parties in the partnership to draw out in contract the possible risks inherent in the project and allocate the risks to those who are best able to manage it. This is simply because management of risk holds the key to project success or failure.

Ng and Loosemore (2006) stated that given the complexity, size and time frame of concession contracts, that there are enormous ranges of potential risks, which can affect expected outcomes. These risks can be classified into two main groups:

- General risks and
- Project risks.

Project risks arise from the way a project is managed or from events in its immediate micro environment. They may include natural risks such as ground problems and weather conditions, technical problems associated with designs, plant and equipment materials problems

associated with suppliers, organizational problems associated with Joint Venture (JV) agreements and environmental problems associated with pollution etc.

In contrast, general risks are not directly associated with project strategies, yet can have a significant impact on the projects outcome. These normally arise from natural, political, regulatory, legal and economic events in the general macro environment surrounding the project.

While general risk classifications such as stated by Ng and Loosemore (2006) are useful, it is also useful to consider the special risks associated with Public - Private Partnerships procurement processes, since this form of process is quite different to the traditional form which separates financing, design, construction and operational responsibilities.

In doing so Standard and Poor (2005) considered several broad areas that can potentially affect Public - Private Partnership project's creditworthiness. These are Credit risk to the public sector entity, Construction risks, Revenue structure, Operating risks, and Financial and Legal structure.

Public-Private-Partnership (PPP) construction projects are as susceptible to risk as projects undertaken with other forms of procurements, hence, risks need to be identified and allocated between the parties involved in the contact. He stated further that it is useful to categorize risks as a means of promoting better understanding of risks generally and a pointer to ways of treating them. According to Li et al (2003) PPP project risks can be classified based upon three levels of risk factors:

- a) Macro level
- b) Meso level
- c) Micro level

The **macro level** of PPP risk comprises risks sourced **exogenously**, i.e. external to the project itself, or beyond the system boundaries of the project. This level focuses on the risks at a national or industrial status, and upon natural risks. These risks at this level are often associated with political and legal conditions, economic conditions, social conditions and weather. The **meso level** of PPP risks includes risks sourced **endogenously**, i.e. internally at the project level by the project itself. This represents the PPP implementation problem, involving issues such as project damage/usage or location, design and construction and technology. The **micro level** of PPP risks represents the risks found in the stakeholder **relationships** formed in the procurement process, due to the inherent differences between the public and private sectors in contract management. The most significant reason for proposing this risk sector is mostly profit driven.

Public-Private Partnerships (PPP) have been implemented successfully in countries such as the United Kingdom, Canada, United States of America, Australia, China, and South Africa for projects ranging from road construction, bus rapid transport systems, monorails, health care facilities and schools. Some of these projects have recorded immense successes for the governments of these countries as well as shortcomings due to poor risk allocation and has provided footstools for improvement in other projects.

Lekki-Epe PPP Road Project in Lagos State

Years of neglect and high population growth has left Lagos State infrastructure in tatters. The administration of Governor Babatunde Raji Fashola (2007-2015) was committed to improving the infrastructures in Lagos, the commercial capital of Nigeria. This however required substantial financial input, which the state government was unable to provide. It therefore decided to adopt a Public- Private Partnership (PPP) model to address these problems.

Lagos State's flagship Public-Private Partnership (PPP) road concession project was the construction of the US \$300 million Lekki-Epe expressway. It was a partnership between the Lekki Concession Company (LCC) -a Special Purpose Vehicle (SPV) and a subsidiary of Toll Systems Company Limited (TSC) and the Lagos State Government (LSG). The first phase involves upgrading the first 49.4 kilometers of the Lekki-Epe road, while phase two involved developing the first 20 kilometers of the coastal Road.

According to the agreement between Lagos State Government and the Concessionaire, Lekki Concession Company (LCC), they are to Build, Operate and Maintain the road for 30 years after which the asset will be handed over to the Government. The concessionaire, being the private partner will earn a return on its investment through raising toll.

History of Project Management

A project is a temporary endeavor, having a defined beginning and end (usually constrained by date, but can be by funding or deliverables), undertaken to meet unique goals and objectives, usually to bring about beneficial change or added value. **Project management** is the discipline of planning, organizing, securing and managing resources to bring about the successful completion of specific project goals and objectives. **Project management techniques** describes the ways that we gather information, communicate and generally get things done in the most efficient and effective way. A primary challenge of project management is to achieve all of the project goals and objectives while honoring the preconceived project constraints. Typical constraints are scope, time, and budget. The secondary and more ambitious challenge is to optimize the allocation and integration of inputs necessary to meet pre-defined objectives.

Project management has been practiced since early civilization for example Vitruvius (1st century BC), Christopher Wren (1632-1723), Thomas Telford (1757-1834) and Isambard Kingdom Brunel (1806-1856). It was not until the 1950s that organizations started to systematically apply project management tools and techniques.

The Statement of the Problem

The importance of the Lekki-Epe road Concession project to the Government and people of Lagos State cannot be overemphasized. The project however ran into troubled waters with resident protesting the tolls rates being charged which eventually culminated in Lagos State Government taking over the project from the concessionaire. This shows the crystallization of certain risks in the project. This study examines the risk inherent in this project and whether they were effectively managed.

Research Questions

In order to achieve the objectives of the research study, the research will attempt to answer these questions:

1. What are the risks categories identifiable in this Public-Private Partnership Road Project?
2. Which risks should have been allocated to the public sector, private sector and which risks should both parties have shared?
3. Which risks in this project were not effectively managed?

Objectives

The main objective of this research was to evaluate the risk management strategies in the Lekki-Epe Public-Private-Partnership project. Other specific objectives are:

1. To identify all the risks in this Lekki-Epe road Concession Project.
2. To classify the risks
3. Allocate risks to parties that are best able to manage them.
4. To determine which risks in this project were effectively managed

LITERATURE REVIEW

Theoretical Framework

Project Management

Two forefathers of project management are Henry Gantt called the father of planning and control techniques, who is famous for the use of Gantt chart as a project management tool; and Henry Fayol for the creation of the 5 functions which form the foundation of the body of

knowledge associated with project and program management. Both Gantt and Fayol were students of Fredrick Winslow Taylors's theories of scientific management whose work is the forerunner to modern project management tools including work breakdown structure and resource allocation.

In the United States, prior to the 1950s, projects were managed on an ad hoc basis using mostly Gantt chart, and informal techniques and tools at that time to mathematical projects/ scheduling models were developed. The "Critical Path Method" (CPM) was developed as a joint venture between Dupont corporation and Remington Rand Corporation for managing plant maintenance projects. And the "Program Evaluation and Review Technique" or PERT, was developed by Booz Allen Hamilton as part of the United States Navy's (in conjunction with the Lockheed Corporation) Polaris missile submarine program. These mathematical techniques quickly spread into many enterprises.

Project Management Knowledge areas

Processes in project management can be grouped together in ten ways referred as the project management knowledge areas, namely:

- **Integration Management**-Project integration management involves developing project charter, developing preliminary scope statement, developing project management plan, directing and managing project execution, monitoring and controlling project work, integrated change control, closing of project
- **Scope Management**-This involves scope planning, defining, creating work breakdown structure (WBS), verification and control
- **Time Management**-This involves activity definition, sequencing, resource estimation, duration estimation, schedule development and control
- **Cost Management**-This involves cost estimating, budgeting and control
- **Quality Management**-This includes quality planning, quality assurance and control
- **Human Resources Management**-This entails human resource planning, acquiring project team, developing project team and managing project team
- **Communication Management**-This involves communication planning, information distribution, performance reporting, and stakeholder management
- **Risk Management**-This involves risk management planning, risk identification, qualitative risk analysis, quantitative risk analysis, risk response planning, risk monitoring and control

- **Procurement Management**-This involves planning purchases and acquisition, planning contracting, requesting for sellers' responses, selecting sellers, contract administration and closure
- **Stakeholder Management**-This describes the process required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholders' expectation and their impact on the project and develop appropriate management strategies for effectively managing stakeholders

Conceptual Framework

Risk management

A good understanding of the forms of risk inherent in an infrastructure project provided by the Private sector in partnership with the Public sector and its mitigation and allocation is of utmost importance to the project manager of such projects for its timely completion and cost effectiveness.

Defining risks has to be done in the context of chances and uncertainties. Basically, risks, chances and uncertainties are future changes of parameters of a PPP project business model with consequences on the schedule, cost, revenues or quality standards over the whole life cycle.

Risk is characterized by three factors: the event, the likelihood and the impact of the event, where the event is a possible occurrence which could affect the achievement, the likelihood, the chance or probability of the risk event occurring within the time period and the impact being the financial value of the effect of the risk event.

Al-Bahar and Crandall (1990) combined the essence of both risk and uncertainty and defined risk in the context of Project Management as "the exposure to the chance of occurrences of events adversely or favorably affecting project objectives as a consequence of uncertainty". He also characterized risk with three components: risk event, the uncertainty of the event and the potential loss or gain.

The Survey research conducted Akintoye and Macleod (1997) among contractors and project management practices in the UK construction industry revealed that the average perception with respect to project risk is the "likelihood of unforeseen factors occurring, which would adversely affect the successful completion of the project in terms of cost, time and quality".

Risk management depends on effective risk identification and prioritizing. Project managers must focus their attention in identifying and managing the risks of a project to have any hope of success.

The 'science' of risk management seeks to identify, prevent, contain and mitigate risks in the interest of the project. Risk management is an ongoing process, which continues throughout the life of a project and occurs in five stages:

- (i) **Risk identification.** The process of identifying all the risks relevant to the project;
- (ii) **Risk assessment.** Determining the likelihood of identified risks materializing and the magnitude of their consequences if they do materialize;
- (iii) **Risk allocation.** Allocating responsibility for dealing with the consequences of each risk to one of the parties to the contract, or agreeing to deal with the risk through a specified mechanism, which may involve sharing the risk;
- (iv) **Risk mitigation.** Attempting to reduce the likelihood of the risk occurring and the degree of its consequences for the risk-taker; and
- (v) **Monitoring and review.** Monitoring and reviewing identified risks and new risks as the project develops and the project environment changes with new risks to be assessed, allocated, mitigated and monitored. This process continues during the life of the contract.

RESEARCH METHOD

The Purposive Survey Research Methods was used. This involved using structured questionnaires to obtain the opinions of experts with PPP experience. The survey was conducted among experts with experience in Public - Private Partnership. A total of 100 questionnaires were sent out and 31 completed responses were received. Of these, 13 were from Public sector organizations and 18 from the Private sector. The effective return rate was 31%. The questionnaire included a list of 30 risks sourced from relevant literature (Al-Bahar & Crandall, 1990; Li, Akintoye, Edwards & Hardcastle, 2005), and respondents were to allocate the risks in Lekki Epe Concession project. Data was collected about the Risk Allocation of Road Concession Projects from a range of sources, which included: Semi - Structured interviews with key Project stakeholders from the public and private sectors: this served as a baseline for a better understanding of PPPs in Lagos State in order to draw out the format for the questionnaires to be distributed and the best areas where valid data can be gotten. Primary sources of data, using questionnaires constructed into four sections, A-D:

Section A contained questions based on general background of the respondents.

Section B contained questions regarding the preferable risk allocation sectors for Macro risk

Section C contained questions regarding the risk allocation preferences for Meso risk classification, Section D containing a general question of respondents' conclusive idea of how risk should best be allocated.

Other sources of data include contract documents, newspaper articles, journal articles, conferences proceedings, articles and statistics on the internet. The analysis of the questionnaire was done using percentages.

ANALYSIS AND RESULT

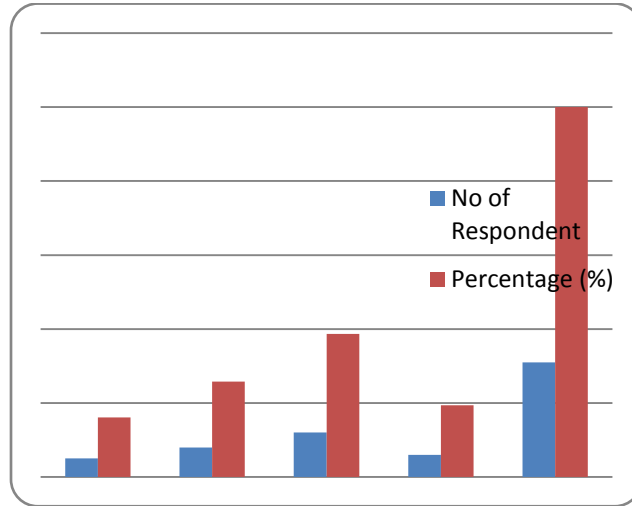


Fig 1: Distribution of the respondents by Age (Source: Field survey)

Fig.1 shows that majority of the respondents 53% falls within the age bracket of 40 - 49 while the least 11 % falls within the age bracket of 20-29 yrs.

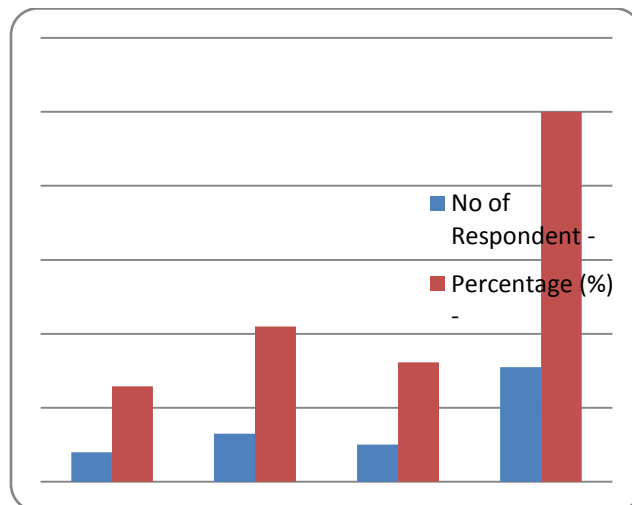


Fig. 2: Distribution of the Respondents by Educational/Professional Qualification (Source: Field survey)

Fig 2 shows literacy level with Master's Degree 41.94% as the highest. It is evident that literacy level is high and majority of the respondents are very knowledgeable in their areas of specialization.

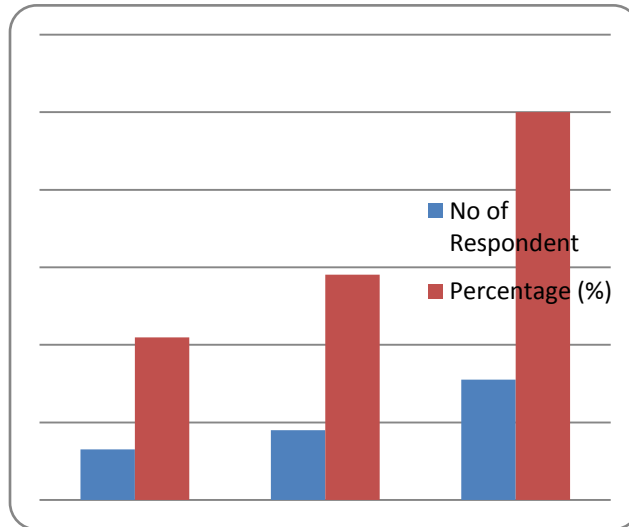


Fig 3: Distribution of the Respondents by sector (Source: Author)

Fig.3 shows majority of the respondents are from the private sector 58.1 % while the rest are the civil servants from the public sector 41.9%.

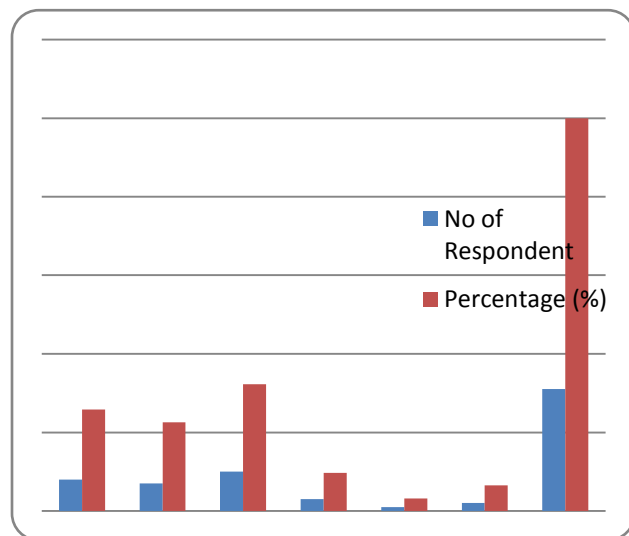


Fig 4: Distribution of the Respondents by specific specialization (Source: Field survey)

Fig. 4 shows that majority of the respondents 32.3% are with a legal background, finance 25.8% and construction engineering 22.6%.

Table 1: Distribution of the respondents by Length of Service worked for in Public Private Partnership (PPP) projects.

Length of Service	No of Respondent	Percentage (%)
1 – 5	20	64.5
6 – 10	7	22.6
11 – 15	4	12.9
16 – 20	-	-
21 and above	-	-
Total	31	100

Table 1 reveals that majority of the respondents 64.5% have been involved with PPP projects in their fields of specialization for a period of service from 1-5 years.

Table 2: MACRO RISKS

S/No		Public Sector	Private sector	Shared	Total
1	Nationalization/Expropriation	24 (77%)	3(10%)	4(13%)	31(100%)
2	Poor Public Decision-Making Process	21 (68%)	2(6%)	8(26%)	31(100%)
	Political Opposition	20(65%)	6(19%)	5(16%)	31(100%)
4	Unstable Government	18(58%)	8(26%)	5(16%)	31(100%)
5	Legislation Change	5(16%)	6(19%)	20(65%)	31(100%)
6	Tax Regulation	7(23%)	5(16%)	19(61%)	41(100%)
7	Inflation Rate Fluctuation	3(10%)	21(68%)	6(19%)	31(100%)
8	Influential Economic Event	3(10%)	17(55%)	12(39%)	31(100%)
9	Industrial Regulation Change	0(0%)	23(74%)	8(26%)	31(100%)
10	Interest Rate Fluctuation	0(0%)	25(81%)	6(19%)	31(100%)
11	Poor Financial Market	0(0%)	28(90%)	3(10%)	31(10%)

Table 3: Meso Risks

S/N		PUBLIC SECTOR	PRIVATE SECTOR	SHARED	TOTAL
1	Land Acquisition	18 (58%)	4 (13%)	9 (29%)	31 (100%)
2	Excessive Contract Variation	10 (32%)	8 (26%)	13 (42%)	31 (100%)
3	Late Design Changes	8 (26%)	16 (52%)	7 (23%)	31 (100%)
4	Financial Attraction Of Project To Investors	8 (26%)	16 (52%)	7 (23%)	31 (100%)
5	Level Of Demand For The Project	1 (3%)	21 (68%)	9 (29%)	31 (100%)
6	High Financing Cost	0 (0%)	22 (71%)	9 (29%)	31 (100%)
7	Availability Of Finance'	0 (0%)	24 (77%)	7 (23%)	31 (100%)
8	Poor Quality Of Workmanship	0 (0%)	29 (94%)	2 (6%)	31 (100%)
9	Construction Cost Overrun	0 (0%)	29 (94%)	2 (6%)	31 (100%)
10	Frequency Of Maintenance	0 (0%)	29 (94%)	2 (6%)	31 (100%)
11	Availability Of Labor Material	0 (0%)	29 (94%)	2 (6%)	31 (100%)
12	Insolvency Of Subcontractors/Suppliers	0 (0%)	29 (94%)	2 (6%)	31 (100%)
13	'Low Operating Productivity'	0 (0%)	30 (97%)	1 (3%)	31 (100%)
14	'Higher Maintenance Cost'	0 (0%)	31 (100%)	0 (0%)	31 (100%)
15	Operational revenue below expectations	1 (0%)	28 (90%)	2 (6%)	31 (100%)
16	Operating productivity	0 (0%)	30 (97%)	1 (3%)	31 (100%)
17	Construction time delay	0 (0%)	30 (97%)	1 (3%)	31 (100%)

Table 4: Micro Risk

S/N		PUBLIC SECTOR	PRIVATE SECTOR	SHARED	TOTAL
1	Different working methods	0 (0%)	23 (74)	8 (26%)	31 (100%)
2	Organization and coordination risk	0 (0%)	27 (87%)	4 (12%)	31 (100%)

SUMMARY OF FINDINGS

As per the results, the preferred risk allocation responses are presented as percentages. Four main options for allocation are identified:

1. Allocated to the public sector,
2. Allocated to the private sector,
3. Shared between public and private sectors, and
4. Strongly depending on nature of project (representing responses that cannot be assigned to anyone of the proceeding three groups).

The principle of allocation response is based on majority opinion (>50%). If over 50% of the respondents are in favor of allocating the risk factor to the public sector, then the risk is allocated to the public sector. A similar principle is applied to "allocated to the private sector" and "shared between the public and private sectors". If none of the frequency is above 50% then the risk is allocated the fourth way i.e. strongly depending on the nature of the project

Risks Allocated to the Public Sector

The survey responses show that five (5) risks were allocated to the public sector, namely:- nationalization/expropriation, poor public decision-making process, political opposition, unstable government and land acquisition

Risk Allocated to the Private Sector

The survey responses indicate that twenty-two (22) risks were allocated to the private sector, namely:-inflation rate, influential economic events, industrial regulation change, interest rate, poor financial market, late design changes, financial attraction of project to investors, level of demand for the project, high financing cost, availability of finance, poor quality of workmanship, construction cost overrun, frequency of maintenance, availability of labor material, insolvency of subcontractors/suppliers, low operating productivity, higher maintenance cost, operational

revenue below expectations, operating productivity, construction time delay, different working methods, organization and coordination risks

Risks whose allocation is to be shared

There are two (2) risks which were to be shared, namely: legislation change and tax regulation

Risks whose allocation depends on nature of project

One(1) risk namely excessive contract variation depends on the nature of the project

CONCLUSIONS

Considering that this project was eventually taken over by Lagos State Government shows that some of the risks were not properly managed. These are political opposition risk, construction cost overrun risk and operational revenue below expectation risk. The public sector i.e Lagos State Government was expected to manage political opposition to the project which we can safely conclude that it was not effectively done. The private sector i.e. Lekki Concession Company was the party best suited to manage construction cost overrun and operational revenue below expectation risks, this we can say was not effectively done also.

RECOMMENDATIONS

It is therefore recommended that in order to effectively manage political opposition risk in a project of this nature the process of award of contract should be transparent and more competitive. Also, stakeholders like residents and transporters' association who would use the road should be carried along to ensure their buy-in to the project. This process would ensure value-for- money and reduce political opposition to the project.

In managing the construction cost overrun the concessionaire should enter into a fixed contract sum agreement with the contractors for the project. It is also advisable that for a project of this nature a less optimistic approach regarding revenue should be adopted

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