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Factors that Influenced Public Private Partnership (PPP) Adoption for Implementing Geothermal Power Project

Menengai Project

Calisstus Ndongoli

P.o Box 17700-20100 Nakuru-Kenya

cndongoli@gdc.co.ke

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ABSTRACT

Kenya among developing countries is experiencing unprecedented demand for affordable energy supply in order to spur economic development and improve social economic status of her citizens; geothermal development is one of the flagship projects earmarked in this noble course. This study therefore examined the factors that extensively influenced the adoption of public private partnership as a tool for financing public infrastructure projects with specific focus on Menengai Geothermal power project. The study employed use of descriptive survey research design in acquiring data; the focus was on obtaining quantitative data from a cross-section of experts relevantly involved in PPP projects. The target population comprised of 100 persons drawn from Geothermal Development Company management, Public Private Partnership Unit within the National Treasury, Independent Power Producers, County Government of Nakuru and local community within Menengai project site, the professional domain captured here forms part of inform source for policy making about PPP development. Out of a target of 100, 91 respondents were involved and positively gave their feedback through the questionnaires that were administered, since the research was restrictive, census was adopted for the 91 respondents. Data acquired was coded in SPSS for processing and 65.6% Indicated that BOO was adopted for implementing Menengai Geothermal Power generation scheme which empirically showed an informed population. An array of factors were examined, among others in a consolidated view, 84.6% of respondents indicated that; fiscal deficit on capital expenditure was highly and very highly significant in influencing the adoption of PPP project financing model. The research further showed that in the numeral strength of factors that influenced PPP adoption included; private sector to create jobs (75.9%), risk transfer to private sector (77.5%), private sector expertise needed (74.7%), project delivery efficiency by private sector (49.5%), quality of service (48.9%), and cost control by private sector (41.8%). Through this research work and findings, the successful application of this PPP model will set precedence to be adopted for other numerous projects in the pipeline earmarked under the "Big-four Agenda" planned by Kenya government to actualize the countries Vision 2030 program, while improving PPP framework by addressing emerging challenges.

1.0 INTRODUCTION

The provision of public infrastructure and services is one of the prime mandate of Governments. Across many countries in the world, studies have shown that there is close correlation between infrastructure development and economic development (Yoo, 2006). However, fiscal constraints experienced by governments on the backdrop of recurrent and development expenditure disparities against revenues collected in form of taxes is a major impediment. Other factors include risks associated with projects implementation, lack of lending capacity by local market and demand for Value for Money, have resulted in new and innovative approaches to provide financing of public infrastructure and services (Fuest & Haffner, 2007). Public Private Partnership (PPP) is a widely recognized public sector procurement mechanism whereby the government engages commitment from the private sector and transfers a certain level of responsibilities to the private sector in providing public facilities and services (Bel & Miralles, 2010). According to what has been envisaged in (Kenya's Vision 2030), the successful implementation of the Flagship projects for instance in manufacturing industries, transport, housing and affordable healthcare system, will greatly depend on supply of adequate, reliable, clean and affordable energy. In particular, the demand for electricity will increase; since it is a prime mover of the commercial sector of the economy (Makanga & Ngondi, 2010). This therefore puts in perspective the need to fast-track development of energy sources which are sustainable following the resolve by the Kenya government through energy policy paper; sessional paper No.4 of 2004 and the energy Act No.12 of 2006(Omenda, 2012) and (Kiplagat, Wang, 2011) on sustainable renewable energy reviews. Kenya's Africa Infrastructure Country Diagnostic (AICD, 2011) report estimates that, to address the country's infrastructure deficit; will require sustained expenditures of approximately $4 billion per year (20% of GDP) over the next decade (Briceño-Garmendia & Shkaratan, 2011). To meet this objective, the Government of Kenya (GoK) has embarked on alternatives aimed at raising additional finance, while prioritizing high capital infrastructure investments**,** through public private partnership schemes**.**

2.0 STATEMENT OF THE PROBLEM

In Kenya, studies have shown that; slowed economic growth is correlated to insufficient energy supply which has contributed to all time-high tariffs charged on the install power supply; (Figure1) below, according to electricity regulatory commission (ERC), the domestic consumers constitute a population demand in excess of 3.6 million, comparing with the consumption tariff fluctuation, as shown, it's evident that install energy supply is currently expensive utility for most average consumers, the similar scenario for commercial venture, also there exist unstable prediction in tariff charge profile per kilowatt hour, making it expensive and uncompetitive for industrial consumers. This has been a major impediment in the anticipated faster economic growth for industries including other factors surrounding revenue allocation to public infrastructure development by national government.

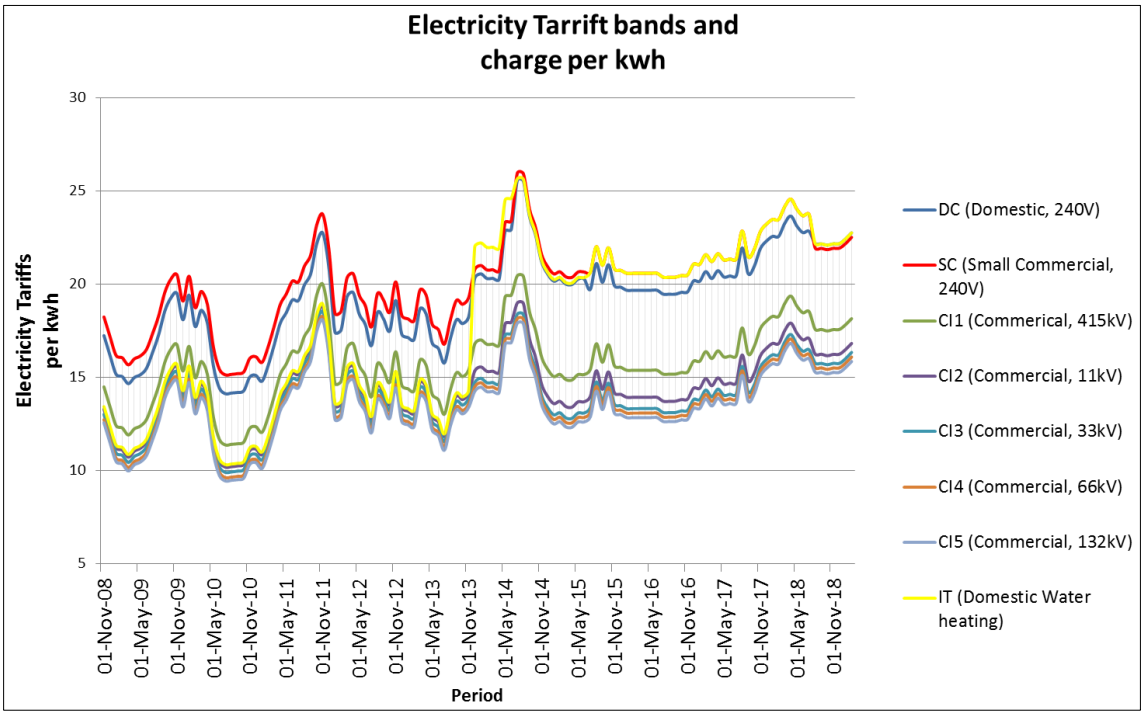

Figure 1: Source Data: Historical electricity cost data for Kenya: https://stima.regulusweb.com/historic#tariffs.

2.1 Research Gap

The Public Private Partnership implementation framework in Kenya dates back to the years of early 1990s. Serious attempts were made in 2009; when actively the Government of Kenya (GoK) initiated and developed a robust legal and regulatory framework; that was specific in nature to streamline its functionality, thus making significant departure from what used to be generally privatization schemes, these were used as tools for selling partly government shareholding for purpose of raising revenue and transferring rights of ownership to private sector investors, PPP initiatives therefore; came in to create an enabling environment for clear participation of private sector, to inject money and efficiency, to ensure timely delivery on projects, to transfer and fill the lacking expertise, to enhance accountability and further ensure value-for-money (VfM) for the public, while venturing in as investors on their part. Significant milestones were made in this regard, substantial literatures exist on most of PPP structure as highlighted earlier, except Build-Own-Operate (B-O-O) model which has been adopted by the government agency (GDC) to implement Menengai geothermal Power Project., to the extent of this research it has been established that there exist no literature on operationalized model structure of B-O-O in Kenya in energy implementation programs. Ordinarily B-O-O model ensures that; the private entity operates and owns the project in perpetuity. This research; therefore sort to examine and analyze the factors that influenced the adoption of this Model of PPP for implementation of Menengai geothermal power project.

2.2 Research Scope

The research covered factors that influenced adoption of public private partnership with special focus to financing geothermal power generation plant, the case of Menengai geothermal power project Nakuru County (Kenya). Well knowledgeable spectrum of respondents from Geothermal Development Company, Public Private Partnership Unit in the National Treasury of the Government of Kenya (GoK), Independent Power Partnership, Financiers, and local opinion leaders were captured. Questionnaires were used as the main data collection instrument, distribution done to the targeted population of 100 respondents.

2.3 PPP framework (Kenya)

The Kenya Government recognized that, to fully support the country's development agenda and meet the infrastructure deficit will require serous engagement and participation of the private sector, three approaches generally exist in which government involves private sector (privatization schemes, debts through local borrowing and PPP). However; this research focused on Public Private Partnerships (PPP). PPP arrangements, offer an opportunity for the country to attract enhanced private sector participation in financing, building and operating infrastructure services and facilities. The government's commitment to PPPs was demonstrated by providing a basis for the enactment of a PPP Law; the gazettment of the PPP Act 2013 on 8th February 2013; and Most recently, the development of PPP Regulations framework which operate interdependently see (Figure 4 below) for both the National and County governments. The Public Private Partnership Unit (PPPU) was therefore established, as a specialized unit within the National Treasury, to promote and oversee the implementation of the PPP Program under this guiding operational framework.

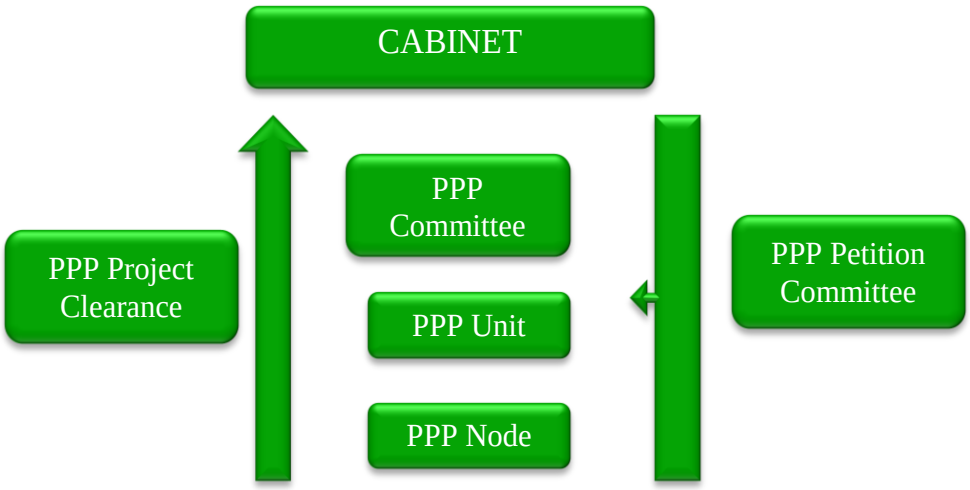

Figure 2: PPP framework (Source: PPP Unit – Kenyan Treasury)

The Cabinet Secretary make rules for the administrative and financial framework of the PPP unit, summarized in (Figure 4), is the relationship of the unit with other State departments and organizations and the conduct of the affairs of the unit. A node shall, on behalf of the contracting authority—(a) identify, screen and prioritize projects based on guidelines issued by the Committee; (b) prepare and appraise each project agreement to ensure its legal, regulatory, social, economic and commercial viability; (c) ensure that the parties to a project agreement comply with the provisions of the PPP Act 2013; (d) undertake the tendering process in accordance with the PPP Act and any other written law; (e) monitor the implementation of a project agreement entered into with the contracting authority; (f) liaise with all key stakeholders during the project cycle; (g) oversee the management of a project in accordance with the project agreement entered into by the contracting authority; (h) submit to the unit, annual or such other period reports on project agreements entered into by the contracting authority; (i) maintain a record of all documentation and agreements entered into by the contracting authority relating to a project under this Act; (j) prepare projects in accordance with guidelines and standard documents issued by the Committee under this Act; (k) ensure that the transfer of assets at the expiry or early termination of a project agreement is consistent with the terms and conditions of the project agreement, where the project agreement involves a transfer of assets; and (l) carry out such other functions as may be assigned to it by the contracting authority.

2.4 Models of Public Private Partnership

PPP models can be classified into five broad categories, their characteristic are as shown in Table 1 below. Each of the models are different in term of ownership of capital assets, responsibility for investment, assumption of risk and duration of contract (Karim, 2011).

Table 1: PPP Models (Source: UNESCAP 2011)

Broad Category	Main Variants	Ownership of Capital Assets	Resp. of Investment	Assump. risk	Contract (yrs.)
Supply and management contract	Outsourcing	Public	Public	Public	**1-3**
	Maintenance management	Public	Public/Private	Public/Private	**3-5**
	Operational maintenance	Public	Public	Public	**3-5**
Turnkey		Public	Public	Public/Private	**1-3**
Affermage/Lease	Affermage	Public	Public	Public/Private	**5-20**
	Lease *(BLT)	Public	Public	Public/Private	**5-20**
Concessions	*BOT,BTO,BOOT, BROT	Public/Private	Public/Private	Public/Private	**15-30**
Private Ownership of Assets	***BOO/DBFO**	**Private**	**Private**	**Private**	**Indefinite**
	*PFI	Public/Private	Private	Public/Private	**15-20**
	Divesture	Private	Private	Private	**Indefinite**

3.0 BENEFITS OF PPP PROJECT FINANCING

Studies have highlighted various factors that attract private entities to engage in PPP projects. According to (Pessoa, 2008) the decision for a country to adopt the use of PPP to execute public projects are that the private sector is endowed with efficiency and more innovation than the public sector, the private sector has the advantage of competitive pressures in the delivery of public services and the private sector might be able to manage some level of risks more effectively than the public sector, which ultimately leads to better quality service provision, cost savings and the reduction of risks taken on by the government. (Bing, Akintoye…, Edwards, &Hardcastle, 2005) also highlighted the advantages of PPP, which were similar to those mentioned by (Delmon, 2009); and in addition, they stated that PPP can strengthen project monitoring and ensure greater accountability. (Ismail, 2013) claimed that governments across the world are favoring PPP because of reasons such as lower project costs, shorter construction duration, competitive advantages, higher overall qualities in the end product and the benefits accrued from letting the private sector be innovative in its solutions. (Morallos, &Amekudzi, 2008) identified the following six sources of savings of PPP over conventional procurement options are; clearer definition and specification of user needs, more careful lifetime design and costing by the private contractor, speedier construction and commissioning, more effective monitoring of contracts, incentives that better align effort with risk and rewards, and decision making that better exploits asset compatibility. (Vining, Boardman & Poschmann, 2005), as cited in Vining and Boardman (2008), reported three major rationales about why governments engage in PPP. First, PPP seems to minimize the government's budget on capital expenditures, second; both the provision of the infrastructure and the services by the private sector are at a lower cost because of the economies of scale, more experience, better incentives and a greater ability to innovate. The third rational is to reduce the government's risk, particularly during the design and construction phase as well as the operating phase. Reeves and Ryan (2007) suggested a number of benefits from PPP implementation, including faster delivery of public infrastructure, a reduction in public spending and a better value for money compared to traditional methods of procurement. Hurst and Reeves (2004) mentioned that the major attractions of PPP for the government are the potential of accruing efficiency and value for money gains from the projects, because PPP promotes private sector innovation, an improvement of the dynamic efficiency as well as of the quality of services can be achieved. (Yamout &Jamali, 2007) viewed PPP as an innovative policy tool to mitigate the lack of dynamism in traditional public services.

More studies have been done and generally evaluated the financial and non-financial performance of PPP projects and that could support the adoption of PPP. In terms of the financial performance, the National Audit Office (1999a) examined seven PPP projects in the UK and reported that the average cost savings were 20%. In another study by Arthur Anderson and LSE Enterprise (2000), there was evidence that PPP projects resulted in estimated cost savings of 17%. A study by the Institute for Public Policy Research (IPPR, 2002) discovered that the expected benefits of PPP schemes vary from sector to sector. In particular, it was reported that PPP in roads, defense and prison projects saved up to 31% compared to traditional procurement. However, for schools and hospitals PPP projects, the savings was not more than 10% (IPPR, 2002). More recently, Ismail (2011) carried out an analysis of 24 audit reports that cover 40 PPP projects in the United Kingdom that have been audited by various official audit bodies including the National Audit Department, Audit Commission and Audit Scotland. Based on the financial information of the projects, it was discovered that the total estimated cost savings of the projects was approximately 18.3%. The evidence therefore supports to the early reviews by the National Audit Office (1999b), Arthur Anderson and LSE Enterprise (2000) and IPPR (2002).

To study the non-financial aspects of PPP performance, an investigation by Audit Scotland (2002) on PPP schools was carried out and revealed a positive outcome, showing that the construction work was delivered on time. Conversely, the Audit Commission (2003) claimed that their study found no evidence that the PPP schools were delivered more quickly than those in the public sector. In another study by the National Audit Office (2003a) on the operational performance of PPP prisons, it was reported that PPP prisons had introduced innovation that led to improvement and efficiency in prison management and development. Moreover, PPP prisons tend to perform better than public sector prisons in areas related to the activities of prisoners (National Audit Office, 2003a). The National Audit Office (2003b) also investigated the benefits of PPP schemes in terms of the delivery time, price certainty and quality of the projects based on the 37 PPP projects from various sectors. In light of the above findings, the factors attracting both parties' (i.e., the government and private sectors) involvement in PPP can be summarized as follows; solve the problem of public sector constraints, reduce public money tied up in capital investment, enhance integrated solutions, facilitate creative and innovative approaches, reduce the total project cost, save time in delivering the project, transfer risks to the private sector, benefit local economic development, improve maintainability, non-recourse or limited recourse to public funding and accelerate project development, based on earlier studies, the results show that the attractive factors perceived by the respondents in the UK are different from the factors perceived by the respondents in Hong Kong and Australia (Ismail, 2013). This finding implies that the unique characteristics of PPP in each country influence the PPP adoption in respective country. Consequently and because there is no similar evidence in the Kenya context, this study investigated the factors influenced the adoption of PPP implementation in infrastructure project financing in Kenya; case of Menengai geothermal power plant project.

4.0 ENERGY SECTOR EXPERT AND RESPONDS

In realizing reliability of the research findings, the respondent’s characteristics were examined using metrics such as the institution worked for, education qualification, years worked in those institutions, and the position held in the institution.

4.1 Institutions Worked

In the context of the institution worked for, 23.1%, 39.6%, 17.6%, and 19.8% of the respondents worked for the PPP Unit, GDC, Local/County Government, and MoE respectively. The institution worked for was critical as it gave the respondents familiarity and experience with the concept of the PPP.

4.2 Education Qualification

In the context of the education qualification, 2.2%, 8.8%, 51.1%, 36.7%, and 1.2% of the respondents had certificate, diploma, graduate degree, masters, and others (e.g postgraduate diploma, PhD) respectively. These results indicated that a cumulate percentage of 89% of the respondents had graduate level and above. The high percentage of the highly educated staff dealing with the PPP

aspects was attributed to the technical aspects of the PPP transaction agreements, approvals and the knowledge on financing models required.

4.3 Years worked in the Institution

The length of period worked in the institution was critical in understanding the experience of the respondents in relation to the PPP aspects. In this context, 27.1%, 40.0%, 16.5%, 14.1%, and 2.4% of the respondents had worked for 1-5 years, 6-10 years, 11-15 years, 16-20 years, and over 20 years respectively.

4.4 Position Held in the Institution

The position of the respondents within the institution that they worked for was also examined. In this context, 11.1%, 21.1%, 14.4%, 4.4% and 15.6% of the respondents were PPP experts, engineers, planning officers, legal officers and financial officers respectively. A further 6.7%, 18.9%, 5.6%, and 2.2% of the respondents were project coordinators, technical officers, project officers and others (e.g. administrators) respectively. The position of the respondents within the organization that they worked for was critical in indicating the aspects that they interacted with PPP projects formulation and implementation.

5.0 ADOPTION OF THE PUBLIC PRIVATE PARTNERSHIP AT MENENGAI

The PPP financing model is a relatively new phenomenon within the context of the power plant implementation in Kenya. This was confirmed by two sources, the respondents were asked on whether the PPP model adopted in the power plant scheme at Menengai had been used before in Kenya, it was 33.0% of the respondents who indicated that the model had been used before in Kenya while 64.8% indicated not used before which ideally showed informed population on the validity test, secondly; according to the PPP-unit posting, there is no existent of BOO (build own operate) model structure in energy infrastructure project as a financing and operational model in Kenya (Kenya-PPP-Pipeline-Status-Report-January-2019-Treasury). Build operate own model structure, donates full responsibilities to the private party who in essence owns the project in perpetuity, the government representing the public assumes less interest in owning the infrastructure after the expiry of the contractual period.

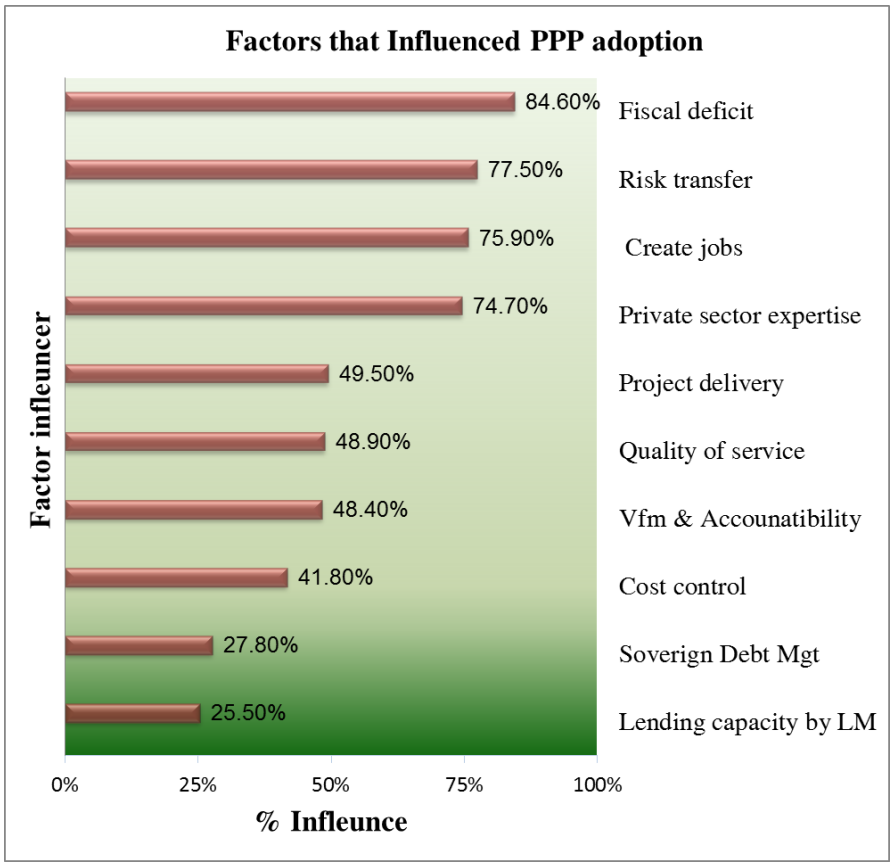

Figure 3: Significantly influential factors

5.1 Comparative Analysis of PPP Project Financing Reasons

The principal component factor analysis was used for undertaking the comparative analysis on the PPP Project Financing Reasons with a view of understanding the common underlying dimensions. The Kaiser's Jeffy criteria of factor extraction with eigenvalue of greater than one were used. In this context, three factors were extracted with eigenvalues of 2.486 (factor 1), 2.089 (factor 2), and 1.253 (factor 3) explaining 22.604%, 18.987%, and 11.393% variance in Public Private Partnership financing reasons.

5.2 Total Variance Explained On Public Private Partnership

The principal component factor analysis was used for undertaking the comparative analysis on the PPP Project Financing Reasons with a view of understanding the common underlying dimensions. The Kaiser's Jeffy criteria of factor extraction with eigenvalue of greater than one were used. In this context, three factors were extracted with eigenvalues of 2.486 (factor 1), 2.089 (factor 2), and 1.253 (factor 3) explaining 22.604%, 18.987%, and 11.393% variance in Public Private Partnership financing reasons. To enable further examination of the factors 1, 2 and 3 in relations to their components, the factor loading of the components under factors 1, 2 and 3 were examined for private sector expertise with factor loading of 0.488 and 0.526 respectively.

5.3 Component Matrix Of Public Private Partnership

The factor loading is the degree in which the different components are correlated with that extracted factor. The factor loadings vary from -1.00 to +1.00 in which only the factor loading above 0.3 are considered. In this context, factor 1 had five components that is sovereign debt management by government, local bank lack of lending capacity, government risk transfer to private sector, attraction of private sector, and ensuring prudent value for money with factor loading of 0.484, 0.772, 0.796, 0.500 and 0.676 respectively. Factor 2 had four components that is private sector efficiency in project delivery, effective cost control by private sector, quality of service by private sector, and provision of investment opportunity by private sector with factor loading of 0.662, 0.565, 0.648, and 0.630 respectively. Finally, factor 3 had two components that is fiscal deficit in capital expenditure and attraction

In order of decreasing significance of the PPP Project financing reasons was as follows; Risk transfer to the private sector by the government (factor loading of 0.796), lack of lending capacity by local commercial bank (factor loading of 0.772), ensure prudent value for money (factor loading of 0.676), efficiency in project delivery by private sector (factor loading of 0.662), and quality of service by private sector (factor loading of 0.648). Others are the provision of investment opportunity by private sector (factor loading of 0.630), attraction of private sector in implementation of public projects (factor loading of 0.526), attraction of private sector in job creation (factor loading of 0.500), fiscal deficit on capital expenditure (factor loading of 0.488) and strategic approach in management of sovereign debt (factor loading of 0.484).

5.4 Findings

The research focused on the factors influencing public private partnership financing model with the examined metrics touching on national fiscal deficit, private sector efficient project delivery, cost control by private sector, quality of service delivery by private sector, investment opportunities for private sector, and sovereign debt management. Others were implementation expertise by private sector, local banks lending capacity inadequacies, risk transfer to private sector, job creation, and ensuring value for money. The significance of the metrics were examined using a likert scale with the following indicators Very Low Significance (VHS), Low significance (LS), Moderate Significance (MS), High Significance (HS) and Very High Significance (VHS). Lack of sufficient funds allocated for development from the national budget is a significant driver of the PPP adoption for the geothermal power plant project implementation, this registered cumulative percentage of 84.6% indicating that national budget deficit on capital expenditure was highly and very highly significant in influencing on adoption of PPP project financing mode, and others in the order of significance as listed; see (Figure 3 above).

6.0 STAKEHOLDERS

In the context of the importance of diverse stakeholders, a cumulative percentage of 86.6% of the respondents indicated that the Geothermal Development Company management was the most important and very important stakeholders. Similarly, cumulative percentages of 72.8%, 48.3%, 90.9%, 89.8%, 11.8%, 61.6%, 71.1%, and 66.7% of the respondents indicated that National government (Ministry of energy), County government, Independent Power Producers, (Financiers) investment banks, business community, local community, off taker (KPLC), and contractors were the most important and very important stakeholders respectively.

The principal component factor analysis was used for undertaking the comparative analysis on the importance of diverse stakeholders with a view of understanding the common underlying dimensions in similar application as discussed in 5.2. The Kaiser's Jeffy criteria of factor extraction with eigenvalue of greater than one were used. In this context, three factors were extracted with eigenvalues of 3.274 (factor 1), 1.601 (factor 2), and 1.041 (factor 3) explaining 36.373%, 17.786%, and 11.568% variance in the importance of diverse stakeholders. To enable further examination of the factors 1, 2 and 3 in relations to their components, the factor loading of the components under factors 1, 2 and 3 were examined. In this context, factor 1 had seven components that is National government, county government, independent power producers, business community (Traders), local community, off taker (kplc) and contractors (service providers) with factor loading of 0.596, 0.587, 0.736, 0.535, 0.550, 0.691, and 0.735 respectively. Factor 2 had only one component that is Geothermal Development Company management with a factor loading of 0.530 while factor 3 had one component that is investment banks with factor loading of 0.753. In order of decreasing importance of diverse stakeholders they were ranked as follows; investment banks, independent power producers, contractors (service providers), off taker (kplc), national government, county government, local community, business community, and Geothermal Development Company Management.

7.0 CHALLENGES

There were several challenges that the PPP projects faced: In the context of the involvement of many contractual parties, a cumulative percentage of 31% indicated that the aspect was a complex one; thus greatly influenced the delays in the implementation of PPP project. Similarly, a cumulative percentage of 43.6%, 65.9%, 25.3%, 26.5%, and 25.6% of the respondents indicated that the following items were responsible as bottlenecks and negatively impact the implementation process, mostly and greatly influenced; government regulatory framework, conditional requirement by financiers, lack of similar models portraying success story, competing and conflicting interest from stakeholders, and multiple agencies involved in conditional lending respectively.

CONCLUSION

The PPP financing model adopted is relatively new within the context of the power plant implementation in Kenya 65% of expert composition confirming this assertion. The information in the treasury PPP unit documentation supports this findings, where this model of BOO has only been used in Grain Terminal, Port of Mombasa, constructed 1998 at the cost of USD 35M, Construction of

the project was completed in 2000, providing a modern dry bulk cargo handling facility that addressed low vessel discharge rates, spillage during discharge and poor accounting for cargo quantities among other challenges. Within the context of the PPP models adopted at Menengai geothermal project, 4.4%, 65.6%, and 30.0% of the respondents indicated that the models being used included BOT, BOO, and BOOT model structures respectively, the expert response is in-line with government reports on PPP establishments and adopted model which is BOO, with affirmative score of 65.6%.

On factors influencing Public Private Partnership financing model, a cumulative percentage of 84.6% indicating that national budget deficit on capital expenditure were highly and very highly significant in influencing adoption of PPP project financing model. The cumulative percentage of the expert composition responses indicated factors that influenced PPP Project financing model adoption were project delivery efficiency by public sector (49.5%), cost control by private sector (41.8%), quality of service (48.9%), private sector expertise (74.7%), risk transfer to private sector (77.5%), and attraction of private sector to create jobs (75.9%). On the other hand, a cumulative percentage of 56.1% of the respondents indicated that lack of local market lending capacity by the commercial banks was highly and very highly significant in the adoption of PPP as an alternative means of high capital project financing. Finally, in order to ensure return on investment and guarantee value for money 77% of expert respondents indicated that this factor was highly and very highly significant.

This shows that, their exist a mixed composition of factors, dominantly in the array of influence in which the national budget deficit was highly critical, this was observed as true when checked against heavy multi-and bilateral borrowing by Kenya government to plug the widening budget deficits on developmental budget, the respondents asserts that, Kenya is weighed down by swelling public debt and faces the possibility of a debt crisis according to the reports of the auditor general quoting multiple public heavy capital infrastructure projects implemented on concessional loans. Kenya's current public debt, for 2017/2018 FY stands at approximately 4.884 trillion Kenyan shillings (USD$49 billion) or 56.4% of the country's gross domestic product. This is up from 42.8% in 2008. In other words, the country owes more than half the value of its economic output (GDP), this correlates well with policy decision on financing huge capital infrastructure projects/programs which narrows down to heavily rely on PPP financing model as an alternative. Secondly, at 77.5% influence, Risk transfer to private sector; equally resonates as a compelling factor that influenced PPP adoption; a situation where public infrastructure projects are overpriced by government bureaucrats coupled with implementation inefficiencies, which in many cases have resulted to inability to achieve sufficient budgetary allocations, therefore graduating to a list of incomplete projects due to lack of funds, the unraveling fact is, wastage is evident throughout project phases, which then creates imprudent budget consumption, this leads spiral demand for additional funds outside allocated budget, the end product is incomplete projects widely referred to " white elephant projects". Therefore; the private sector with a historical record of efficiency in project delivery, saves significant cost throughout project lifecycle-phases as discussed under "benefits of ppp project financing"; thus this became a strong factor in the consideration among others as highlighted.

The overall objective was to test ability of the PPP models adopted in various public capital infrastructural projects and the findings, the successful application of PPP models will set precedence; and propose adoption for other numerous projects in the pipeline earmarked under the "Big-four Agenda" planned by Kenya government to actualize the countries Vision 2030 program, while addressing emerging challenges, similar benefits of success and failure can be lessons for most African countries/ states in public projects/ program development and service delivery.

The research study recommends further examination on diverse extraneous issues such as the PPP success rates against transition political regimes, and the great integral part with environmental and social setting that incubated successful PPP project/programs on one hand and failed PPP initiated projects on the other hand with contract terms of more than 20 years horizon.

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