Overcoming challenges of managing urban parking space in developing cities: Lessons of engaging public private partnerships (PPP) in Kampala Capital City Authority

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Abstract

This paper presents findings from a study carried out to examine involvement of private partners in managing urban street parking in Kampala City Council Authority. The objectives that guided the study were: to examine how public private partnerships expertise contributed to improvement in urban street parking in Kampala Capital City Authority. Specifically, the study aimed at examining how public private partnerships stakeholders' involvement and parking regulations compliance contributed to urban parking management regulations in Kampala City. The study adopted a descriptive and analytical design, which involved reviewing available literature and the collection of primary data from contracted firms and KCCA staff, using both qualitative and quantitative approaches. Findings revealed positive contribution of the expertise of the private partners in urban parking management as manifested in regulation compliance and involvement of stakeholders especially drivers in designing changes in street parking regulations and in identifying priority parking spaces. The study recommends that while contacting out management of street parking to private actors, assessments of their technical expertise and financial capacity should be put in fore considerations.

Keywords: *Urban street parking management, public private partnerships, Kampala Capital City Authority.*

1. Introduction and background

Rapid urban growth in Sub-Saharan Africa has come with several challenges including the proliferation of vehicles and urban congestion. In many urban areas parking has continued to pose serious challenges to urban mobility and municipal authorities are improvising means to free up space on their streets for urban activities. Governments have used a mix of public and private endeavors throughout history as attributed by [1] to address challenges of urban parking management and serving wider goals in transport policy and urban infrastructure planning.

However, critical analysis of current urbanisation in most Sub-Saharan Africa have key connotations to sustainable urban transport. For example, there is persistent road frustrations among road users mainly attributed to traffic jams that costs these economies more through lost man hours on roads which results in revenue loss. All this is associated with uncontrolled urban parking management. This analysis led to the key intent that guided this study to answer the objectives: How Public Private Partnership's (PPPs) expertise contributes to improvement in urban parking management in Kampala Capital City Authority (KCCA); How PPP's regulation compliance contributes to urban parking management in KCCA; and how PPP's stakeholders' involvement contributes to urban parking management in KCCA.

In the last 50 years urban parking has emerged as a thoughtful problem globally including in Western Europe, Japan, Hong Kong, Korea, Malaysia, and Thailand. However, through vigorous management and with efforts to avoid underpricing and oversupply, many cities have transformed their parking situations from a costly urban problem into an economic opportunity and valuable asset for urban communities [2].

In today's urban environment, much of the world's urban fabric is subject to "conventional" parking policy in which parking is treated as a type of infrastructure and the primary goal of every parking policy is to meet parking demand with supply. Setting minimum parking standards is the key tool commonly used to solve this challenge. In many cities, urban parking policy requires every building to have enough parking to meet its predicted peak demand. These parking regulations are aimed at eliminating possible risks of spillover of parking from the premises. However, quite often, parking demand mostly exceeds supply of parking space which results in parking dilemmas.

Whereas most countries in the suburban North America and Australasia apply the auto-centric conventional approach where, parking requirements are estimated based on auto-centric assumptions about parking demand, this approach has long come under attack by [3] and [4]. Nonetheless, it remains universal in its suburban heartlands with long term results of car dependency transport systems and shifting parking costs from users to everyone in society [5]. More critics of this model urge that it has also not solved the on-street parking problems in older, dense centers of activity and its inflexible application of parking requirements blocks regeneration of some inner-city areas.

Consequently, globally many urban centers as well as public establishments have resorted to PPPs to develop multi-level car parks or take over and manage existing car parking facilities and operating them under some predetermined

arrangements. For example, in Australia, a PPP agreement was signed between the Australian Hospital and a private company to *Build, Own, Operate and Transfer* (BOOT) a car park at a public hospital in Australia. In Bhutan, another PPP agreement was signed between Thimphu City and a private sector organisation to develop and manage an integrated parking system that included two new multi-level car parks of almost 550 parking spaces together with upgrading and management of close to 1,000 off-street and on-street surface parking on the basis of *Design, Build, Finance, Operate and Transfer* (DBFOT) arrangement. In Chile, the city of Santiago entered into a PPP arrangement where a private organisation was awarded an 8 years' concession to *Provide, Maintain, Operate and Use* (PMOU) parking meter system on public roads with provisions of penalties to the contractor for non-performance sub-standard service.

In Africa, experiencing the most recent urban tradition and experience of city life, is currently urbanizing at more than 4% annually. For example, whereas in 1995 only 28 cities on the continent had populations exceeding 1 million, by 2005 it had grown to 43 cities, and by 2015 to 59 African cities and 72 cities by 2023 and the urban population has risen to 569 million (45%) in 2020.

Accordingly, very few Sub-Saharan African cities have well-developed single authorities to deal with urban mobility and transport [6]. Where such authorities exist, they have not yet attained the maturity, fiscal powers and legitimacy to assume effective control over all modes of transport modalities like parking management in the urban environment. Only in cities such as Casablanca, Abidjan, Lagos and Dakar have (but few) multimodal transport authorities that have made significant impacts due to the complex and institutionally fragmented environment in which they function.

Further, as a result of weak urban governance, while sustainable urban mobility policies tend to strongly promote public transport, the reality is that most African cities have developed around individual transport and public authorities often struggle to control the supply side of public transport, (traffic and parking management). Consequently, urban congestion seems out of control in most cities with no scheduled bus services and are superseded by para-transit services [16]. In all, urban transport in Sub-Saharan Africa generically suffers from a clear lack of staff with adequate and specific competences in the various fields of urban transport (economics, public transport engineering, traffic management, sociology, parking management etc.) and technical schools or universities involved in research and teaching activities in the fields of urban transport are extremely rare on the continent.

In the East African region, member states have gone into PPP arrangements for management of street parking. In Tanzania, for example, a parking garage was built in the center of the city of Dar-es-Salaam with office and commercial shopping which has earned revenue for the city authorities by allowing the operator to charge only modest parking fees, that has helped the urban authorities to reduce congestion.

In Uganda particularly in KCCA, where is study was conducted, the British administration left behind a master plan that detailed the expansion trend the city.

However, this plan was not implemented and it partly explains the current poor infrastructure and uncoordinated physical planning [8]. During the 1970s and early 1980s, the economic crisis and civil strife that affected the country greatly hindered the development and maintenance of urban transport infrastructure. Like most Sub-Saharan African cities, Kampala is experiencing exponential urban growth and expansion at a very alarming rate. Uganda's population stands at 34 million people with an annual growth rate of 3.4%. Urban population however is about 3.5 million people growing at an annual rate of 5.1%. Kampala is relatively a small city compared to other cities in Sub-Saharan Africa like Nairobi, Addis Ababa, Johannesburg, Lagos or Cairo. Kampala typically remains with the narrow colonial built streets with winding roads across the hills and valleys. Such roads cannot accommodate the ever increasing traffic volumes. There are approximately 1,000,000 vehicles in the country, with a potential of additional 20,000 vehicles per year. Over 70% of these vehicles are plying on Kampala roads daily. This scenario has created a challenge of planning for the increasing importation of vehicles in the city creating high levels of traffic congestion, parking and pedestrian transport difficulties, massive air pollutants and an increase in greenhouse gas emissions [8].

2. Conceptualization

[7], urged that parking management as a tool for serving wider goals in transport policy and urban planning should match supply and demand. Parking management usually has multiple objectives including ensuring efficient road usage, reducing parking conflicts, generating revenue, ensuring urban regeneration, and above all, ensuring urban mobility management[15]. To ensure sustainable parking management, Sub-Saharan African cities are increasingly developing policies that prioritise urban parking while at the same time ensuring off and on street parking management. Such policies sometimes involve active management of on-street parking, designating special parking and no parking zones and enforcing parking regulations. These functions, that have traditionally been executed directly by local authorities, due to a number of factors including structural adjustment programmes (SAPs), expansion of public administration and the downsizing of the traditional civil service, are increasingly been contracted out to the private sector through PPPs.

PPPs as a policy model in urban management in the developed world can be traced to Carter administration in the United States of America. The Carter administration, for the first time, "articulated a national urban policy that encouraged public private partnerships and targeted federal aid specifically to improve the economic base of distressed central cities" [8]., in: [10]. Since the 1970s, public-private partnerships have become legitimate and effective tools for achieving a number of public purposes including urban parking management [14]. Globally, every city has had redevelopment programs implemented, at least in part, through PPPs. It is now conventional belief that urban problems cannot be addressed by governments alone but with the support of the private sector.

In sub-Saharan Africa, emergence of PPPs in urban management can be associated with a number of factors. First, the collapse of municipal administration

as part of the broader collapse of the entire public sector left no option but to bring the private sector in urban management both formally and informally[13]. Public corporations and parastatals that supported urban service delivery collapsed and were replaced by the Structural Adjustment Programme SAPs that emphasized private sector involvement in public management. At this period, urbanisation expanded so rapidly preceding the anticipated urban plans necessitating an inevitable arrangement between the private and public sectors in service delivery.

Since that time, PPPs have become an appropriate tool to address social and economic restructuring problems of cities by "integrating capital, leading sectors and favored social groups in specific locations" [9].; [11]. Hence PPPs have been supported by city officials in efforts to attain and institutionalize involvement of the private sector in urban areas and encouraging private enterprises to solve public problems. Conceptualization of the anticipated contribution of PPPs in urban street management is illustrated in Figure 1.

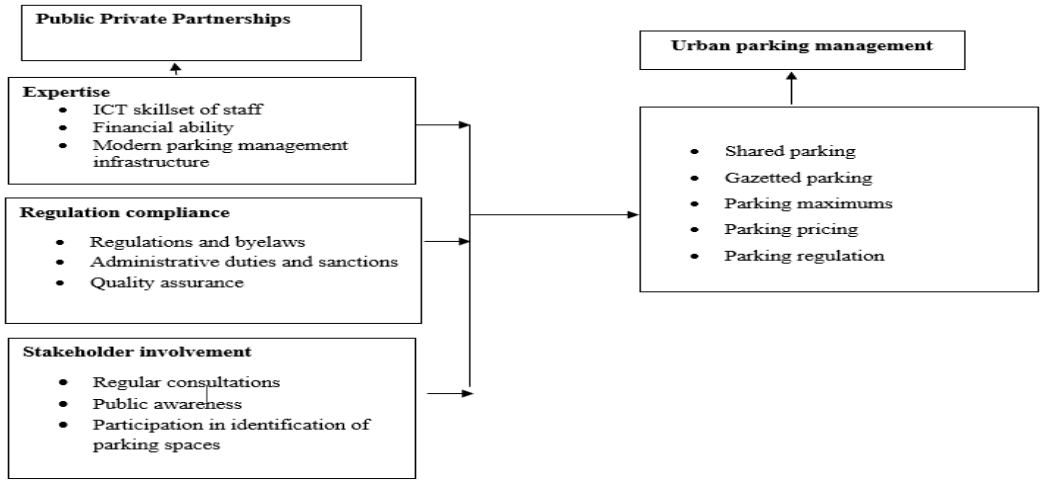

Fig. 1. Conceptualization of PPPs and urban parking management in Sub-Saharan African cities
Source: *Adopted from [10] and [12] and modified by the Researchers*

KCCA entered into a PPP with Multiplex Ltd, a private civil construction company to manage and modernize street parking in Kampala city Central Business District (CBD). Under this PPP arrangement, Multiplex Ltd. was required to roll out pay and display (P&D) parking meters, procure and deploy handheld meters on roads where P&D were considered unsuitable and to increase automated number plate recognition units thus easing enforcement. Vehicles on Kampala roads include private motor cars and pick-ups, goods vehicles, motor cycles and public transport fleet mainly public transport commuter taxis and single passenger commuter motor cycles (*Boda-Bodas)*. Large public transport buses in the city are limited. Dominance of small commuter taxis besides rapid urbanisation has resulted into serious traffic congestion and urban street parking challenges. Thus the primary objectives of the KCCA-Multiplex Ltd PPP were to provide safe, orderly, and fair street parking management by making urban parking as convenient as possible, while promoting

safe movement of vehicles and providing for pedestrian safety. These objectives were informed by an earlier study conducted by the Directorate of Transport in the Ministry of Works and Transport (2015), that found that poor urban park management was a key barrier to sustainable urban transport as it promoted road frustrations and resulted in perpetually costly traffic jams in the city.

3. Problem statement

KCCA is mandated under Section 7 of the Kampala Capital City Act, (2010) to, among other functions, regulate, order, and manage traffic congestion in the city. To execute these functions, a number of policy measures have been implemented to manage on-street parking at the same time encouraging off-street parking. For example, commuter taxis and other specialised service vehicles have been allocated gazetted parking spaces, operational permits for long term parking have been issued, parking management wardens have been introduced in the city, parking charges(fees) have been set up, short stay parking has been encouraged and above all, collection and administration of street parking has been contracted out to Multiplex Ltd [11].

On its part, Multiplex Ltd has stepped up pricing of the urban parking slots and established limited parking maximums in the city, enforced parking regulations and continued to organize training workshops for drivers and other street user, shared information with motorist and cyclists about efficient park management as cited in the KCCA Annual Report of 2015. However, a study conducted by Directorate of Transport in the Ministry of Works and Transport, (2015), revealed continued and increasing parking challenges in the city manifested in road frustrations and costly traffic jams threatening sustainable urban transport. This gap prompted this study to question the contribution of public private partnerships on urban parking management in Sub-Saharan African Cities citing Kampala City as a case study.

4. Methodology

To conduct this study, literature was reviewed specifically relating to PPPs and urban infrastructure provisioning specifically focusing on parking management. Secondary, a cross-sectional survey was conducted in 2019 in Kampala CBD. Questionnaires were administered and later interviews and groups discussions were conducted. Mixed data was analysed first quantitatively and later qualitatively before interpreting, concluding and making policy recommendations. Table 1 shows the sample size selection criteria.

Table 1. Sample size table selection criteria

Category of respondents	Study Population	Sample size	Sampling technique
KCCA administration staff	5	5	Purposive sampling
Multiplex Ltd staff	27	24	Purposive sampling
Drivers under Uganda Transport Development Agency (UTRADA)	187	123	Simple random sampling
Private motor vehicle users	300	169	Simple random sampling
Total	519	321	

Source: *Researcher, (2019)*

Data was analyzed by Pearson's Product Moment Correlation Coefficient and regression analyses were conducted to test hypotheses. Finally, findings were validated by interviews and groups discussions and are discussed as hereunder.

5. Key findings

Findings from the study were discussed under the three objectives that guided the study viz:

1. To assess the contribution of PPPs in urban planning management in Sub-Saharan African cities.
2. To investigate how PPPs regulations compliance contributes to the improvement of urban parking management.
3. To interrogate how stakeholders' involvement in PPPs contributes to improved urban parking management.

In line with the first objective, the study established a moderate positive relationship between PPP staff expertise and urban parking management and that improvements in PPP staff expertise leads to improvements in parking management. Conversely, decline in PPP expertise leads to decline in performance of PPPs. Thus for PPPs to improve parking management, their staff should possess requisite skills to undertake the delegated responsibilities. Table 2 shows the model summary where the coefficient of determination was 0.240 implying that PPP staff expertise accounted for up to 24% of the variance in urban parking management and the 76% is due to other factors.

Table 2. The model summary

Model	R	R Square	Adjusted R Square
1	.493[a]	.243	.240

a. Predictors: (Constant), Expertise
Source: *Researcher, (2019)*

To assess the overall significance of the model, the *Analysis of Variance* (ANOVA) was also generated and presented in Table 3.

Table 3. Analysis of Variables (ANOVA)

ANOVA[b]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.255	1	46.255	81.068	.000[a]
	Residual	144.352	253	.571		
	Total	190.607	254			

a. Predictors: (Constant), Expertise
b. Dependent Variable: Urban Parking Management
Source: *Researcher, (2019)*

For the regression model to be significant, the calculated p-value (level of significance) must be less than or equal to 0.05 (the conventional p value). For this particular objective, the calculated p-value of 0.002 was less than 0.050, therefore, the regression model was found to be statistically significant ($F=81.068$, $df = 1$, $p<0.05$ ($=0.000$)). The finding is that PPP's expertise had significant effect on urban parking management.

As to the second objective, the study established a moderate positive relationship between PPP regulation and urban parking management and that improvements in PPP regulations led to improvements in urban parking management. Strict parking regulations improved urban parking while relaxation in enforcing guidelines and agreed regulations contributed to the decline in compliance to urban parking management. Furthermore, findings indicated that when staff of contracted firms were fairly motivated this contributed to drivers 'appreciation of parking guidelines. These findings are presented in Tables 4 that show the correlation matrix between PPP regulations compliance and urban parking management.

Table 4. The correlation matrix between PPPs regulations compliance and urban parking management

Correlations			
		Regulation Compliance	Urban Parking Management
Regulation Compliance	Pearson Correlation	1	.515**
	Sig. (2-tailed)		.000
	N	290	290
Urban Parking Management	Pearson Correlation	.515**	1
	Sig. (2-tailed)	.000	
	N	290	290

Source: *Researcher, (2019)*

In relation to the third objective, the study established a moderate positive relationship between PPP stakeholder involvement and performance improvements in urban parking management. Similarly decline in PPP stakeholders' involvement contributed to decline in urban parking management in the city. Further findings revealed that consideration of stakeholders' views in integral planning and parking space demarcations management contributed to improvements in urban parking management in the city. The degree of direction of relations between PPP stakeholders' involvement and urban parking management was calculated using Pearson's Product-Moment Coefficient and findings presented in Table 5.

Table 5. The correlation between PPPs stakeholders involvement and urban parking management in Kampala

Correlations			
		Stakeholder Involvement	Urban Parking Management
Stakeholder Involvement	1	.608**	
		.000	
	290	290	
Urban Parking Management	.608**	1	
	.000		
	290	290	

**. Correlation is significant at the 0.01 level (2-tailed).
Source: *Researcher, (2019)*

Table 5 shows a moderate positive relationship between PPPs regulations compliance and urban street management at (r=0.515 p=0.000 N=290). This relationship is statistically significant at 95% confidence level as the p value of (=0.000) is less than 0.050 implying that improvements in PPPs regulations compliance is likely to improve urban parking management and vice versa. To establish the extent to which PPPs stakeholders' involvement influenced urban parking management, a regression analysis was conducted and the model summary presented in Table 6

Table 6. Showing the model summary

Model	R	R Square	Adjusted R Square
1	.515[a]	.266	.263

a. Predictors: (Constant), Regulation Compliance
Source: *Researcher, (2019)*

From Table 6, the coefficient of determination was 0.0263 implying that PPPs stakeholders' involvement accounted for up to 26.3% in the variance in urban parking management and the74.7% attributed to some other factors.

6. Conclusion

The study therefore concluded that engaging PPP in urban parking management reduces urban parking problems as it brings innovative approaches and creativity in parking space usage and in turn solves urban traffic congestion. Similarly, creation of gazetted parking spaces for specialised vehicles created additional commercial activities, that generated additional incomes and revenues for both city residents and authorities.

However, the study also concluded that provision of commercial activities in and around gazetted parking spaces had created additional congestion around these areas and increased the demand for parking spaced around these areas. Therefore, while planning for gazetted parking spaces, there should be balance between financial feasibility and the incremental number of vehicles that can fit in a particular gazetted area.

Thirdly, the study concluded that in alternative and in addition to promotion of PPPs to manage public street parking, urban authorities should encourage off street parking by licensing private-for-pay parking facilities. Incentives (such as reduced parking fees) should be put in place to encourage vehicles to park in these facilities and more stringent enforcement of street parking restrictions by urban authorities may make this another viable option both administratively and financially.

7. Policy recommendation

This paper makes the following policy recommendations:

1. Before undergoing into a PPP for street parking management, urban authorities should access the technological competence of the private firms such that only firms with proven technological capacity should be contracted. This recommendation is based from the study findings that revealed that street parking management requires sophiscated technology in form of automated ticketing, surveillance cameras and ICT based management skills.
2. Secondly, before contracting out street parking management, urban authorities should put in place a range of parking guidelines and regulations to be followed. Findings from the study revealed that the more stringent the parking guidelines and regulations, the more likely street parking management would succeed. Conversely, relaxation or absence of enforceable parking regulations and guidelines led to deteriorating street management and more difficulty for PPP firms to manage street parking.
3. Lastly, the study recommends that firms that undertake PPP in street parking management should have proven financial capability. The study discovered that parking management is a long term investment that requires long term concessions and can only be successful when firms have sufficient finance to invest in long term ventures.

References

[1] [1] Hodge, G. A and Greve, C. (2007), Public–Private Partnerships: An International Performance Review,. *Public Administration Review, 2007*,, Vol. 67(3), pp. 545–558.

[2] [2] de Wit, T. (2006), *Parking Policies and the Effects on Economy and Mobility. Report on COST Action.* European Cooperation in the Field of Scientific and Technical.

[3] [3] Buchanan, C. (1964), *Traffic in town: The specially shortened edition of the Buchanan report.* Harmondsworth UK: Penguin Books .

[4] [4] Willson, R. W. (1995), Suburban Parking Requirements: A Tacit Policy for Automobile Use and Sprawl. *Journal of the American Planning Association 61*, 29-42.

[5] [5] Ferguson, E. (2004), Zoning for Parking as Policy Process: . *A Historical Review. Transport Reviews 24*, 177-194.

[6] [6] Africa transport policy program. (2015), *Policies for Sustainable Accessibility and Mobility in Urban Areas of Africa.* Cairo: Department of economic Affairs.

[7] [7] Litman, T. (2006), *Parking management best practices. .* Chicago: American Planning Association.

[8] [8] Lyall (1982), In: Fosler, S. R.; Berger, R. A.: Public- Private Partnerships in American Cities

[9] [9] Newman, P.; Verpraet, G. (1999), The impacts of partnership on urban governance: conclusions from recent European research. Regional Studies, Vol.33, No.5, p.487

[10] [10] Grout, P. (2003), Public and Private Sector Discount Rates in Public-Private Partnerships. . *The Economic Journal*,, 113, 62-68.

[11] [11] Hodge, G., & Greve, C. (2005), *The challenge of public private partnerships.* Cheltenham: UK: Edward Elgar.

[12] [12] Shoup, D. (1999), *The trouble with minimum parking requirements. Transportation Research.* Washington: U.S. Dept. of Transportation Research and Special Programs .
[13] [13] Darja Reuschke (2015), Public-Private Partnerships in Urban Development in the United States.
[14] [14] Fosler, S. R.; Berger, R. A. (1982), Public- Private Partnerships in American Cities Humboldt University in Berlin
[15] [15] Hodge, G. A and Greve, C. . (2007), Public–Private Partnerships: An International Performance Review,. *Public Administration Review, 2007,* Vol. 67(3), pp. 545–558.
[16] [16] Stewart, M. S. (2011), *Uganda Road Sector Support Initiative .* Kampala: URSSI.