

An analysis of the delivery challenges influencing public private partnership in housing projects: the case of Tazania

Kavishe, Neema; Jefferson, Ian; Nicholas, Chileshe,

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An analysis of the delivery challenges influencing public private partnership in housing projects: The case of Tanzania.

Abstract

Purpose – The purpose of this study is twofold; firstly, to identify and rank the challenges influencing the delivery of the Housing Public Private Partnership (HPPP) in Tanzania. Secondly, to suggest solutions in the form of a conceptual PPP framework model that will address the identified challenges and boost the chances of success.

Design/Methodology/Approach – Using a convergent parallel (concurrent) mixed method approach, data was collected from 28 stakeholders involved with HPPP projects in Tanzania using a hand-delivered and email survey and 13 semi-structured interviews with public and private sector respondents. The quantitative data included subjecting the 19 challenges as identified from the literature to parametric tests such as one-sample t-tests and descriptive statistics tests such as measures of central tendencies and frequency analysis through *Statistical Package for Social Sciences* (SPSS 22.0). Qualitative data employed content analysis. The research was further underpinned by a number of theoretical perspectives such as Giddens's structuration theory, contingency theory, relational and equity theory.

Findings – The top five ranked challenges influencing the delivery of HPPP were "inadequate PPP skills and knowledge"; "poor contracting and tendering documents"; "inadequate project management"; "inadequate legal framework"; and "misinformation on financial capacity of private partners". The least six ranked and most significant challenges based on the one-sample (single) t-tests were as follows: "Poor risk allocation"; "inexperienced private partner"; "unequal qualification and contributions of expertise"; "poor enabling environment to attract competent partners"; "inadequate mechanisms for recovery of private investors' capital", and "high costs in procuring PPP projects". The qualitative study further confirmed the challenges and cited the reason for the failure of joint venture projects as lack of motivation for undertaking similar PPP projects. Despite the increased awareness of PPP projects and associated marginal benefits, the main impediment to the uptake and delivery of PPP housing projects remained the lack of skills and expertise.

Research Limitations/Implications – The proposed framework model is not yet tested but since this paper is part of the ongoing research, the next stage involves the testing and validation of the model. Future studies could test the applicability of the proposed framework in other HPPP projects in Tanzania, and in other similar developing countries. Secondly, the validated framework can contribute towards addressing similar challenges as well as providing guidance. The proposed framework model is not yet tested but since this paper is part of the ongoing research, the next stage involves the testing and validation of the model. Furthermore, recommendations for future research are: to test the alignment of the identified challenges to the proposed remedial solutions across the five phases within the proposed PPP framework with a number of case studies.

Practical/Implications – The identified challenges were used to form the basis of the framework presented in this paper. Furthermore, these provide useful information thus leading to increased awareness to enable successful delivery of HPPP in Tanzania. Similarly, both the government and policy makers could use the findings as the basis for re-examining the existing PPP policy and regulations; and reflecting on the existing situation with a view to improving the delivery of future HPPP projects.

Originality/value – The empirical study is among the first that identifies and ranks the challenges of PPP for housing projects delivery within the Tanzanian context. The identification of the challenges enabled their ranking resulting in the mapping out of the most critical challenges. Furthermore, using the Giddens's structuration theory, the study illustrates how institution mechanisms (structures) addresses these delivery challenges thus influencing the implementation of HPPP in Tanzania, and how individual stakeholders (human agents or agency) are able to make choices (advocated solutions) in dealing with the challenges. More so, these constraints (challenges) as identified, and viewed through the contingency and equity theoretical lenses form the foundation for developing the PPP conceptual framework. The proposed framework would thus serve as a mechanism for providing practical solutions as well as reducing the level of severity of the identified challenges.

Keywords: Challenges, developing countries, framework, housing, public private partnership, PPP, Tanzania

Paper type: Research paper

1. Introduction

Many African countries such as Tanzania continue to lack suitable policies for housing development and this has largely contributed to the growth of informal and poor housing conditions. Since Independence in 1961, Tanzania like many African countries for example has experienced a large increase in population from 12.3 million in 1967 to almost 45 million today. Coupled to this is a raise in the urban population from 5.7% in 1967 to 29.1% in 2012. The overall trend in population growth averaged nearly 3% annually while urbanization grew by 5% annually (Smith, 2015). The result is that the available social facilities and services have been significantly strained. This is an African wide problem with most of the cities in Africa finding themselves needing to accommodate an extra 40,000 to 50,000 people every day because of this rapid population growth (UN-HABITAT, 2011).

Such rapid growth in population and urbanization has contributed towards inadequate housing for a number of decades. Across Africa there is a severe housing deficiency, for example in Tanzania, this is currently projected at three million houses while the rate is growing at a rate of 200,000 houses per annum (NHC, 2010). The situation has been worsening in urban regions of Tanzania, where the data shows that urban population has grown from 14.8% in 1980 to 37.5% in 2005 and rise further to 46.8% expected by 2015 (NHC, 2010). Coupled to which is the supply of housing in countries such as Tanzania has failed to keep up with investment in both the public and private sector services falling rapidly behind (World Bank, 2002). Because of this widening gap, the Tanzanian government has had to seek alternative ways to address this issue such as the Public Private Partnership (PPP) strategy to relieve the existing situation (Kidata 2013; NHC 2010). The adoption of these PPPs has more recently been considered the next best alternative to delivering public services such as housing (Sengupta, 2006; Moskalyk (2011). However, despite the adoption of PPP in house delivery, the prevailing problems remain unresolved. For instance, more high cost houses have been built but attracting the required private partners has remained problematic in developing countries (Sharma, 2012). Furthermore, according to Ngowi (2006), PPP application in countries such as Tanzania is a new phenomenon, and still in its infancy.

In spite of numerous studies on PPP, the majority of have identified the challenges hindering the growth and success of PPP across various sectors. In both developing and developed countries, empirical studies on the challenges affecting the delivery of housing PPP projects, as well as development of conceptual frameworks are very limited. Furthermore, according to Tang *et al.*, (2010), the majority of these empirical studies on PPP in construction have largely centred on three themes: (1) Risks; (2)

Relationships; and (3) Financing. However, some of the Tanzanian specific studies for example, have investigated institutional arrangements and constraints within the solid waste management (Nkya, 2004); and PPP challenges in Tanzanian municipalities (Ngowi, 2006), providing some insights to African centric issues. The Mboya (2013) study, although it covered implementation roles and legal issues as well as PPP framework road map, it was more on a country level and based on non-empirical data. The only exception in identifying the challenges to delivery of housing PPP projects is the Kavishe and Min (2016) study. However, this study did not offer detailed solutions or a conceptual framework. The above suggests that in spite of these rather limited Tanzanian PPP studies, they are mostly policy related and not based on empirical data (i.e. Mboya, 2013; URT, 2009), non-construction and housing studies with emphasis on local authorities (Ngowi, 2006) and solid waste management (Nkya, 2004). This highlights the need for construction and housing specific empirical studies on a number of areas affecting PPPs. More recently, Akintoye and Kumaraswamy (2016) renewed the calls for more research on PPP. The need for Tanzanian context specific PPP studies are nested the different prevailing regulatory and framework conditions. As observed by Tang *et al.* (2010), and more recently, the World Bank report (2016), the implementation issues (including challenges) and emergent benefits should take stock of the internal and external conditions in the host country by PPP partners. It is also acknowledged that the implementations of PPPs in Tanzania are still in infancy stage and a new phenomenon. Furthermore, in contrast to other African countries such as Nigeria and South Africa, Tanzania continues to lag behind neighbouring countries in terms of improving its business environment. (World Bank 2016; pg. 30).

Similarly, some selected recent studies in developing countries have been both housing and non-housing specific. For example, Hashim and Low (2016) investigated the delivery of facilities management (FM) in Malaysia. In Nigeria, Babatunde *et al.*, (2012) focused on the critical success factors in PPP in infrastructure delivery. In Ghana, Kwofie *et al.*, (2016) studied a Critical Success Model for HPPP delivery. Within the developed countries context, recent studies such as Akintoye and Kumaraswamy (2016) have highlighted equally a number of significant challenges for PPP and directions for future research. It is therefore evident that, despite the proliferation of PPP related studies, there are limited empirical studies undertaken within the many African countries and their housing projects. The identified challenges call for the need to address them and have thus provided a basis and drive for developing a HPPP framework model. Therefore, there is a need to explore the specific challenges affecting the delivery of PPP in housing projects within the African context. In order to respond to the research agenda and knowledge gaps identified by Akintoye and Kumaraswamy (2016), the main objective of this study is to identify the challenges affecting the delivery of the Housing

Public Private Partnership (HPPP) using Tanzania as its focus, to provide a conceptualising Housing Public Private Partnership (HPPP) framework model that will guide HPPP affordable housing projects in Tanzania. This will ultimately provide a framework for other developing countries, particularly those in Africa, who have similar socio-economic and political characteristics.

1.1 Conceptualisation and theoretical basis: Giddens's structuration theory

In formulating the above objectives, the underlying theoretical basis is premised on the following two issues of 'Agency' and 'Structure' as postulated by Giddens (1984) structuration theory. According to Giddens (1984 cited in Chileshe *et al.* 2013, pg. 164), structure refers to the rules for acting, thinking, and feeling that are general throughout a society or an organisation, and the available materials and non-material resources that are needed for action to take place. HPPP projects in Tanzania are structured as joint ventures. Drawing upon the definition as provided, within the context of this study, the 'structure' refers to the rules that permeates through the Tanzanian private and public organisations with the responsibility for the delivery of HPPP, and the consideration of the resources that these organisations might have or not have (hence the need for PPP) that would be required for 'action' or implementation of PPP to take place. Therefore, within the context of our present study, these 'structures' refers to the 'PPP policy, guidelines, legal framework and procurement regulations' which act as a set of rules, with power to manage and informing over the actions of the members of a society or organisation (i.e. PPP Coordinating Units, Tanzanian public and private organisations/ stakeholders). In contrast, Baker (2005 cited in Chileshe *et al.* 2013, Pg. 164) defines the 'Human agency' as the capacity for human beings to make choices and take action to implement these choices (i.e. whether to undertake PPP training or not). Therefore considering the poor PPP performance and its underlying challenges in Tanzania (World Bank Report, 2016), it is important to pay attention on both the human agency and PPP structures as they are inseparable and their interactions are significant (Giddens, 1984). Studies such as Agyenim-Boateng *et al.* (2017) have applied Giddens structuration theory in examining the accounting and governance of public private partnerships (PPPs).

2. Literature Review

2.1 Various forms of PPP procurement arrangements

According to Li *et al.* (2005) eight types of PPPs have been acknowledged by the UK Government including: (1) Joint ventures (2) Policy partnerships (3) partnership investment (4) private Finance Initiative (5) Sales of business (6) Wider Market (7) Asset sales and (8) Partnership companies. However in Tanzania Joint ventures have been the dominant type/form of PPP in their housing

projects. Likewise in both developing and developed countries such as Nigeria, Yemen, Philippines, India, Ghana, Netherlands, UK and Ireland have also adopted the joint ventures in delivering housing projects (Ibem, 2011a; Al Shareem *et al.*, 2014; Sengupta, 2006).

Seminal studies such as Stevenson *et al.* (1994) have defined Joint Ventures as an association of two or more persons who contractually agreed to contribute to a specific venture, which is usually limited to a specific task or period of time. Undertaking this type of procurement arrangement by the Tanzanian stakeholders further highlights the need of identifying the challenges associated with the implementation of PPP based on the equity theory in order to model the appropriate solutions to these challenges. For example, Adams (1965 cited in Zhang and Jia, 2010) and Scheer *et al.* (2003) defines equity theory as where a partner will assess its own inputs and a return against the other partner's input and return in an existing relationship. For detailed discourse on the various PPP meanings, forms and models within the Western literature please see Mouraviev and Kakabadse (2012).

2.2 *PPP housing in Tanzania*

Housing PPP (HPPP) is still at its early stages in Tanzania primarily because of a lack of direct experience and inadequate new investment in housing projects. To date, two public organizations, the National Housing Corporation (NHC) and the National Social Security Fund (NSSF) have used the PPP method for housing provision. Since the 1990s, NHC used the PPP approach in building development but most of these partnership projects were not very successful. This was primarily due to the lack of an adequate PPP legal framework to guide the implementation of such projects, which delayed its progression (URT 2009). Despite recent developments undertaken by the Tanzanian government in enhancing the Regulatory Frameworks via PPP Regulations in 2011, and the Public Procurement Act 2011, there still remain a number of challenges such as the relative infancy of rather complex PPP and lack of experience across the stakeholder chain (Mboya, 2013).

The NHC is the oldest and largest real estate developer in the country, owning many buildings in various conditions. The redevelopment or rehabilitation of such buildings required substantial funds, which NHC itself could not afford. Therefore, the Corporation had to consider PPP strategy. The NSSF is a public organization, which provides social security/pension funds to Tanzanians. However, it recently started to undertake HPPP projects in 2013.

2.2.1 *Financing of PPP housing projects in Tanzania*

In a recent review related study undertaken by Chileshe (2016), inadequate funding and revenue problems were among the challenges identified as inhibiting the managing of infrastructure in Africa.

While PPPs were among the advocated solutions to these problems, in Tanzania, like in many other developing countries real estate development financing is usually problematic since there are no mortgage banks to facilitate effective financing. A few banks such as Azania Bank and Commercial Bank of Africa (CBA) started offering housing loans but mainly to small scale developers. Such funds are not adequate to enable the NHC execute its large projects. Moreover, the interest rates charged by these banks are high, ranging between 20% -25% and loan repayment terms are generally short and the near absence of mortgage financing also limited the property developers or investors who depend on equity financing. NHC was therefore, forced to depend mainly on equity to finance its projects. Equity funds are normally derived from the existing projects, particularly houses for sale and rental revenue. However, the latter source of funds is inadequate since tenants frequently do not pay rent in time. Equally, house buyers were having trouble to agreed schedules of payments.

According to Kavishe (2010) and Kavishe and An (2016), NHC Joint Venture Policy had loopholes and flaws that led to the failure of some of these projects. Similarly, in their very early projects the selection of their partner was in the manner of “first come first served”. There was no room for competition, which would have assisted the Corporation to secure more potential investors. Figure 1 describes the 1995-2010 NHC procurement framework models, which illustrate the procurement selection process of partners and projects.

<Insert Figure 1>

The NHC PPP process was noncompetitive, and it depended on the ability of the private partner to submit a quick proposal. Other factors such as skills and capacity, experience, viability of the project and integrity to mention a few were not considered. In addition, the absence of any financial assessment of private partners highlighted the lack of integrity due to the limited scrutiny of the process. As a result, a number of investors were facing financial difficulties a few months after the start of the project, which led to delays, poor performance and unsuccessful delivery of projects.

On the government side, there have been serious efforts to improve and promote private sector participation in PPP projects. This culminated in first a PPP Policy, then a PPP Act in 2010 and finally in 2011 PPP Regulations being approved. In order to coordinate and oversee the mainland Tanzanian PPP projects, and PPP Financing Unit within the Ministry of Finance, a PPP Coordination Unit was established with the duty of assessing and examining all PPP proposals in their financial aspects. This body was formed as a result of the 2010 PPP Act within the Tanzania Investment Centre (TIC). Despite the establishment of these units, no HPPP projects actually were submitted to them for

assessment and approval. Having suitable PPP strategies, policies and regulatory framework is one thing, but making them effective and efficient is entirely another.

2.3 *PPP housing in other countries*

Both the public and private sectors are adopting partnerships for the delivery of housing and urban development worldwide (Moskalyk, 2011). Developed countries such as the UK, Canada, the USA, Australia and some developing countries such as India, Nigeria, South Africa and Malaysia have employed PPP projects in delivering affordable houses (Moskalyk 2011; Abdullahi and Aziz 2011; Liu, *et al.* 2014; Chan *et al.* 2014) although not always successfully. For example (Trangkanont and Charoenngam, 2014a) explained that, "A number of developing countries such as Thailand, Vietnam, the Philippines, Malaysia and Indonesia have experienced failures in their PPP Low-Cost Housing (PLCH) projects due to different factors". Trangkanont and Charoenngam, identified ten factors of PLCH in Thailand which led to failure: inadequate tender documents, inefficient Management Change, poor contractors, political intervention, ineffective PPP policy and strategy, weakened institutional culture, policy pressure, and difficulties to low income group, economic problems and Housing Finance constraints. Similarly a number of other studies identified different challenges in PPP projects as listed in Table I.

<Insert Table I here>

Furthermore, the study undertaken by Moskalyk (2011) noted that rich countries have only been successful in delivering affordable housing due to the high level of government subsidies that lowers housing cost. Moskalyk's study further added that these subsidies were a 'luxury' that could not be afforded in the developing world. The researcher criticizes this argument on the basis that subsidies can be a luxury to any government where there have been no previous plans and strategies for their inclusion during budget preparation. Subsidies, provided they are treated as priorities and carefully planned by whichever government of the day, can be affordable. Hence, it is necessary to have strategic plans and the correct policies in place in order to successfully deliver affordable housing.

2.3.1 *PPP housing in selected developing countries*

a) *Malaysian experience*

Malaysia have benefited greatly from the use of PPP arrangements in delivering affordable houses. The secret behind its success is the provision of favourable housing policies. One of the major concerns of Malaysian housing policy was making sure the low-income group had guaranteed access to housing. The study by Abdullahi and Aziz (2011) stated that the third Malaysian plan 1976-1980 indicated better performance within the private sector than in the public sector and thus provided a larger portion of low cost housing. The "cross subsidy policy" was a key feature of the housing policy where the rich subsidized the poor. This meant that any housing development project had to follow the regulation of developing at least 30% of the houses as low cost housing and the rest can be for the high and the medium income group. Also it made an effort to remove the financial barriers for low income families through government loans and regulations that required the financial institutions to increase their loan facilities as much as 100% to the those on low incomes (Abdullahi and Aziz, 2011). The Malaysian government made sure that the allocation of the low cost houses was open and applied through an open registration system. This eliminated much corruption, cheating and inequality as a fair system was adopted. From the Malaysian experience, it is clear that detailed groundwork, strong policies and clear objectives need to exist before the adoption of the strategy.

b) Indian experience

Another study conducted by Sengupta (2006) highlighted a number of constraints to PPP housing projects in Kolkata that include; "poor access to finance by low income families", "out dated legislation", "high levels of municipal taxes", "stamp duties" and "sanction fees". But despite these challenges, Kolkata has been successful in adopting PPP in housing in terms of cost and quality because its government focused on appropriate regulations rather than rapid changes.

c) Nigerian experience

According to a study by Ibem (2011a,b), PPP is still a new approach to housing provision in Nigeria and the main reason for adopting PPP is to address the increasing housing challenges. The HPPP in Southern Nigeria took a joint venture approach like in Tanzania. Ibem, (2011) obtained data through interview surveys from government housing agencies in six cities, it was identified that PPP has not made any substantial impact on housing the low-income group. Instead, more houses were built for the high and middle-income earners. The lack of uniform National Policy was acknowledged as the main challenge. Likewise a similar study by Ukoje and Kanu (2014) identified that a PPP mass housing scheme in Abuja, Nigeria was undertaken in the absence of adequate planning and implementation and the partners appeared to lack the capability. It was difficult for this project to achieve the aim of delivering affordable housing. Therefore Ukoje and Kanu (2014) study concluded that to improve HPPP

in Nigeria, “capacity building for the partners”, “positive quality enabling environment”, “stricter control” and “government’s support for the sake of the low-income earners” was necessary.

2.3.2 Critical success factors (CSFs) for delivery of PPP housing projects

A review of the literature has identified a number of studies, which reported on critical success factors in the developing countries (Babatunde *et al.* 2012; Ismail, 2013; Kwofie *et al.* 2016; and Dairu and Mohammad, 2015). These studies identified the following success factors: 1) Good governance; 2) Appropriate risk allocation and risk sharing; 3) Availability of financial markets; 4) Defensive policy against political risks; 5) Political stability; 6) Strong private consortium; 7) Favourable legal framework; 8) Government support participation in providing vital guarantees; and 9) Genuine commitment of collaborating parties

Recent studies such as Osei-Kyei and Chan (2015) have produced an equally comprehensive list of CSFs for PPPs.

2.3.3 Summary of literature review

In addition to the summarised studies in Table I, a review of a number of related literatures was undertaken. This was mostly in the areas around the key principles and success factors. Examination of I shows that the majority of reviewed studies were from both developing and developed countries and, focussed on Inadequacies around PPP skills and knowledge (40%, n=8); Inadequate PPP legal frameworks and guidelines (35%, n=7) and High cost in procuring PPP projects (35%, n = 7). These observations are consistent with the recent studies by Akintoye and Kumaraswamy (2016) which highlighted significant challenges facing PPP. Interestingly, the least flagged challenges based on the frequencies have equally been identified as areas requiring further research and development agendas by Akintoye and Kumaraswamy (2016). For example, risk management (20%) and inadequate feasibility study (10%) within the themes of ‘Risk allocation and management’ and ‘PPP project evaluation’. Other challenges have been associated with the delivery of affordable PPP housing and these items are numbered as 20 through 28 within Table I. In the main, although limited in the number of studies, these challenges were associated with high building standards, land affordability, lack of transparency, poor access to land and public acceptability amongst others.

It is worth noting that some of the developing countries studies, which have included examples from the African perspective, have used stringent selection criteria for their inclusion. For example, the study by Sharma (2012) only had Nigeria and South Africa as the African countries based on having at least one

PPP project in two successive years. The review of the literature thus identified the need for undertaking empirical studies on challenges affecting the PPP particularly within the Tanzanian context, as well as formulation of conceptual frameworks. There is also scope for the application of the measures or solutions for dealing with these challenges as identified from other developing and developed countries within the context of the Tanzanian construction industry.

3 Research Methods

As the main objective was to obtain different but complementary data to answer a single research question, a convergent parallel (concurrent) mixed method approach was adopted. From the level of interaction perspective, the data was collected and analysed independently. As opined by Molina-Azorin (2007), both the quantitative and qualitative approaches had equal priority status. Simply put, different methods are used to assess the same phenomenon toward convergence and increased validity (Cameron, 2009). This method is similar to that of Nguyen and Chileshe (2015) and Kurniawan *et al.* (2014) and included the following six steps: literature review (see Table I); pilot survey; questionnaire survey; interviews; statistical analysis; and content analysis. Drawing upon the study by Nguyen and Chileshe (2015), the justification for adopting the mixed methods approach is well established in literature, and furthermore this provides the opportunity for increasing the reliability of the research (Easterbrook *et al.*, 2008). It has also been known to offset the weakness of each tool considering the sample nature, time and accuracy of data (Kothari, 2004). More so, as highlighted by Jogulu and Pansiri (2011, pg. 690), in concurrent mixed methods, qualitative and quantitative data collection techniques are undertaken at the same time as the analysis of the data. In our study, as recommended by Holt and Goudling (2014), both approaches, qualitative (semi-structured interviews) and quantitative (questionnaire survey) were applied concurrently with equal status. Finally, this concurrent approach enabled the usage of using the results of one method to corroborate the findings of the other about a single phenomenon (Halcomb and Hickman, 2015).

The specific objectives of the study are to:

- (1) Identify and rank the challenges influencing the delivery of the Public Private Partnership (HPPP) in Tanzania;

- (2) Secondly, suggest advocated solutions in form of a conceptual PPP framework model that will address the identified challenges and hence boost its success.

3.1 Measurement instrument

The questionnaire as administered in the Tanzanian construction industry was comprised of the following three distinct sections:

- **Section 1** encompassed general demographics of the study sample and included a number of control variables (i.e. working experience, designation, professional background, and experience within PPP housing projects).
- **Section 2** captured opinions on a range of issues affecting affordable housing projects.
- **Section 3** comprised five sub-sections in order to capture the respondent's perception on the following issues: (i) assessment of skills and training needs for PPP project delivery; (ii) factors hindering the acquisition of the PPP skills and training; (iii) evaluation of costs and affordability; (iv) Aspects of PPP policy and regulatory framework; and (v) challenges in implementing PPP projects. For sub-sections (i) through (v), the respondents were asked to rate their levels of agreement using a 5-point Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4= agree and 5= strongly agree.

The sub-section (v) of within this section 3 included 19 challenges drawn from the summarised studies Table I. The majority of the items were mostly from the following countries and studies: In Malaysia, Abdullahi and Aziz (2011); China, Liu, *et al.* (2014); Hong Kong; Chan *et al.*, (2014); and Thailand, Trangkanont and Charoenngam (2014a). The rationale for following prior research in the identification of the measures (i.e. challenges) was to ensure construct validity. Such an approach has been used in PPPs studies such as De Schepper *et al.* (2015). Therefore the detailed results presented in this paper relate to section 1 and 3 of the questionnaire, particularly sub-section v on the challenges. It is beyond the scope of this paper to report on the section 2 and part of the remaining sub-sections.

3.2 Survey administration

In order to obtain the relevant information needed, the approach engaged *purposively sampling* amongst the targeted population, namely the stakeholders involved in PPP housing projects in Dar es Salaam, Tanzania was used. The rationale for choosing Dar es Salaam as the study area includes: accessibility to conduct a survey to obtain required data; the fact that about 60 per cent of HPPP projects, PPP experts, construction professionals and head offices are located in Dar es Salaam

(Kavishe, 2010). Therefore the target population includes public sector authorities (i.e. ministry, department, and housing agencies), private partners and the project consultants involved in HPPP projects in Dar es Salaam. Unfortunately, there is no official list or standard database specifying the number of stakeholders' organisations involved in HPPP projects within the study area. In view of this, the target population involved in this study cannot be easily determined. Based on this the researcher identified the target population through Public agencies involved in HPPP projects and PPP experts. It is on this note that only 2 public organizations, including their list of projects (NHC187 projects and NSSF 1 project), 60% being based in the study area, private partners and consultants were identified. Although the population size is small (n= 28), but the selected sample is typical of the whole and allowed intensive study (Kothari, 2004). According to Kavishe (2010), these 187 PPP projects as administered by the NHC and carried out in partnership with private real estate developers or investors were at different implementation stages (i.e. initial and completion stages). For example, the majority 100 (53.47%) were still under preparation, 48 (25.66%) under construction, 29 (15.50%) completed and a minority, 10 (5.37%) had stalled. It could thus be argued that, despite the small sample size, with 60% (n =112) of the projects located in the study area, namely Dar es Salaam and 40% in other regions, the study typified the whole population with particular emphasis on the projects under preparation, construction and completed. The characteristics of the respondents according to the designation, professional background, length of experience and the number of PPP projects undertaken are summarised in Table II.

<Insert Table II here>

Based on the reported demographic background of the respondents (see Table II), it can thus be demonstrated that all key actors in PPP housing projects as well as varying management levels were involved in the survey thus enhance the reliability and validity of the findings.

3.3 Statistical methods – Analysis of results

Quantitative data were analysed using the *Statistical Package for Social Sciences* (SPSS) computer programme version 22.0. The SPSS procedure involved in the analysis of the quantitative data comprised of the following two methods or techniques: (i) Parametric tests such as one-sample t-tests; and (ii) descriptive statistics tests such as measures of central tendencies and frequency analysis (Forza, 2002). The ranking analysis based on the 'frequencies' analysis was further undertaken using the generated values from the central tendencies such as the standard deviation and mean scores. In

addition to the SPSS generated values, the third technique of 'Relative agreement index (RAI)' was computed. The following subsections present a brief discussion of each approach:

3.3.1 - Ranking analysis; and Relative agreement index (RAI): The ranking of challenges influencing the delivery of PPP in Tanzanian housing projects was based on the mean score. Drawing on the approach by Ibrahim *et al.* (2006) in Nigerian PPP infrastructure projects, this involved attributing the lower value as assigned to the challenge as an indication of its lower importance. The standard deviation as generated by the descriptive statistics provided the variability that exists in the information for ease of comprehending the information (Forza, 2002, pp. 182). Other PPP related studies that have previously employed this approach of the mean score ranking technique and RAI include Hwang *et al.* (2013) in Singapore; and Ismail and Harris (2014), in Malaysia. Similarly, in order to summarise the advancement of the identified challenges, the relative agreement index as derived, was to overcome the weaknesses associated with the computed mean score (Holt, 2013; Doloi *et al.* 2012).

3.3.2 – Single Sample T-test of the mean: A one (single) - sample *t* test of the mean as undertaken was to measure the significance of the challenges influencing the delivery of the HPPP. Drawing upon Ling and Nguyen (2013), the cut off point for 5–point scale was set at "3.5" ($\mu = 3.5$), and the hypothesis introduced to measure the extent of influence of HPPP delivery challenges. The study by Ling and Nguyen (2013) had a 7–point scale in measuring the strategies for waste management practices, and provided justification for its selection of '5' as the cut off point for comparison. This study applies the same logic. By inference, the value of "3" would be the middle point for the challenges influencing the delivery of HPPP. This would further be equivalent to 50% of implementation. However, given the importance and lack of HPPP implementation within the Tanzania context, a value higher than 50% of the delivery and implementation effort is appropriate. To that end, the μ value is set at 3.5 and using the procedures as outlined in Cronk (2012), the analysis for the single-sample *t* test was conducted. The rationale and explanation of the null hypothesis thus is that the HPPP challenge affecting the delivery of the projects to a significant effect, whereas the alternative hypothesis is that HPPP challenge is not significant, and less important.

3.4 - Interviews

The interview processes were between July and August 2016. These took place in Dar-es-Salaam, Tanzania. The duration of the semi-structured interviews was between approximately 45 –100 minutes and was undertaken and conducted following the protocol suggested by Sharifirad's (2011). Sharifirad's procedure required the translation and review of the transcripts as some of the (performed) interviews

were conducted in one of the local languages, namely Kiswahili. Semi-structured interviews were the preferred mode due to their ability to produce detailed information, since they are flexible enough to explore questions into areas that could provide new dimensions of issues not pre-conceived (Axinn and Pearce, 2006). In total, thirteen semi-structured interviews were carried out with the management staff of the public and private sectors, while the questionnaire participants were restricted to company staff involved in similar projects. The structure of the interview questions followed four distinct sections:

- (1) Background information (organisation and number of PPP projects);
- (2) Training and needs assessment;
- (3) Challenges in implementing PPP housing projects;
- (4) Challenges in successful implementation of PPP in affordable housing schemes

The questions were prepared following the guidance as suggested by Qu and Dumay (2011) and underpinned by Giddens structuration theory in understanding the structural issues affecting the implementation of PPP. In order to enhance the validity and reliability of the collected interview data, the transcripts were emailed to the interviewees to obtain their agreement on the correctness and their feedback. This approach also known as '*participation checks and validation*' has previously been utilised in the study by Ardichvili *et al.* (2013) and Chileshe *et al.* (2016).

3.4.1 - Selection criteria for interviewees

Due to the fact that PPPs were relatively new phenomenon in Tanzania, as suggested by Maxwell (2005 cited in Liu and Wilkinson, 2011); a criterion-based approach was used in the selection of the interviewees. The selection for the interviewees included the following criteria: 1) The respondent's willingness and prior involvement in HPPP projects; and 2) the respondents needed to have been a public partner, or private partner or a financier, consultant or a contractor to the housing PPP projects. In light of only two public sector departments undertaking the HPPP, the sample size is very small. In order to compensate for the sample size of public sector interviewees, the invitations also extended to the PPP unit, PPP coordinating unit and National Construction Council. This was deemed suitable as these organisations also played advisory role to all PPP projects.

3.4.2 - Profile of the interviewees

Table III presents the profile of the interviewees. In all 13 interviews were undertaken. The number of interviewees (response rate) for the qualitative survey can be considered as very good in view of the total population and limited research undertaken within the Tanzanian context to date.

<Insert Table III here>

As can be seen from Table III, the majority of the interviewees (38 per cent) fell within the “11-15 years” and “more than 15 years” categories whereas two (15 per cent) were in the “six to ten years” category. Table III further illustrates that, based on the sector; the majority (69 per cent) were from the public sector. The limited numbers of the public sector interviewees is due to the fact that, in Tanzania there are currently only two public organisations undertaking PPP in housing projects. These organisations are the NHC and NSSF. However, due to confidentiality associated with their projects, in some cases detailed information could not be provided. Despite the potential of bias due to the majority of respondents being from one sector, the findings from the questionnaire survey overcame this shortcoming by including the private sector respondents (see Table II). This was complemented by the literature review to reinforce and validated the private sector’s views.

3.5 Characteristics of the sample

Out of the 38 questionnaires administered to the targeted population, 28 questionnaires were considered valid. The response rate, which is equivalent to 78%, was well above similar studies in PPP survey related research. Examination of Table II shows that the majority 11(39.3 %) of the respondents were from the public sector. This was followed by 9 (32.2%) consultants. With regards to Professional background a fair proportion 5(17.9%) were quantity surveyors. There was a fair distribution of varying professions amongst the remainder of the survey respondents. For example, there was an equal number of the minority 1 (3.6%) being a lawyer, Sales Supervisor, and Assistant Director. The inclusion of the Lawyer was particularly significant given the different forms of HPPP and the legal implications of the Joint Venture (JV) in Tanzania. The need for opinions from a knowledgeable respondent [such as a Lawyer] around the checking the credentials of the other party during the selection process within the JV process was therefore necessary. With regards to experience, the majority of the respondents 8 (28.6%) fell within the ‘less than 5’ and ‘11-15’ years categories.

4 Survey and interview results

4.2 Reliability analysis

The reliability and internal consistency of the survey instrument, comprising the 19 challenges affecting the delivery of PPP projects (see Table I), was tested by using Cronbach's alpha coefficient to examine and assess the adequacy of the measurement instrument. Previous and recent PPP related studies such as Hashim *et al.* (2016) have used similar approaches for the reliability analysis. Furthermore, according to Cronbach (1951), this [Cronbach's alpha coefficient] is one of the most popular reliability statistics aimed at determining the internal consistency or average correlation of items in a survey instrument to gauge reliability. Based on the results (not illustrated in this paper), the Cronbach alpha was found to be 0.585 (F -statistic = 9.899, sig. = 0.000) for the challenges sub instrument, thus indicating that the five-point scale measurement was reliable at the 5% significance level as the value was greater than 0.5 (Tabish and Jha, 2011).

While the Cronbach alpha (α) coefficient for the challenges sub instrument was less than the required threshold of 0.7, thus indicating a low reliability of scales (Nunnally, 1978), although Nunnally has pointed out that lower thresholds are sometimes used in the literature. Furthermore, investigation of the item-total statistics revealed that only the deletion of the two ranked items, namely 'inadequate PPP skills and knowledge leading to poor planning and application' and 'poor PPP contract and tender documents' would improve the reliability to 0.586 and 0.592 respectively. However, due to negligible impact on the Cronbach alpha values and, the importance attached to 'project management and legal issues in PPP delivery' these two items were not deleted, but included in the overall survey instrument.

4.2 Engagement of PPP training skills and self-reflection

In order to ascertain their PPP training capabilities the interview question requested the respondents to indicate whether they had undertaken any PPP training to improve their skills into the type of housing projects. Figure 2 shows the profile of the respondents according to the PPP training undertaken.

<Insert Figure 2 here>

The majority 69.2% (9) of the interview respondents have not undertaken any formal PPP training. The respondents were further asked if they were to assess themselves, whether they considered that they had enough [sufficient] skills and knowledge on PPP. A similar result with the majority 69.2% (9) responded negatively. Interestingly, out of the minority 30.8% (4) who responded affirmatively, **Interviewee F**, working for the National Construction Corporation acknowledged as still needing further skills development in PPP due to changes in technology and techniques in the world. Similarly, Table IV shows the cross tabulation results in response to the following survey questions: 1) "If you are to

asses yourself, do you think you have enough skills and knowledge on PPP?" and 2) "Have you undertaken any PPP training to improve your skills into this type of projects [HPPP]"?

<Insert Table IV here>

As can be seen from Table IV, the majority, 12 out of 26, responded in the negative. However despite 42.9 % (12) of the respondents indicating that they had enough skills and knowledge on PPP, only a minority (5 of the 12) indicated that they had undertaken any PPP training to improve their skills. While the resultant majority (n=7) who responded negatively might suggest that the results are contradictory. The results from Chi-Square Tests using Continuity Correction values ($p = 0.260 > 0.05$) demonstrated that the proportion of respondents who assessed themselves as having enough skills and knowledge on PPP and had also undertaken training were not statistically significant different from the proportion without skills and knowledge on PPP. More so, in spite of the majority indicating that they did not have enough skills and knowledge on PPP as obtained through formal training, examination of Table II shows that the majority 17(61%) had experience with more than 2 PPP housing projects. Secondly, some of the respondents indicated that they had learnt about PPPs through self directed learning (i.e. through reading books) and by undertaking the projects. Similarly, it could be inferred that these interviewees are the same people (actors), who had initiated, procured and managed the PPP housing projects in Tanzania irrespective of the number of successful and unsuccessful outcomes. These findings are further supported by Giddens (1984) identification of the three dimensions of structure, namely signification, domination and legitimation. Drawing upon Giddens's definition of 'signification', it could be inferred that despite these interviewees lack of skills and knowledge, they nevertheless had the ability to produce meanings of the structure as well as informing and defining interaction and direct the manner in which the problem (challenges) are interpreted. As such, based on informal training, the experience (see Table II) of the interviewees and Giddens's (1984) definition of 'signification', the interviewees were qualified to provide reliable and authentic feedback on the subject, and thus enhancing validity to the findings

However, the implication of this finding is indicative of the problems facing developing countries with regard to the training of its professionals. Tanzania, like many other developing countries faces the issue of training its workforce in a number of skills. For example, the study by Osabuteley *et al.* (2012) established that the majority of construction professionals normally acquire their skills through informal means like on site or within their work place. Furthermore, according to Chileshe and Kikwasi (2014), the study established that only the Tanzanian professionals working for foreign contractors (i.e. through joint ventures) have the ability of getting training. These findings are also consistent with literature on

PPP training skills (Osabuteley *et al.* 2012; Debrah and Ofori, 2005; 2006). For example, according to Osabuteley *et al.* (2012), in many developing countries, there are no reputable institutions for training lower-level personnel; on-the-job training is largely inadequate and the personnel at that level remain largely unskilled. Vocational training schools do exist in most of the countries but many workers and contractors see formal training as a cost rather than investment.

4.3 Ranking of the challenges influencing the delivery of HPPP

This section presents a combined discussion of the quantitative (survey) and qualitative (interviews) results. Based on the aggregated 19 challenges influencing the delivery of HPPP projects, the questions are designed to require the respondents to rate their opinions using a five point Likert as described in the research methods section. Table V shows the results of these mean agreement responses, descriptive statistics such as the standard deviation, One sample t-values, degrees of freedom (df), and sig (2-tailed).

<Insert Table V here>

As illustrated in Table V, the mean agreement scores of the 19 challenges ranged from 4.82 (Inadequate PPP skills and knowledge leading to poor planning and application) to 3.36 (higher costs in procuring PPP projects). In contrast, the standard deviation of all the nineteen challenges ranges from 0.390 to 1.193, the highest standard deviation being 'higher costs in procuring PPP projects'. Table III also shows that a third (31.5%) of the challenges to the HPPP are statistically significantly different (Test 1: mean > 3.5, t value positive, $p < 0.05$) with mean differences ranging from 1.321 to 0.393 as delivered in Tanzania. Further examination of the different values for the minimum and maximum scores (not listed in Table V), suggesting that the data and sample was not biased. For ease of discussion, only the top five ranked challenges (mean score > 4.50) as based on the degree of central tendency as well two of least ranked and not significant challenges are discussed here. While there was no statistical difference (Table V, $p < 0.05$) between the opinions in the perception for the majority (68.4%) of the challenges, it is evident that the top five challenges were as follows:

- Inadequate PPP skills and knowledge leading to poor planning and application (mean = 4.82, Std. dev = 0.390);
- Poor PPP contract and tender documents (mean = 4.64, Std dev = 0.621);
- Inadequate project management and monitoring by public sector (mean = 4.57, Std dev = 0.573);
- Inadequate legal framework (mean = 4.54, Std dev = 0.693); and
- Misinformation on financial capacity of private partners (mean = 4.50, Std dev = 0.509)

The following sub sections present a brief discussion of these highly ranked challenges.

4.3.1 Inadequate PPP skills and knowledge leading to poor planning and application

According to Abdul-Aziz and Kassim (2011, pp. 155), the public agencies' negotiation skills and adequacy of negotiation staff have an effect on delivery of housing projects, and are equally inter-related. Based on the mean score, 'inadequate PPP skills and knowledge leading to poor planning and application' was the highest ranked challenge (mean = 4.82, see Table V) and significant ($t(27) = 17.928, p = .000 < 0.05$) with a mean difference of 1.321. The lower value of the standard deviation (SD = 0.390) further reinforces the consensus among the respondents in the higher ranking of this challenge. Support of the high ranking of this challenge can be found in previous PPP studies (Akintoye and Kumaraswamy, 2016; Moskalyk, 2011; Wibowo and Alfen, 2015; Zhang, 2005).

Similarly, a number of Tanzanian studies have equally highlighted the issue of skills and knowledge among construction professionals (Debrah and Ofori, 2005; 2006, Chileshe and Kikwasi, 2014); and lack of experience has been linked to inappropriate perception of risk (Mboya, 2013). Elsewhere, within specific PPP studies, 'shortage of workers' has been identified as among the project specific commercial associated with the PPP projects (Gunawansa, 2012). For example, the study by Moskalyk (2011) suggested that this clearly indicates the cause for its slow progress and failures. Similarly, the Zhang, (2005) study had previously considered this as a big challenge. The study by UNESCAP (2012 cited in Wibowo and Alfen, 2015) the benefits of having well-trained and experienced public sector officials were highlighted, with benefits ranging from having the knowledge of where difficult issues would most likely to arise, and the ability to select the appropriate tools for addressing the identified problems.

The interviews as conducted further confirmed the findings from the survey and literature reviews. For example, Interviews B, C, D and I identified 'Inexperienced private partners', 'inadequate PPP skills and capacity' and 'Incapacity of contractors employed by private partners' respectively among some of the challenges in implementing PPP housing projects in Tanzania. Interviewee D attributed this challenge to "a new approach hence lack of experience". By inference, the following implications emerge from the above results: The lack of skills and capacity will eventually result in poor planning for the PPP project, poor risk identification, allocation and management as well as poor PPP project management. While this study did not measure any specific items associated with 'procedural justice' constructs (see Zhang and Jia, 2010), the over reliance of the public partners on the private partners for acquiring the

desirable PPP skills is recipe of having inequity among the partners as posited by the equity theory (Scheer *et al.* 2003).

4.3.2. Poor PPP contract and tender documents & Inadequate legal framework

'Poor PPP contract and tender documents (mean = 4.64, Std dev = 0.621)' and significant ($t(27) = 9.9731, p = .000 < 0.05$) with a mean difference of 1.143, and 'inadequate legal framework (mean = 4.54, Std dev = 0.693)' and significant ($t(27) = 7.909, p = .000 < 0.05$) with a mean difference of 1.036 were ranked second and fourth respectively. The synergies between 'procurement', and 'interpretation of contractual issues' as nested within the second challenge with the overall legal issues inherently included within the fourth challenge. These findings are also consistent with other studies (Sengupta, 2006; Trangkanont, 2014a; Ismail and Azzahra Haris, 2014 and Kassim 2011); Abdul-Aziz and Kassim, 2011). For example, the study by Abdul-Aziz and Kassim (2011), albeit within the Malaysian context and which was aimed at examining the objectives of housing PPP, the success and failure factors observed that the failure factor which had the most influential was absence of robust and clear agreement. Similarly, within the context of Thailand, the study by Trangkanont, (2014a) pointed to 'ineffective PPP policy and strategy'. Similarly, Tanzanian specific studies such as Mboya (2013) attributed the poor performance of PPP to unfavourable contractual terms for the contracting authorities.

The findings from the interviews further supported the above observations from the survey and literature reviews. For example, the majority (53.8 %) of the interviewees (A, C, D, G, H, J and L) identified some of the legal issues. **Interviewee I** identified the following as major causes of failure of Joint Venture Corporations projects (also referred to as PPP): (1) Lack of an exit clause; (2) Contradictory provisions; (3) Agreements biased in favour of [some] partners; and (4) Non-adherence to the rules and regulations. With regards the 'poor PPP contract and tender documents', the issue of the 'bidding processes' was identified. Some of the selected comments by **Interviewee I** (i.e. Legal officer for the National Housing Corporation) are as follows:

These agreements have no exit clause. Generally, these agreements comprised of determination clauses, of which it provides for the circumstances upon which the Agreements can be determined.

With regards the contradictory provisions, and hence 'inadequate legal framework'

The provisions in the Agreements are badly crafted to the extent that they do *contradict* each other and thus distort the whole meaning of their presence in the agreement.

With regards the 'non-adherence of the rules and regulations' ...

[] It has been discovered that there are some projects which are run without adhering to the rules and regulations set by regulatory authorities. In most, the construction site is quite different from the agreed and authorised design. This once proved, might engage the corporation in ordering the private partner / contractor to stop, demolish, or being fined [].

The challenge of 'poor PPP contract and tender documents' was further evident as observed by **Interviewee I**:

[] It has been observed that some partners were given more projects to add on to the already awarded projects. Meaning that there was double allocation of projects, without following the *necessary procedures*. There has been a trend among partners to add more plots on the acquired project on pretext of expanding the magnitude of the projects. [].

From the above observation, the inference to be drawn is thus, the procedures of awarding more projects to partners were improper. Secondly, the board is being misled regarding expansion of the magnitude of the projects. The above behaviour of the private partners is reflective of their power and domination over the public partners as highlighted in Gidden's (1984) duality of structure. Accordingly, irrespective of the appropriate 'contractual and tendering' rules associated with this type of procurement (PPPs), the private partners demonstrated the power that they had in effecting or having transformative capacity over the other actors, namely 'public partners'.

The other interviewees expressed similar although not as detailed comments. For example, **Interviewee C** (Project manager) identified 'Poor contractual relationship' whereas Interview D (Managing director) highlighted the issue of 'involving long negotiations' as the challenge. Similarly, **Interviewees G** and **H** singled out the 'inadequate PPP policy and legal institutional framework' and 'complexity of PPP projects' respectively. The only other comment related to the challenge of 'Inadequate legal framework' and noted by **Interviewee L** as 'poor contract'. The views expressed by **Interviewee H** regarding 'complexity' are consistent with the research and development agenda as proposed of Akintoye and Kumaraswamy (2016). In the main, Akintoye and Kumaraswamy (2016, pp. 26) drew the impacts arising from the complexity of the contractual structure of PPP on transparency, evaluation of proposals and performance amongst other issues.

The following implications emerge from the above results:

(1) That poor legal framework will lead to poor contracts and the rise of disputes;

(2) In identifying what the impediments are and how these challenges are managed, this study therefore makes an important contribution by enhancing awareness; and

(3) Because of an inability to identify existing challenges, then failure will prevail in such projects. Additionally, wastage of resources and housing shortage will persist. The consequence of these actions leads to abandonment, stalling and delaying of a number of projects undertaken. These implications and findings from the interviews further suggest some departure from fairness which should be the foundation of any type of economic transactions (Zhang and Jia, 2010), and a clearer demonstration of the equity theory where some of the Interviewees identified some of the inequity in the relationship with regards to unfavourable agreements (see Interviewee I).

4.3.3. *Inadequate project management and monitoring by public sector*

'Inadequate project management and monitoring by public sector (mean = 4.57, Std dev = 0.573)' and significant ($t(27) = 9.899, p = .000 < 0.05$) with a mean difference of 1.071, was the third ranked challenge. As with most developing countries, application of project management best practice has always been an issue. For example, the seminal study by Rwelamila *et al.* (1999) determined that the following two propositions are leading to project failure amongst the African countries: (1) The lack of '*Ubuntu*' between project stakeholders is primarily due to an inappropriate project organizational structure; and (2) A default traditional construction procurement system (TCPS), provides a poor relationship management system. Similarly, within the Tanzanian context, the studies by Kikwasi (1999, 2012), linked the poor delivery of projects using the pre-estimated time and cost to the adoption of conventional procurement method. Some more recent studies such as Chileshe and Kikwasi (2014), albeit within the same context [Tanzania] have attributed this poor performance to lack of effective risk management implementation. The findings from the interviews also supported the above observations from the literature review and survey findings. For example, some of the interviewees acknowledged that inadequate project management was a major issue. A number of reasons put forward by the interviewees ranged from "the work of managing and project monitoring was left to the private partners in NHC HPPP thus giving them a loophole to make alterations" to "construction in site has been quite different from the agreed and authorized design hence leading into disputes". Furthermore, as pointed out by Interviewee H, "Complexity of PPP projects", Interviewees J, and M identified "delays".

4.3.4. *Misinformation of financial capacity of private partners*

According to Mboya (2013, pg. 22), the Tanzanian capital market is not mature enough to be conducive to promotion of complex PPPs. The same study blamed the lack of adequate long-term financing

instruments. Leventhal (1980 cited in Zhang and Jia, 2010) identified the need for using accurate information as one of the six principles desirable for achieving procedural justice. Despite the importance of transparency throughout the procurement process (Osei-Kyei and Chan, 2015), this challenge of "misinformation on financial capacity of private partners" still remains an issue within the Tanzanian housing sector as evidenced by being ranked fifth (mean = 4.50, std dev = 0.509) and significant ($t(27) = 10.392, p = .000 < 0.05$) with a mean difference of 1.000. As previously highlighted by the study in Malaysia (Abdul-Aziz and Kassim, 2011), misinformation can lead to the loss of trust, and subsequently results in the selection of inappropriate partners. The findings from the interviews were also consistent with the observations from the literature review and survey findings. For example, some of the interviewees stated that poor determination of the shareholding ratio and recovery period, and that lack of proper procedure on determining the financial status of the partners who are engaged in the JV agreement projects have been major challenges and have resulted into project termination.

4.3.5 Other challenges - Lack of competition, delay and corruption, inadequate feasibility study, and differing goals between partners.

Despite not being in the 'top-five' of highly ranked challenges, the issues of "lack of competition", "delay" and "corruption" which ranked sixth, seventh and eighth respectively are worth mentioning. Studies have shown that competitive bidding is imperative in order to eliminate corruption and allow for transparency and best partner selection. Narasimhan (1997 cited in Tabish and Jha, 2011) has suggested punitive measures such as mechanisms for effective investigation in dealing with corruption. Similarly, while "inadequate feasibility study" and "differing goals between partners" had a mean score of 4.21, 4.18 respectively, and they were ranked as 9th and 10th position, studies such as Mostalyk (2011) identified and cited "differing goals between partners" among the five common challenges facing governments in HPPP projects.

4.4 One Sample t-tests results

A single sample t-test was conducted to determine if a statistically significant difference existed between challenges affecting the delivery of HPPP from the sample as used in this study and the general population of Tanzanian stakeholders involved in housing projects. Prior to undertaking these t-tests, although not reported, the normality of the data was undertaken through the examination of the descriptive statistics such as the skewness and kurtosis. No assumptions were found to be violated. Examination of Table V shows that with the exception of top 13 ranked challenges, the mean values of the remaining 6 challenges were not significantly different from the t-test value of 3.500 as follows:

"Poor risk allocation and management", ($t(27) = 1.580, p = .126 > 0.05$) with a mean difference of 0.286; "Inexperienced private partner", ($t(27) = 1.154, p = .259 > 0.05$) with a mean difference of 0.179; "Unequal qualifications and contributions of expertise", ($t(27) = 0.366, p = .718 > 0.05$) with a mean difference of 0.071; "Poor enabling environment to attract competent partners", ($t(27) = 0.000, p = 1.000 > 0.05$) with a mean difference of 0.000; "Inadequate mechanisms for recovery of private investors' capital", ($t(27) = -0.500, p = .621 > 0.05$) with a mean difference of -0.107; and "High costs in procuring PPP projects", ($t(27) = -0.634, p = .532 > 0.05$) with a mean difference of -0.143. The conclusion to be drawn is that there is a statistically significant difference of opinion in the rankings at the $p < 0.05$ level in 13 out of the 19 challenges.

4.5 Interview survey findings

In order to enhance the validation of the results, the findings from the survey research were triangulated with those from the interviews. Response to the interview question posed to the PPP experts in relation to political willingness and stakeholders' readiness towards PPP. All interviewees agreed that there is high political willingness towards the strategy. The reason put forward was not only due to successful case histories from other developing countries like Malaysia and India, but because of an inadequate enabling environment in Tanzania, PPP approach has not been successful as in other countries. Some of the PPP experts in PPP units claimed to have visited these countries for PPP training and were seconded to PPP projects for hands-on experience. However, it was reported by two interviewees that the PPP unit has little or no impact towards the proposed PPP projects despite its existence. A number of new PPP projects have been initiated and some started for example "Dege Eco Village" without being submitted to PPP units for assessment and approval due to fear of government bureaucracy. This reveals that PPP Unit has been ineffective and underutilised; it is also possible that the PPP regulations are not enforced thus allowing a PPP project to take off without being evaluated and approved by the PPP Unit. There is a need for the Government of Tanzania to re-examine its PPP Unit, policy and its guidelines.

4.5.1 Status and performance

In response to the question about the status and performance of the PPP housing projects, it was reported that during the survey period NHC had 183 joint venture projects, 104 were completed, while 35 were currently under construction. Of those under construction, the majority were facing delays with some for a couple of years. The findings also established that 29 projects had been discontinued or were terminated, while 21 projects have stalled due to various reasons. This status clearly indicates the existence of challenges to its performance. Respondents were further asked to rate the performance

and 70%, 21% and 9% of the respondents reported that there is poor performance, average performance and very poor performance respectively. The majority of interviewees commented that since a large number of NHC joint venture projects were unsuccessful there was little motivation for more similar projects. For the NSSF HPPP project, its progress was reported to be good but it has faced delays, which resulted from changes in design, shipping of the imported materials and adverse weather conditions. Further reports suggested that the private partner was facing financial difficulties.

4.5.2 Awareness and benefits

In response to awareness of PPP and its benefits, 60% of respondents' awareness is still little; benefits are marginal and very slow because of lack of enough skills and expertise. Subsequent to that, one of the interviewee, who was a quantity surveyor and a project manager, commented as follows:

"Even the said affordable houses are still not affordable to the low income, the reason given for the lack of affordability is that, the government is not willing to provide subsidies to such projects and no good policies have been put in place".

Hence, for decades the preferred method for providing affordable houses for the low income group in Tanzania has been through personal effort in saving and building which can take 10 to 15 years or more to complete the construction; and sometimes some of these houses remain incomplete, yet people currently live in them despite their poor conditions".

5. Model development approach

The model development approach followed an efficient methodology and tools to aid the process comprising the following three stages: (1) Literature review; (2) Questionnaire survey; and (3) Interview survey:

- *A Literature review* was undertaken on PPP housing projects across a variety of other countries in order to identify best practices and success factors. Table I presents the summary of the studies.
- *Questionnaire* and *Interview* surveys were carried out in order to study the local context in terms of the practice, challenges and perceptions.

As part of the study, in order to investigate what has been happening over the last two decades or so globally, as far as PPP in housing and infrastructure project is concerned and incorporate the lessons learnt into the proposed framework model, further review of literature was considered as necessary. Drawing upon the approach undertaken in Chileshe *et al.* (2013) study which proposed diagnostic models for strategic risk assessment, according to Archer (2003 cited in Chileshe *et al.* 2013), the agents (Tanzanian public and private stakeholders) have the ability of incorporating the lessons learnt due to their prior understanding of historical issues. The main purpose was to address and enhance the HPPP challenges in Dar-es-Salaam Tanzania. In view of the fact that PPP has not commonly been associated with housing projects, but rather civil infrastructure projects, there have been limited studies conducted on HPPP. From the reviewed literature (**Table I**), different countries adopted different success factors in PPP housing projects, as well as other PPP projects. However; Table VI shows and summarises the factors identified as significant for the successful delivery of PPP housing projects and for PPP projects in the construction industry.

<Insert Table VI here>

As can be seen from the given list of success factors, it is quite evident that some success criteria are similar and cut across all the sectors in the construction industry. However, other success factors such as: selecting private developers with a sense of social obligation to enhance compatibility; just enough government subsidies to support affordable housing projects; and favourable housing loan terms from the financial institution appeared to be more specific to HPPP projects. Likewise, based on best practice and lessons learned (Moskalyk, 2011), listed 8 key principles for PPPs in housing and urban development:

- (1) Interest of the public is supreme;
- (2) Such project should mirror the needs of the community and blend into stakeholders' priorities;
- (3) Transparency and accountability methods should be maintained throughout the project lifecycle;
- (4) Clearly defined scope and objectives with carefully planning;
- (5) The preferred model must offer value for money in terms of cost, time and risk allocation;
- (6) Competitive tendering is crucial;
- (7) Project viability must be measured against the set criteria to determine its PPP suitability;

(8) Accountable management of the project must exist throughout its lifespan.

In the context of this study, the above eight principles and the success factors were identified as the appropriate mitigation strategies or responses in solving the challenges faced in PPP housing projects in Dar es Salaam Tanzania. Furthermore, these principles and success factors were regarded the basis for the development of the PPP conceptual framework (see Figure 3). Therefore, the proposed framework model was designed to facilitate the attainment of these features in the Tanzania HPPP projects in consideration to the identified challenges. It is visualised that the more opportunity for these features to be incorporated in the model, the better the chances of successful implementation of HPPP because absence of these 'principles and success factors' could equally be considered a constraint.

6. The proposed framework model

In developing the PPP housing framework model, the adopted approach was based on the project life cycle approach. This involved designing systematically and customising to address the vital stages that need careful attention throughout the life cycle of the project with respect to weaknesses identified. The key features of the model will address major constraints thwarting the delivery of adequate housing in Tanzania. In contrast to other developed PPP framework models by Trangkanont and Charoenngam (2014b) and Tutesigensi and Mohammad (2008); the proposed model consist of five major phases, featuring five key aspects; Skills, Planning, Procurement, Monitoring and Controlling. Through a critical analysis of the problems, inadequacy of these features was determined as the main cause of the challenges. Hence, unlike other models the proposed model aims at providing systematic guidance while addressing the challenges to enhance the delivery of PPP housing projects. Previous PPP models address risk management in PPP low-cost housing (Trangkanont and Charoenngam, 2014b) and initiation of PPP in the construction industry (Tutesigensi and Mohammad, 2008). The proposed framework is shown in Figure 3.

<Insert Figure 3 here>

The basis and justification for the selection of the Trangkanont and Charoenngam (2014b) and Tutesigensi and Mohammad (2008) as a point of comparative reference with the proposed Tanzanian model is the fact that they are all from developing countries, with similar socio economic conditions.

In order to address the second objective of the study, namely to "suggest advocated solutions in form of a conceptual PPP framework that will address the identified challenges and hence boost its success", the following section illustrates how the framework as presented in Figure 3 is mapped the identified

challenges 1 through 19 (see Table I) and Table V with the advocated remedial solutions. These challenges and solutions were further mapped to the appropriate phase of framework. Table VII presents the summary of this mapping exercise.

<Insert Table VII here>

Examination of Table VII shows that the majority 6.5 (34.21%) of these challenges were more prevalent in the '*Procurement phase*' followed by the '*Preparation phase*' with 6 (31.58%) and in third place was the '*Planning phase*' with 4 (21.04%). Interestingly, within the last '*Operating phase*' had no challenges assigned to it. The implication of this 'mapping exercise' highlights the need of the Tanzanian stakeholders to address the issues associated with procurement for effective implementation of PPPs. As recently acknowledged by the World Bank Report (2016, p. 30), "the rules and procedures governing PPP selection and decision-making in Tanzania are clearly delineated, but implementation is less than perfect".

Further application of the 'mapping exercise' and explanation of the model is provided in the following subsections 6.1.1 through 6.1.5:

6.1. Phases of the model explained:

6.1.1 - In **phase one**, namely '*Preparation*', the main goal of the model is for preparation and critical focus on the necessary groundwork in order to enhance skills and improve a PPP enabling environment. This phase is equivalent with the '*pre-contract*' stage and crucial in the attainment of procedural justice as identified by Zhang and Jia (2010, pg. 518). Because Tanzania is still immature in PPP projects in the areas of skills and experience, this challenge ranked as the highest in Table IV (mean = 4.82) and significant ($t(27) = 17.928, p = .000 < 0.05$) with a highest overall mean difference of 1.321, and highlighted as one of the major challenges from the reviewed studies in Table I (n= 8, 40%). To overcome this challenge caused by economic problems and financial constraints, it is important to provide training to public officials. However, it is expensive to send a group of people abroad for training hence an 'in-house' steering committee is proposed in the model as the best alternative to assist with addressing the 'skills training' and 'enabling environment'. The need for better PPP training was a major concern raised by Morledge and Owen (1998) and Mitchell and Consulting (2007). Therefore, during this stage emphasis is on the need to equip public officials with adequate skills so that they gain skills and knowledge to deal with the complexity of PPPs. In order to prove that the trained personnel have acquired the PPP skills then a pilot project should be undertaken. The ultimate goal of this pilot study will be to assess the capacity and understanding of the trained

personnel. The control method for this phase is the PPP training programme. This control method will ensure that personnel with the necessary skills sets will administer such projects.

6.1.2. - In the **second phase**, namely 'planning', the client/public sector needs to carry out a detailed feasibility study in order to determine the real needs of the public not considering the political needs as the public needs because the two may utterly differ. However, as observed by Trangkanont and Charoenngam, (2014a), leaving such tasks in the remit of the private sector may result in dishonesty and artificial demands. According to Trangkanont and Charoenngam, there were cases where the private sector had convinced the public sector that a project was viable and demand for it was high as was the case in Thailand. Realistic demands will enhance the assessment of PPP projects enabling genuine and correct decisions to be made. The following challenges were significant (see Table V), namely "inadequate PPP skills and knowledge leading to poor planning and application", "poor PPP contract and tender documents", "inadequate project management and monitoring by public sector" and "feasibility study", and ranked 1st, 2nd, 3rd and 9th respectively (see Table IV), will be addressed in this *planning phase*. This is because they are project management and procurement oriented as evidenced by the Project Management Body of Knowledge areas (see PMI, 2008). For example, planning is a critical element in project management, because it provides the basis for investment decisions and aids develop a project that mirrors the real needs of the community. Furthermore, within PPP projects, consideration of the approval process is vital. This process is undertaken to allow a proposed PPP project to go through screening and checks in order to further ascertain its viability, affordability, value for money and appropriate risk transfer. Thus, the proposal is submitted to the national PPP Unit, which is an independent body made up of different professionals to assess the legal, financial, technical, cultural and social aspects. In this phase, the consideration of the feasibility study report, value for money and affordability assessment and PPP unit approval constitute the control methods. If these are not completed then the project cannot proceed to procurement stage.

6.1.3 - **Phase three, Procurement**: In this phase, the contracting authority revisits the Procurement package and a set of prequalification criteria to make sure that they align with the project goals. Following on from this, would be advertising of the project; and submission of bids by prequalified bidders. A preferred bidder is then selected. Since "corruption" ranked as the eighth challenge affecting the delivery of PPP projects (mean score = 4.29) and significant ($t(27) = 6.931, p = .000 < 0.05$) with a mean difference of 0.786, in this stage negotiations are discouraged because they sometimes lead to corruption, or unnecessary alterations. Hence, adequate planning and preparation minimizes the need for negotiations. However, parties still have to agree early on a number of issues on management

procedures as challenges ranked 2nd, 3rd and 4th are project management, procurement and legally related. This may include the structure of communication, decision making, problem solving, performance evaluation and conflicts management. Competitive tendering and transparency are the control method for this phase hence unsuccessful bidders should be informed why the winner was chosen in preference. As asserted by Zhang and Jia (2010, pg. 518), effective cooperation among the parties could be achieved through exercising procedural control.

6.1.4 - Phase 4, Building: The special purpose vehicle (SPV) would be utilised in the execution of the project. This stage requires adequate monitoring and controlling. Since the government remains accountable for the delivery of its services, it is important to have a clear mechanism to monitor its performance. In this case, project authorities may create a two tier system, contracting authority as tier one and ministry/PPP unit as tier two in order to address the 3rd ranked challenge which is "inadequate project management and monitoring by public sector" and significant ($t(27) = 9.899, p = .000 < 0.05$) with a mean difference of 1.071. In order to facilitate the compilation of a monthly report, the site manager should produce daily reports. The Architect would then facilitate and certify the submission to the tier one authority. Likewise tier one submits its monthly report to tier two, which can be the ministry in charge of the project or the PPP unit. The two tier monitoring mechanisms provide a double check thus ensuring effectiveness and accountability. Finally, in order to meet the key performance indicators of time, cost, quality and safety, a performance measurement would thus require development.

6.1.5 - Phase 5, Operating: The last phase is the *operating* one and involves the allocation of the completed housing units through sales/renting. The private partner will operate as per the agreed contract. The operation in this phase will depend on the nature of the Project. For example, low-income housing projects as noted in the Malaysian (Ismail and Azzahra, 2014; Abdul-Aziz and Kassim, 2011); and Thai studies (Trangkanont and Charoenngam, 2014 a, b), both required an honest, fair and transparent allocation system to ensure that the houses reached the intended group. Thus, in order to have a listing of public sector and qualified house buyers, mechanisms would have to be established. In addition, for transparency and trust building, there would be a need for depositing the monthly collection into a joint account. Following this, the production of monthly sales performance and financial status reports would then be undertaken in a similar way. The control mechanism for this stage is the openings of a joint account with the inclusion of a specific clause in the contract that will compel the private partner submit monthly financial reports.

7. Contributions, Recommendations and Implications

7.1 Contributions

A number of contributions emerge from this study. Firstly, to the best of our knowledge, our empirical study is among the first in construction and housing specific empirical studies on a number of areas affecting PPPs, and that identifies and ranks the challenges of PPP for housing projects delivery within the Tanzanian context. The identification of the challenges enabled their ranking resulting in the mapping out of the most critical challenges (see Table VII) with the 'Procurement' and 'Preparation' phases being identified as the most critical. Secondly, using the Giddens' structuration theory, the study illustrates how institution mechanisms (structures) addresses these delivery challenges thus influencing the implementation of HPPP in Tanzania, and how individual stakeholders (human agents or agency) are able to make choices (advocated solutions) in dealing with the challenges (see Table VII). Thirdly, while the linkages between procedural justice and corporation effects were not empirically tested, the application of the equity theory to the qualitative (interviews) and quantitative (questionnaire) findings demonstrated the existence 'inequity' among the Tanzanian partners with the private partners having the upper hand in dealing with the majority of the issues affecting the delivery challenges influencing public private partnership in Tanzanian housing projects. Finally, using the project life cycle approach, the study proposes a framework (see Figure 3) aimed at addressing major constraints thwarting the delivery of adequate housing in Tanzania. Drawing upon Chileshe *et al.* (2013, pg. 165), the proposed framework opens the possibility of examining both the critical success factors (Table VI) of the agents (Tanzanian practitioners) in relation to the delivery of the PPP in housing projects, and their failures (challenges) in dealing with the external environment and associated regulatory factors. Furthermore, through the alignment and mapping the identified challenges to the proposed remedial solutions across the five phases within the proposed PPP framework (see Table VII), the study has contributed to the PPP research agenda albeit within the developing countries context by responding to and addressing the Akintoye and Kumaraswamy (2016) study which renewed the calls for more research on PPP.

7.2 Recommendations and implications

Some suggested recommendations and implications for government, policy makers, practitioners and research are as follows:

- (1) For *government and policy makers*, who would be required to consider carefully improving and/or revising the existing PPP Policy and regulations as well as putting forward a housing policy

that will initiate the supply of more affordable housing. Correspondingly, in-house training should be emphasized, facilitated and coordinated by the government through the PPP Coordinating Unit to both the public sector and private sectors in order to acquire the necessary PPP skills and knowledge. As illustrated in Table VII, the majority of the challenges are nested within the '*Procurement phase*' of the proposed framework, followed by the '*Preparation phase*'. Therefore, training programmes should be tailored in addressing these challenges early on in the process.

(2) For *practitioners*, the identified challenges have formed the basis of the framework presented in this paper. Furthermore, these provide useful information thus leading to increased awareness and to successful delivery of HPPP in Tanzania. However, these managerial (practitioner) implications should be considered in light of the contingency theoretical perspective which requires all the partners in an alliance such as the prevailing Joint Ventures to be compatible (Vivek and Richey, 2013). Clearly, this is not the case within this study where the interviewee findings (see Interviewee I responses) highlighted the private sector as having agreements more favourable to them than the Tanzanian public sector partners. Similarly, the findings in Table V points to the private sector withholding financial information from their public partners, and more so, there is clear lack of 'equity' compounded by the numerous challenges or 'unexpected contingencies (Zhang and Jia, 2010) facing the public partners. In particular, these public partners are disadvantaged by the lack of knowledge across a number of project management areas such as "Inadequate PPP skills and knowledge" and "Inadequate project management and monitoring". Whereas Table VIII might have suggested some advocated remedial solutions to these 'challenges' and simplified the process by mapping them to the appropriate stages within the framework as illustrated in Figure 3, there is a clear need of managerial attention in PPPs implementation during the initial preparatory phase, and re-evaluation of the basic tenets of the 'equity theory'.

(3) For *academia*, drawing upon the recommendation of Chileshe and Kikwasi (2014), there also appears a need for increased training of the desirable skills for overseeing PPP projects. These would include negotiation; risk allocation and selection of partners (see Table IV). In the opinion of Moskalyk (2011), local or national level PPP units should be leading in the provision of effective instruments to build the expertise of governments. The application of effective risk management frameworks has also been suggested as the mechanism for improved decision making on risk response strategy selection and resource allocation in the PPP project life cycle (Trangkanont and Charoenngam, 2014b). Tanzanian stakeholders could learn lessons from that. Therefore, the Tanzanian PPP units and coordinating units as listed in Table III

should be championing this cause. As illustrated in the proposed PPP framework (see Figure 3), this training should be undertaken during phase one, namely the 'preparatory' one.

8. Limitations and further research

While a number of contributions to PPP theory such as Giddens's structuration theory, contingency theory, relational and equity theory, and practice emerge from this study, the following limitations related to the geographical setting, sample size, and model validation are noted:

The interview and survey sample consisted of stakeholders drawn from only one city in Tanzania, namely Dar-es-Salaam, and consequently the results may not be generalized to other surrounding countries sharing similar economic conditions such as the East Africa Community (*viz a viz*, Republics of Burundi, Kenya, Rwanda, South Sudan, and Uganda). The framework can contribute towards addressing similar challenges as well as providing guidance, however, this needs validation. As asserted by Tang *et al.* (2010, pp. 690), these conceptual models can be developed based on case studies, and further tested by use of a representative sample. Furthermore, as this study is part of an ongoing research, at this stage the paper does not offer a conclusive answer to the question of validity of the model.

Drawing upon the studies of Yalagama *et al.* (2016) and Abdul-Aziz and Kassim (2011), our study further acknowledges that the identified challenges particularly from the qualitative research (interviews) may be considered as Tanzanian specific. Therefore, whereas the advocated solutions in form of the PPP framework (see Figure 3) might work in Tanzania and a country with similar socio-economic, legal, procurement, and cultural aspects, our study further acknowledges that the outcome may be different in another country. Any future research on challenges to PPP delivery as well as advocated solutions needs to take into consideration the prevailing conditions within the country of study, and thus tailoring the research to them. As articulated by Abdul-Aziz and Kassim (2011, pp. 151), these success and failure [thus labelled as 'challenges'] factors for housing PPP programmes may be country-specific. Another requirement would be the monitoring of both the internal and external conditions in the host country by partners (Tang *et al.* 2010). The proposed framework model will be tested and validated to examine the applicability of the proposed framework in other housing PPP projects in Tanzania, and in other similar developing countries.

9. Conclusions

In order to facilitate creative and innovative approaches in stimulating the private sector, it is widely accepted that engagement of PPP is a viable option. Furthermore, governments in both developed and developing economics normally require bidders to compete on the basis of developing unique and creative approaches to the delivery of many physical infrastructure facilities. Despite the importance and role that PPPs research on the challenges affecting the delivery of PPP in housing projects remains underexplored.

The purpose of this research was to investigate the perception of the challenges affecting the delivery of Housing Public Private Partnership (HPPP) projects among the construction professionals in Tanzania, and propose a PPP framework to address the identified challenges, and hence boost opportunities for the successful delivery of these projects. A number of theoretical perspectives such as Gidden's structuration theory, contingency theory, relational and equity theory were applied in interpreting the findings as well as underpinning the methodological approaches. Nineteen HPPP challenges as identified from reviewed literature (see Table I) were revised and adopted. These challenges formed the basis for the questionnaire survey development and semi structured interviews. As a result, the identification of the challenges towards the growth and successful delivery of HPPP projects in Tanzania were undertaken.

The results demonstrated that Tanzanian construction professionals ranked the following challenges as having significant ($p < 0.05$) opportunity to derail the delivery of the HPPP (mean score > 4.50):

- Inadequate PPP skills and knowledge leading to poor planning and application (mean = 4.820)
- Poor PPP contract and tender documents (mean = 4.640)
- Inadequate project management and monitoring by public sector (mean = 4.57)
- Inadequate legal framework (mean = 4.540)
- Misinformation on financial capacity of private partners (mean = 4.500)

Whereas, the least ranked and NOT significant ($p > 0.05$) five challenges were as follows:

- Inexperienced private partner (mean = 3.680)
- Unequal qualifications and contributions of expertise (mean = 3.570)
- Poor enabling environment to attract competent partners (mean = 3.500)
- Inadequate mechanisms for recovery of private investors' capital (mean = 3.390)

- High costs in procuring PPP projects (mean = 3.360)

The study applied the Adams (1995) equity theory as cited in (Zhang and Jia, 201; Scheer *et al.* 2003) to both the qualitative and quantitative findings. This theory enabled the explanations of inequity among the private and public Tanzanian stakeholders (partners) particularly within regards to addressing and managing issues associated with the '*Poor PPP contract and tender documents*' and '*inadequate legal framework*'. For example, some of the findings from the interviews indicated that the majority of the NHC HPPP contracts had major legal issues such as lack of an exit clause, contradictory provisions in an agreement, bias in favour of their private partners, double standards and uncertain practice in the transfer of right of occupancy and non-adherence to the rules and regulations among partners. The study also revealed that despite of the survey respondents having assessed themselves as having enough skills and knowledge on PPP, they still had not undertaken any PPP training to improve their PPP management skills (of PPPs). In summation, the study reinforced the belief that Tanzania, like other developing countries, experiences insufficient government funds and poor housing conditions. Therefore, Public organizations, in this case NHC and NSSF, have adopted the PPP strategy to deliver housing projects. However, these HPPP projects have not been as successful as expected. Finally, the findings from the interviews revealed the existence and interplay between the three dimensions of structure as represented by signification, domination and legitimation and those (dimensions) of agency as represented by communication, power and sanctions. For example, Interviewee's I responses related to the challenge of 'non-adherence of the rules and regulations' were clear evidence of the existence of the duality between 'domination' and 'power'. From this a conceptual framework for HPPP has been developed and examined using the theoretical underpinnings of Gidden's theory of structuration as well as exploring the synergies and interactions between the various dimensions of the structure and agency.

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Caption: List of Tables and Figures (in order of appearance in manuscript)

Figure 1: NHC PPP Procurement Framework adopted between 1995-2010

Table I: Summary of selected literature on challenges affecting the delivery of PPP housing projects

Table II: Profile of study sample

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Table VII: Mapping the PPP challenges with advocated remedial solutions to the framework

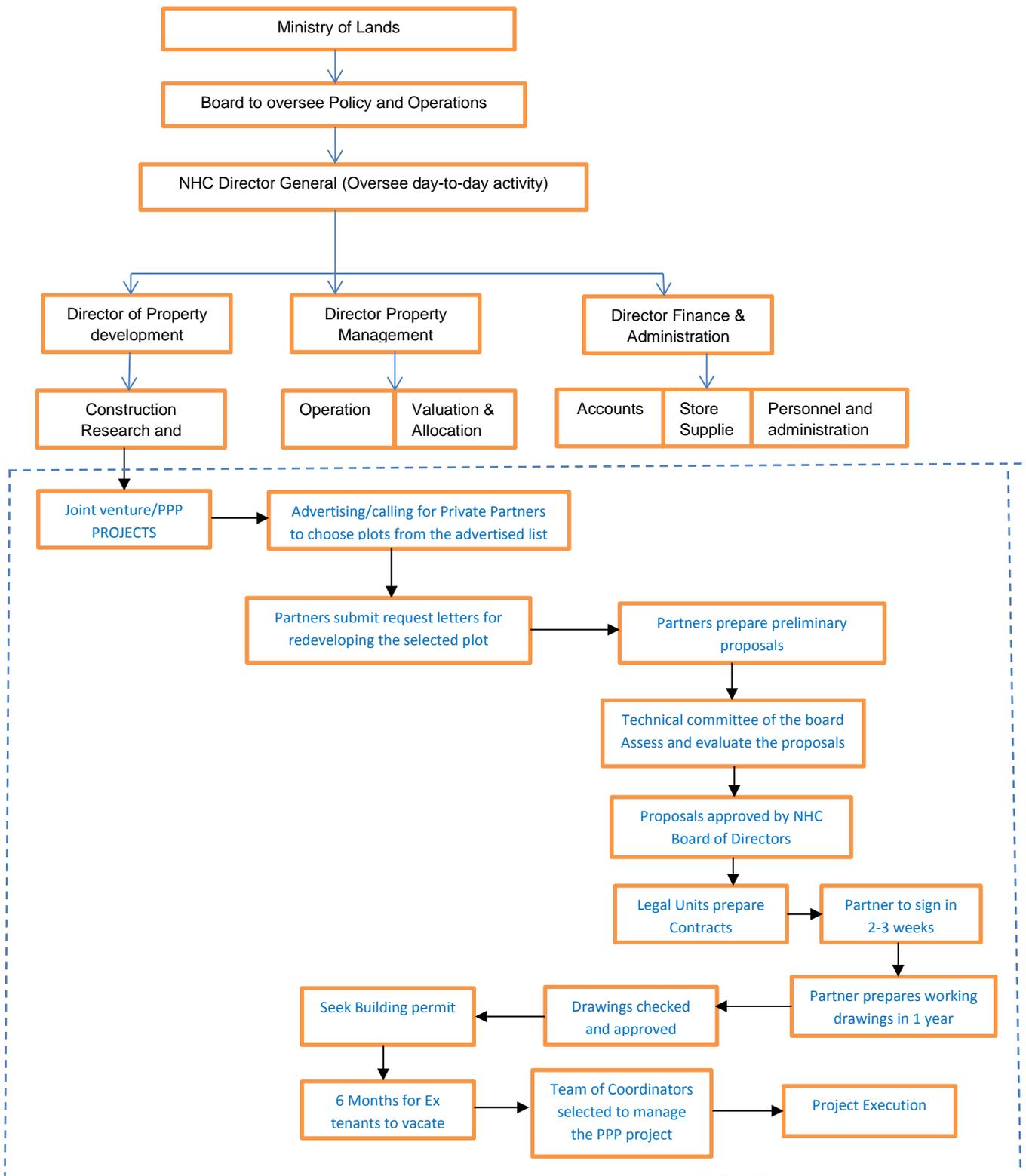


Figure 1: NHC PPP Procurement Framework adopted between 1995-2010

(Source: Authors' interpretation)

Table I: Summary of selected literature on challenges affecting the delivery of PPP housing projects

No	Challenges	References																				No	F*(%)				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20						
1	Differing goals between partners	√																				1	5				
2	Corruption				√	√				√				√									5	25			
3	Misinformation on financial capacity of private partners				√	√																	3	15			
4	Poor PPP contract and tender documents				√	√				√													4	20			
5	Delays				√					√												√		√	5	25	
6	Inadequate PPP legal framework and guidelines			√		√	√			√		√													7	35	
7	Inadequate PPP skills and knowledge	√			√	√				√												√		√	7	35	
8	Lack of competition																						√	√	√	3	15
9	Inadequate feasibility study																						√			1	5
10	Inadequate project management by the public sector				√					√													√	√		4	20
11	Long term disputes and conflicts between parties									√												√		√		4	20
12	Inadequate government commitment and support				√					√													√			2	10
13	Insufficient capacity in procurement and negotiations				√					√																3	15
14	Poor risk identification, allocation and management								√	√													√			4	20
15	In experienced private partner				√				√																	2	10
16	Unequal qualifications and contributions of expertise				√																			√		2	10
17	Poor enabling environment to attract competent partners				√	√				√													√	√		5	25
18	Inadequate mechanisms for recovery of private investors' capital				√																					1	5
19	High cost in procuring PPP projects	√	√	√						√													√	√		6	30
20	High end user charges						√		√																	2	10
21	Lack of transparency										√	√														2	10
22	High cost of building materials and construction equipment											√	√													2	10
23	Poor infrastructure services											√														1	5
24	Public acceptability											√														1	5
25	Lack of uniform policy in PPP housing provision																						√			1	5
26	Lack of coordinating agency in PPP housing																						√			1	5
27	Poor access to developable land			√																						1	5
28	High building standards			√																						1	5

Notes: 1. Moskalyk (2011); 2. Ibe and Aduwo (2012); 3. Sengupta, (2006); 4. Ngowi (2006); 5. Trangkanont (2014a); 6. Ismail and Haris (2014a); 7. Abdul-Aziz and Kassim (2011); 8. Zhang (2005a); 9. Zhang (2005b); 10. Kwofie *et al.*, (2016); 11. El-Gohary *et al.* (2006); 12. Ibe (2011a); 13. Ibe (2011b); 14. Chidieli (2012); 15. (Chou and Lin, 2012); 16. Akintoye *et al.* (2003); 17. (Chan *et al.*, 2006, Chan *et al.*, 2009); 18. Abdul-Aziz (2001); 19. Li *et al.* (2005b); 20. KPMG (2010); The challenges numbered 20 through 28 were specific to the successful implementation of PPP in affordable housing schemes.

Table II: Profile of study sample

Characteristics	Number (frequency)	Overall (%)
<i>Designation</i>		
Consultant	9	32.15
Private developer	2	7.14
Public partner	11	39.29
Contractor	1	3.57
Financer	1	3.57
Researcher (Academic) ¹	2	7.14
PPP advisor ¹	2	7.14
<i>Professional background</i>		
Quantity surveyor	5	17.86
Engineer	4	14.29
Land valuation agent ¹	3	10.71
Architect	3	10.71
Lawyer	1	3.57
Other professional roles*	12	42.86
<i>Length of service in current position (years)</i>		
Less than 5 years	8	28.57
5-10	7	25.00
11-15	8	28.57
More than 15	5	17.86
<i>Experience with PPP housing projects (number of projects)</i>		
< than 1	4	14.29
1 - 2	7	25.00
3 - 5	4	14.29
6 - 10	6	21.42
Over 10	7	25.00

Notes: The land valuation agent is also known as the 'Land valour', *The breakdown of the 'other' professional roles were as follows: Managers (2); Staff (3); Consultant (2); Sales supervisor; Assistant director; Principal consultant; Advisor; and Director; 1 These designations (Researcher and PPP advisor) were specified by the respondents as they were not part of the options given within the survey questionnaire.

Table III: Interviewee profile

Interviewee	Name of organization ¹	Current position	Experience (years)	Sector ²	Professional background	Experience with HPPP projects (Number of projects)
A	NHC*	Legal officer	6 - 10	Public partner	Lawyer	Over 10
B	NHC*	Director of property	> 15	Public partner	Engineer	Over 10
C	NSSF	Project manager	11-15	Public partner	Engineer	1- 2
D	TBA	Managing director	>15	Public partner	Engineer	1-2
E	PPP Unit ³	PPP Advisor	11-15	PPP Unit	Economist	none
F	NCC ³	Consultant	>15	Public Sector	Quantity surveyor	Over 10
G	PPP Coordinating unit ^{3,4}	Assistant director	11-15	Investment centre	Economist	none
H	Salim Company.	Director	>15	Public partner	Architect	3-5
I	Contractor	Director	11-15	Contractor	Engineer	1-2
J	NSSF	PPP Clerk of works	6-10	Public partner	Engineer	1-2
K	NSSF	Manager	11-15	Public partner	Quantity surveyor	1-2
L	Maksoor Company	Director	>15	Public partner	Business	3-5
M	NHC	Regional manager	None (< 1 year)	Public partner	Land Valuation agent (Valour)	Over 10

Notes: ¹NHC = National Housing Corporation; *NSSF = National Social Security Fund; NCC = National Construction Council; TBA = Tanzania Building Agency. *In Tanzania so far NHC is leading housing agency which has carried out a large number of joint venture projects for both commercial and residential properties since 1990s; ²In Tanzania there are currently only three public organisations undertaking were undertaking PPP in housing projects. These organisations are the National Housing Corporation (NHC); National Social Security Fund (NSSF); and Tanzanian Building Agency (TBA). ³ These organisations (PPP Unit, NCC and PPP coordinating unit) are included as they are responsible with the assessment, approval as well as the coordination of all PPP projects in Tanzania. Have been involved in the formulation of PPP Policy as well as the regulations; ⁴The PPP Coordination Unit was established by the 2010 PPP Act within the Tanzania Investment Centre (TIC) to coordinate and oversee the mainland Tanzanian PPP projects and PPP Financing Unit within the Ministry of Finance with the duty of assessing and examining all PPP proposals in their financial aspects

Table IV: Cross tabulation for 'If you were to assess yourself, do you think that you have enough skills and knowledge on PPP? * Have you undertaken any PPP training to improve your skills into this type of projects? Cross tabulation

Count		Have you undertaken any PPP training to improve your skills into this type of projects?		Total*
		Yes	No	
If you are to assess yourself, do you think that you have enough skills and knowledge on PPP?	Yes	5	7	12
	No	2	12	14
Total		7	19	26

Notes: As 2 cells (50.0%) had expected counts of less than 5, the Chi-Square Tests values as computed were based on the 'Continuity Correction' and Fisher's Exact Test; *Total number of responses based on the valid and completed data to the question (N=26)

Table V: Overall ratings of challenges in implementing PPP housing projects in Tanzania

Challenge	T-test ($\mu = 3.5$)	df	Sig (2-tailed)	Mean Score ^{1,2}	Std. Dev	RII	Rank	Significant ($p < 0.05$)
Inadequate PPP skills and knowledge leading to poor planning and application	17.928	27	.000*	4.82	0.390	0.964	1	Yes
Poor PPP contract and tender documents	9.731	27	.000*	4.64	0.621	0.928	2	Yes
Inadequate project management and monitoring by public sector	9.899	27	.000*	4.57	0.573	0.914	3	Yes
Inadequate legal framework	7.909	27	.000*	4.54	0.693	0.908	4	Yes
Misinformation on financial capacity of private partners	10.392	27	.000*	4.50	0.509	0.900	5	Yes
Lack of competition	8.855	27	.000*	4.46	0.576	0.892	6	Yes
Delays	9.500	27	.000*	4.39	0.497	0.878	7	Yes
Corruption	6.931	27	.000*	4.29	0.600	0.858	8	Yes
Inadequate feasibility study	6.000	27	.000*	4.21	0.630	0.842	9	Yes
Differing goals between partners	4.385	27	.000*	4.18	0.819	0.836	10	Yes
Long term disputes and conflicts between parties	4.088	27	.000*	4.11	0.786	0.822	11	Yes
Inadequate government commitment and support	3.437	27	.002*	4.00	0.770	0.800	12	Yes
Insufficient capacity in procurement and negotiations	2.091	27	.046*	3.89	0.994	0.778	13	Yes
Poor risk allocation and management	1.580	27	.126	3.79	0.957	0.758	14	No
In experienced private partner	1.154	27	.259	3.68	0.819	0.736	15	No
Unequal qualifications and contributions of expertise	.366	27	.718	3.57	1.034	0.714	16	No
Poor enabling environment to attract competent partners	.000	27	1.000	3.50	0.793	0.700	17	No
Inadequate mechanisms for recovery of private investors' capital	-.500	27	.621	3.39	1.133	0.678	18	No
High costs in procuring PPP projects	-.634	27	.532	3.36	1.193	0.672	19	No

Notes: *The mean difference is significant at the .05 level (i.e. $p < 0.05$); RII = Relative importance index; ¹Mean score based on valid N= 28 (list wise); ²Mean score of the challenge variable where 5 = strongly agree; 4 = Agree; 3 = Neutral; 2 = Disagree; and 1 = Strongly agree. ²The higher the mean score, the more critical the challenge; df = degree of freedom.

Figure 2: Have you undertaken any PPP training to improve your skills into these type [housing] projects?

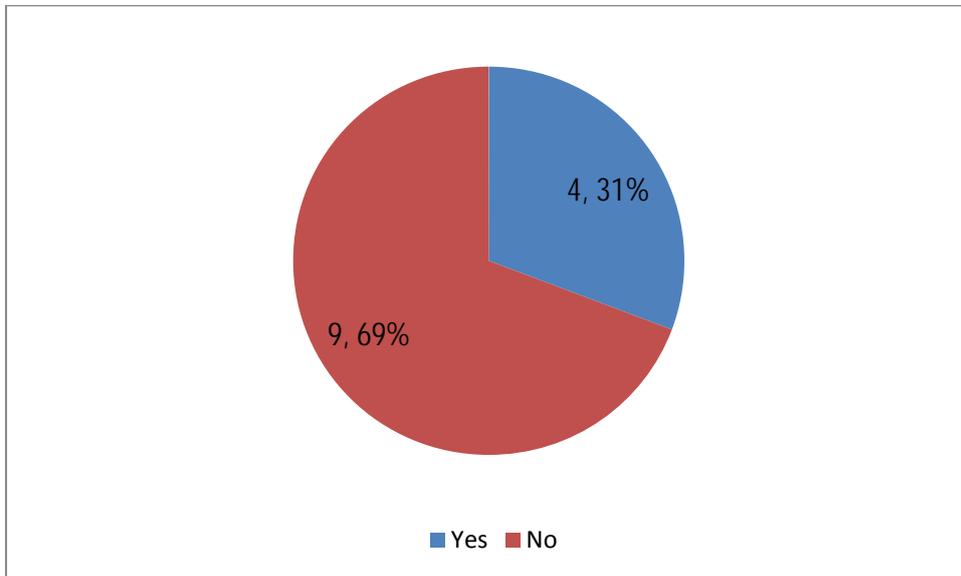


Table VI: Summary of comparative analysis between success factors for PPP projects in housing projects and construction industry.

no	Success factors for PPP Housing projects	Success factors for PPP projects in construction industry
1	Government involvement	Strong and good private consortium
2	Government support through subsidies and guarantees	Appropriate risk allocation and risk sharing
3	Accurate project Identification	Available financial market
4	Competitive and transparent procurement	Government support and guarantee
5	Adequate legal framework	Favourable economic condition
6	Stable macro-economic condition	Available financial market
7	Favourable economic policy	Transparency in procurement process
8	Presence of strong financial market	Fairness and competitive tendering
9	Favourable housing loan terms from the financial institution	Favourable legal framework
10	Selecting private developers with a sense of social obligation to enhance compatibility	Project technical feasibility
11	Public sector to carry out feasibility study rather than the private sector to avoid exaggeration	Realistic cost benefit analysis
12	Just enough government subsidies to support affordable housing projects,	Good governance
13	Conducive socio-economic structure to boost income generation	Shared authority between parties
14	Trust between parties	Trust between parties
15	Favourable housing policies	Well formulated and detailed contract
16	Adequate PPP Capacity	Constant communication and monitoring
17		Careful ground work
18		Political support PPP capacity and awareness

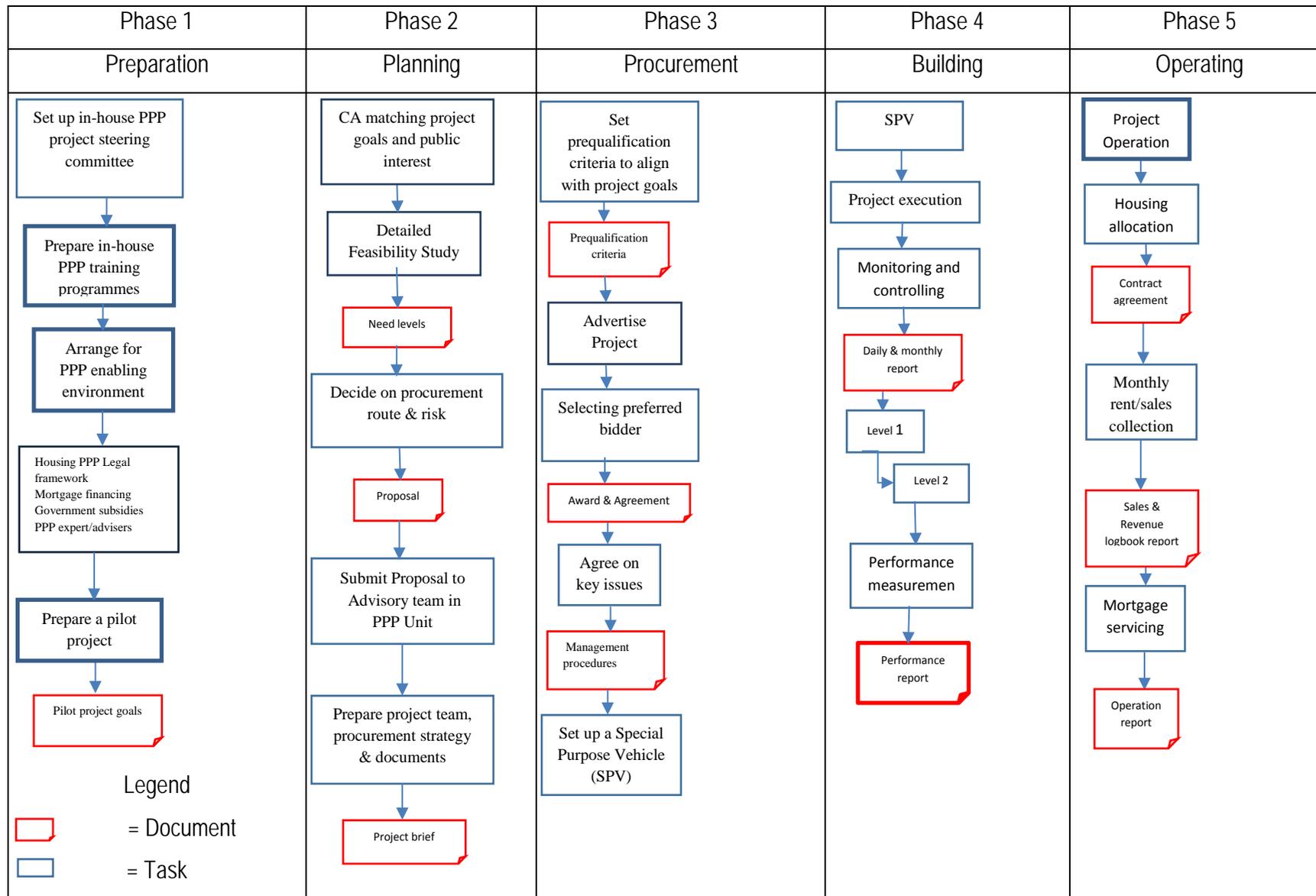


Figure 3: Proposed PPP framework model for Housing projects.

Table VII: Mapping the PPP challenges with advocated remedial solutions to the framework

No	Challenges	Advocated remedial solutions	Supporting Literature	Model strategy	Phase ¹
1	Differing goals between partners	1) Careful ground work; 2) Selecting private developers with a sense of social obligation to enhance compatibility; and Compatibility between partners.	Moskalyk, (2011); Abdul-Aziz and Kassim,(2011)*, World Bank (2016)**	Set prequalification criteria to align with project goals	P3
2	Corruption	1) Transparency in procurement process; 2) Action against errant developers,	Abdul-Aziz and Kassim (2011)*	Less negotiations after bidder selection	P3
3	Misinformation on financial capacity of private partners	1) Transparency in procurement process; 2) Trust between parties; 3) Ample time to evaluate proposal,	Abdul-Aziz and Kassim, (2011)*; Jamali, (2004)*	Thorough document screening	P3
4	Poor PPP contract and tender documents	1) Well formulated and detailed contract and adequate legal framework; 2), Good preparation	Kwofie <i>et al.</i> , (2016)**and Babatunde <i>et al.</i> , (2012)**, World Bank (2016)**	Detailed preparation and planning; 'in-house' steering committee is proposed in the model to enhance PPP training programme.	P3
5	Delays	1)Constant communication and monitoring; 2) Strong and good private consortium	Akintoye <i>et al.</i> , (2003); Li <i>et al.</i> , (2005a); Abdul-Aziz and Kassim, (2011)*	Tier two project management system to enhance communication	P4
6	Inadequate PPP legal framework and guidelines	1) Adequate legal framework	Ismail, (2013)*, World Bank (2016)**	Arrange for PPP enabling environment	P1
7	Inadequate PPP skills and knowledge	1) Adequate PPP Capacity; and 2) PPP training and awareness	Jefferies <i>et al.</i> ,(2002); Cheung <i>et al.</i> ,(2012), World Bank (2016)**	'in-house' steering committee is proposed in the model to enhance PPP training programme.	P1
8	Lack of competition	1) Transparency in procurement process; and 2) Fairness and competitive tendering	Ismail, (2013)*; Abdul-Aziz and Kassim, (2011)*, World Bank (2016)**	Competitive tendering	P3
9	Inadequate feasibility study	1) Careful ground work; 2) Public sector to carry out feasibility study rather than the private sector to avoid exaggeration	Jefferies <i>et al.</i> , (2002), Cheung <i>et al.</i> , (2012); Ismail, (2013)*, World Bank (2016)** , URT (2009)**	Need levels must be identified clearly by public sector	P2
10	Inadequate project management by the public sector	1) Good governance; 2) Constant communication and monitoring, 3) Trust between parties; and 4) Consistent monitoring	Jamali, (2004)*, World Bank (2016)**	Tier 2 project management controlling	P4

Notes: * Denotes studies from African Countries (Tanzania, Ghana and Nigeria); * Denotes studies from developing countries such as Malaysia, Ghana, Nigeria and Lebanon; ** Denotes Tanzanian specific studies; ¹Where the phase relates to the phases as shown in Figure 2 and P1 = Preparation; P 2 = Planning; P3 = Procurement; P4 = Building; and P5 = Operating

Table VII: Mapping the PPP challenges with advocated remedial solutions to the framework (Continued)

No	Challenges	Advocated remedial solutions	Supporting literature	Model strategy	Phase ¹
11	Long term disputes and conflicts between parties	1) Transparency in procurement process; 2) Trust between parties; 3) Constant communication and monitoring; 4) partners compatibility	Ismail, (2013)*; Jamali, (2004)*	Agree on key issues upfront and management/disputes procedures	P3 &P4
12	Inadequate government commitment and support	1) Just enough government subsidies to support affordable housing projects; and 2) Commitment of the public and private sectors	Ismail, (2013)*, Kwofie <i>et al.</i> , (2016)**, World Bank (2016)**	Arrange for PPP enabling environment during the preparation	P1&P2
13	Insufficient capacity in procurement and negotiations	1) PPP capacity and awareness, and 2) PPP training	Jefferies <i>et al.</i> , (2002), Cheung <i>et al.</i> , (2012); World Bank (2016)** , URT (2009)**	Prepare in-house PPP training programmes and enabling environment	P1
14	Poor risk identification, allocation and management	1) Appropriate risk allocation and risk sharing	Ismail, (2013)*, URT (2009)**	Detailed Feasibility Study	P2
15	In experienced private partner	1) Fairness and competitive tendering; 2) Strong and good private consortium, 3) PPP capacity and awareness; and 4) Public empowerment	Jamali, (2004)* ; Jefferies <i>et al.</i> , (2002), World Bank (2016)** , URT (2009)**	Set prequalification criteria to align with project goals; PPP training programmes	P3
16	Unequal qualifications and contributions of expertise	1) Adequate PPP capacity ; 2) PPP capacity and awareness; 3) Shared responsibility between public and private sectors;	Chan <i>et al.</i> (2010), Jefferies <i>et al.</i> , (2002), Cheung <i>et al.</i> , (2012)	Submit Proposal to Advisory team in PPP Unit	P1
17	Poor enabling environment to attract competent partners	1) Good governance; 2) Sound economic policy; and 3) Availability of finance market	Ismail, (2013)*, Jefferies <i>et al.</i> , (2002), Cheung <i>et al.</i> , (2012), URT (2009)**	Arrange for PPP enabling environment	P1
18	Inadequate mechanisms for recovery of private investors' capital	1) Conducive socio-economic structure to boost income generation; 2) Accurate project identification and technical feasibility; 3) Thorough and realistic assessment of the cost and benefits; 4) Government should provide free land to private investors to lower the cost of the houses; and 5) Empowering the low income group financially	Ibem, (2011b)** , Ismail, (2013)* Kwofie <i>et al.</i> , (2016)**, World Bank (2016)** , URT (2009)**	PPP Unit enforcing its advisory role and arrange for PPP enabling environment	P2
19	High cost in procuring PPP projects	1) Adequate PPP capacity building; 2) PPP capacity and awareness; 3) Available financial market; 4) Thorough and realistic assessment of the cost and benefit; and 5) Economic viability,	Jefferies <i>et al.</i> , (2002, Cheung <i>et al.</i> , (2012), Ismail, (2013)*, World Bank (2016)** , URT (2009)**	Prepare in-house PPP training programme to train local people,	P1&P2

Notes: *Denotes Studies from African Countries such as Ghana and Nigeria; * Denotes studies from developing countries such as Malaysia, Ghana, Nigeria and Lebanon; ** Denotes Tanzanian specific studies ¹ Where the phase relates to