Investigation into the causes of delay in land acquisition for PPP projects in developing countries

Abstract

Purpose-The land is a critical resource for public-private partnerships (PPPs) in infrastructure development. However, acquisition of land for PPP infrastructure projects implementation increasingly becomes problematic in developing countries. Yet, effort at investigating the factors causing a delay in land acquisition for PPP infrastructure projects through an empirical method in developing countries received scant attention. Therefore, the purpose of this study is to identify and critically assess the factors predisposing PPP projects implementation to land acquisition delay in Nigeria using an empirical approach.

Design/methodology/approach- The study adopted literature review and questionnaire survey. For instance, literature review was used to identify the factors causing delay in land acquisition for PPP projects in developing countries, which was used to design the questionnaire survey culminating in data analysis. In order to capture a broad perception, the questionnaires were administered to three different primary stakeholder groups comprised public sector authorities (i.e. ministries, department, agencies), concessionaires, and lenders/banks involved in PPP projects implementation in Nigeria. Data collected were analysed using mean score, Kruskal-Wallis test, and factor analysis.

Findings- The study revealed the mean score ranking of 22 identified factors causing a delay in land acquisition for PPP projects in Nigeria. The result of factor analysis grouped the 22 identified factors into 4 principal factors namely, resettlement issues with political interference; non-availability of land with a higher cost of land transactions; weak planning institutions; and rehabilitation issues with extensive legal delays.

Practical implication- These study findings have implications for both policymakers considering PPP projects and private investors seeking to finance a PPP project in developing countries. Also, the study findings would be useful for the governments in Nigeria and other developing countries to formulate clear policies framework that facilitates the smooth acquisition of land for PPP projects.

Originality/value- The study will be beneficial to the potential local and foreign private investors, and governments by broadening their awareness on impediments in land acquisition for PPP projects in Nigeria and developing countries at large. These study findings are crucial as not many empirical studies have been conducted in Nigeria, and many other developing countries.

Keywords: Land acquisition, developing countries, PPPs, infrastructure projects, Nigeria

Paper type **Research paper**

1. Introduction

PPPs have received much attention in the development and financing of public infrastructure facilities and services in the last decade due to its inherent benefits and are now used in over 40 countries (Li *et al.,* 2005a; Leiringer, 2006; RICS Policy Report, 2012). Despite the increasing adoption of PPPs, the experiences of many countries are not always positive due to

controversies, failures, delays, and revocation of concessions agreement that characterised its successful implementation, particularly in developing countries. This is corroborated by Yang *et al*. (2010) that some infrastructure partnerships between the public and private sectors in the past are yet to provide evidence of successful completion. In developing countries, land acquisition for PPP projects implementation is increasingly a source of social conflict. Since the pressure of the population on land has been going up, and constraining its availability. Thus, the difficulties around land acquisition remain a significant challenge in PPP projects implementation in developing countries (see Kumaraswamy and Zhang, 2001; Rajan *et al*., 2010; Henjewele *et al*., 2012; Hampton *et al*., 2012) among others. This led many governments exercising land acquisition policy, which provides for the compulsory acquisition of land for the public interest.

Compulsory acquisition is, therefore, the power of government to acquire private rights in land for a public purpose, without the willing consent of its owner or occupant in order to benefit the society (Keith *et al*., 2008). Lindsay (2012) claims that defining public purposes, there is great variety among national laws in the extent of specificity. For instance, in some countries, laws provide an itemised list of land uses that fall within the definition of public purpose. Such lists typically include uses such as (Keith *et al*., 2008):

- transportation uses including roads, canals, highways, railways, bridges, wharves, and airports;
- public buildings including schools, libraries, hospitals, factories, religious institutions and public housing;
- public utilities for water, sewage, electricity, gas, communication, irrigation, and drainage, dams and reservoirs;
- public parks, playgrounds, gardens, sports facilities and cemeteries; and
- defence purposes.

Lindsay (2012) asserts that compulsory acquisition is a critical development tool for governments, and for ensuring that land is available when needed for essential infrastructure. However, the compulsory acquisition has always attracted controversy, both in theory and practice. The reasons for this are not surprising. For instance, whenever people are displaced, the human costs in terms of disruption to community cohesion, livelihood patterns and way of life, may go beyond what can be fully mitigated through standard compensation packages (Keith *et al*., 2008; Lindsay, 2012). For example, United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) (2008) reports that large tract of land is required for many PPP infrastructure projects, particularly in the transport, energy and power sectors. In such cases, resettlement and rehabilitation of the affected people and compensation for the acquired land may become major issues. Thus, the problem may become serious, if the government does not have any fair policies and legal measures to deal with these complex social issues which may also have deep financial and political implications, most especially in developing countries. In the absence of generally acceptable policies and measures, PPP projects implementation may become difficult due to resistance from the affected people and other interested groups (UN- ESCAP, 2008).

In addition, Estache *et al.* (2007) aver that land acquisition can be a protracted process with the potential for extensive legal delays, particularly in developing countries. Thus, PPP project sponsors often try to ensure that the government bears the risk of providing all necessary land within a given time frame or being liable for damages. Furthermore, the cost of land acquisition can become a major factor where land values have risen rapidly or are subject to speculative activity over which the project developer has no control (Estache *et al.*,

2007). For instance, Kumaraswamy and Zhang (2001) conclude that land acquisition is a complicated issue in PPPs, particularly BOT projects, and complex procedures often need to be followed. For example, some BOT road projects in Bangkok, Thailand and Guangzhou, China to mention a few have been delayed due to late delivery of land and related cost overruns. This is corroborated by Rajan *et al*. (2012) that identify land acquisition as a major factor that caused a delay in project completion and cost overruns in India's earlier PPP projects. The contribution of land acquisition problems in PPP projects was further emphasised in the work of Henjewele *et al.* (2012) that find land acquisition as a factor that significantly increased the scope of obligations to the private sponsors in PPP projects. Hampton *et al*. (2012) state that planning approval in the land acquisition has the potential to delay commencement of projects in respect of the procurement models adopted.

In Nigeria, there is a dearth of studies, particularly empirical studies on land acquisition for PPP projects. For instance, existing studies on PPP projects in Nigeria (see Ibrahim *et al.*, 2006; Ibem, 2010, 2011; Adeniyi *et al.*, 2011; Awodele, 2012; Babatunde *et al*., 2012; Dada and Oladokun, 2012; Famakin *et al.,* 2012; Babatunde *et al*., 2014; Babatunde *et al*., 2015; Babatunde *et al*., 2016a; Babatunde *et al*., 2016b; Opawole and Jagboro, 2016; Opawole and Jagboro, 2017) have focused on its risk factors, housing provision, critical success factors, barriers, capability maturity levels, public and private parties obligations, strengths, weaknesses, opportunities, threats as well as on its private party performance. Despite these studies, land acquisition studies in PPP infrastructure projects implementation using empirical approach can be hardly found in Nigeria. It is against this backdrop that necessitated this study to fill the identified gap(s). In this respect, this study was guided by the following derived objectives:

- Identify the factors causing a delay in land acquisition for PPP infrastructure projects.
- Critically assess the perceptions of the three stakeholder groups on the ranking of identified factors causing a delay in land acquisition for PPP projects in order of perceived importance.
- Categorise into principal factors the identified attributes causing a delay in land acquisition for PPP projects.

It is believed that these study findings will enable the governments in Nigeria and other developing countries formulating clear policies framework, and satisfactory approaches to ameliorate the land acquisition problems in PPP infrastructure projects implementation. Thus, enhancing the success rate of PPP infrastructure projects in developing countries as a whole.

2. Overview of land acquisition policies in Nigeria

In Nigeria, during the pre-colonial era, the land was held under the communal ownership and managed on the basis of the customs and traditions of the various ethnic groups that formed the country (Adeniyi, 2013). After independence in 1960, colonial land policies were subsisted with traditional land tenure arrangements until the promulgation of the Land Use Act (LUA) in 1978 (Birner and Okumo, 2012; Adeniyi, 2013). The LUA vested all lands in each state of the federation in the governor of the state in trust for the use and common benefits of all Nigerians (Ilesanmi 1998; Mabogunje 2002). Thus, LUA gave the ownership, administration and management of all state land in the custody of the governor of that state to acquire land for urban development from a customary title holder (Mabogunje 2002). The promulgation of the LUA aimed at making land easily available for development purposes and to cut down on the amount of money government may pay as compensation in the event of a compulsory acquisition of land from landowners (Ilesanmi 1998). Therefore, the LUA is

now the basic framework for land administration in Nigeria (Butler, 2009; Adeniyi, 2013). It designed to unify land policies in Nigeria, to curb land speculation in urban areas, and to promote agricultural investment through secured land rights (Adeniyi, 2013).

Since independence two major laws have been passed in urban planning and land development in Nigeria (Lamond *et al*., 2015). These include the LUA of 1978, which focuses mainly on land and its management, and the Urban and Regional Planning Decree of 1992, which was revised in 1999. In accordance with the country's federal government system, the Urban and Regional Planning Decree sought to allocate land use planning and development control to the three-tier governmental structure in the country (i.e. Federal, State and Local). The Decree, thus, provided for the establishment of (Lamond *et al*., 2015):

- A National Urban and Regional Planning Commission is known as the 'Commission' to deal with federal matters; and
- A State Urban and Regional Planning Board is known as the 'Board' to deal with all state matters. Each state is also required to set-up an Urban and Regional Planning Tribunal to adjudicate over planning appeals, and a Local Planning Authority is known as 'Authority' as well as area councils.

Essentially, the combined effect of the LUA and the Urban and Regional Planning Decree is to make the federal government responsible for planning at the national level. Similarly, the state and local governments are to be responsible for planning at the state and local levels (Aribigbola, 2007; Ikejiofor, 2009). However, the evidence is emerging that the powers of the state government since the inception of the Land Use Act (LUA) over two decades ago has created series of problems for land management (Smith, 2003). This is affirmed by Lamond *et al*. (2015) that the urban land administration and planning system in Nigeria are confronted with a number of challenges. For instance, Arigbigbola (2007) asserts that planning institutions in Nigeria often do not have the capacity to plan and enforce development regulations due to weak legislation, lack of skilled human and material resources, and political interference. This is corroborated by Egbu *et al*. (2008) that it took over one year and 32 steps for a development right to be granted in Nigeria. World Bank (2014) estimates that the number of procedures for obtaining construction permits reduced from 19 in 2006 to 15 in 2010, almost equalling the average figure for Sub-Saharan Africa (SSA) and that of OECD countries. Lamond *et al*. (2015) aver that the time taken decreased from 302 days to 85 days while the costs of a transaction reduced from US$1,450 to US$505. Despite this improvement, Nigeria is still known for delays and the high cost of processing of construction permits and land transactions (Lamond *et al*., 2015). This is corroborated by World Bank (2014) report that out of 183 countries, Nigeria ranked 84th for processing construction permits and 180th for registering a property.

It is evident that the land administration, management, and urban planning in Nigeria had significant shortcomings. Thus, the land acquisition process becomes a major obstacle for infrastructure development, most especially for PPP infrastructure projects that required large tracts of land in Nigeria. Therefore, the peculiarity of land acquisition problems in PPP projects implementation in developing countries necessitated a study on land acquisition in PPP infrastructure projects particularly in Nigeria, where PPP infrastructure projects are of increase. It against this backdrop that this study assessing the factors predisposing PPP infrastructure projects implementation to land acquisition problem in Nigeria from the perceptions of three different stakeholder organisations directly involved in PPP infrastructure projects.

3. Research methodology

The study adopted a literature review and questionnaire survey culminating in data analysis, which are discussed as follows:

3.1. Review

The literature review was carried out to identify the various factors responsible for land acquisition delay in PPP infrastructure projects implementation in developing countries. These were identified from the significant literature, most especially Thomas *et al.* (2006) that developed land acquisition delay model, when modelling and assessing the critical risks in BOT road projects in India. Thus, the land acquisition delay factors identified by Thomas *et al.* (2006) were adopted in this study. It is because their study provided a good basis for this present study as there are obvious paucity of PPP studies specific to land acquisition in Nigeria. Adopting the study as basis is also justified for similar developing nature of India and Nigeria economies especially with respect to PPP transactions. The outcome of literature review produced 22 factors responsible for land acquisition delay in PPP infrastructure projects in developing countries. These identified factors were used to design the questionnaire survey. This is, therefore, form the basis of inquiry for the data collection and analysis.

3.2. Questionnaire survey

The study adopted questionnaire survey with a view to capturing a broad perception of stakeholders on the factors causing a delay in land acquisition for PPP infrastructure projects implementation in Nigeria. This approach was supported by several earlier researchers. For instance, Blaxter *et al.* (2006) assert that questionnaire survey is one of the most widely used social research techniques. This is affirmed by Cheung (2009) that questionnaire survey is an effective method to seek a large sample size for quantitative data analysis. It against this backdrop that questionnaire survey was widely employed by a number of reputable earlier researchers in PPP studies (see Li, 2003; Li *et al*., 2005a; Zhang, 2005; Ibrahim *et al*., 2006; Roumboutsos and Anagnostopoulos, 2008; Chan *et al*., 2009; Cheung, 2009; Chan *et al*., 2010; Ke *et al*., 2010; Babatunde *et al*., 2012; Cheung *et al*., 2012a; Cheung *et al*., 2012b; Babatunde *et al*., 2015; Babatunde *et al*., 2016) among others. The target population for this study is primary stakeholders comprised public sector authorities (i.e. ministries, department, and agencies), concessionaires, and lenders/banks in Lagos metropolis, Nigeria. According to Babatunde (2015), the rationale for choosing Lagos metropolis as a study area in PPP studies includes (i) accessibility to conduct the survey to obtain required data; (ii) availability of substantive PPP experts; and (iii) appropriateness of the PPP infrastructure projects for the analysis.

Unfortunately, there is no official list stipulating the number of stakeholders that have been involved in PPP projects in Nigeria (Babatunde *et al*., 2015; Babatunde *et al*., 2016). This was supported by Li *et al*. (2005a) that the number of organisations involved in PPP/PFI projects is evolving and growing. It is on this premise that the lists of primary stakeholder organisations who have been involved in the execution of different types of PPP infrastructure projects in Lagos metropolis, Nigeria; which were generated through a rigorous compilation by Babatunde (2015) when developing PPP strategy for infrastructure delivery in Nigeria were adopted in this study. Thus, the stakeholder organisations (i.e. target population) for this study that comprised public sector authorities, concessionaires, and lenders/banks were extracted from the total lists generated by Babatunde (2015) to include 31 public sector authorities, 28 concessionaires, and 22 lenders/banks; thus resulting into 81 primary stakeholder organisations (i.e. target population) for this study. Therefore, a total of 81 questionnaires were distributed face-to-face, and follow-up through telephone contacts and

text messages were carried out to remind the respondents to complete the questionnaires due to their tight schedule. Thus, a total of 63 questionnaires were retrieved but after checking through the completed questionnaires, 60 questionnaires were found suitable for the analysis. The questionnaire designed for the study was structured and multiple-choice type. The questionnaire was divided into two sections. Section 'A' comprised the background information of the respondents, this include the category of respondent organisation, academic qualification, years of industrial/professional experience, and a number of PPP projects undertaken by the respondents. Section 'B' was designed in relating to the purpose of the study. The questions were asked on a five-point Likert scale rating with 5 being the highest of the rating, where 5-very critical, 4-critical, 3-somehow critical, 2-less critical, and 1-not critical. A reliability test using Statistical Package for the Social Sciences (SPSS) was conducted in this study. Thus, Cronbach's alpha test is one of the most popular reliability statistics in use (Cronbach, 1951). This is affirmed by Kothari (2009) that one of the most commonly used and recognised reliability coefficients is Cronbach's alpha. Alpha is based on the internal consistency of a test and interpreted as a correlation coefficient; it ranges in value from 0-1. Therefore, the questionnaire for this study was subjected to Cronbach's alpha test using SPSS. The result indicated the reliability coefficient values of Cronbach's alpha 0.875; thus, this value signifying that the questionnaire including the Likert scale used was significantly reliable and indicates evidence of internal consistency. This was supported by many previous researchers. For example, Nunnaly (1978) claims that Cronbach's alpha value of 0.7 or higher is considered to indicate adequate reliability. George and Mallery (2003) state that Cronbach's alpha value of greater than 0.6 is considered acceptable. Pallant (2007) asserts that the value for Cronbach's alpha should be higher than 0.7 for the scale to be reliable.

The data collected for the study were analysed through the SPSS using both the descriptive and inferential statistics. For instance, the mean score was used for the ranking of 22 identified factors causing land acquisition delay in PPP infrastructure projects implementation in Nigeria. Similarly, the inferential statistics conducted were Kruskal-Wallis test and factor analysis. Kruskal-Wallis test was used to determine whether there is statistically significant difference in the ranking between the three stakeholder groups comprised public sector authorities, concessionaires, and lenders/banks. Factor analysis was conducted to identify a small number of factor categorisations that could be employed to show relationships among a set of numerous inter-related variables (Pallant, 2007, 2010; Hair *et al*., 2010).

4. Results and discussion

4.1. Demographic information of respondents

Figure I indicates the background information of respondents in terms of the category of respondent organisations, academic qualifications, years of industrial experience, and the number of PPP projects undertaken by the respondents. The organisation category of the respondent is public sector authorities representing 33.3 percent, concessionaires representing 41.7 percent, and lender/banks representing 25.0 percent. Similarly, the academic qualifications of respondents reveal that the highest percentage of respondents' academic qualifications are BSc (Bachelor's Degrees) with 43.3 percent, followed by MSc (Master's Degree) with 35.0 percent. While 3.3 percent of the respondents obtained PhD (see Figure I for details). In addition, the respondent's involvement in PPP infrastructure projects indicates that 45 percent of the respondents involved in over 5 PPP infrastructure projects. 20 percent

of respondents involved in 5 PPP infrastructure projects. While 5 percent of respondents involved in 1 PPP infrastructure project (see Figure I). This shows that the respondents have adequate knowledge and experience in PPP infrastructure projects in Nigeria. Thus, the information supplied by these respondents is adjudged to be reliable.

>>>>>>>>>>> Insert Figure I>>>>>>>>>>>>>>

4.2. Ranking of the factors causing delay in land acquisition for PPP projects

Table I reveals the analysis of the survey response data that produced the total mean score values for the 22 identified factors causing a delay in land acquisition for PPP infrastructure projects ranging from 3.50 to 4.38 (see Table I). This indicated that all the respondents considered these 22 factors important causing land acquisition delay in PPP infrastructure projects in Nigeria. In addition, based on the 5-point Likert rating scale, an attribute was deemed critical if it had a mean value of 3.50 or more (Badu *et al*., 2012). Also, given two or more identified factors (see Table I) with the same mean value, the one with the lowest standard deviation (SD) was assigned highest importance ranking (Field, 2005). It can be deduced further from Table I that 7 factors scored total mean values greater than 4.00; thus, the overall top seven ranked factors that displayed total mean score values greater than 4.00 are: delay due to litigation/agitation; legal disputes; ownership disputes; large area/long stretches of land to be acquired; compensation disputes; inadequate government support in taking physical possession; and project induced increase in land cost, respectively.

These study findings confirmed the existing literature. For instance, Estache *et al.* (2007) find that land acquisition can be a protracted process with the potential for extensive legal delays, particularly in developing countries. United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) (2008) reports that large tract of land is required for many PPP infrastructure projects, particularly in the transport, energy and power sectors. In such cases, resettlement and rehabilitation of the affected people and compensation for the acquired land may become major issues among others. On the other hand, the three factors that were ranked least are politically motivated resistance, poor interdepartmental co-ordination, and missed out land with the total mean score values of 3.50, 3.62, and 3.64, respectively (see Table I). Although the aforementioned three factors were ranked least, but considering their mean score values greater than 3.50, it indicates that they are very crucial factors causing a delay in land acquisition for PPP infrastructure projects in Nigeria. This was supported by Badu *et al*. (2012) that an attribute was deemed critical if it had a mean score value of 3.5 or more.

In order to test if there is any significant difference in the perception of the three stakeholder groups comprised public sector authorities, concessionaires, and lenders/banks in the ranking of 22 identified factors, Kruskal-Wallis test was undertaken at a significance level of 5 percent. The cut-off value of 5 percent (0.05) for significance level of Kruskal-Wallis test has been widely supported by the previous researchers and their studies have been published in reputable journals (see Thomas *et al*., 2003; Roumboutsos and Anagnostopoulos, 2008; Yong and Mustaffa, 2013; Babatunde *et al*., 2015) among others. As it can be seen from Table I, the results of Kruskal-Wallis test indicated that except for 2 (out of 22) identified factors; there is no statistically significant difference on the perceptions of stakeholders. This implies that there is high degree of agreement among the three stakeholders on the ranking and it shows that the stakeholders have a common understanding on the factors causing a delay in land acquisition for PPP infrastructure projects in Nigeria.

>>>>>>>>>>> **Insert Table I**>>>>>>>>>>>>>>

4.3. Factor analysis of the factors causing delay of land acquisition for PPP projects

In an attempt to achieve more interpretable results and determine the underlying relationships/or grouping that might exist among the identified 22 factors causing a delay in land acquisition for PPP infrastructure projects, factor analysis was conducted. This was supported by notable earlier researchers in PPP studies and construction management research. For instance, Li *et al.* (2005b) carry out factor analysis when exploring critical success factors (CSFs) for PPP/PFI projects in the UK. Zhang (2005) conduct factor analysis when studying CSFs for PPPs in infrastructure development. Chan *et al.* (2004) employ factor analysis when exploring CSFs for partnering on construction projects. Yang *et al.* (2009) undertake factor analysis when studying CSFs for stakeholders' management in construction projects. Awodele (2012) conducts factor analysis when developing a framework for managing risk in privately financed market projects in Nigeria. Famakin *et al.* (2012) employ factor analysis when assessing success factors for joint venture construction projects in Nigeria. Babatunde *et al.* (2015) conduct factor analysis when assessing the barriers to PPP projects in developing countries. Babatunde *et al.* (2016b) conduct factor analysis when investigating the stakeholder perceptions on CSFs for PPP projects in Nigeria. Therefore, the choice of factor analysis technique was informed by these depths of usage by other researchers in construction management research, particularly in PPP studies, and its usefulness as a common technique used to determine the underlying relationships among variables.

Thus, as a first step in conducting factor analysis, the suitability of the survey data collected was examined using Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of specificity, as shown in Table II.

>>>>>>>>>>> **Insert Table II**>>>>>>>>>>>>>>

Table II shows the KMO value of the sampling adequacy to be 0.862; this KMO value exceeded the 0.6 value that Kaiser (1974) suggests as satisfactory for accurate completion of factor analysis. Similarly, the value of the test statistic for Sphericity is substantial. Further, Bartlett's test of Sphericity indicates the significance value of 0.000 (see Table II). This implies that the correlation is strong enough to be accurate and suitable for conducting factor analysis. This was supported by the assertion of Bartlett (1954) that the significance should be less than a value of 0.05 i.e. Bartlett's test of Sphericity should be significant ($p < 0.05$) for the factor analysis to be considered appropriate (see Norusis, 1992; Pallant, 2007, 2010; Hair *et al.*, 2010). Thus, the data obtained for this study were confirmed satisfactory and appropriate for use in factor analysis. Moreover, Hair *et al.* (2010) state that the sample size should be greater than 50. Therefore, with the survey respondents of 60, this study is suitable for factor analysis.

In addition, Field (2005) asserts that the communalities of all the component greater than 0.50 are appropriate for the further steps of factor analysis. As depicted in Table III, all the identified 22 factors in this study achieved the communalities greater than 0.50 (see Table III for details).

>>>>>>>>>>> **Insert Table III**>>>>>>>>>>>>>>

Thus, as the requirements of KMO test, Bartlett's test of specificity, sample size, and communalities are all acceptable. This justified that the factor analysis is appropriate for this study.

Having confirmed that the data were suitable for factor analysis; the next step according to Pallant (2010) is factor extraction. This study, therefore, used Principal Component Analysis (PCA) approach in conjunction with Kaiser's criterion or eigenvalue, and the scree plot decision criteria when deciding on the number of factors to be retained. This was supported by K'Akumu *et al*. (2013) that eigenvalues are useful in factor analysis as a "deciding criteria as to what are the most important factors to be considered in the analysis". For instance, the default position in making a decision about the number of factors to be considered in factor analysis is the "eigenvalue greater than 1.0 rule" (Thompson, 2004; Leech *et al*., 2005; Pallant, 2010; K'Akumu *et al.,* 2013). It is on this premise that this study strictly followed the rule under Kaiser's criterion or Eigenvalues, that only factors with an eigenvalue greater than 1.0 were retained for further investigation, as shown in Table IV. In the scree plot, the plots as generated by the SPSS software was inspected to find a point at which the shape of the curve changes direction and becomes horizontal (see Figure II).

Table IV shows the result of the PCA conducted on 22 identified factors causing a delay in land acquisition for PPP infrastructure projects. As indicated in Table IV, the first four components had eigenvalues greater than 1. Thus, these four components were retained for further investigation. Table IV contains the four factors with their eigenvalues, the percentage of the variance, and the cumulative percentage of the variance in each factor. It can be seen from Table IV that the eigenvalues for the four factors retained were ranging from 1.337 to 10.163; the total variance explained by the 1st factor is 21.860 percent, the 2nd factor is 17.771 percent, the 3rd factor is 16.298 percent, and 4th factor is14.162; the cumulative percentage of variance explained by extracted four factors accounted for 70.090 percent.

>>>>>>>>>>> Insert Table IV>>>>>>>>>>>>>

Figure II indicates the scree plot of 22 identified factors causing a delay in land acquisition for PPP projects. As the point where the curve in Figure II appears to go parallel to the component axis, the curve suggests that four factors should be extracted. Thus, the scree plot confirms the four extracted factor groups as appropriate in this study.

>>>>>>>>>>> Insert Figure II>>>>>>>>>>>>>

Table V shows the principal factor extraction with a varimax rotation, which was conducted on 22 identified causes of delay in land acquisition for PPP projects. The rotation matrix converged in 6 iterations. Further, it can be seen from Table V that the factor loadings for the four extracted principal factors ranging from 0.480 to 0.884, this implies that there is no need to eliminate any variable from the analysis (see Table V for details). This was supported by earlier researchers. For instance, Kline (2002) states that variables with a factor loading of 0.30 or higher can be considered significant. This is corroborated by Leech *et al.* (2005) that factor loadings of less than 0.3 are considered low. This is affirmed by Brown (2009) that

variables that loading near 1 is clearly important in the interpretation of the factor, and variables that loading near 0 is clearly unimportant. Thus, the four underlying grouped factors extracted are appropriately labelled in the colour text, and their factor loadings are greater than 0.3, signifying a high absolute value for each. It further indicates that the factor grouping is positively related (see Hair *et al*., 2010).

>>>>>>>>>>> Insert Table V>>>>>>>>>>>>>>

In addition, the variables with higher loadings on a factor play a more significant role in naming the factor. Thus, the four principal factors extracted are interpreted as follows:

- Factor 1: resettlement issues with political interference;
- Factor 2: non-availability of land with higher cost of land transactions;
- Factor 3: weak planning institutions; and
- Factor 4: rehabilitation issues with extensive legal delays.

Factor 1: resettlement issues with political interference

This factor accounts for 21.86 percent (see Table IV) of the total variance of causes of delay in land acquisition for PPP projects. The six components of resettlement issues with political interference as a factor include: resettlement site not acceptable/available, political patronage to encroachers, legal/social objections for evacuation (long-term settlement), and inadequate government support in taking physical possession. These four components have a high factor loading (Table V: 0.859, 0.830, 0.828, and 0.764, respectively). The other two-factor loading components are: missed out land, and compensation disputes (Table V: 0.509 and 0.480 respectively). It is evident that resettlement of the affected people and compensation for the acquired land are one of the serious issues causing a delay in land acquisition for PPP infrastructure projects in Nigeria. Thus, in the absence of acceptable policies and measures, PPP projects implementation may become difficult due to resistance from the affected people and other interested groups.

Factor 2: non-availability of land with higher cost of land transactions

This factor accounts for 17.77 percent (see Table IV) of the total variance of causes of delay in land acquisition for PPP projects. The five components include: delay due to non-availability of land in time for construction after formal acquisition, large area/long stretches of land to be acquired, public induced additional approaches/change in alignment, an increase in the cost of resettlement site, and a project induced increase in land cost. These five components have a high factor loading (Table V: 0.795, 0.777, 0.699, 0.661, and 0.572, respectively). It is clear that large tract of land is required for many PPP infrastructure projects, particularly in the transport sector. Unfortunately, most of PPP projects are undertaking in major cities, where land values have risen rapidly, due to the economic development of the area. Hence, leading to costly delays as landowners held out for higher prices. This significantly has deep financial implications and affected the concessionaire's cost. Thus, this study recommends that land is procured before the tender process commences.

Factor 3: weak planning institutions

This factor is amounted to16.30 percent (see Table IV) of the total variance of causes of delay in land acquisition for PPP projects. The five components are: increase in stamp duty/registration fees, poor interdepartmental coordination, faulty survey/data records, unexpected economic development of the area, and negligence of land acquisition staff.

These five components have a high factor loading (Table V: 0.884, 0.748, 0.742, 0.712, and 0.623, respectively). It is evident that the planning institutions in Nigeria had significant shortcomings. These study findings confirmed the assertion of Arigbigbola (2007) that planning institutions in Nigeria often do not have the capacity to plan and enforce development regulations due to lack of skilled human and material resources. This study, therefore, advocates that PPP project sponsors should ensure that the governments bear the risk of providing all necessary land within a given time frame or being liable for damages.

Factor 4: rehabilitation issues with extensive legal delays

This factor accounts for 14.16 percent (see Table IV) of the total variance of causes of delay in land acquisition for PPP projects. The six components include: rehabilitation issues, religious issues/disputes, and delay due to litigation/agitation. These three components have a high factor loading (Table V: 0.814, 0.685, and 0.615, respectively). The other three-factor loading components are: legal disputes, ownership disputes, and politically motivated resistance (Table V: 0.526, 0.515 and 0.489, respectively). These findings indicate that whenever people are displaced, the human costs in terms of disruption to community cohesion, livelihood patterns and way of life, go beyond what can be fully mitigated through compensation packages. Hence, resulted in various disputes that led to prolonged/extensive legal delays in Nigeria. It is on this note that this study sought the governments in Nigeria and other developing countries to formulate clear policies framework, and satisfactory approaches to ameliorate the land acquisition problems in PPP infrastructure projects implementation.

5. Conclusion

The land acquisition process for PPP projects has been identified as a complicated issue and the most challenging at the pre-development phase of PPP projects in developing countries. It is against this backdrop that this study identified and critically assessed the factors causing a delay in land acquisition for PPP infrastructure projects in Nigeria. The study revealed the mean score ranking of 22 identified factors causing a delay in land acquisition for PPP projects in Nigeria, and the mean score values for all the identified 22 factors are very high. This implies that the entire 22 identified factors are serious factors causing a delay in land acquisition for PPP projects in Nigeria. These study findings confirmed the existing literature that recognised these factors as attributes which negatively affect the smooth land acquisition process for PPP projects in developing countries.

The total ranking of these 22 identified factors among the three different stakeholder organisations comprised public sector authorities, concessionaires, and lenders/banks indicated that: delay due to litigation/agitation; legal disputes; ownership disputes; large area/long stretches of land to be acquired; compensation disputes; inadequate government support in taking physical possession; and project induced increase in land cost, respectively were top seven ranked factors causing a delay in land acquisition for PPP projects in Nigeria. Further, the results of Kruskal-Wallis test indicated that except for 2 (out of 22) identified factors; there is no statistically significant difference in the perceptions of stakeholders on the factors causing a delay in land acquisition for PPP projects in Nigeria. This few difference in the perception of the stakeholders is not surprising considering variations in the conditions of respective PPP projects in Nigeria. Similarly, the factor analysis grouped the 22 identified factors into 4 principal factors namely, resettlement issues with political interference; non-availability of land with a higher cost of land transactions; weak planning institutions; and rehabilitation issues with extensive legal delays.

Based on the findings of this study, the following recommendations are proposed:

- The governments and policymakers in Nigeria and other developing countries should enact a new PPP regulation, which facilitates the land is procured before the tender process in PPP projects commences.
- The PPP project sponsors should ensure that the governments bear the risk of providing all necessary land within a given time frame or being liable for damages.
- Governments should ensure that before resettlement, satisfactory approaches are in place and effectively implemented to ensure that communities and people are placed in at least equivalent positions to those before the land acquisition.
- Capacity building, particularly on land acquisition process that peculiar to PPP projects should be enhanced for public sector employees in planning institutions in Nigeria through international training, workshops, and conferences.

It is believed that these study findings will enable the governments in Nigeria and other developing countries formulating clear policies framework, and satisfactory approaches to ameliorate the land acquisition problems in PPP infrastructure projects implementation. Thus, enhancing the success rate of PPP infrastructure projects in developing countries as a whole.

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List of Tables

Table I: Factors responsible for delay in land acquisition for PPP projects in Nigeria

Factors	Public sector authorities			Concessionaires			Lenders/Banks			Total Mean	Total Rank	Kruskal-Wallis Sig.
	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank			
LA 01 Delay due to litigation	4.37	1.07	2	4.31	0.95	1	4.47	0.27	3	4.38	1	0.068
LA 02 Rehabilitation issues	3.66	0.86	16	3.96	1.17	5	3.91	0.53	16	3.84	14	0.146
LA 03 Legal disputes	4.37	0.90	1	3.96	0.86	4	4.56	0.38	2	4.30	2	0.180
LA 04 Religious issues/disputes	3.52	1.17	17	3.85	0.97	9	3.63	0.75	21	3.67	18	0.616
LA 05 Ownership disputes	4.10	1.12	4	3.88	0.92	7	4.57	0.38	1	4.18	3	0.350
LA 06 Compensation disputes	4.08	0.95	5	3.89	0.96	6	4.15	0.57	10	4.04	5	0.076
LA 07 Politically motivated resistance	3.68	1.02	14	3.25	1.15	22	3.58	0.50	22	3.50	22	0.004*
LA 08 Delay due to non-availability of land in time for construction after formal acquisition	4.06	1.16	6	3.56	1.02	21	4.16	0.51	8	3.93	8	0.110
LA 09 Public induced additional approaches/change in alignment	3.80	1.05	11	3.68	1.15	16	3.96	0.68	15	3.81	15	0.155
LA 10 Missed out land	3.47	1.17	18	3.57	0.93	20	3.87	0.87	18	3.64	20	0.060
LA 11 Project induced increase in land cost	3.74	1.15	13	4.13	0.86	2	4.15	0.56	9	4.01	7	0.074
LA 12 Increase in cost of resettlement site	3.85	1.17	10	3.67	1.07	17	4.17	0.59	7	3.90	12	0.024*
LA 13 Large area/long stretches of land to be acquired	4.13	1.19	3	3.86	1.03	8	4.25	0.53	6	4.08	4	0.058
LA 14 Unexpected economic development of the area	4.04	0.95	7	3.65	0.94	18	4.05	0.58	11	3.91	10	0.079
LA 15 Increase in stamp duty/registration fees	3.46	1.06	19	3.84	1.17	10	3.78	0.80	20	3.69	17	0.053
LA 16 Poor interdepartmental co-ordination	3.34	1.08	22	3.65	1.13	19	3.88	0.86	17	3.62	21	0.065
LA 17 Faulty survey/data records	3.37	1.04	21	3.76	0.91	14	3.97	0.89	14	3.70	16	0.078
LA 18 Negligence of land acquisition staff	3.38	1.12	20	3.72	1.06	15	3.86	0.88	19	3.65	19	0.064
LA 19 Inadequate government support in taking physical possession	3.75	1.05	12	4.03	1.08	3	4.27	0.68	5	4.02	6	0.114
LA 20 Political patronage to encroachers	3.86	1.18	9	3.81	1.01	12	4.01	0.57	13	3.89	13	0.071
LA 21 Legal/social objections for evacuation (long-term settlement)	3.88	1.12	8	3.80	1.03	13	4.05	0.58	11	3.91	10	0.074
LA 22 Resettlement site not acceptable/available	3.67	1.17	15	3.82	1.08	11	4.27	0.50	4	3.92	9	0.088

Note: SD-Standard deviation; *Significant at 5 percent

Table II. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.862
Bartlett's Test of Sphericity	Approx. Chi-Square	918.315
	df	231
	Sig.	0.000

Table III. Communalities

Identified causes of delay in land acquisition for PPP projects	Initial	Extraction
Delay due to litigation	1.000	.743
Rehabilitation issues	1.000	.716
Legal disputes	1.000	.694
Religious issues/disputes	1.000	.709
Ownership disputes	1.000	.659
Compensation disputes	1.000	.649
Politically motivated resistance	1.000	.614
Delay due to non-availability of land in time for construction after formal acquisition	1.000	.692
Public induced additional approaches/change in alignment	1.000	.569
Missed out land	1.000	.580
Project induced increase in land cost	1.000	.617
Increase in cost of resettlement site	1.000	.625
Large area/long stretches of land to be acquired	1.000	.736
Unexpected economic development of the area	1.000	.682
Increase in stamp duty/registration fees	1.000	.798
Poor interdepartmental co-ordination	1.000	.690
Faulty survey/data records	1.000	.702
Negligence of land acquisition staff	1.000	.800
Inadequate government support in taking physical possession	1.000	.715
Political patronage to encroachers	1.000	.800
Legal/social objections for evacuation (long-term settlement)	1.000	.808
Resettlement site not acceptable/available	1.000	.822

Extraction Method: Principal Component Analysis

Table IV. Total variance explained for causes of delay in land acquisition for PPP projects

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.163	46.197	46.197	10.163	46.197	46.197	4.809	21.860	21.860
2	2.133	9.695	55.892	2.133	9.695	55.892	3.910	17.771	39.631
3	1.787	8.121	64.013	1.787	8.121	64.013	3.586	16.298	55.928
4	1.337	6.077	70.090	1.337	6.077	70.090	3.116	14.162	70.090
5	.818	3.717	73.807						
6	.751	3.413	77.220						
7	.662	3.009	80.229						
8	.580	2.636	82.865						
9	.535	2.433	85.299						
10	.497	2.258	87.556						
11	.438	1.993	89.549						
12	.378	1.719	91.267						
13	.358	1.629	92.897						
14	.329	1.497	94.394						
15	.269	1.223	95.617						
16	.213	.967	96.584						
17	.183	.834	97.418						
18	.158	.717	98.135						
19	.145	.660	98.796						
20	.114	.517	99.313						
21	.078	.353	99.666						
22	.073	.334	100.000						

Extraction Method: Principal Component Analysis

Table V. Rotated component matrix[a]

Factor	Component			
	1	2	3	4
Resettlement site not acceptable/available	.859	.192	.192	.104
Political patronage to encroachers	.830	.217	.153	.201
Legal/social objections for evacuation (long-term settlement)	.828	.276	.080	.197
Inadequate government support in taking physical possession	.764	.233	.279	-.007
Missed out land	.509	.284	.293	.393
Compensation disputes	.480	.425	.173	.456
Delay due to non-availability of land in time for construction after formal acquisition	.239	.795	.037	.024
Large area/long stretches of land to be acquired	.034	.777	.306	.196
Public induced additional approaches/change in alignment	.193	.699	.195	.073
Increase in cost of resettlement site	.218	.661	.293	.234
Project induced increase in land cost	.396	.572	.192	.311
Increase in stamp duty/registration fees	.018	.119	.884	.050
Poor interdepartmental co-ordination	.138	.250	.748	.221
Faulty survey/data records	.308	.229	.742	.062
Unexpected economic development of the area	.297	.187	.712	.229
Negligence of land acquisition staff	.586	-.039	.623	.260
Rehabilitation issues	.148	.020	.174	.814
Religious issues/disputes	-.105	.272	.393	.685
Delay due to litigation	.544	.161	.207	.615
Legal disputes	.407	.487	-.120	.526
Ownership disputes	.422	.461	-.053	.515
Politically motivated resistance	.326	.479	.199	.489

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization

a. Rotation converged in 6 iterations

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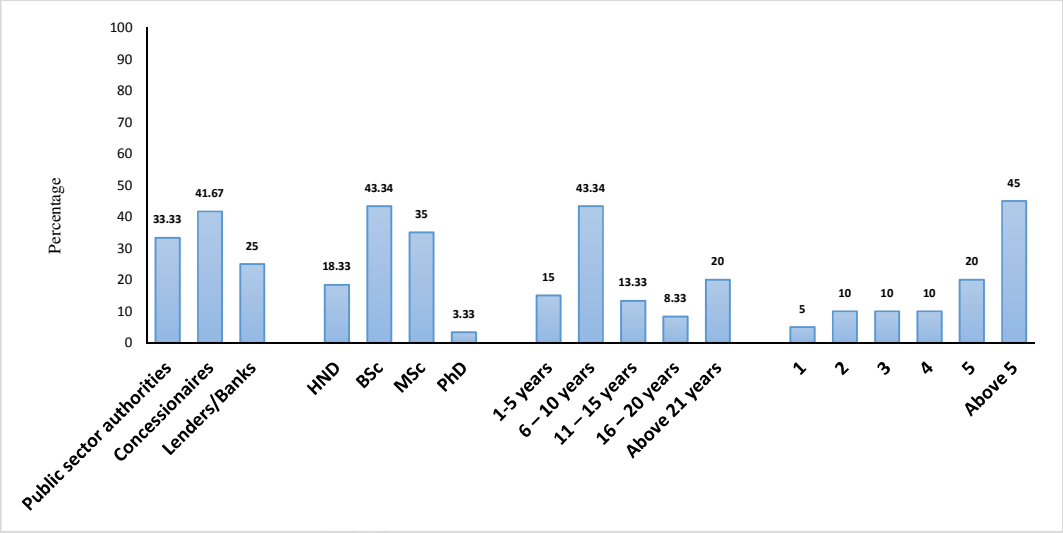

Figure I. Demographic information of the respondents

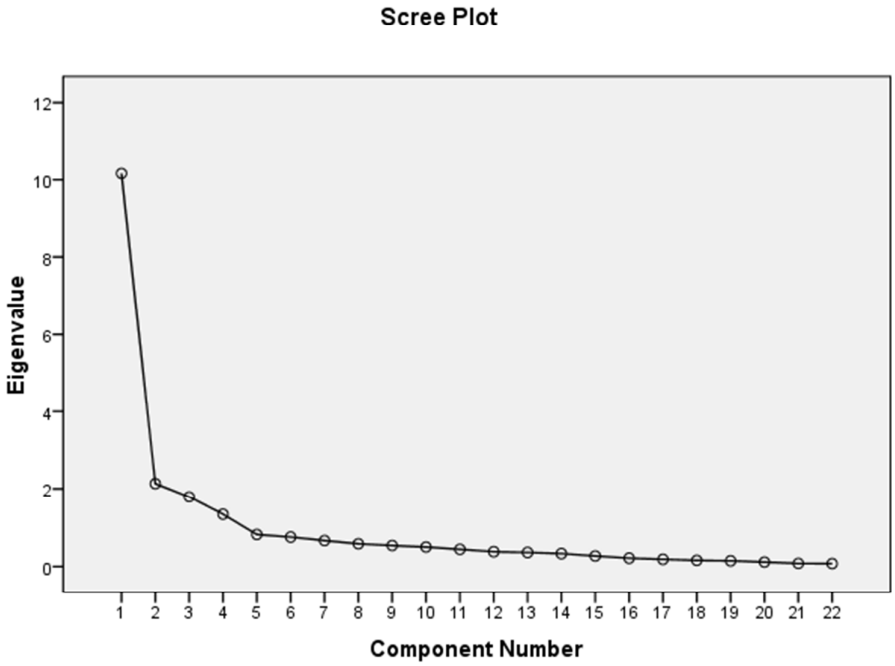

Figure II. The scree plot showing extracted factors on 22 identified causes of delay in land acquisition for PPP projects