RESPONSIBLE INVESTMENT (RI): AN ALTERNATIVE FUNDING OPTION FOR ROADS-BRIDGES MANAGEMENT IN NIGERIA UNDER THE PUBLIC-PRIVATE PARTNERSHIP FRAMEWORK

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Abstract

Tolling is an age long revenue collection system institutionalised by public authorities for accumulating funds required for roads and bridges construction, maintenance and management. In spite of the merits of tolling as a major source of revenue in Nigeria, it was abruptly abrogated by the government few years ago because of reasons linked to ineffective governance, endemic corruption and lack of probity. The purpose of this paper is to make a case for responsible investment as an alternative funding mechanism for roads-bridges management (RBM) in Nigeria under a Public-Private Partnership (PPP) framework. The paper adopts a discursive approach, relying on government policy documents, journal articles, online resources, working papers and reports on tolling best practices. The numerical and non-numerical data were critically analysed using content analysis enriched by tables and figures. The first finding indicates there are enormous potentials in tolls collection from privately funded roads and bridges for responsible investors in Nigeria under the PPP framework. The second finding identifies eight (8) PPP typologies that could be explored by investors under government's new tolling policy. The paper concludes that the success of any tolls collection systems depend largely on effectiveness of governance, probity and accountability, which are core elements of responsible investment in the contemporary times.

Keywords: Responsible Investment; Public-Private Partnership; Roads-Bridges Management; Nigeria.

1. Introduction

Roads and bridges are key infrastructural facilities required for an efficient transport system, and they are good measurements of regional economic development (Chi and Waugaman, 2010; Federal Ministry of Works, 2013). Also, it has been observed that communities and geographical areas surrounded by roads and bridges experienced fast regional, industrial, environmental and residential development than areas lacking these infrastructural facilities (Parasibu, 2005). In view of the importance of roads and bridges to nation-building and urbanisation, immediately after independence, the Federal Government of Nigeria gave high priority to the construction of roads and bridges in the nation's economic development plans and blueprints.

The commitment to road development in Nigeria is manifest in the first and second national development plans, which made provision for construction of feeder roads and bridge key priorities to enhance effective transportation of people and goods (Salawu et al., 2006). Furthermore, the third and fourth national development plans earmarked substantial budget for the construction of more roads in the rural and urban communities as well as jetties for riverine communities for smooth movement of people and agricultural produce across the country (Akhuemonkhan et al., 2012; Olowookere, 2012; Raimi et al., 2014). The construction of roads and highways was also a major project of the Babangida's administration, which established the Directorate of Food, Roads and Rural Infrastructure (DFRRI) as a scheme that brought relief to farmers through infrastructural development which boosted agricultural production in Nigeria (Iwuchukwu and Igbokwe, 2012; Raimi et al., 2014). In the same vein, the 7-point Agenda of the Yar'adua administration underscored transport sector development with emphasis on road as a major priority (Dung-Gwom, 2010; Dode, 2010).

The present administration of Goodluck Ebele Jonathan has equally made roads development and rehabilitation an important segment of its transformation agenda; the regime is credited with rehabilitation of a number of roads and bridges across the country (Transformation Watch, 2013). The total road network in Nigeria is estimated at about 200,000km, which are owned and managed by the three levels of governments disproportionately. The Federal Government controls 17% of the road networks (Over 34,000Km), the thirty-six (36) states owns and controls 16%; while the local governments own and control 67% of the entire road networks (Yuguda, 2013).

The need for a sustainable management of Nigerian roads and highways led to the erection of traditional barrier-type tollgates for tolls collection; the proceeds therefrom are reinvested for further construction of new roads/bridges and maintenance of existing ones (Leba, 2010; Madunagu, 2012 and Ugeh, 2013). Operation of traditional barrier-type tollgates for maintenance of roads in Nigeria worked effectively at inception, but the tolling system in Nigeria was rendered ineffective by public servants as a result of corruption, revenue leakages and unmet maintenance of the tolled roads and bridges. Consequently, it was cancelled in 2004 by the regime of President Olusegun Obasanjo under the guise of proving a palliative measure for cushioning the burden of 5% increment in the pump price of petroleum products introduced by the government (Leba, 2010).

In the recent times however, dwindling fortunes of the federal government and the deteriorating conditions of roads and bridges nationwide, necessitated the proposed reintroduction of tolls by the policymakers as a realistic funding option for fixing roads and highways sustainably. As at 2010 fiscal year, the sum of N1 trillion was estimated as costs required to fix roads nationwide (Leba, 2010). In the same vein, the cost of construction of federal roads and bridges from 2010 to 2013 fiscal years was estimated at N32 trillion

(US$2214.4 billion); and by design, the federal government, state & local governments and private-sector investors were to contribute N10 trillion, N9 trillion and N13 trillion respectively (Ugeh, 2013). This funding option was viewed by policymakers as unsustainable in the face of several projects competing for government's attention.

Another reason for rethinking tolling in Nigeria is not unconnected with the monumental success recorded by the Lagos State Government on its private-sector managed tolls collection and management of roads along Ajah axis and the growing acceptance of public private partnership (PPP) model as a viable strategy for infrastructural management in the contemporary times (Madunagu, 2012). Unlike the traditional tolling system managed by the government, the proposed new tolling system under Public-Private Partnership (PPP) is designed to provide the country with a sustainable strategy for managing its network of roads and bridges for the benefit of all stakeholders - government, businesses and communities (Njoku and Adegboye, 2013).

In a bid to convince Nigerians further on the desirability of tolling and leveraging on the PPP experiment, the Federal Ministry of Works (FMW) developed a policy document entitled: 'Green Paper: Federal Roads and Bridges Tolling Policy for Nigeria'. (Federal Ministry of Works, 2013). The Green Paper provides justification for reintroduction of tolls as a viable private sector intervention designed to fund sustainably the nation's roads and bridges. The private sector investors judging by their antecedents are believed possess the exposure, technology and professional competence to generate sufficient revenue from tolls to recover cost of construction, rehabilitation, financing, maintenance and operation of tolled roads and highways (Ugeh, 2013; Njoku and Adegboye, 2013).

From the above overview, the purpose of this paper is to explore prospect of responsible investment (RI) as an alternative funding option for roads-bridges management in Nigeria under the Public-Private Partnership Framework. In specific terms, the paper unveils the socio-economic merits of tolling for roads-bridges management in Nigeria with a view to putting in proper perspective the various PPP options opened to the responsible investors under the newly proposed tolling policy. The two main research questions that this paper seeks to ask are:

RQ1: Are there socio-economic merits behind the reintroduction of tolling for roads-bridges management in Nigeria?

RQ2: What are the tolling options available to responsible investors under the PPP frameworks?

The entire paper has a total of four (4) parts. Part I provides a highlight on tolling and its rationale across the ages. Part II focuses on conceptual issues and review of literature from scholarly works responsible investment, PPP framework and tolling. Part III states the research method and analyses the numeric and non-numeric data from which findings on the socio-economic merits of tolling under the PPP framework and the models of tolling available to responsible investors under PPP framework. Part IV concludes with s summary of implication for further research, conclusion and recommendations.

2. Conceptual Issues and Review of Literature

2.1. Responsible Investment

Responsible Investment (RI) or Social Responsible Investment (SRI) has emerged in the global business environment as another investment strategy. RI attracts a number of definitions in the management literature, but could simply be defined as "an investment

process that seeks to achieve social and environmental objectives alongside financial objectives" (Mercer Investment Consulting, 2007:10). In other words, RI is a deliberate and conscious decisions by the investing public or ethical investors to put their investments (usually pension or other life earnings) into corporations that demonstrate commitment to responsible business practices, or those whose products and services are socially, humanly and environmentally friendly such as investing in renewable energy sector, public utilities, shunning problematic corporations such ammunition manufacturing firms, alcoholics and tobacco as well as rogue multinational corporations..

From another lenses, RI represents an investment focus of "integrating environmental, social and governance (ESG) factors into … investment processes [which is believed would] help to improve risk-adjusted financial return" (Lake, 2007:3). However, Karch (2007) notes that RI transcends ethical issue with regards to investment; it includes efficiency in managing investment. Efficiency when linked to RI entails sustainability, security and improvement of investment strategies deployed for fund management.

RI gain global acceptance with international institutions like ILO, UN, OECD et cetera. In particular, the United Nations Principles for Responsible Investment (2007:81) state that member countries and corporations "believe that environmental, social, and corporate governance (ESG) issues can affect the performance of investment portfolios" as well as the choice of investment decisions. Put differently, the scope of RI covers ethics, environment, governance, social aspects, economics, labour rights, international and national norms (Goy, 2013). The thrust of RI is the avoidance of investments that the members of the public are averse to, or deemed ethically unacceptable and socially irresponsible (Boersch, 2010; Goy, 2013). It could therefore be concluded that RI matches investments with ethical values and long-term impact in the business environment. Empirical survey reveals that RI is driven more by social wellness and welfare which are expectations greatly influenced by public pressure than expectation of higher returns or lower risk (Boersch, 2010). On the strength of this definition, the deteriorating conditions of Nigerian roads and bridges qualify for responsible investment.

2.2. Public-Private Partnership

The Public-Private-Partnership (PPP) model finds theoretical groundings in the theory of privatization. The first basis of PPP is to promote greater allocative and productive efficiency. The second basis is to strengthen the role of the private sector to play greater role in the economy. The third rationale of PPP framework is to improve government revenue base or financial health leveraging on private sector funding. The fourth basis is to enable the public authority directs its scarce resources to other important areas of governance competing for attention (Sheshinski and López-Calva, 2003:2). Several scholars argued that when publicly owned enterprises (POEs) are fully or partially privatized in the forms of PPP, concessioning, joint-venture et cetera, they tend to manifest operational efficiency, greater profitability and improved access to capital for investment purposes. Such privatized enterprises have also recorded increased output at lower cost overtime; they have also been able to create more employment opportunities for people and generation of greater revenue for government's treasury (Megginson and Netter, 2001; Kareem, 2010; Raimi et al., 2013). Besides, privatisation leads to reduction in public spending when viewed against the experience of the United Kingdom where privatisation of electricity resulted in a permanent five (5) percent annual reduction in the cost of providing electricity service (Newbery and Pollitt 1997:269). In addition, it has also been confirmed that privatisation, whether full or partial leads to an increase in profitability of enterprises as well as increase in productivity of such enterprises (Sheshinski and López-Calva, 2003).

The sustainable economic benefits of PPP necessitated the call for its adoption in the roads-bridges management in Nigeria. It is instructive to note that application of PPP model in the Nigeria transport sector spanned over 14 years; it was effectively applied to revamp that nation's ports under the concessioning agreement (Kruk, 2008; Raimi et al. 2013). Nigeria's former Minister of Transport, underscored the need for collaborative relationship with the private sector because of dwindling government revenue and expertise (Chikwe, 2000). Specifically, the former Minister canvassed support for PPP because "maintenance of… transport infrastructure and services usually require huge financial outlay. Government alone cannot provide all the resources required….it is economically prudent and financially expedient to encourage private sector participation in the key areas that are hitherto commonly regarded as social services. This is also in consonance with contemporary practice all over the world, of shifting emphasis from government driven to private driven economy" (Agbakoba, 2001:6).

Official data as shown in Table 1 and 2 provide further justification for the views above. In Table 1, the share of construction expenditure among other expenditure heads under economic services from 2000-2010 has been rising overtime. Furthermore, the rising recurrent expenditure on construction in Table 2 vis-à-vis the nation's gross domestic product (GDP) from 1961-2011 shows that funding roads solely by the government is unsustainable and require private-sector cooperation (Chikwe, 2000; CBN, 2011). Another official report indicated that from 2011 to 2012, the sum of N120 billion was expended on roads development and rehabilitation in Nigeria (Ibya, 2013).

2.3. Toll/Tolling

Tolling is an age long revenue collection system (toll) adopted by many civilizations for roads construction and maintenance for over 2,700 years (Gilliet, 1990). Toll collection had long appeared in the works of Aristotle as a common practice in the classical era for boosting the revenue base in nations like India and Roman Empire (Munroe, et al., 2006). In the modern times, England introduced tolls on roads in the 14th century as a form of tax for the purpose of recouping the costs of construction and maintenance of highway (Bernstein, 2010). Apart from revenue source for government, tolling provides avenue for job creation for members of the public (Madunagu, 2012). Tolls started in Lancaster, United States in the 1790s (Munroe, et al., 2006); and has since then become acceptable user fees which guarantee stable and sustainable streams of revenue for the maintenance of road and highways (Forkenbrock, 2004).

Table 1 – Federal Government Recurrent Expenditure on Economic Services

Function/Year	2000	2005	2006	2007	2008	2009	2010
				Economic Services			
Agriculture	6,335.78	16,325.60	17,900.00	32,500.00	65,400.00	22,440.00	29,560.00
Construction	4,991.09	17,914.96	20,100.00	71,300.00	94,500.00	80,630.00	138,050.00
Transport & Communication	3,034.68	8,041.30	9,800.00	32,200.00	67,400.00	90,030.00	178,700.00
Other services	14,230.37	22,025.16	31,900.00	43,100.00	86,500.00	124,100.00	238,680.00
Total	28,591.93	64,307.02	67,801.78	83,518.19	313,800.00	317,200.00	584,990.00

Source: Federal Republic of Nigeria Official Gazettes, CBN (2010)

Table 2 – Federal Government Recurrent Expenditure on Construction

Year	Construction ₦ Million	GDP ₦ Million
1961	0.59	2,361.20
1965	25.29	3,110.00
1970	14.28	5,205.10
1975	31.97	20,957.00
1980	46.03	49,632.30
1985	151.11	70,633.20
1990	643.40	271,908.00
1995	1,699.10	1,934,831.00
2000	4,991.09	4,727,523.00
2001	7,202.04	5,374.335.00
2002	7,452.14	6,232.244.00
2003	16,951.37	6,061.700.00
2004	14,897.01	11,411,067.00
2005	17,914.96	15,610,882.00
2006	20,100.00	18,564,595.00
2007	71,300.00	20,657.317.00
2008	94,500.00	24,296,329.00
2009	80,630.00	24,794,238.00
2010	138,050.00	29,205,782.00
2011	195,900.00	33,994,612.00

Sources: Federal Republic of Nigeria Official Gazettes, CBN (1961-2011)

The roads on which tolls are collected are called toll roads, turnpikes, tollbooths, tollhouses and tollways (Gilliet, 1990; Jenkinson and Taylor, 2010). Toll is conceived as a medium for recouping the cost of building of roads and provides sustainable means for managing the roads, as well as avenue for job creation for the citizenry ((Madunagu, 2012). Besides, tolls is preferred irrespective of country because they have lower evasion rate compared to income taxes; it is relatively cost effective for government and payers; tolls ensure privacy of payers and its implementation process is easy and convenient for all stakeholders (Peters et al., 2006). Forkenbrock (2004) argued that tolls have become acceptable user fees which guarantee stable and sustainable streams of revenue for maintenance of road and highway system.

As notable as the policy of tolling is for national development, Roth (1998) noted that it suffers a lot of criticisms. One, it requires vehicle owners to slow down, thereby wasting the time of vehicle owners and building up operating costs of vehicles. Two, it is at times uneconomical because the cost of tolls collection could be as much as one-third of revenues because of the problem of probity and revenue theft. Three, where toll-free roads coexist with tolled roads, the latter becomes useless as people utilise the free toll roads. Tolled roads with the aid of electronic sensors track for monitoring the movement of cars constitute infringement on the freedom and privacy of road users. In spite of all the criticisms levelled against tolling, it still offers governments across the world a convenient template for recouping and generating further funding for roads, bridges and other transport infrastructural projects. Toll collection systems are many and diverse in the transport literature. The major typologies of tolls collection systems include: (a) manual toll collection (b) mechanical coin collection (c) traditional barrier electronic toll collection**,** (d) slow speed electronic toll

collection (e) high speed electronic toll collection (Peters and Kramer, 2003; Peters and Kramer, 2005; Peters et al., 2006). Explanations of the distinctions between the various toll typologies are discussed hereunder.

a) *Manual Toll Collection System (MTCS):* This refers to the collection of tolls manually in cash or coin by human beings at designated tollgates or booths. It is the commonest toll system across developing countries and few industrialized nations. The major disadvantages of the manual tolling system are the requirement for vehicles to be at complete halt to make payments; the slow processing time; huge wage bills of human collectors; the cost of monitoring cash to avoid revenue leakages; the generally slow speed, high compliance cost; and the impact of pollution from deceleration and reacceleration of vehicles.

b) *Mechanical Coin Collection System (MCCS):* Unlike the first type, the mechanical coin collection system refers to the collection of tolls at tollbooths using automated counting machine programmed to accepts highway authority-specific tokens or exact coin transactions. The automated machines collect tolls faster than human toll collectors and are able to process tolls at faster rate than the humans. The main setback of this system is that it requires vehicles to fully decelerate and require drivers to insert coins or tokens before speeding off.

c) *Traditional barrier electronic toll collection system (TBECS):* This refers to an electronic tolling system that allows collection of tolls at tollbooths through an electronically operated lift gate that allows passage of vehicles after the users' accounts have been charged. Meanwhile, its major disadvantage is that the cost of administration is high because it requires complete halt for processing of charges to forestall mistakes.

d) *Slow Speed Electronic Toll Collection System (SSETCS):* This is an electronic tolling system in use in several industrialized nations. This system allows collection of tolls at speed that is less than the normal road speed of vehicles. For the operation of slow speed electronic collection system, a data reader is mounted at strategic area at tollgates which process electronic collection of tolls while the vehicles slow down as low as 5 to 15 miles per hour speed after which they are allowed to leave the toll facility. It has a higher processing speed than the traditional barrier electronic toll collection system. The SSETCS attends to as much as 1200 vehicles per hour.

e) *High Speed Electronic Toll Collection System (HSETCS):* This is another variant of electronic tolling system which allows collection of tolls at full highway speed without stopping by the tollbooths. For the high speed electronic collection system, there are no tollbooths, but toll collection readers are mounted on erected gantries which facilitate processing of tolls at full highway speeds. This is the best toll collection system in several industrialized nations because of convenience for drivers, cost effectiveness of toll collection, minimal labour cost and capability to process at least 2200 vehicles per hour.

2.4. Relationships between Tolling, RI and PPP

The relationship between tolling, RI and PPP is complementary. In the face of dwindling public funding of roads and bridges, other viable funding options are RI and PPP as depicted by Figure 1. For individuals who favour ethical investment that would improve quality of life of the citizens in developing nations with infrastructural deficit, the option of RI is very attractive. However, for investors who seek joint venture businesses in infrastructural development with good return on investment, the option of PPP finds relevance.

Figure 1 – The relationship between tolling, RI and PPP

Source: Authors

3. Methods & Materials

This research adopts a qualitative research method, relying on inductive approach. The paper adopts a discursive approach, relying on government policy documents, journal articles, online resources, working papers and reports on tolling best practices. The numerical and non-numerical data were critically analysed using content analysis enriched by tables and figures on the basis of which insightful findings on the subject were established.

3.1. Results/Findings and Discussion

The summary of findings arising from the analysis of the numeric and non-numeric data are discussed below.

3.2. Socio-economic Merits of Tolling for Roads Sustainability

With regards to Nigeria, the new tolling system has greater socio-economic benefits. First and foremost, it shall be based on PPP framework, designed as a joint venture partnership between Federal Government and private sector individuals. Secondly, reintroduction of tolls on certain roads and bridges in Nigeria is believed would create massive jobs for Nigerians (Madunagu, 2012). Besides, it is believed in policy circles that tolling policy under the PPP model has the inherent potential of attracting Foreign Direct Investment (FDI) from responsible investors into the country thereby creating massive investment opportunities as well as acting as catalyst for the growth of the private sector (Ugeh, 2013). For prospective local and foreign investors, Tables 3, 4 and 5 provide highlight on roads and bridges available for responsible investment under the PPP model across Nigeria.

Analysts note that tolling is a pragmatic means of boosting government revenue required for developing, building, managing and maintaining roads and bridges (Njoku and Adegboye, 2013). Secondly, it is stated that, when road projects are financed through tolls collection it would serve as viable strategy for recouping the cost of the road projects over a period of time (Munroe et al., 2006). Considering the fact that tolls are invested on roads development, its collection facilitates better mobility of vehicles as well as provides reliable finance for transportation investment (Chi and Waugaman, 2010).

Table 3 – Ongoing PPP Highway Projects

SN	ROADS/BRIDGES	DISTANCE	REMARKS
1	Reconstruction & Expansion of Lagos – Ibadan Expressway	126Km	Newly Awarded on EPC basis. O & M Concession - to be awarded.
2	Guto – Bagana Bridge across Benue River	1.35km Bridge & 65Km Road	Concession is being reviewed & will be awarded.
PPP Projects Under Procurement			
1	Construction of 2nd Niger bridge at Asaba - Onitsha	2Km	Newly Awarded
2	Access Road to Murtala Mohammed Intern. Airport (MMIA) Road, Ikeja, Lagos	2.8Km	Award of Concession in progress
3	Construction of bridge over River Niger at Nupeko, Niger State	950m	OBC development phase in progress.

Source: Federal Ministry of Work in Yuguda (2013:22)

Table 4 – Proposed PPP highway projects with Ongoing Feasibility/Viability Studies

SN	ROADS/BRIDGES	DISTANCE	REMARKS
1	Bodo-Bonny Road to Link Bodo to the Island of Bonny in Rivers state	39 Km	Outline Business Cases (OBC) studies in progress
2	Dualizat. of Ilorin-Jebba-Mokwa-Kaduna Rd	597 km	OBC ready
3	Dualization of Keffi-Akwanga-Lafia-Makurdi Road	215 km	OBC ready
4	Dualization of Lokoja-Ajaokuta-Ogbulafo-Enugu (9th Mile) Road	238 Km	OBC is being carried out
5	Dualization of Akwanga-Jos Road	145 Km	OBC is being carried out
6	Dualization of Enugu (9th Mile) – Otukpo – Makurdi Road	261 Km	OBC is being carried out.
7	Dualization of Owerri – Aba Road	60 Km	OBC is being carried out.
8	Phase I : 2nd Lagos outer ring Road: Tin Can Island – Igando - Lagos/Otta road and Lagos/Ibadan expressway	74 Km	OBC is ready
9	Phase II : 2nd Lagos outer ring Road i) Lekki-Epe Expressway Linking Existing Lekki-Epe Expressway/Proposed Lekki Deep Sea Port ii) 5th Mainland Bridge	25 Km Road: 20 Km Bridge: 5K m	Consultancy for Feasibility Studies ongoing
10	Golden Triangle (Economic) Highways	Various (5000Km)	Consultants will be appointed to carry out Feasibility Studies for best actualization

Source: Federal Ministry of Work in Yuguda (2013;27)

Table 5 – Proposed PPP highway projects with outline business cases (OBC)

SN	ROADS/BRIDGES	DISTANCE	REMARKS
1	Enugu – Port Harcourt Dual Carriageway	210Km	Outline business cases (OBC) development in progress.
2	Lagos – Iseyin – Kishi – Kaiama Road	414Km	OBC development in progress.
3	Kiama – Bahama – Kaoje – Gwambu – Fokku – Sokoto Road	631Km	OBC development in progress
4	Construction of bridge over River Benue at Buruku, Benue State	1Km	OBC development in progress
5	Construction of bridge over River Benue at Ibi along Shendam - Wukari Road	880m	OBC development in progress

Source: Federal Ministry of Work in Yuguda (2013:23)

3.3. Tolling and PPP Models

The prevalent PPP models that responsible investors could adopt which has records of success across the globe with reasonable level of success include: Build-and-Transfer (BT), Build-Lease-Transfer (BLT), Lease-Operate-Transfer (LOT), Build-Operate-and-Transfer (BOT), Build-Own-Operate-Transfer (BOOT), Build-Own-Operate (BOO), Build-Operate-Share-Transfer (BOST) and Build-Own-Operate-Share-Transfer (BOOST) (Agbakoba, 2001; Infrastructure Development Department, 2009; Raimi et al., 2013). In-depth explanation of each of the ten models is presented below (Figure 2).

a) *Build-and-Transfer (BT):* This is a contractual arrangement where the public-private partners (as an entity) undertakes the financing and construction of roads and bridges as the case may be, and after its completion turns it over to the government, which pays the private sector investors based on mutually agreed timeline. BT allows the investors to retrieve the total investments expended on roads and bridges, plus a reasonable rate of return to compensate them for their efforts.

b) *Build-Lease-and-Transfer (BLT):* This is a PPP arrangement whereby the public authority authorizes private sector investors to finance and construct roads and bridges and upon their completion, the government grant a lease arrangement for fixed period after which ownership of the roads and bridges are automatically transferred back to the government.

c) *Lease-Operate-Transfer (LOT):* This is another PPP arrangement where existing road and bridges are handed over to qualified private sector operators for a determined period as leased facility. The investors run the roads recouping their returns on investments as tolls. The financial returns on the roads to the government later on would be in the form of rents or royalties. At the expiration of the LOT agreement, the tolled roads are returned to the government.

d) *Build Operate and Transfer (BOT):* This is a PPP arrangement where the private sector investors undertake the construction and financing of roads, operation and maintenance thereof on the basis of a contractual agreement with the government authority. The private sector investors then operate the roads over a specified period during which they

are allowed to charge appropriate tolls as stipulated in the contract to enable them recover the costs of investment with reasonable returns from the project.

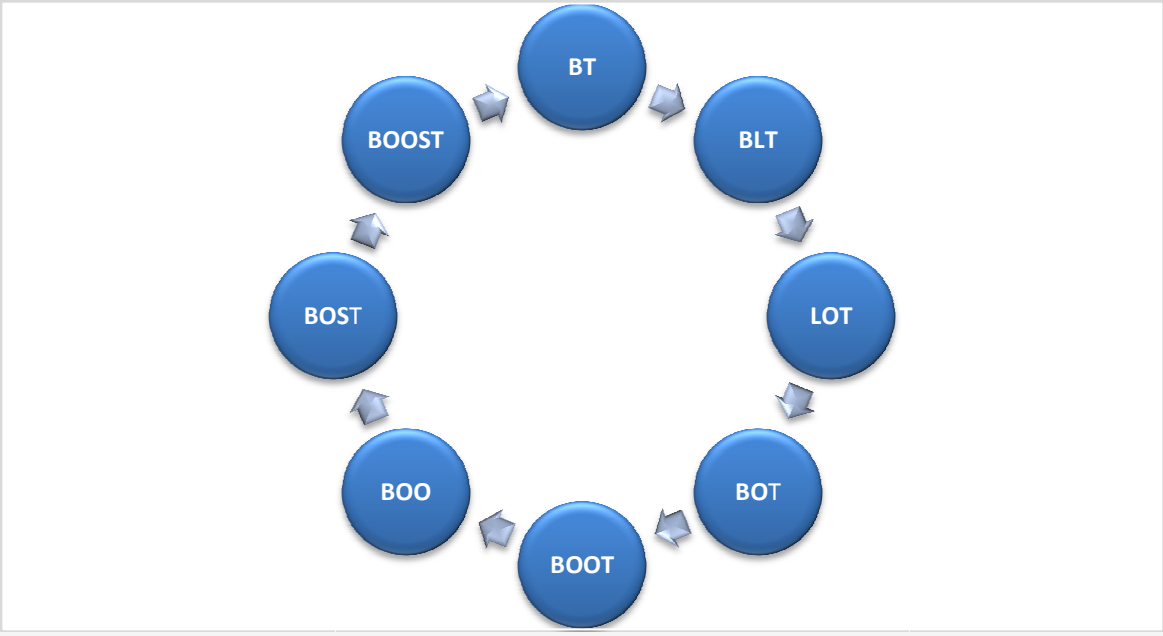
e) *Build-Own-Operate-and-Transfer (BOOT):* This is another PPP arrangement, where the private sector investors undertake as usual the tasks of roads construction, financing, operation and maintenance over a specified period of time. At the period of expiration, the facility is finally transferred, at no cost to the government. During the contractual period the private investors technically owns the roads and operate the roads charging tolls for recouping the costs of investment, operational maintenance and desirable margin of profit.

f) *Build-Own-and-Operate (BOO):* This is a contractual arrangement whereby a private sector investors are authorized by government to finance, construct, own, operate and maintain roads or bridges from which the they are allowed to charge tolls in order to costs of construction and maintenance. In this model of PPP, the private sectors own and operate the infrastructure with making transfer to government.

g) *Build-Operate-Share-Transfer (BOST):* This is a contractual arrangement where public government authorizes private investors to finance, construct, operate and maintain, share the revenue collected from roads as tolls with government and transfer the roads to government at the end of the contractual period. The BOST agreement like other model allows the private sector investors to recover their total costs of investment plus reasonable returns thereon.

h) *Build-Own-Operate-Share-Transfer (BOOST):* In this type of PPP arrangement, the private sector investors are authorized to finance, construct, own, operate and maintain, share a part of the revenue collected on tolled roads with government and then transfer the roads infrastructure at the end of the agreed period. The BOOST model allows private sector investor leeway to recover its total investment, operating and maintenance costs plus a reasonable return thereon by collecting tolls.

Figure 2 –Eight PPP Models



Source: Authors.

4. Conclusions, policy recommendations and implications for further research

The conclusions from this study are largely based on the qualitative analysis and assessment of the numerical and non-numerical data. The findings indicate that private sector tolling (especially the electronic tolls collection system) has the potential of providing the needed sustainable funding for roads construction, maintenance and management in Nigeria in the face of dwindling public funding for roads. Secondly, it has been proven that tolling is a viable measure for stimulating massive employment for the citizens. Besides, tolled roads have the potentials of accelerating urbanisation, fast regional, industrial, environmental and residential development. In order to optimize the benefits of tolling as discussed earlier, the following recommendations are suggested.

i. The private sector tolling agreement on roads/bridges built on PPP agreement should be based on Infrastructure Concession Regulatory Commission Act (2005), UNIDO Guidelines for Infrastructure Development on Build Operate Transfer (BOT) Projects (1996) and other international protocols on PPP and IR. The Global Best Practices for PPP and RI must be followed because there are scandals that followed previous privatisation and concessioning agreements in Nigeria.

ii. For tolling investment to be genuinely responsible, it is suggested that investments should be based on Core Principles and Best Practices as contained in the European Commission Guidelines for Successful Public-Private Partnerships, 2003; European Commission Green Paper on Public-Private Partnerships and Community Law on Public Contracts and Concessions, 2004.

iii. The Federal Government should create an enabling and competitive business environment for attracting responsible investors (locally and internationally). This suggestion is hinged on the presumption that political stability, security and respect for rule of law are critical factors that influences investment decision at individual, corporate and governmental levels.

iv. Both the political leadership and the implementers of Nigeria's tolling policy should avoid the mistake of the past especially ports concessioning, privatization policy and other government development policies.

v. The Federal Ministry of Works should set up an effective monitoring and evaluation process for implementing the tolling policy programme in Nigeria. In other word, due process must be followed at every stage of the implementation of the PPP framework.

vi. Government and its agencies should study the implications of tolling on the residential communities, ordinary people and the host communities to avert the crisis experience of Ajah tolls in Lagos State, which has a pending court case.

The next stage of this research is to subject the qualitative findings to empirical testing. For this to be achieved a survey especially the use of structured questionnaires is required for eliciting the opinions of end-users and policymakers on the proposed reintroduction of tolling in Nigeria under the PPP framework. The present findings and the outcomes of the proposed empirical study shall be compared on the basis of which sound conclusions on the proposed reintroduction of tolling shall be made. The paper has established that the success of any tolls collection systems depend largely on effectiveness of governance, probity and accountability, which are core elements of responsible investment in the contemporary times.

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