



**FACTORS THAT INFLUENCE RISK MANAGEMENT OF PUBLIC PRIVATE  
PARTNERSHIPS IN KENYA'S TRANSPORT SECTOR**

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**Abstract**

*Kenya's economy is constantly growing and government is focused on the actualization of Vision 2030 and has turned to the private sector to get proper assistance. Public private partnerships (PPPs) are today considered an integral avenue for the pursuit of Kenya's development agenda and their adoption has widely been herald in the various sectors of the economy but greatly in the transport sector. However, there is need to understand how risk management is carried out in such cases owing to the fact that the projects undertaken come with various risks and their success or failure is largely dependent on the preparedness of the parties involved. The principal objective of the study was to determine the factors that influence risk management in PPPs. The study also sought to determine how risk allocation, government guarantees and agreement types influence the risk management of these projects with keen focus on our transport sector. The research adopted a descriptive design with its target population drawn from the top and middle level staff at the state department of transport, the PPP unit as well as from a risk management consulting firm. The study collected primary data which was analyzed using inferential statistics as well as by adoption of the SPSS. Findings from the study reveal that most of the partnerships are adopted to help the public sector transfer risk to the private sector and thus risk identification was established as a vital phase in the process as it would translate to proper risk allocation as well as adoption of relevant risk mitigation strategies. Government guarantees were also established to be important in managing risk as they act as an incentive to the private sector. The study thus recommends that a functional framework on risk allocation be developed, functional PPP nodes within the state Departments of transport also be formed and finally, that a guarantee fund be provided as a budgetary allocation by the national treasury.*

**Keywords:** Risk management, Risk allocation, Government guarantee, Types of agreement

## 1.0 Introduction

Recent political and economic crises in the public sector in post Structural Adjustment Programmes period, have led to the realization that neither the state nor the private sector alone can spur economic growth and development. In recent years, the increasing need for the development of infrastructure and budgetary constraints in several developing and developed countries have led governments to seek new ways of financing facilities of public utility. One of the options is to involve private sector finance and expertise in the provision of public infrastructure and services through Public Private Partnership (PPP). PPPs are “agreements where public sector bodies enter into long-term contractual agreements with private sector entities for the construction or management of public sector infrastructure facilities by the private sector entity, or the provision of services by the private sector entity to the community on behalf of a public sector entity”, (Grimsey and Lewis, 2002).

According to Tochitskaya (2007), the functioning principles of private enterprise are incorporated in public administration with a view to improving the quality and efficiency of public service delivery. PPP offer a number of potential benefits as discussed by the Nova Scotia Government (NS, 2000): enhance government’s capacity to develop integrated solution, Reduce cost to implement the project, reduce the time to implement the project, transfer certain risks to the private project partner and access skills, experience and technology. Some projects schemes may not be very robust or their financial burdens may be unbearable for the private sector alone, forcing the public bodies to share in the financing and risk bearing of such projects or vice versa (Merna& Smith, 1999).

There are many different types of risk that PPPs may face. Grimsey and Lewis (2002), in their study of risks affecting infrastructure projects, have identified the following nine types: Technical risk, Construction risk, Operating risk, Revenue risk, financial risk, Force majeure risk, Regulatory/political risk, Environmental risk need and Project default risk. Public Private Partnerships take a variety of forms with varying levels degrees of Public and Private sector involvement and varying levels of public and private sector risk. In fact, risk transfer from public to private sector is a critical element of all PPPs. Risks can be associated with the provider’s investment in doing background research for the program proposal, without knowing whether their efforts will result in any funding. Risks can also be associated with financing eg. Performance-based contracts may lead to financial loss if the service delivery for one reason or another fails, (IMF, 2004; Edinvest; Nordtveit, 2005).

The government also bears some risks; in so much as it needs to carry the political risk of delivery should be emphasized that the highest economic risk, however, is ultimately borne by the consumers, since faulty delivery could be expensive in terms of opportunity cost to them, (Nordtveit 2005).

The Government of Kenya (GOK) is currently implementing Vision 2030, the country's development blueprint covering the period 2008 to 2030 with the aim of transforming Kenya into a newly industrialized middle-income country, providing high quality of life to all its citizens by the year 2030. This Vision 2030 aspires for a country with high quality services and facilities with investment in infrastructure facilities given the highest priority. The Government recognizes that the required funds to fully support the country's development agenda and to meet the

infrastructure deficit will require involvement of the private sector, hence Public Private Partnerships.

Since 1996, Kenya has attracted private investments into the country's economic infrastructure sectors including telecommunications, energy, transport, water and sewerage. These investments have demonstrated both the commitments of GOK to PPPs and the interest in these sectors by private investors, lenders and operators. These infrastructure investments however, occurred without a specific policy, legal and regulatory framework for PPP. As a result, most of these transactions, have taken longer time to be prepared and approved, while key analyses regarding affordability and the value for money that GOK and consumers would receive were not adequately conducted, (Republic of Kenya 2011).

It is in line with these that the PPP Unit was therefore established as a specialized unit within the National Treasury to promote and oversee the implementation of the GOK- PPP Program. The unit as resource center for the best practice and guardian of the integrity of the PPP process plays a role in identifying problems, making recommendations to the PPP committee regarding potential solutions and ensuring that projects meet such quality criteria as affordability, value for money and appropriate transfer of risk, (Ong'olo, 2006). The transport sector in Kenya is responsible for the road, rail, air, maritime and inland waterways with a broad objective of ensuring provision of low cost, high quality, world standard transport infrastructure services that support socio economic development. A National Integrated Transport Policy was formulated in 2004 to cover issues related to transport infrastructure planning, development and management, legal, institutional and regulatory frameworks, safety and security funding, gender mainstreaming, utilization of ICT, and environmental considerations, among others, (Republic of Kenya 2009).

Kenya has a successful track record in transport projects that have been built using PPPs. They include; the Port of Mombasa Grain Terminal- 1998, Jomo Kenyatta International Airport Cargo-1998, Kenya-Uganda Railway Concesssion-2006 and the Nairobi Urban Toll Road-2009 that failed. The then Ministry of Roads undertook drafting of the Sessional Paper No.5 of 2006 on the 'Development and Management of the Road subsector for Sustainable Economic Growth,' aimed at providing a framework to facilitate private sector participation in development and management of road infrastructure services through PPPs. The list continues owing to the fact that there are those that are still in progress while others are in the pipeline. The issue of risk management has always been handled by ensuring proper allocation of risk and more emphasis on the government through the guarantees it offers as well as other incentives to the private sector.

## **1.2 Statement of the problem**

In our fast paced world, the risks to be managed evolve quickly. Thus, there is the need to make sure the risks are managed so that their threats are minimized and potential maximized, (IRM, 2015). There are costs to a program of action, but they are far less than the long range risks and costs of comfortable inaction. An effective risk management practice doesn't eliminate risks. However, having an effective and operational risk management practice demonstrates

commitment to loss reduction or prevention, (John Kennedy, 2010). The purpose of risk management is to identify potential problems before they occur so that risk-handling activities may be planned and invoked as needed across the life of the product or project to mitigate adverse impacts on achieving objectives, (Burke, 2003).

Public Private Partnerships can provide a variety of benefits to the parties involved but the main reason for their adoption is the aspect of risk transfer which aims at reduction of costs to the private partner and fiscal risk to the public partner. However, at the heart of the PPP's remains the risk management problem due to the high degree risks affecting these projects that usually are characterized by many stakeholders, huge amounts of investments and long concession periods. Risk identification forms a crucial part of risk management because if risks facing a project cannot be determined a priori, then any or some of them can materialize at anytime in the lifecycle of a project and interfere with the achievement of the project's objectives, (Akintoye & Hardcastle, 2003).

Some studies have identified specific critical aspects for the success of a PPP project to be risk management, (Nunzia et.al.,2013) to be identification of key risks, their allocation between the two parties and adoption of suitable practices; other researchers have looked at the approaches to risk management as well as the common risks PPPs face, (Nikolai, 2012), while others have concentrated on risk analysis and risk management tools in PPPs (Simo et.al.,2013). The consistent theme in the literature from the studies above is the crucial aspect of risk allocation in the risk management process.K.Rajkumaret.al.,(2013), identified government guarantee especially with the change of law as a critical factor that influences infrastructure development of projects under PPPs.

Local researchers have explored risk management practices(A.Njuguna, 2013) whose findings highlighted the role of regulators in addressing the myriad of risks in the various sectors; K.Thuku, (2012), relationship between risk management practices and organizational performance; others have concentrated on impact of risk management practices on financial performance, (NG. Mugenda, 2012) and effects of risk management components of strategic implementation, (Herbert et.al., 2014) whose conclusion emphasizes the significance of risk identification on risk management practices. C.Musyoka (2012), emphasized on the importance of risk management in the performance of the PPPs and thus highlighted the type of agreement in the contract as a factor to consider.

The studies reviewed above all highlight the various aspects of the risk management process and clearly, risk management is crucial in all projects, sectors and organizations. However, there is little known study that has been done on the factors that influence risk management in public private partnerships. This study therefore sought to fill this existing research gap with a keen focus on Kenya's transport sector.

### **1.3 General objective**

The general objective of the study was to understand what factors influence the risk management of a public private partnership in Kenya's transport sector.

### 13.1 Specific Objectives

- i. To determine how risk allocation influences risk management of the public private partnerships in Kenya.
- ii. To establish how the agreement type in the contract influences risk management of the public private partnerships in Kenya
- iii. To determine how government guarantees affect the risk management of the PPPs in Kenya.

## 2.1 Theoretical framework

The study adopted three theories to discuss on reserved tendering and procurement process. These theories include; agency theory, Du pond model and systems theory.

### 2.2.1 Agency Theory

Communication involves sharing relevant information between project participants. Poor communication has been shown to be one of the most common project risks (Ceric, 2003). It is usually assumed that all participants cooperate and exchange information in order to achieve project's goals. Actually, there is a potential conflict of interests between project participants because they all have their own interests, as well. The situation in which one of the two parties is better informed than the other is recognized in economics as the *principal-agent problem* (e.g., Jäger, 2008). In construction projects, the project owner and contractor as principal and agent form the key relationship (Turner and Müller, 2004).

Delegation of tasks establishes a principal-agent relationship between the project owner and manager, where the principal (project owner) depends on the agent (contractor or project manager) to undertake a task on the principal's behalf (Müller and Turner, 2005). It can be assumed that an agent will try to maximize his or her own benefit even when that may involve a higher damage to the client (Schieg, 2008). According to the principal-agent theory, this problem is characterized by three issues concerning the relationship between the principal and the agent: adverse selection, moral hazard, and hold-up. Analyzing papers that have been published so far, it can be concluded that most authors have researched moral hazard dealing with supply chain management, procurement systems, make-or-buy decisions, and outsourcing (Tedelis, 2002; Yiu et al., 2002; Ive and Chang, 2007). Several authors have discussed the adverse selection problem and its impact on building performance and building quality (Corvellec and Macheridis, 2010). It should be noted that the hold-up problem dealing with subcontracting and procurement systems has attracted least attention so far (Chang and Ive, 2007; Unsal and Taylor, 2010). A more detailed analysis of the key construction literature covering all three issues can be found in Ceric (2010).

### 2.2.2 Decision Theory

Risk management decisions are concerned primarily with a specific step in risk management process, which is through selecting the techniques or strategies that will be used for the risks that have been identified and measured. Consequently, we state that Decision Theory is implicitly

contained by the risk management process, since risk management depends on rules derived from general knowledge and precepts of Decision Theory (Vaughan 2007).

Normative and rationalistic models for decision making are based on the conceptions about how decisions are to be made. In this perspective, a decision maker should first become aware of a problem, then posit a goal, carefully weigh alternative means, and finally choose among them according to his estimates of their respective merit. This rational approach of decision making applied to risk management, prescribes how to act when there is uncertainty and lack of information. We could find several techniques both for the assessment (identification and evaluation of risks) and to determine the optimal response for a specific risk (e.g. Cost Benefit Analysis). In the public arena, the standard literature of decision making pays more attention to the rational and normative approach rather than the descriptive one. The tendency to prescribe public decision even for complex problems by normative approaches has been influenced by the attention paid to operations research, the statistical decision theory, and systems analysis methods (Lindblom 2009).

### 2.2.3 Prospect Theory

Prospect theory is a well-established descriptive theory of human behavior under risk. Its success in explaining phenomena which are puzzling for the mainstream approach based on expected utility maximization is already impressive, (Benartzia and Thaler, 2005). The theory postulates that agents form their decisions in two steps. First, a certain decision problem is framed (“editing phase”), ie considered as a self-contained decision problem often in a very narrow setting. Subsequently, in a second step the decision is taken by maximizing the prospective value function defined for the problem, (Kahneman and Tversky, 2001).

The prospect theory in relation to the research study helps depict the behaviour through which the private sector goes through once it’s presented with the proposal. It also shows the contemplation and analysis of the risks the PPP project undertaking may bring with and how to allocate them with an aim of maximizing their prospective value.

## 2.2 Conceptual framework

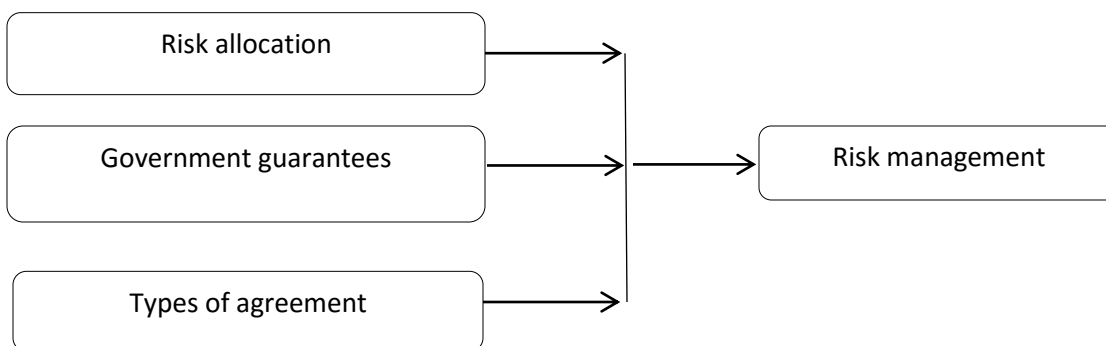


Figure 1: Conceptual framework

### **2.3.1 Risk Allocation**

Risk allocation refers to a primary measure of assignment between the projects' direct participants that is between the public and private sector, excluding the end-users. If both parties bear a certain risk outcome, that is a shared risk allocation mechanism.

As soon as the period during which the contract is signed and enforced is different, risks exist in the transaction. At the same time, risk-allocation is an important factor to take into account in the explanation of the procurement contract performance; and in the understanding of the transactions undertaken. Then, how to allocate risks between partners in order to favour efficiency? Despite the importance of this question, the allocation criteria are sometimes unknown. In this case, authors use general risk allocation criteria such as "appropriate risk transfer" (Grimsey& Lewis, 2004) or "risk should be allocated to the party that is best placed to manage it at the least cost" (European commission, March 2003); Hood &MacGarvey, (2002).

A number of standard risk allocation matrices have been proposed to guide appropriate risk allocation in PPP projects. In reality, it is important to understand that these models are limited since risks must be analyzed and managed on a project-by-project basis. Furthermore, the best allocation of risk will depend on how the private parties price the risk, whether this is reasonable for the public sector (Ng and Loosemore, 2007). Optimal risk allocation can be described as follows. If greater ability to mitigate some risks and to deal with them at the least possible cost belongs to the public sector partner, these risks should remain with the public sector. Those kinds of risk that the private sector partner can mitigate better and cheaper, should be transferred to the private sector, (European Commission, 2003).

### **2.3.2 Government guarantees**

Government guarantees are a form of government intervention intended to reduce the financial costs of risks faced by the private sector and/ or by other public sector entities should they materialize; effective response to inability of markets to distribute optimally, (Irwin, 2003). Hemming describes the government guarantees as a form of government intervention intended to reduce the financial costs of risks faced by the private sector and/or by other public entities, should they materialize. Government guarantee is a form of government intervention which rationale is to respond to the inability of markets to distribute risks optimally. It provides protection to the private sector against the risks involved in PPP contracts which mostly involve the provision of high-cost, single-use, long-lived assets, (Hemming, 2006).

Non-financial (contractual) Guarantees involve those Government guarantees sometimes given through contractual provisions of PPP contract between the government and PPP companies. Revenue or usage guarantee under this provision, the government guarantees the PPP company a certain level of usage (usually in toll road project) or revenue guarantee, whereby the government will compensate the shortfall of the PPP company if their revenue does not reach a certain amount. Guaranteed minimum service charges, the government guarantees that the amount of service charge it pays will not decrease under a certain limit, regardless the

performance of the PPP company. Change of law/regulation, this provision protects the PPP company against the changes of law/regulation in the future. For the governments whose regulatory frameworks have not yet developed, they may need to provide this guarantee. Termination payment, with this provision, the government guarantees to pay the compensation to the PPP company when the PPP contract is terminated early due to default of the PPP company (Cesear, 2012).

Financial Guarantees is a technique used by debtors to improve their credit rating of their debt, in order to lower their financing cost. We could say that it is a “credit enhancement”. In developing countries, especially for the financing of infrastructure projects, the value of financial guarantee goes beyond the interest rate, which is to open access to long term institutional investor market, (World Bank, 2007).

According to the market discipline hypothesis, government support of banks decreases the incentive of outside investors (depositors, creditors, and shareholders) to monitor or influence bank risk taking. Risk-shifting may occur if deposit insurance is not fairly priced or if governments provide guarantees to holders of bank debt. Under the charter value hypothesis, government support decreases banks’ funding costs as both depositors and creditors demand lower rates. The decline in funding costs increases their interest margin and raises banks’ charter values, which leads to banks taking fewer risks to protect future rents, (Robelo, 2012).

### **2.3.3 Type of Agreements in Public Private Partnership Contract**

There are numerous ways to categorize PPP projects. While some scholars argue that “true” PPPs always involve private infrastructure investment and ownership, Benett, Grohman and Gentry (2012) describe PPPs as a spectrum of cooperative relations between private and public organizations directed towards the supply of infrastructure services. Some PPP projects may be very long-term, including new infrastructure investments as in concessions and Build-Operate-Transfer projects, while others may be more short-term, concerning reinvestments only – and sometimes even limited to the task of operating a finished construction. In general, private partner involvement arrangements in PPPs differ between each other depending on the level of responsibilities and risks transferred to the private partner (Amekudzi & Morillos, 2008). Estache & Serebrisky, (2004) identify four principal types of PPP contracts: divestments of public property or businesses to the private sector, greenfield investments, for example the building of a toll motorway, service contracts that can include promises on investments, and concessions, licenses and franchise agreements, which often have a life span of 10-30 years and include detailed provisions on investments and service levels.

According to a study on Concessions in Chile by Engel et al, 2009 findings reveal that the biggest unplanned costs associated with the concessions have come from renegotiations of concession contracts. Sometimes, a renegotiation occurs because the government wants the concessionaire to undertake additional work not required by the original contract. At other times, it occurs because the construction or operation of the project runs into unforeseen problems. Compensation is sometimes in cash, but may also take the form of an increase in user fees or an extension of the term of the concession. The government also bears risks related to land acquisition, including in particular delays in acquisition, for which the concessionaire must be compensated. For urban roads, the costs of moving unmapped gas pipes, telephone cables, and



other utilities under urban roads are shared between the government and the concessionaire. The government must also compensate the concessionaire if it chooses to terminate the concession before the concession's scheduled end. If the concession ends because of the concessionaire's default or bankruptcy, however, the lenders are reimbursed only from the proceeds of rebidding the concession, not by the government.

## **2.4 Risk Management**

Risk management is a systematic approach to dealing with risk, (Edwards, 2001). A risk management system should typically include processes to deal with risk identification, classification and allocation. For a project to be successful, a sound risk management system is required that usually comprises identification, analysis and response (Burke, 2003) so that when the risks do eventuate they can be overcome. The purpose of risk management is to identify potential problems before they occur so that risk-handling activities may be planned and invoked as needed across the life of the product or project to mitigate adverse impacts on achieving objectives, (IMF, 2015).

A continuous risk management approach is applied to effectively anticipate and mitigate the risks that have critical impact on the project. Effective risk management includes early and aggressive risk identification through the collaboration and involvement of relevant stakeholders. Strong leadership across all relevant stakeholders is needed to establish an environment for the free and open disclosure and discussion of risk. Although technical issues are a primary concern both early on and throughout all project phases, risk management must consider both internal and external sources for cost, schedule, and technical risk. Early and aggressive detection of risk is important because it is typically easier, less costly, and less disruptive to make changes and correct work efforts during the earlier, rather than the later, phases of the project, (McKinsey, 2013).

## **2.8 Summary of research gaps**

Most of the literature reviewed in regard to risk management is from different countries which apply to various sectors. Very little has been researched on in Kenya regarding the risk management in the financial market with regards to project management. The little study conducted has been mostly focused on the water, banking and the real estate sectors, with a 25 negligible percentage of the studies conducted in the PPP's in Kenya's infrastructure. Therefore the reliability of previous study in regard to performance of PPPs in Kenya can be termed subjective. Thus there is a research gap of what Factors Influence Risk Management of PPP's in Kenya's Transport Sector.

## **3.0 Research methodology**

The study adopted the descriptive also referred to as diagnostic research design which is considered with describing characteristics of a particular individual or groups of individuals, (Kothari, 2005). According to Cooper and Schindler (2003), the descriptive study tries to answer the, who, what, when, where and sometimes how questions.

This particular aimed at establishing what factors influence risk management of public private partnerships in Kenya while focusing on the transport sector. To achieve fulfilling results for this

study, the researcher adopted the use of structured instruments like the questionnaires (Appendix B) which involved questions that are developed using the Likertscale. The researcher adopted both the quantitative and qualitative methodology to analyze the data. Data obtained from the various sources was analysed through various modes, which involved coding of the interview replies, tabulating of data from the questionnaires and statistical computations

The study was conducted with the researcher’s focus on the transport sector including both the successful and terminated PPP projects. The population of the study included staff at the top and middle level at the State department of transport, the PPP unit and PricewaterhouseCoopers’s (PWC) risk management department. Thus the study’s population encompassed a total of 83

Anderson and Pole (2001), postulate that once data has been collected, the researcher must be able to interpret it’s reliably. The data was analyzed using descriptive statistics. Data was presented by use of cross tabulation charts and graphs, tables, percentages and frequencies to display a visual presentation of the data, for ease of understanding and analysis.

The analysis was done by application of the statistical package for social sciences (SPSS) software, IMB 2015 version. The study also used a multiple regression analysis to establish the relationship between the dependent and the independent variables as well as the correlation coefficient which was used to establish the strength of relationship.

## RESEARCH FINDINGS AND DISCUSSION

### 4.4 Risk Allocation

#### 4.4.1 Types of risks Public Private Partnerships face

To assess the risk allocation in the PPP projects for successful risk management, the study focused on identification of key risks common in the projects. Table 1 below indicates the risks which the respondents feel are likely to emerge in the lifecycle of the project.

**Table 1 Risks probable in a PPPs lifecycle**

| Type of Risk    | Frequency | Percentage | Cumulative % |
|-----------------|-----------|------------|--------------|
| Political       | 9         | 22         | <b>22</b>    |
| Demand/ Revenue | 9         | 22         | <b>44</b>    |
| Force Majeure   | 8         | 21         | <b>65</b>    |
| Project Default | 3         | 17         | <b>82</b>    |
| Others          | 4         | 18         | <b>100</b>   |

22 % of the respondents felt that political and revenue risk have the highest probability of occurring while 21% gave force majeure as the most likely risk that may pose a challenge to the PPP projects. Some respondents felt that the risk of the project not being completed and left abandoned poses a project default risk with 17% supporting this. The remaining 18% stated other risks that as per their view may pose a challenge within the lifecycle of the project as construction, foreign exchange, environmental, financial and technical risk. This therefore means

that risk categorization is important so as to understand what each risk entails and how it comes about so that it is easily identified and well allocated.

Grimsey and Lewis, (2002) study on the types of the risks that PPPs face identified nine types of risks; Technical, construction, operating, revenue, financial, environmental, project default, force majeure and political risks. Thus, the findings from this present research confirm that the risks still hold and pose the challenge to the projects.

#### 4.4.2 Risk Allocation Mechanism

The study also assessed what allocation mechanism would best be suited when allocating the risks already highlighted above. Findings thus showed that among the three allocation options available, 84% of the respondents were neutral while 16 % felt allocating risk to the public partner only was strongly unsuitable. Allocation to the private sector on the other hand, received mixed reactions with 52% being neutral, 36% thought it is suitable and 12% deem it unsuitable. The final allocation option where the public and private partners share the risks was the only mechanism that got 100% support from all respondents.

The findings thus emphasize the need to identify the party better placed to bear the risks identified. The mechanism provided could also be wholly integrated such that the public partner bears a certain percentage, the private partner also gets a specified percentage and the remainder is shared among the parties. A study's findings explained that, PPP projects target at an optimal risk allocation strategy that enables the project to achieve value for money by minimizing the project costs. Allocation of risks to party not in the best position to manage the risks will charge premium for assuming the risks and this will increase the project costs and, at the same time, diminish the project's value for money, (Akintoye, M. Beck.,et al. 2003).

**Table 2 Risk Allocation Mechanism**

| <b>Risk allocation Mechanism</b> | <b>Strongly Suitable %</b> | <b>Suitable %</b> | <b>Neutral %</b> | <b>Unsuitable %</b> |
|----------------------------------|----------------------------|-------------------|------------------|---------------------|
| Public Partner                   |                            |                   | 84               | 16                  |
| Private Partner                  |                            | 36                | 52               | 12                  |
| Shared                           | 100                        |                   |                  |                     |

Theoretically, sound risk allocation should achieve management efficiency and reduce transaction costs. Li Bing et al, (2004) identified that risk allocation preferences included, the public sector which would retain risks such as political opposition, site availability and government stability. The private sector on the other hand would be allocated risks as the preferred bearer of the two, handling inflation, tax regulation, staff crisis and third party tort liability. The findings also stated that risk sharing is also a preferred risk allocation mechanism where force majeure a severe risk with low occurrence probability should be shared.

The study also gave statements on risk allocation and were interpreted on a scale of 1-5 (strongly disagree to strongly agree). Findings showed that majority of the respondents strongly agree with the party to a contract should bear a risk where it is within its control and that the risk bearer should be in a position to transfer it. It is thus suggested that adopting an allocation scheme: a simple list of risk factors, a risk matrix, and a risk allocation framework, (Jeffries, 2003).

## 4.5 Government Guarantees

Under this variable, the researcher aimed to gauge the respondents understanding on government guarantees. Findings tabulated on the table below show that 56% of the respondents view the guarantees offered by the government as a way of sheltering the private sector from certain risks which cannot be transferred. Others stated that they are a form of assurance and support, cushion for the private sector as well as an intervention according to 15%, 12% and 6% of the respondents respectively. According to Dong.Z.,et.al, (2016), study's findings, government play an important role on how PPPs are implemented especially since the guarantees are key to the successful implementation of the projects. Therefore a proper legal and regulatory framework is vital to ensure that the guarantees are offered to boost private sector involvement and commitment.

**Table 3 Opinions of the respondents on government guarantees**

| <b>What is a Govt. Guarantee</b>  | <b>Frequency</b> | <b>Percent</b> | <b>Cumulative percent</b> |
|---|------------------|----------------|---------------------------|
| Government offering a cushion to the private partner in the project                   | 4                | 12.1           | <b>12.1</b>               |
| Where government steps in to offer support and assurance                              | 5                | 15.2           | <b>27.3</b>               |
| Its governments way of making sure the private partner fills its presence and support | 2                | 6.1            | <b>33.3</b>               |
| Government commitment to shelter the private sector from certain risks                | 18               | 54.5           | <b>87.9</b>               |
| A form of governments intervention to the PPP projects                                | 4                | 12.1           | <b>100</b>                |

To assess the government guarantees role in risk management, the respondents were to indicate the extent to which they agreed with statements outlined for them. 56% of the respondents strongly agreed with the use of government guarantees to attract investment as well as promote private projects but 52% agreed that the same guarantees may be a source of vulnerability by exposing the government to risks and thus 73% strongly concurred with the government guarantees coverage being limited and not to cover all risks within the project as a way of minimizing and managing risk. Engel et.al, (2008) findings suggest that, while government offers guarantees, they should limit them to avoid distortion of the bidding process by avoiding bearing certain risks.

The researcher also sought to find out the types of financial guarantees the respondents were familiar with. Findings showed that the respondents were more exposed to the non financial types of guarantees with 56% aware of the regulation/ change of law, 13% on revenue and guaranteed minimum service charges. The study also found that at least 10% and 8% were familiar with the financial guarantees as the full wrap and partial credit guarantee.

## guarantees

■ revenue ■ Minimum charges ■ Regulation ■ Full wrap ■ Partial Credit

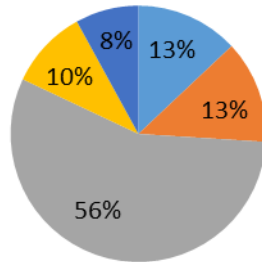


Figure 2: Types of Government Guarantees

The study being focused on establishing how government guarantees are a factor in risk management, the researcher sought to get opinions on why the adoption of these guarantees to drive the PPP projects in the transport sector have negative consequences. Findings on this showed that 39% felt that embracing of the government guarantees to promote investment by the private sector may end up being a pathway to exposure of unforeseen risks. According to findings by Yang, (2007), the local government lacks the ability to conduct proper risk analysis and negotiate with the private party making the guarantees offered to cover the shortfall.

**Table 4 Opinions of the respondents on the disadvantages of government guarantees**

| Disadvantages   | Frequency | percentage | Cumulative % |
|---|-----------|------------|--------------|
| Burden to the government                                | 3         | 9.1        | <b>9.1</b>   |
| Increase of government fiscal risk                      | 6         | 18.2       | <b>27.3</b>  |
| May encourage complacency on the private sector partner | 5         | 15.1       | <b>42.4</b>  |
| Risk exposure   | 13        | 39.4       | <b>81.8</b>  |
| Putting the government in a position of vulnerability   | 6         | 18.2       | <b>100</b>   |

18% felt that government guarantees have the disadvantage of increasing the government burden especially by increasing the fiscal risk which may result from the financial guarantees with major emphasis on the full wrap type and so this would translate into increasing the contingent liabilities of the public partner. United Nations report suggests that “guarantees and support by governments must be provided with care”. By providing support government not only deals with some kinds of risk, but also creates the ‘guarantee culture’ which reduces the incentives of the private sector to accept risk, and the private sector may become increasingly risk averse. Similarly, the European Commission guidelines for PPPs argue that grant financing carries certain risks. Grants “provide little incentive to efficiency enhancements usually associated with the pressures of commercial financing. Additionally the availability of free funds can cause a degree of dependency and ‘crowding out’ of alternative sources”. As government grants are

likely to be viewed by private partners as coverage of some of their risks, this method of coping with risks may be quite ineffective as it discourages private partner innovation and reduces incentives for better performance, (European Commission, 2003).

#### 4.6 Type of Agreements

Findings from the study showed that the respondents were not only familiar with the concept of PPPs but also the various types that are used in infrastructure projects. 58% of the respondents referred to concessions as the type they were exposed to, while 36% stated BOT projects as the example of agreement they know and the remaining 6% gave the Operate and Maintain type of agreement as the type that is familiar to them. Meicheng Wang, (2016), findings pointed out that the PPP models offer significant advantages over the traditional public procurement in terms of efficiency, service, quality and value for money since they come with provisions of design, finance and operate.

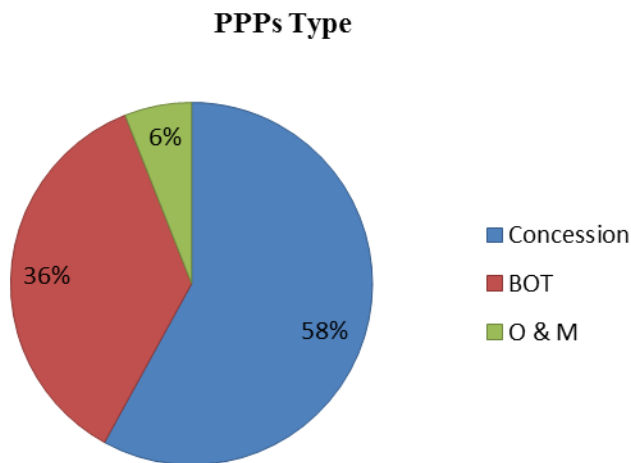


Figure 3: Types of PPP agreements

The research also sought to understand the various agreements riskiness level as per the respondents' opinions based on the ranking. It was found that the riskiness in the model or type of agreement varies mostly due to the period of time that the project covers as well as its scope of operation. The table below shows the findings.

**Table 5 Risk level of the agreement levels**

| Agreement Type Risk Rank | Frequency | Percentage | Cumulative% |
|--------------------------|-----------|------------|-------------|
| Concessions, BOT, DBFO   | 45%       | 45         | <b>45</b>   |
| Leases                   | 13%       | 13         | <b>58</b>   |
| O & M Agreements         | 10%       | 10         | <b>68</b>   |

|   |     |    |            |
|---|-----|----|------------|
| Civil works and service contracts       | 10% | 10 | <b>78</b>  |
| Full Divesture                          | 7%  | 7  | <b>85</b>  |
| Joint ventures and partial divesture    | 6%  | 6  | <b>91</b>  |
| Contract plans and performance contract | 9%  | 9  | <b>100</b> |

Some of the respondents' views as to the importance of embracing the various PPP agreement types were that they help in the transfer of risk since each agreement comes with its own unique terms especially in terms of financing cost, duration and risks. Thus, the agreement type as per the study's findings is the best alternative of PPPs according to 62% of the respondents since they help in avoiding the risk of increasing government debt. These findings are supported by Dong. Z et.al, (2016), whose study revealed that, if a PPP type is considered as an approach of accessing financing only, chances of failure will be increased because of high risk of choosing inappropriate projects (white elephants).

It is difficult to generalize the risks inherent in PPP projects as the risk profile of a PPP project varies with a number of factors, including the country in which the project is situated, the type of infrastructure sector, and the unique socio economic environment surrounding the project. The uniqueness in the risk profile of PPP projects has led to use of risk identification techniques that are based on the knowledge of the experts in the related fields and experience with similar projects. Some of the other risk identification techniques in addition to experience and experts are intuition, checklists, site visits, case studies, brainstorming sessions, allied organizations, databases, and workshops (Akintoye, Beck et al.2001).

#### **4.7 Risk Management Measurement**

##### **4.7.1 Assessment of risk management**

To assess the process of risk management, the study sought to establish what the vital stage in this process is and from the findings 96% of the respondents were in agreement that risk identification phase is critical in any project. This is in line with McKinsey, (2013) whose working paper on successful PPP infrastructure projects highlighted the importance of proper risk identification so as to avoid carrying forward risks that may have an impact on the project's lifecycle. The respondents also were also to state their view on the importance of proper risk management and the general feel from the respondents was that a proper effective and operational risk management approach safeguards all the interests of the parties involved. Findings indicate that the parties whose involvement the respondents believe is critical during the risk management process of the PPP projects include both private and public sector representation which was a response by 54%; risk management expert was a party that 26% of the respondents felt should be present to offer their expertise while the remaining 20%

respondents suggested the presence of a financial consultant who would provide insight into the projects budgeting, returns and other financial decisions.

According to a study by Carbonara, (2015) on risk management in PPP projects; an empirical study on the ,motorway sector, the targeted respondents involved in the Delphi technique survey involved the experts and parties mentioned above in this particular study.

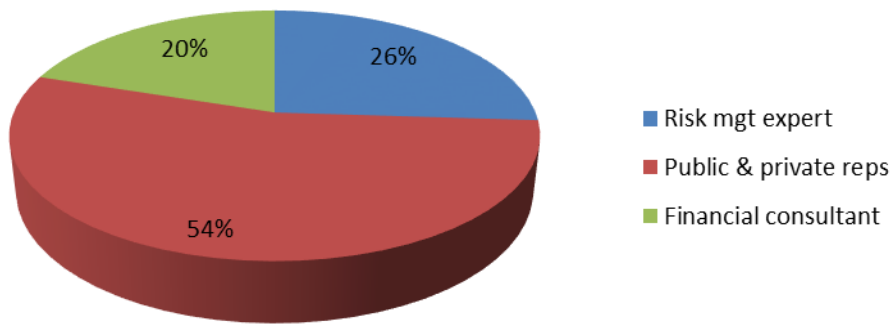


Figure 4: Key players in the risk management process

#### 4.7.2 Effective Risk Management of PPP projects

**Table 6 Opinions of the respondents on poor risk management**

| Effects of poor risk management | Frequency | Percent | Cumm%      |
|---------------------------------|-----------|---------|------------|
| Project Failure                 | 24        | 72      | <b>72</b>  |
| Misappropriation of funds       | 6         | 18      | <b>90</b>  |
| Time lapse                      | 3         | 10      | <b>100</b> |

Findings from the study as tabulated above indicate that 72% of the respondents strongly feel that poor risk management leads to project failure of the PPP projects and most of them gave the failed Nairobi Urban Toll Road as an example resulting from poor risk management since it experienced unprecedented social risk. 18% of the respondents stated misappropriation of funds and loss of finance as another result of poor risk management still quoting the Nairobi Urban Toll Road since once the project was faced with the risks that they failed to identify as well as not meeting set conditions, World Bank withdrew its finances. The final 10% of the respondents stated delay and time lapse of the project duration when risk management is poorly done.

As a way to combat the problem that results from poor risk management, the respondents were asked to give suggestions on the strategies that should be embraced to ensure the PPP projects are successfully implemented. The findings thus showed majority of the respondents suggest that there should be a proper framework and guidelines to outline how the PPP projects within each



sector should be handled and especially on the issue of risk allocation. It was also suggested that the Ministry of Transport should have a well experienced team of risk management experts who would oversee the entire project from the start to completion.

**Table 7 Model Summary**

| Model | R                 | R Square | Adjusted Square | RStd. Error of the Estimate | Change Statistics |          |     |
|-------|-------------------|----------|-----------------|-----------------------------|-------------------|----------|-----|
|       |                   |          |                 |                             | Square Change     | F Change | df1 |
| 1     | 0.85 <sup>a</sup> | 0.754    | 0.713           | .236                        | .041              | .290     | 3   |

| Model |            | Sum Squares | df | Mean Square | F      | Sig.              |
|-------|------------|-------------|----|-------------|--------|-------------------|
| 1     | Regression | 12.867      | 3  | 4.289       | 16.343 | .000 <sup>b</sup> |
|       | Residual   | 4.122       | 29 | 0.142       |        |                   |
|       | Total      | 16.989      | 32 |             |        |                   |

|                     |    | RM    | RA    | GG    | TA    |
|---------------------|----|-------|-------|-------|-------|
| Pearson Correlation | RM | 1.000 | .095  | .142  | -.032 |
|                     | RA | .095  | 1.000 | .003  | -.032 |
|                     | GG | .142  | .003  | 1.000 | -.212 |
|                     | TA | -.032 | -.032 | -.212 | 1.000 |

Interpretation of the Model summary above generated from the findings of the study show that the level of correlation between risk allocation, government guarantees and type of agreements to risk management is a strong positive one at 85%. It also reveals that 75% of influence on risk management of the PPP projects is as a result of the three variables (risk allocation, government guarantees and type of agreement) discussed in the study while the remaining 25% involve other factors. The multiple regression analysis also revealed that with the 32+1 parameters, the 3 predictor variables resulted in a significance value of 0.00 meaning that the prediction model was a good one.

## 5.1 Summary

The study sought to establish the factors that influence risk management of Public Private Partnerships in Kenya's transport sector. The study therefore sought to establish how selected factors: risk allocation, government guarantees and type of agreement in PPPs influence risk management.

The study found that PPPs are embraced as a special purpose vehicle to implement infrastructure projects that the government may find limiting to due to finance, expertise and mainly due to the risk involved. Various risks were highlighted and majority of the respondents, 61% emphasized on the political, revenue and project default risks as a major concern in all the PPP projects. The study also established that the risks once identified require a party to be held accountable and responsible for managing it so as not to cause any upsets in the project's lifecycle. Result findings supported adoption of the risk sharing mechanism with the best preferred alternative being the private sector as the risk owner.

The study established that the government guarantees act as an incentive to boost private sector confidence and offer assurance to deal with those risks that the private sector is unable to diversify. 73% of the respondents said that the coverage of the government guarantees especially those that are of a financial nature should be limited in coverage so as to avoid exposure of the government to greater risk.

The study's findings showed that the respondents were well familiar with the various PPP models and they ranked them in terms of riskiness as well. Results findings indicated that the type of agreement influenced risk management since each type had a specific duration of time, investment and the risks it was prone to experience. 62% of the respondents agreed that the type of agreement helps achieve the main purpose of the PPPs which is facilitation of risk transfer.

It was established that risk management is vital for the successful implementation of the Public Private Partnerships however the findings indicated that there is great need for a framework to offer guidance in relation to the projects entire lifecycle. Majority of the respondents also said that for the risk management to be effective and operational , the identification and allocation phases require skilled and undivided attention since any miscalculation may have great negative results including loss of funds, time and even the failure if the project. The study also established that the mitigation strategies adopted could be either those reducing or avoiding the risk entirely.

## 5.2 Conclusions

The study concludes that the concept of risk management is not new going by the respondent's feedback and appreciation for its vitality in the lifecycle of the projects. It is thus evident that the Government's effort to involve the private sector by creating an enabling environment to attract investments to enhance the infrastructure sector is all as a way of aiming at the vision 2030 realization. Risk management is thus important as it ensures that both parties have their interests safeguarded and that no avoidable issues erupt in the course of the project implementation.

The study further concludes that since the PPP agreements are a special purpose vehicle through which the State department of transport could achieve its mandate of ensuring the transport sector is well maintained and accessibility guaranteed, seeking guidance from the PPP secretariat

on establishing functional PPP nodes that shall oversee the implementation of the projects and especially offer advice on the appropriate risk allocation mechanism is a good step. This would help ensure that risk transfer is properly done and avoid having to report on failed projects like the Nairobi Urban Toll Road Project whose failure was due to poor risk identification and allocation.

The study concluded that, despite the government guarantees being key in the boosting of the private sector confidence and attracting greater investments, it may translate to increase of government burden in terms of the contingent liabilities accrued among the many projects within the Transport sector. Thus, the State Department of Transport should work hand in hand with the PPP unit as well as the Ministry of Finance so as to have the projects approved after fund availability has been resolved so as to ensure that the tax payer gets value for money through optimal risk transfer and risk management.

### **5.3 Recommendations**

Based on the findings and conclusions above, the study recommends the following:

That the State Department of Transport establish PPP nodes to oversee that the allocation of risks is done to the party that is best able to manage controllable risks or best able to insure uncontrollable but insurable risks or best able to bear the financial consequences on uncontrollable and uninsurable risks. That risk identification techniques be streamlined so as to avoid any loopholes in the projects implementation.

The Annual Budgetary allocation to make provision of “guarantee fund” so as to help meet the government contingent liabilities arising from the PPP projects thus reduce the risk burden. It would also be good for the government to issue guarantees for the projects with International Development institutions involved in insuring country and project risks.

The State department of transport should ensure that the PPP model it personally or its authority body settles on has been approved by the National Treasury owing to the fact that they differ in purpose, service, scope, legal structure and risk sharing. It would also be key for a PPP policy framework be developed to give guidelines on risk management of the different agreement types.

### **5.4 Further Areas for Research**

Further research can be done by expanding the scope of coverage to a different sector of the country’s economy. This would serve further to explain the different demands and unique needs attached to the sectors with regards to risk management. Also research could be done on this particular sector with the aim of establishing which other factor(s) constitute the 25% the analysis of this study’s findings was referring to.

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