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**IMPROVING THE DELIVERY OF PPP HOUSING PROJECTS  
IN DEVELOPING COUNTRIES**

**By**

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## ABSTRACT

The supply of adequate and affordable houses is still a big challenge in many developing countries, particularly where the population and urbanisation rates are continuously growing. As the urban population of a city grows, so too does the need for more housing, quickly exceeding the existing housing supply and leading to the growth of informal, uncontrolled and unregulated settlements. Governments, through their housing agencies, have sought to use different housing strategies, such as public private partnerships (PPPs), to solve these urban housing problems, but with limited success. Despite the adoption of PPPs, this deficiency remains at a high level and progress is slow.

The aim of this study is, firstly, *to examine the challenges affecting the delivery of HPPP projects in developing countries and, secondly, to propose a PPP conceptual model to address the identified challenges*. A mixed-methods approach was used to collect data from 28 stakeholders involved with housing public private partnership (HPPP) projects. Tanzania was used as the case study for data collection, with this achieved via a hand-delivered and emailed survey and 23 semi-structured interviews with public and private sector respondents. Purposive sampling was used to select the targeted respondents. The quantitative data were analysed through the Statistical Package for the Social Sciences (SPSS 22.0) whereas the qualitative data were analysed by content analysis.

This study identified several challenges hindering the success of HPPP projects with the five highest ranked challenges found to be: inadequate PPP skills and knowledge; poor contracting and tendering documents; inadequate project management; inadequate legal framework; and misinformation on private partners' financial capacity. In addition, other aspects that influenced the adoption of PPP in housing, such as cost and affordability, sustainability

factors and advocated benefits were identified as having a significant impact. Results demonstrate that the PPP can be adopted as an alternative approach; however, the identified challenges need to be addressed for a successful outcome to be achieved. This has been achieved in this study by the development of a PPP conceptual model validated by the expert opinion approach.

The key contributions to knowledge include: bridging the literature gap as this empirical study is the first that identifies and ranks the challenges of the PPP for housing project delivery within the developing country context. Additionally, a conceptual model has been developed by adopting (and modifying as appropriate) success factors from international best practice. The conceptual model is based on the project life cycle approach whereby the key features (skills, planning, procurement, monitoring and controlling) of the model address the major constraints, as highlighted in this study. It is anticipated that the proposed conceptual model, validated by PPP experts, will provide a valuable road map for the successful delivery of HPPP projects in developing countries.

## **DEDICATION**

I hereby dedicate this thesis, firstly, to the ALMIGHTY GOD for without Him this work would never have existed. Secondly, this dedication goes to my dad Mr Wilbard Nicholas Kavishe and my late mother Mrs CONJESTER WILBARD KAVISHE: it is sad you are not with us to share my success.

Last, but very importantly, this thesis is dedicated to my special husband DISMAS and my two sons ETHAN and EVAN for their steadfast support and patience.

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## LIST OF ABBREVIATIONS

4 Es	economy, efficiency, effectiveness, equity
AFH	affordable housing
AFHS	affordable housing scheme
ANOVA	analysis of variance
ARCOM	Association of Researchers in Construction Management
BOO	build-own-operate (model)
BOT	build-operate-transfer (model)
BREEAM	Building Research Establishment Environmental Assessment Method
CA	Contracting Authority
CBD	central business district
CMHC	Canadian Mortgage Housing Company
CSF	critical success factor
DSM	Dar es Salaam
ECAM	engineering, construction and architectural management
EPEC	European PPP Expertise Centre
EU	European Union
GBCSA	Green Building Council South Africa
GDP	gross domestic product
GOT	Government of Tanzania
HM	Her Majesty
HPPP	housing public private partnership
IFC	International Finance Corporation
JV	joint venture

JVM	joint venture model
NAO	National Audit Office (Tanzania)
NCPPP	National Council for Public Private Partnerships
NHC	National Housing Corporation
No/n	number
NHC-HPPP	National Housing Corporation-housing public private partnership
NSSF	National Social Security Fund
PFI	private finance initiative
PMBOK	project management body of knowledge
PPP	public private partnership
Qual	qualitative
Quant	quantitative
RAI	Relative Agreement Index
RDD	Regional Development Director
RoB	Registrar of Buildings
SD	standard deviation
SE	standard error
SI	standardised item
SPSS	Statistical Package for the Social Sciences (now known as IBM SPSS Statistics)
SPV	special purpose vehicle
TCT	transaction cost theory
TGBC	Tanzanian Green Building Council
TOC	theory of constraints
TP	Thinking Process

TPDC	Tanzania Petroleum Development Corporation
UAE	United Arab Emirates
UK	United Kingdom
UN	United Nations
UN ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
URT	United Republic of Tanzania
US/USA	United States/United States of America
VfM	value for money

# CHAPTER 1

## GENERAL INTRODUCTION

### 1.1 Background to the Research

Many African countries, such as Tanzania, continue to lack suitable policies for housing development with this largely contributing to the growth of informal and poor housing conditions. Since independence in 1961, Tanzania, for example, like many African countries, has experienced a large increase in population from 12.3 million in 1967 to almost 45 million in 2012. Currently, Tanzania has a population of 55.57 million. Coupled with this is a rise in the urban population from 5.7% in 1967 to 29.1% in 2012, with the overall trend in population growth averaging nearly 3% annually while urbanisation grew by 5% annually (Nnkya, 2014; Wenban-Smith, 2015). The result is that the available social facilities and services have been significantly strained.

For several decades, this rapid growth in population and urbanisation has contributed to inadequate housing. Across Africa, a severe housing deficiency is being experienced; for example, in Tanzania, this is currently projected at three million houses and is growing at a rate of 200,000 houses per annum (NHC, 2010). The situation has worsened in Tanzania's urban regions, where the data show that the urban population has grown from 14.8% in 1980 to 37.5% in 2005, rising to more than 55.5% by 2017 (NHC, 2010). Drawing from the previous study by Tesfaye (2007), urbanisation and housing demand are directly proportional and, in that case, as the urban population of a city grows, the need for more housing also grows, eventually exceeding the availability of formal land for housing, leading to the growth of informal settlement. The informal sector in Tanzania has predominantly been absorbing

most of this growth. According to UN-HABITAT (2009) definition, informal urban development/settlements are those that do not comply with the state's land regulatory and legal requirements. Tanzania is one of the sub-Saharan African countries with the highest proportion of its urban population living in informal settlements whereby more than 50% of the whole urban stock is covered by informal housing (Abebe, 2011). Dar es Salaam, the capital of Tanzania, has a land area of 1,350 km<sup>2</sup> and holds 10% of the country's population, with 70% of its residents living in informal settlements (Mwiga, 2011; Kidata, 2013).

Coupled with the supply of housing in countries such as Tanzania failing to keep up with the growing population, investment in both public and private sector services is falling rapidly behind. Due to this widening gap, the Tanzanian government has had to seek alternative ways, such as the public private partnership (PPP) strategy to address this issue and relieve the existing situation (NHC, 2010; Kidata, 2013). More recently, the adoption of these PPPs has been considered the next best alternative to delivering public services such as housing (Sengupta, 2006; Sobuza, 2010; Moskalyk, 2011). However, despite the adoption of PPPs in housing delivery, the prevailing problems remain unresolved. For instance, in Nigeria, more high-cost houses have been built (Ibem and Aduwo, 2012) through PPPs; hence, they are not affordable. Similarly, attracting competent private partners has remained problematic in developing countries (Sharma, 2012). Furthermore, according to Ngowi (2006), the application of PPPs in developing countries such as Tanzania is a new phenomenon, still in its infancy.

Despite numerous studies on PPPs in which most have identified the challenges hindering the growth and success of PPP across various sectors, the focus has been mainly on the transportation sector. In both developing and developed countries, empirical studies are very

limited on the challenges affecting the delivery of housing public private partnership (HPPP) projects, as well as on the development of a conceptual model. Furthermore, according to Tang *et al.* (2010b), most empirical studies on PPPs in construction have largely centered on four themes: (1) risks; (2) relationships; (3) critical success factors (CSFs); and (4) financing. However, some Tanzanian-specific studies have investigated, for example, institutional arrangements and constraints within solid waste management (Nkya, 2004) and PPP challenges in Tanzanian municipalities (Ngowi, 2006), providing some insights into African-centric issues. The study by Mboya (2013), although it covered implementation roles and legal issues as well as a PPP framework road map, was more on a country level and based on non-empirical data.

The above suggests that, despite Tanzanian PPP studies being rather limited, they are mostly policy-related and not based on empirical data (URT, 2009; Mboya, 2013; World Bank, 2016) or non-construction and non-housing studies with an emphasis on local authorities (Ngowi, 2006) and solid waste management (Nkya, 2004). This highlights the need for construction and housing-specific empirical studies on several areas which affect public private partnerships (PPPs). More recently, Akintoye and Kumaraswamy (2016) renewed the call for more PPP research. The need for Tanzanian context-specific PPP studies is nested within the different prevailing regulatory and framework conditions. Additionally, as observed by Tang *et al.* (2010b) and, more recently, in the World Bank (2016) report, the PPP partners, in exploring implementation issues (including challenges) and emergent benefits, should take stock of the internal and external conditions in the host country.

Despite the number of PPP-related studies undertaken worldwide, various researchers have also acknowledged that few studies have been conducted to assess the viability of PPPs in

housing delivery, for example, Sobuza (2010) in South Africa; Moskalyk (2008) in Canada; and Susilawati and Armitage (2004) in Queensland, Australia. Similarly, some selected recent studies in developing countries are described below. For example, Hashim *et al.* (2016) investigated the delivery of facilities management (Salman *et al.*) in Malaysia. In Nigeria, (Babatunde *et al.*, 2012; Babatunde *et al.*, 2015), respectively, focused on the critical success factors (CSFs) for and barriers to PPPs in infrastructure delivery. In Ghana, Kwofie *et al.* (2016) studied a critical success model for HPPP delivery. Equally, within the developed countries' context, recent studies, such as the work of Akintoye and Kumaraswamy (2016), have also highlighted several significant challenges for PPPs and directions for future PPP research. It is therefore evident that, despite the proliferation of PPP-related studies, limited empirical studies have been undertaken within the many African countries and their housing projects.

Therefore, the highlighted housing shortage, the identified literature gaps and the need to respond to the research agenda and knowledge gaps identified by Akintoye and Kumaraswamy (2016) provided a basis and served as drivers for carrying out this study to assess the viability of PPPs in delivering housing in developing countries, particularly in Tanzania. Moreover, the literature has acknowledged that PPPs in Tanzania is still in its infancy and a new phenomenon; thus, the current study intends to develop an empirical conceptual model so PPPs can be further improved and effectively and efficiently implemented in the housing industry.

## **1.2 Aim of the Study**

The aim of the study is to examine the challenges affecting the delivery of HPPP projects and propose a PPP conceptual model to address the identified challenges in order to facilitate

improved delivery of HPPP in developing countries. To achieve the aim of this research project, the following objectives were addressed.

- i. To investigate the PPP awareness and skills for implementing HPPP projects, to assess the current weakness and barriers to its implementation.
- ii. To identify challenges and risks affecting the delivery of HPPP projects.
- iii. To establish the PPP antecedents for adopting HPPP projects.
- iv. To evaluate the cost and affordability factors for successful implementation of HPPP projects in developing countries, using Tanzania as the test bed.
- v. To explore the sustainability factors influencing the adoption of HPPP projects.
- vi. To develop an effective HPPP conceptual model to address the challenges, draw conclusions and empirically validate the developed model.

### **1.3 Rationale of the Study**

The supply of adequate houses remains a major challenge in most developing countries in Africa. Tanzania, like most emerging economies, experiences similar challenges with its continuously growing population and urbanization rates. Tanzania is currently facing an enormous housing deficit. The demand is estimated at three million houses, and is growing at an average rate of 200,000 houses per annum (NHC, 2010). To mitigate the shortage of housing, as a consequence of this growth in population, the Tanzanian government, as with most governments in developing countries, has been encouraged to adopt the popular PPP strategy as the solution to delivering more houses. The need to adopt alternative means, other than the approaches traditionally used to address the problem, to prevent the gap between housing demand and supply was considered necessary by the Tanzanian government.

Therefore, the government redirected its public agency, the National Housing Corporation (NHC), to adopt PPP strategies in order to address the growing housing challenge (NHC, 2010).

Examples in previous studies (Tang *et al.*, 2010b; Roumboutsos and Macário, 2013) identified the PPP as an appropriate alternative approach for governments to deliver public services. Developed countries, such as the United Kingdom (UK), Canada, the United States of America (USA) and Australia, and some other developing countries, such as India, South Africa and Malaysia, have successfully employed public private partnership/private finance initiative (PPP/PFI) projects to deliver affordable housing (Abdullahi and Aziz, 2011; Moskalyk, 2011; Liu *et al.*, 2014). Likewise, a study by Sobuza (2010) suggested that the PPP can act as a “vehicle to fast deliver more houses”. However, according to Moskalyk (2011), PPPs are more complex than the traditional procurement process, requiring a very large amount of preparation, training and experience as well as good monitoring and management skills. Several studies have argued that numerous challenges affect the success of housing PPP (HPPP) projects particularly in developing countries (Sengupta, 2006; Abdul-Aziz and Kassim, 2011; Moskalyk, 2011; Ibem and Aduwo, 2012; Kwofie *et al.*, 2016). Similarly, most Tanzanian HPPP projects have faced challenges and experienced failures (Kavishe, 2010; Kavishe and An, 2016) and early termination (World Bank, 2016) due to the complexity of public private partnerships (PPPs). Moreover, to date, insufficient preparation has been carried out towards PPP adoption. However, the current study’s literature review revealed that Tanzania lacks empirical evidence on how to better prepare the private and public sectors to adopt or implement PPP projects. Moreover, very little research has been conducted in Tanzania to identify the main causes of the challenges/failures in implementing HPPP projects and the ways in which to improve the delivery of these projects. Likewise, few

studies in developing countries have determined how PPPs can help housing schemes and what standardised procedures can be applied to facilitate the provision of a more adequate number of houses in developing economies, especially in Africa. Hence, the need for the current study has been identified as it seeks to achieve improved results in HPPP projects.

Therefore, based on the demonstrated housing shortage (the research problem) and the identified research gap, the key rationale for carrying out this study is to bridge the knowledge gap and to improve the execution and delivery of HPPP projects by identifying the challenges and developing a PPP conceptual model as a tool to address these challenges.

#### **1.4 Research Questions**

The above objectives are to be answered by the following questions:

- i. If you are to assess yourself, do you think you have enough skills on PPPs?
- ii. Have you undertaken any PPP training to improve your skills in this type of project?
- iii. What are the major challenges in developing housing projects through the PPP option?
- iv. What major risks did your organisation encounter in the course of implementing HPPP project?
- v. What are the benefits of employing PPP strategies in Tanzania?
- vi. What were the influential factors for adopting PPP in housing delivery in your organisation?
- vii. What are the success factors for adopting PPP in housing projects in Tanzania?

## **1.5 Expected Outcomes**

This thesis contributes to the knowledge in the PPP housing sector by assisting PPP stakeholders, such as the public sector and private developers, to be aware of the PPP barriers, benefits and success factors, as well as other significant factors in HPPP projects. Similarly, PPP stakeholders are expected to learn proposed ways through the validated HPPP conceptual model to address the challenges to enhance the success of HPPP projects. Furthermore, policy makers will also be able to identify the weaknesses of the existing PPP policy and regulatory framework in order to make improvements or to formulate a better PPP policy and regulatory framework and strategies. In addition, this research study will improve the delivery of affordable housing through better PPP practice, thus bridging the gap between the growth in demand and the supply. Currently, the housing sector contributes less than 1% of Tanzania's gross domestic product (GDP) per annum (NHC, 2010). This research work, by focusing on establishing the appropriate PPP practices, has developed a HPPP conceptual model which ultimately will support the public housing agency to improve the current housing situation in Tanzania. Both the Tanzanian government and policy makers could use the findings as the basis for re-examining the existing PPP policy and regulations, and for reflecting on the existing situation with a view to improving the delivery of future HPPP projects.

## **1.6 Scope of This Study**

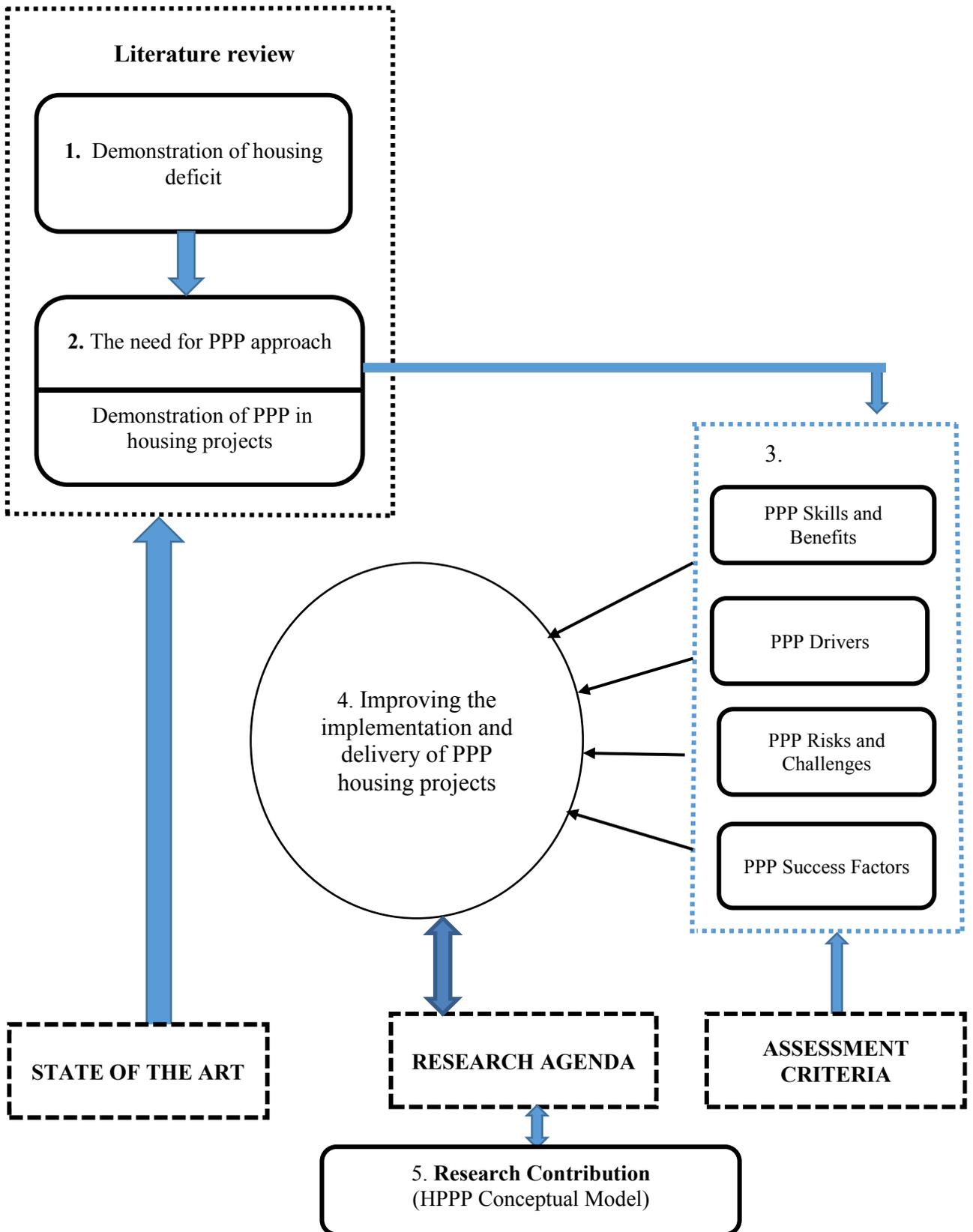
This research has concentrated on HPPP projects undertaken in the city of Dar es Salaam. The rationale for choosing Dar es Salaam as the study area includes: accessibility for conducting a survey to obtain the required data, and the fact that about 60% of HPPP projects, PPP experts, construction professionals and head offices are located in Dar es Salaam. The research has studied only residential houses; thus, other PPP projects, such as commercial buildings, roads

and bridges, are excluded so this study can focus more on addressing housing needs that have been identified as a major issue. Public and private partners, as well as other actors such as consultants, PPP advisors and researchers involved in the HPPP projects, participated in the study to meet the research aim of obtaining relevant and reliable information. The study was carried out over a period of four years, the time frame for undertaking the PhD study.

### **1.7 Conceptual Framework**

The need for a more adequate amount of housing has created a wide gap between the housing demand and the supply, thus increasing the housing deficit. In this study, a literature review was undertaken to demonstrate the empirical evidence of the existing housing deficit as well as the application of PPPs in housing projects. Key concepts and principles were identified so the best practices across countries could be mapped out. Figure 1.1, Stages 1 and 2 provide the state-of-the-art situation:

- ✓ What is the current housing situation?
- ✓ What are the prevailing causes?
- ✓ What efforts have been made so far?
- ✓ What were the outcomes?
- ✓ What is PPP?
- ✓ What are the existing challenges, barriers, risks and needs for improvement?
- ✓ What are the success factors?
- ✓ What is the PPP experience across countries?



*Figure 1.1: Conceptual Framework*

Stage 3 identifies the key variables/inputs that are to be used as criteria for assessing the suitability of a PPP in housing projects. Stage 4 is the research agenda in which the assessment is done, with recommendations and conclusions then made for the development of the HPPP framework model which stands out as the research's main contribution.

## **1.8 Structure of the Thesis**

This thesis is structured into eight chapters with Figure 1.2 presenting the structure and order of the chapters. Following is a brief description of the chapters in their chronological order and with each chapter's content outlined:

### **1.8.1 Chapter 1**

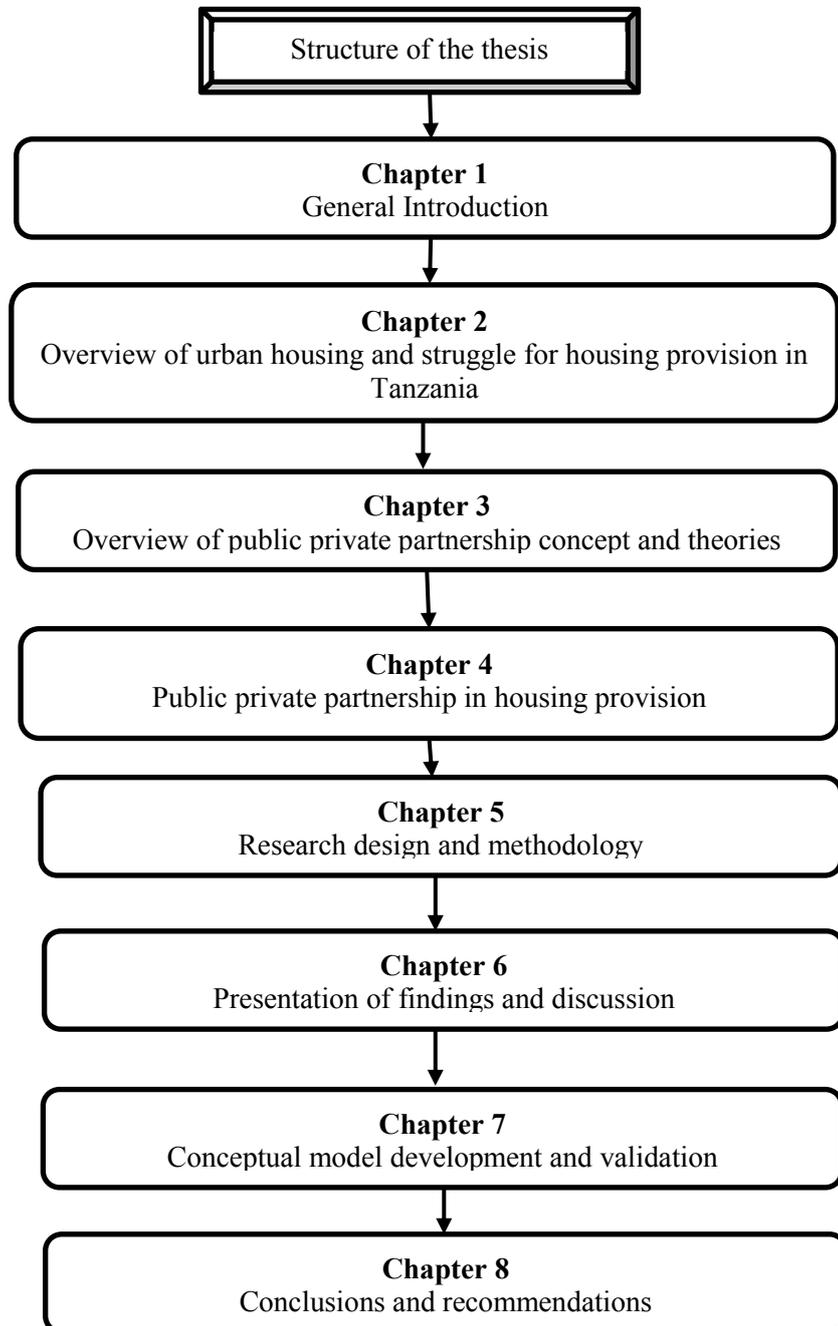
Chapter 1 presents the general introduction to the entire thesis and discusses the rationale for carrying out the study on PPPs within the Tanzanian housing sector. It describes the aims and objectives of the study, the scope of the study and the organisation structure of the thesis. The major purpose of this chapter is to demonstrate a clear link between this study and previous existing research.

### **1.8.2 Chapter 2**

Chapter 2 provides an overview of the Tanzanian housing industry and presents the past and present situation. It begins by describing Tanzania's population growth and urbanisation, and the focus of the study. The chapter further describes the existing housing stock and the housing provision system, National housing policies, housing affordability, existing housing challenges and government efforts made towards the housing sector are all discussed.

### 1.8.3 Chapter 3

Chapter 3 provides the general impression of PPPs and their application in construction projects. Furthermore, the chapter explains how PPPs emerged.



*Figure 1.2: Structure of the thesis*

#### **1.8.4 Chapter 4**

Chapter 4 presents a discussion of PPPs in delivering housing projects. Significant aspects (challenges, risks, benefits, critical success factors [CSFs], to mention a few) associated with the implementation of HPPP projects are carefully examined.

#### **1.8.5 Chapter 5**

Chapter 5 describes the methodology adopted in this research. It outlines the research design and the methodology applied. It further touches on the justification of the selected methodology and study population in order to measure the reliability and validity of the collected data.

#### **1.8.6 Chapter 6**

Chapter 6 discusses both the questionnaire and interview findings obtained in Phases 1 and 2 of the data collection. The main focus of this chapter is to achieve Research Objectives 1 to 5 which provide the main criteria for assessing the suitability of PPPs in housing delivery projects in the Tanzanian context. Furthermore, discussions of the research findings are incorporated in this chapter. The study results are examined in relation to the research questions and, more broadly, in relation to the existing literature to judge the study's contribution to the body of knowledge.

#### **1.8.7 Chapter 7**

Chapter 7 addresses the final objective of this study as stated in Section 1.3, that is, it discusses the development of the HPPP conceptual model. Key phases of the proposed model along with its control method are explained into depth. The chapter also presents the empirical validation process and the obtained results.

### **1.8.8 Chapter 8**

Chapter 8 concludes the research study, highlighting how the research aims and objectives have been met and presenting the study's contribution to the body of knowledge. In addition, the chapter presents the study's limitations and provides recommendations for further research.

### **1.9 Chapter Summary**

This chapter has briefly outlined the general introduction and provided an overview of this doctoral research. It has described the rationale for undertaking the study of PPPs within the Tanzanian housing sector. The aims and objectives of the study have been presented. Moreover, the expected outcomes and scope of the study have been explicitly described. Furthermore, to outline and organise ideas, the notion of a conceptual model was presented. The chapter concluded by outlining the structure of the thesis.

## **CHAPTER 2**

# **OVERVIEW OF URBAN HOUSING AND STRUGGLE FOR HOUSING PROVISION IN TANZANIA**

### **2.1 Chapter Introduction**

This chapter discusses the housing situation in the urban areas in developing countries and Tanzania in particular. Three major issues will be considered and discussed here. Firstly, is how population growth and urbanisation have influenced the supply of housing? Secondly, is what government efforts have been made towards addressing the urban housing issues? Finally, is to identify housing provision systems and the rise of PPP in the housing sector.

### **2.2 Population Growth and Urbanisation**

Challenges concerned directly with housing deficit amongst others include; rapid population growth, urbanisation, inadequate economic growth, inaccessibility to land for housing, poor housing financial facilities, low priorities in housing sector and high cost of industrial building materials (Mosha, 2012). The term Population Growth in this thesis is used to mean an increase in the number of people (either by birth or migration) living in a given locality (URT, 2000). Urbanisation refers to the movement of people from rural areas, (countryside) to urban areas (towns and cities) (URT, 2000). Both urbanisation and population growth are phenomenon experienced by both developed and developing countries as a result of natural increase (birth) and or migration. According to Indongo (2015) both large and small cities in Africa will harbour majority of its population from migration, as it becomes a much more urbanised continent. It is currently projected that, over 40% of Africa's population lives in the urban and it is estimated that the percentage will further increase to 60% (1.23 billion) by

2050 (UN-HABITAT, 2010). Population size is one of the important indicators for economic development as it supplies labour resources for production. However, the same population requires basic needs such as food, shelter, cloth, water and other resources.

In Tanzania, since Independence (1961) the country has experienced a large increase in population, which has strained the available social facilities and services such as housing. According to a study by Wenban-Smith (2015), in 1967 the total population was 12.3million, and by 2012 the population grew to 44.9 million. Similarly, the urban population increased from 5.7% in 1967 to 29.1% in 2012. Looking at the trend the population growth averaged nearly 3% annually while urbanisation grew by 5% annually. This growth has contributed towards inadequate housing for several decades. Likewise, the 2012 census shows that Tanzanian population has tripled since 1967 and is continuing to increase as shown in Table 2.1. Other countries have experienced a similar situation to that of Tanzania. For example, in Brazil, urbanisation was among its biggest challenge that resulted into unequal distribution of land and public investment in urban areas (UN-HABITAT, 2013). Main challenges for Brazil's poor housing included; high cost of land, high cost of construction, high price of completed houses and extreme levels of poverty (UN-Habitat, 2013). The solutions to the Brazilian housing problem did not only need the provision of new homes but strategically considering the population income level (UN-HABITAT, 2013). This implies that income level should be the main feature to be looked at when designing and building houses for a given community.

**Table 2.1: Number of persons and national population density in Tanzania**

	1967 census	1978 census	1988 census	2002 census	2012 census
TZ Mainland	11,958,654	17,036,000	22,584,000	33,462,000	43,625,000
TZ Zanzibar	354,111	476,000	641,000	982,000	1,304,000
<b>Tanzania</b>	<b>12,313,469</b>	<b>17,512,000</b>	<b>23,225,000</b>	<b>34,444,000</b>	<b>44,929,000</b>
% increase	-	42.2	32.6	48.3	30.4
Pop Density (Pop/km <sup>2</sup> )	-	20,000	26,000	39,000	51,000

Source: Tanzania National Bureau of Statistics 1967, 1978, 1988, 2002 and 2012 census

In Tanzania, informal settlement has created the main sector shaping urban growth (Kombe and Kreibich, 2000). For instance, a study by Nnunduma (2009) identified 54 large informal settlements in the city of Dar es Salaam whereby 80% of its housing units are built in unplanned areas. A study by Indongo (2015) presents a similar situation in some other African countries such as Nigeria, where 80% of its urban inhabitants live in slums; in Zambia, the figure is 74%; and in the Sudan, 85.7%. UN-Habitat confirms that the sub-Saharan Africa is the only region where there is no noticeable progress made to improve the slum dwellers' lives in line with the targets set under the Millennium Development Goal. The provision of sustainable and affordable housing is a widespread problem for all countries in the developing region due to rapid and progressing urbanisation. Tanzania is among the developing countries facing high shortage of adequate housing. The supply of housing is not keeping pace with the growing population. The city of Dar es Salaam specifically is more affected than any other regions in the country due to high urbanisation rate. In this case urbanisation has negatively impacted urban housing for the low-income earners and thus there is a need for large-scale production of affordable housing to cater for the growing population as most migrants are low-income people searching for a better life in the urban areas.

### **2.3 Housing Stock**

After independence in 1961, the government of Tanzania initiated Five-Year Development Plan (FYDP). It was estimated in the period of (1964–1969) there was a shortage of 21,000 houses in urban areas (URT, 2000). The shortage grew to 25,000 houses at the end of the 2nd Five Year Development Plan (1969–1974) and reached 300,000 houses in 1982 (URT, 2000). By 2002, urban areas had a deficit of 2.3 million housing units (Nnunduma, 2009). According to recent statistics the current housing shortage is estimated at three million houses compared to a growth rate of 200,000 housing units per annum (NHC, 2010; Urban Solutions, 2012). While the current estimated deficit in Tanzania urban areas is about 1.2 million housing units, 36% are in Dar es Salaam (Urban Solutions, 2012).

Furthermore, it is noted the lack of a point of reference of how the deficit has been calculated can be misleading as it has not yet been established what is the acceptable standard of housing in Tanzania. Many Tanzanians live in houses lacking services for example electricity, water and access roads. The real shortage may even be higher than the identified shortage in the studies by (NHC, 2010; Urban Solutions, 2012).

Additionally, it is further established that a significant housing shortage exists, with this confirmed by overcrowding levels found in urban areas (URT, 2000; Seleki, 2001; URT, 2013). An occupancy rate of more than two people per room creates the state of overcrowding. According to the 2012 population and housing census report, the average household size in Tanzania has remained unchanged between 2002 and 2012 with average occupancy rates recorded to be 4.9 persons per household in 2002 and 4.8 in 2012. The average household size in the city of Dar es Salaam is 4.0 (URT, 2013).

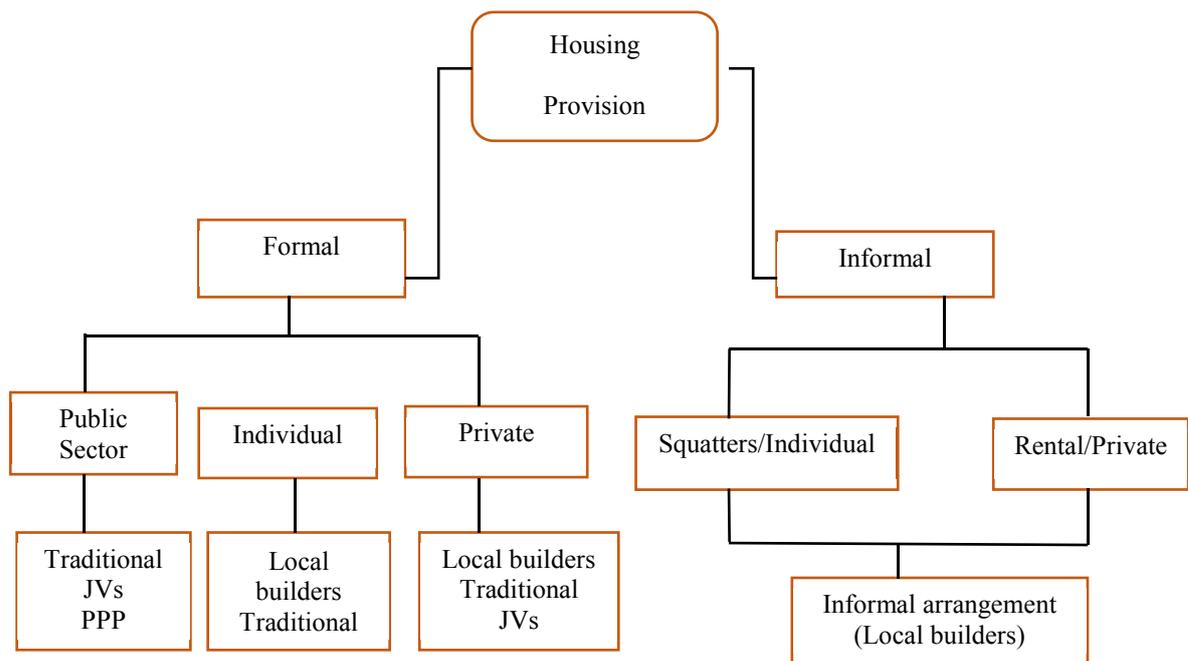
In most cases the Tanzanians build their own houses from their own savings slowly over a long period of time, often taking up to 10 years to build two bedrooms of up to 25m<sup>2</sup> (Nnunduma, 2009). The provision of housing has mostly been dominated by the non-public sector. The most common approaches in housing provision systems in Tanzania are summarised in Table 2.2.

**Table 2.2: Housing provision systems in Tanzania**

No	Sector	Description	Reference
1	Private - Commercial System	This has been a common practice for the private business people constructing houses for rent to generate income. It can be in the formal land or an informal land depending on which segment of the population the owner is targeting.	(Nnunduma, 2009)
2	Private/Individual Building	This is also very common where by individuals will do savings or will take a loan in order to build their own houses. This system usually involves the use of local builders (Fundi) and sometimes requires technical and financial support from families and friends. This system can take 2-15 years to complete the construction of a house. And it has been observed, the majorities of this type of construction occurs in the informal settlement/land.	(Nnunduma, 2009; Nnkya, 2014)
3	Public Sector Production	This is being undertaken by the existing Public housing agencies such as NHC, TBA and Watumishi Housing company. Similarly, Public Funds parastatals such as NSSF, PPF, and NHIF to mention a few have taken part in the housing provision too. Some of their projects are intended for the civil servants and some are open to the general public. Generally, their constructions are executed in large scale compared to the above two systems and takes place on the formal land.	(Nnunduma, 2009)

In addition, the availability and supply of land has been critical to the development of housing. In many cases land and financial hardships have been a stumbling block towards the supply of adequate housing (Mosha, 2012). Almost 90% of the land in Tanzania is owned by the government but individuals can lease a land up to a maximum period of 99 years and it is renewable (Nnunduma, 2009).

Figure 2.1 below provides a more detailed graphical representation model of the housing provision systems prevailing in Tanzania. The Model has been adapted from Keivani and Werna (2001) conceptual model of housing provision in developing countries, with slight changes and adjustment made to portray the Tanzanian case. The model portrays that two main systems exist, namely, the formal and informal systems.



**Figure 2.1: Housing provision systems in Tanzania** Adapted from Keivani and Werna (2001)

The public sector and some of the private commercial developers targeting the high and the medium income population are found to procure their houses through the formal system. While the informal system is dominated by the low income earners, these are mostly slum dwellers/squatters and private rental housing. It is noted that in the informal, system informal arrangement through local builders, locally known as “Fundi” is the common practice because it is considered the cheapest option.

By comparison the formal system uses quite a number of procurement options such as the traditional methods, joint ventures, PPPs as well as informal arrangement. Here the informal

arrangement is referred as the casual process of obtaining a local builder usually recommended by friends and family in order to undertake construction works. Such arrangements usually lack formal contracts as well as quality assurance. The informal arrangement and traditional methods will not be discussed further here as they are not the central focus of this study. Instead PPPs will be introduced on the next chapter.

#### **2.4 Government Efforts towards Urban Housing**

Having realised the housing issues and its major challenges as presented in the above sections, different efforts were made to address the shortage. All governments worldwide have tried different ways to address the problem of sustainable, adequate and yet affordable housing for the past four decades but the progress is slow and the challenge of housing shortage and informal settlements is still growing especially in the developing countries. This problem is too big for an individual sector to solve it alone, as the overall population requires support to acquire decent housing. This was also affirmed by the previous Tanzania Vice-President (Dr Mohammed Gharib Bilal) while addressing the housing shortage in Tanzania stressing that “housing issues can only be achieved through Public Private Partnership (PPP) and not through the government alone” (TanzaniaInvest, 2012). Following this, a number of strategies have been employed to solve the urban housing problems to date. For example, both the housing agencies and the public pension fund organisations have initiated quite a number of affordable housing projects in the city of Dar es Salaam as well as in other regions. Similarly, public organisations such as the NHC, NSSF and TBA have initiated joint ventures/partnership strategies to address the housing issue. The next section discusses the different models adopted in the supply of housing in the Tanzanian context since the 1950s.

### **2.4.1 Provider Model**

This model extended between the 1950s and 1960s where the state/government was the main provider. A number of public institutions were established including the National Housing Corporation (NHC) in 1962 with the responsibility of constructing and managing urban housing. NHC planned to build 10,000 housing units in five years from 1969-1974 however it managed to achieve its goal only by 50%. Later in 1976 -1981 it had another plan of building 7,500 units but only around 200 housing units were achieved (Mushumbusi, 2011). Such a poor performance was caused by financial difficulties, as well as poor construction skills/knowledge. The building of these properties depended largely on external financial sources and little from internal sources (Mushumbusi, 2011).

Additionally, NHC could not operate by itself because of the 1962 Rent Restriction Act, which prevented both the public and private sectors in Tanzania from making any rent increase. The Act had negative impact because developers were discouraged from investing more in the housing sector and thus it distorted the housing market (Kaitilla, 1990). In 1962 again another strategy known as Revolving Housing Loan Fund for workers (civil servants) was put in place to provide financial support. This was the first housing loan scheme introduced by the government after independence, when they realised that number of their civil servants was growing while the housing conditions and actual number of units remained the same (Kironde *et al.*, 2003). Later in 1972 loan scheme was ended and was transferred to Tanzania Housing Bank (THB), which failed in 1995. Among reasons for its collapse were;

- High interest rates imposed on the loans while most civil servants were low income
- Few civil servants qualified to secure the loans due to inadequate capacity
- THB failed to operate commercially due to inadequate funding

According to Kironde *et al.* (2003), the awareness of these challenges, led the government to re-establish the Revolving Housing Loan Fund for civil servants but with slightly different features including:

- Beneficiaries included, were permanent and pensionable civil servants working in the central government.
- One could only provide the property to be constructed as a collateral
- At the start funds depended on support from the treasury, the scheme should work to fund both urban and rural housing all over the country and it should serve around 500 applicants yearly.

However, these features were still biased because the above financial scheme did not address all the social groups in the society. Instead, the low income segment of the workers who needed even more help were not included in, as it only cared for those working with the central government. Consequently, even with these efforts housing development remained a huge issue since the low income people in the urban areas were neglected and this led them to build houses from their own savings causing a major rise of the informal settlements/slums. As a result, majority of these houses in the informal sector as well as some of those in the formal sector were occupied before completion and so had poor infrastructure such as lack of power, water and or sewage system.

Generally, the Provider Model failed to address the housing challenge because of the financial difficulties and poor construction skills.

#### **2.4.2 Enabling Strategy Model**

This came to existence in 1970s when the state gradually shifted from being the sole provider. The idea behind this was to involve the community in housing development. According to

UN-HABITAT (1988), the enabling strategy was among the main principle towards reaching the goal of providing adequate housing for all by the year 2000. The efforts to facilitate the implementation of the Global Strategy for Shelter in Tanzania can be mapped out in two schemes; “Sites and services scheme” and the “upgrading model”, which lasted between 1974 and 1981 (Lugalla, 1995). The sites and services scheme intended to provide some plots to people and encourage them to form cooperatives to build their own houses (Lugalla, 1995). However, it was identified that the scheme was never successful to meeting its objective because it had set too high standards, which were not affordable, by the poor (Kironde, 1991). The failure reasons of the Sites and services scheme as provided by Kironde, (1991. p 29) included:

- The use of outdated building regulations which could not be met by low income households,
- Shortage of building materials,
- Failure of the self-help approach and
- Difficult conditions attached to obtaining finance from the THB.

Similarly, according to Mushumbusi, (2011) the second scheme, (upgrading model) intended to improve the squatter settlement, because the government realised the need to do it. Therefore through this strategy, the government provided local resources and physical intervention in planning based on incremental development, using self-help (Mushumbusi 2011, p. 33).

On the other hand, the enabling approach have been adopted not only in Tanzania but also by many governments around the world; some were more successful than others, and thus it continued to be the prevailing model recommended internationally (Hassan, 2011). The philosophy of the enabling approach had a broader context of addressing not only the housing

projects but also the housing system. Therefore, it was not the duty of the state to provide housing but to provide the enabling environment to enable other actors deliver effectively (Hassan, 2011).

### **2.4.3 Governance Model**

Mushumbusi (2011) argued that the governance model is an extended version of the enabling model. Jenkins (2004) further stated that the governance model was a universal method aimed at boosting the sub-national level development as an alternative of the large-scale nationally dominated development strategies of the 1960s and 1970s. Therefore the UN and UNDP introduced the idea of Environmental Planning and Management (EPM) under the Sustainable Cities Programme (SCP) where, Tanzania was among the nominated countries to test the concept which was fully sponsored by the World Bank and UNDP (Kombe and Kreibich, 2000). ‘Sustainable Dar es Salaam Project’ (SDP) was the name given for the pilot programme in the city of Dar es Salaam 1992 (Mushumbusi, 2011). The goal of SCP was to support cities to attain more environmentally sustainable growth and development through capacity building to local authorities (Nnkya, 2005). However SCP was introduced at the time when Tanzania was experiencing its major political transformation. The government was moving from mono party system to multi-party system in 1992. Similarly in the mid-1980s, Tanzania had started to shift from command economy to market oriented economy and reached its peak in 1990 (Nnkya, 2005). Meaning that the government was withdrawing itself from providing services directly to the public, instead leaving it to the community and private sector while assuming the facilitating role. Therefore sustainable development was the major concern of the whole approach and it managed to make awareness on the environmental issues but it could not make adequate contribution towards urban housing because donor communities had their own priority focus (Kombe and Kreibich, 2000).

#### **2.4.4 Joint Venture (PPP) Model**

According to Kogut (1988), a joint venture (JV) is formed when two or more organisations share their resources within a common legal organisation aiming to achieve mutual goals. Similarly, Comino *et al.* (2007) while comparing JVs to contractual agreements, illustrated that JVs can be more appropriate when needing to transfer resources and knowledge. In addition, based on Akbiyikli and Eaton (2005), JV is a partnership in which a Public Authority may not take over 50% of the capital funding. Whereas, PPPs are collaborations between Public and Private Entity aiming to share resources and risks in order to achieve the agreed objective. For PPPs two different entities in this case public and private must collaborate while in JVs it's not necessarily the case, parties could be private-private, public-public or one of each. Therefore not all joint ventures are PPPs unless the key features as explained in subsection 3.2.1 on Page 32 are achieved.

The deterioration of the existing public properties and failures in the above models to address the housing shortage, made NHC (a public organisation) decide to adopt the public private partnership in the form of joint ventures (JVs). The joint venture model (JVM) in real estate projects was NHC strategy for developing properties, particularly the condemned ones, where it partnered with private investors (Maagi, 2010). The NHC joint ventures (JVs) involve the public and private sectors in which they pool their assets, finance and expertise under joint management. The venture partners contribute in their resources in terms of capital, skills and or technology in order to undertake the project. The NHC JVM is represented by two distinct periods:

- 1) Before the Repeal of the 1971 Acquisition Act (1980–1990)
- 2) After the Repeal of the 1971 Acquisition Act (1990–to date)

During the first period (1980–1990), the defunct Registrar of Buildings (RoB) had planned a joint venture (JV) strategy with the aim of redeveloping its plots hosting condemned buildings and those buildings which are no longer in conformity with the best land uses in Mainland Tanzania's urban centres, predominantly in the city of Dar es Salaam (NHC, 2006). The purpose of the strategy was to rescue their condemned properties, uplift their values and revenue. A number projects were initiated or undertaken however, they was no clear policy to guide the JV undertakings (Kavishe, 2010). Terms and conditions for these ventures varied from one project to another depending on the magnitude and cost of individual project. To a greater extent, they were governed by trust between partners (NHC, 2006).

The second period of (1990 –to date) existed after the Repeal of the 1971 acquisition Act and the enactment of the NHC Act No. 2 of 1990. During this period, investors gained confidence in economic liberalisation and therefore there was an increasing pressure from private investors seeking to invest in commercial and residential property with the NHC. In that regard, the influx of private investors awakened the need to have a JV policy. Therefore, the NHC Board of Directors approved the first version of the JV Policy on 11 June 1993. Later, in 2004, a second version was approved followed by the third version, which was approved in 2006. Similarly, in 1992, the government issued Circular No. 1, which required public parastatals to operate commercially (NHC, 2006). Consequently, no further subsidy was given to the Corporation. Therefore, NHC adopted partnership projects as a means of redeveloping its estates as well as a means of developing more properties. The corporation had prime plots, which were hosting condemned buildings. Fear of losing some plots, which were declared by the Ministry of Lands ripe for redevelopment, influenced NHC to secure financial support from private investors through the JV model.

Likewise, the increasing shortage of housing in the urban centres, made the government seek alternative means of addressing this issue and PPP strategy has been thought to help bring relief to the existing situation (NHC, 2010; Kidata, 2013). Therefore, the government redirected its housing agencies to adopt PPP strategy (NHC, 2010).

However, despite the adoption of PPP strategy in house provision, inadequate housing has not yet been resolved to date. Instead more failures are experienced in these housing PPP (HPPP) projects. This presents the reason why this study was undertaken, that is, to improve the implementation and delivery of PPP housing projects in Tanzania.

## **2.5 Chapter Summary**

This chapter addressed the following issues: firstly, it justified in detail the existence of the research problem by explaining the impact of population growth and urbanisation towards housing shortage and the rise of informal settlement. Secondly, the need for more housing supply is clearly pin pointed to highlight its implication towards the existing housing stock, which proved that there is severe housing shortage. The third section investigated the efforts made by the government towards urban housing where five models were identified to describe the initiative made alongside their corresponding challenges. Despite the identified efforts, it was revealed through literature review that none of the five models were able to address the housing deficit. Hence the gap between the supply and demand was advancing. Finally, the fourth section introduced briefly the adoption of PPP in the housing sector. The next chapter will further review in detail the PPP concept.

## CHAPTER 3

### OVERVIEW OF PUBLIC PRIVATE PARTNERSHIP (PPP)

#### 3.1 Chapter Introduction

Chapter 2 described the housing shortage and critical issues related to housing provision. This chapter aims to provide the general overview of PPPs and their application in construction projects. Furthermore, it discusses how the PPPs emerged. It reviews various PPP definitions, types of PPPs, associated risks and benefits as well as principles and critical success factors.

#### 3.2 Emergence of Public Private Partnership (PPP) Concept

The PPP concept grew from the partnership concept to become one of the most popular partnership approaches used. It is currently used to foster development and deliver public infrastructure in both developed and developing countries. This approach has been widely adopted since the late 1990s (Tang *et al.*, 2010b; Chou and Pramudawardhani, 2015). Public sector inefficiency, lack of sufficient funds, poor public infrastructure and services and poor performance necessitated government or its agencies collaborate with private parties to bridge the gap. Stakeholders involved in PPP include public sector, private sector (for profit and not for profit), state agencies and multilateral donor agencies (Shah, 2015). According to Tang *et al.* (2010b), private participation in public infrastructure existed around the 18<sup>th</sup> century in European countries. However, the PPP system was mostly practiced back in the late 1990s. In the 19<sup>th</sup> century both the Europeans and non-European countries used the PPP approach (e.g.; the Suez Canal and Trans-Siberian Railway and canals, turnpikes and railroads) (Kumaraswamy and Morris, 2002).

Therefore, the thoughts of involving the private bodies to fund the public sector's infrastructure in order to address poor public services, inefficiency, the need for better quality services, promote resource sharing and risk sharing brought up the emergency of PPPs (World Bank, 1992; Grimsey and Lewis, 2002; Li and Akintoye, 2003; Li *et al.*, 2005a; Chan *et al.*, 2010b; Liu and Wilkinson, 2011; Cheung *et al.*, 2012). More so there have been different definitions of PPPs, different forms of PPP projects and different situations in different countries (Tang *et al.*, 2010b).

### **3.2.1 PPP Definition**

Table 3.1 provides a summary of various definitions of PPP as defined by different countries, institutions or researchers. Now considering the various definitions given in Table 3.1 it is clear there is no a single definition for PPP as supported by Akintoye *et al.* (2008), however they have similar key features:

- a) Collaboration between public entity and private entity
- b) Sharing of resources and profit
- c) Risk sharing
- d) Private financing
- e) The delivery of public service or public infrastructure facility.

Likewise, European PPP Expertise Centre (EPEC PPP Guide (2015) listed virtually the same features for the PPP arrangement:

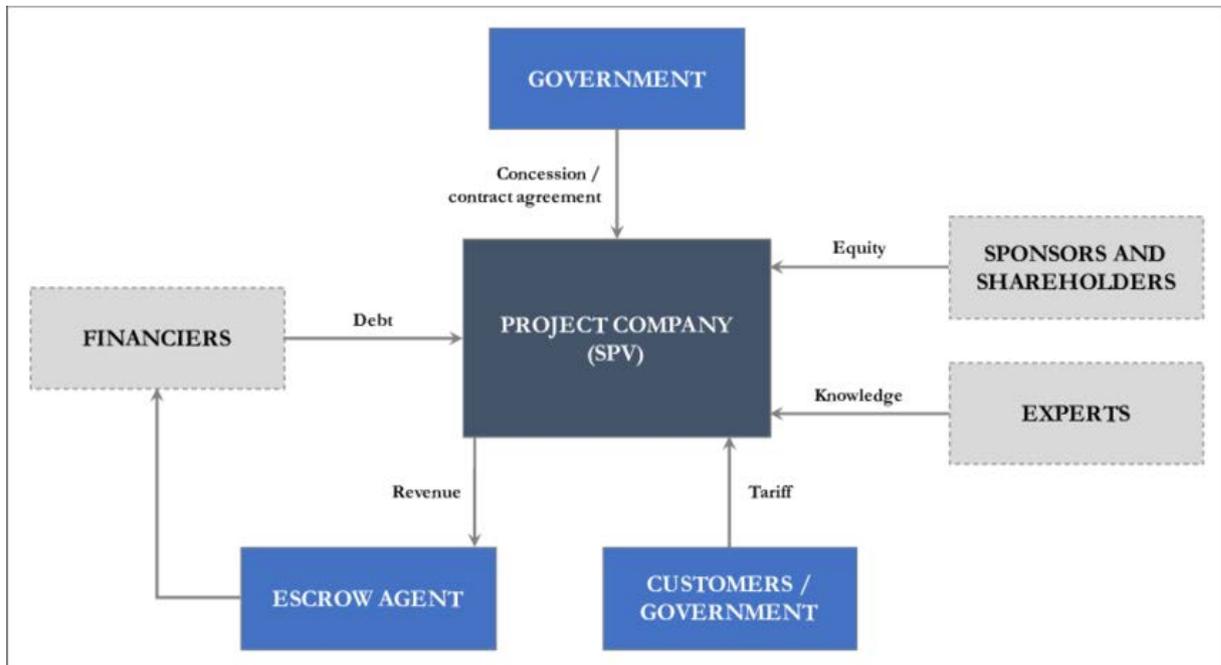
- a) Long term contract between the public authority and the private
- b) Transfer of certain risks to the private partner
- c) The use of private financing
- d) Focus more on project output specification than project inputs, while considering the whole life cycle effects for the project.

**Table 3.1: Summary of PPP definitions**

Definition	Author	Country
PPP is cooperation between public and private partners, mainly made on each partner's competence for the purpose of meeting public needs, through proper allocation of resources, profits and risks. In Canadian context the term PPP conveys a specific meaning which is rooted on two major aspects; the delivery of public services or public infrastructure and the transfer of risk between partners. Partnership arrangements excluding these two ideas are not technically PPPs and are not included in the scope of work undertaken by CCPPP	Canadian Council for Public Private Partnerships (2011)	Canada
Defines PPP as a “contractual arrangement between a public agency and a private sector entity whereby, the skills and assets of each sector (public and private), risks and rewards are shared in delivering a service or facility for the use of the general public.	(Li and Akintoye, 2003; NCPPP, Undated)	USA
Defines PPP as a contracting agreement between a public entity and a private entity in which the private party is considered as a “special purpose vehicle”. A special feature in this definition is the use of private finance.	Raisbeck <i>et al.</i> (2010)	Australia
PPP is defined as, “A long-term arrangement between a public sector and a private sector or a group of private sector firms, in which the latter is responsible for financing the design and construct of new facilities, and then maintain the facility as agreed in the contract for a given period of time	(Hellowell <i>et al.</i> , 2008).	UK
Defines PPP as a legal predetermined relationship where by all or parts of government's responsibility are carried out by a private party by sharing resources and risks.	Akintoye <i>et al.</i> (2003)	UK
Defines it as a long-term contractual agreement between a public authority and a private entity for the aim of delivering a service or asset to the public, where the private party assumes large portion of risks and management of the project and payment is connected to performance.	Partnerships (2012)	Universal
defines PPPs as joint ventures, in which private sector cooperate with public sector for the purpose of joining strength to undertake a project that will provide services to the public in a better way than a government could have done it independently. Substantial combined power or effect is anticipated from combining the two sectors' resources while precautions are also required to evade risks of any abuse of the close relationships.	Akintoye and Kumaraswamy (2016)	UK
Contractual arrangement between a contracting authority and a private party in which the private party: <ul style="list-style-type: none"> <li>i. performs an institutional function on behalf of the institution;</li> <li>ii. Acquires the use of public property for its commercial purposes;</li> <li>iii. Assumes substantial financial, technical and operational risks in connection with the performance of the institutional function or use of state property</li> <li>iv. Receives a benefit for performing the institutional function or from utilising the public property”.</li> </ul>	PPP Act No. 18, 2010	Tanzania

Nevertheless, in considering the PPPs, governments remain accountable for the delivery of the infrastructure service. This means that the public private partnership approach does not exempt a government from its responsibility thus widely differentiating it with any other form

of partnership or privatisation where the private party remains in charge and owner of the facility/service. Figure 3.1 portrays the relationship between parties and the the financial concept of the public private partnership (PPP).



**Figure 3.1: PPP financial concept**

Adapted from (PPIAF, 2012)

### 3.2.2 Types of PPP Arrangements/Models

In spite of different forms of PPP arrangement being identified, Meidute and Paliulis (2011) noted that PPP models are still not known widely. In this situation partners have to be careful when selecting a PPP model/ arrangement in order to achieve their goals. Each type will suit projects of certain nature. Various studies (Grimsey and Lewis, 2005; Cruz and Marques, 2011) have categorised different types of PPP arrangement (private sector involvement) see Table 3.2:

**Table 3.2: Types of PPP model arrangement**

No.	PPP Model	Description
1	Design and Build (DB)	In this arrangement, the private sector design and build a project to fulfil the public sector specifications. Normally the private sectors assume the risk of cost overruns due to a fixed contract.
2	Operation & Maintenance Contract (O&M)	The private sector operates and maintains the public sector facility in a stated period.
3	Design-Build-Finance-Operate (DBFO)	The private sector designs, finances and build a new infrastructure which later on after completion operates the facility as per signed agreement. At the end of the contract, the private sector handovers the facility to the public sector. This is the preferred PPP/PFI arrangement in the UK.
4	Build-Own-Operate (BOO)	The private sector finances, builds, owns and operates the new project.
5	Build-Own-Operate-Transfer (BOOT/BOT)	The private body secures a contract to finance, design, build and operate the facility, through charging user fees for a stated period, then it is transferred back to the public sector
6	Build-Own-Operate-Transfer (BOOT/BOT)	A public asset is transferred to a private entity commonly under contract, which states that the asset is to be improved and operated for a stated period.
7	Buy-Build-Operate (BBO)	The private sector finances, builds, owns and operates the new project.
8	Finance Only	A private body funds a project on behalf of the public body.
9	Concession Agreement	The private entity obtains the right/contract from the public entity to operate, maintain, and charge user fees for an existing public facility. In this agreement, there is no transfer of ownership.

Additionally, Tsamboulas *et al.* (2013) noted that currently a new model known as Public Private Community Partnership (PPCP) is being put forward, where both parties work closely together for the social welfare of the society thus eradicating the notion of private partner gaining profit. This type of model is mostly applied, and seemed to work in developing countries like India. However, less has been reported on its application.

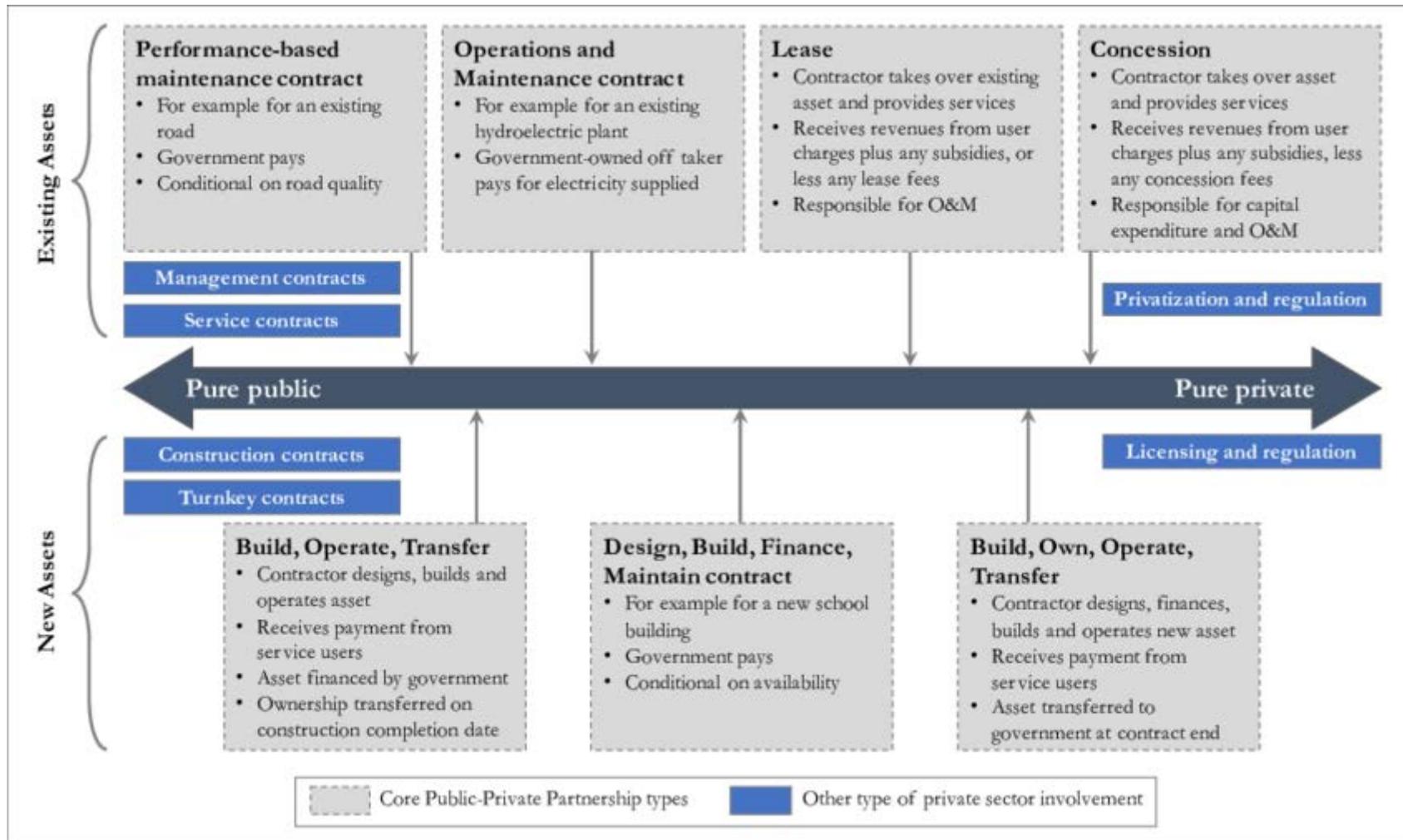


Figure 3.2: Different forms of PPP contract Source: (PPIAF, 2012)

Through literature review, it was noted that Design-Build-Finance-Operate (DBFO) was the preferred model for the UK PPP/PFI projects. Figure 3.2 above illustrate the various forms of PPP contract.

### **3.2.3 Private Finance Initiative (PFI)**

The UK government adopted the private finance initiative (PFI) model in the 1990s and, in 1992, this was first declared by the then Conservative government (Li *et al.*, 2005a). The UK government has been considered as the pioneer of PPP/PFI projects in various studies (Smyth and Edkins, 2007; Lop *et al.*, 2016; Sadeghi *et al.*, 2016). Due to its wider experience and its preference for the PFI model, the UK is selected in this section of the current study to draw on its practice and to further describe PFI, even though other countries have also engaged in the use of PPP/PFI models. The UK HM Treasury defines PFI as:

A long term contractual agreement between the public and the private sector with the aim of delivering quality and well maintained service to the public through the utilization of the private sector management expertise and finance in order to attain value for money for the tax payer (HM Treasury, 2012).

Both the PFI and the PPP have comparable characteristics; however, the significant difference is the manner in which each type is funded. The PFI is funded by private sector equity and debt funding and is then being paid for by the public sector customer through scheduled payments throughout the life of the project whereas the PPP project does not necessarily require private sector funding (HM Treasury, 2012).

The UK has extensive PPP/PFI experience which has been promoted through civil and social infrastructure projects such as transportation, schools, hospitals and council houses to mention a few. The main reason for adopting PFI apart from government financial constraints was to deliver quality service to the public while decreasing government borrowing (Dixon *et al.*,

2005). According to Li *et al.* (2005a) the UK government has distinguished eight forms of PPPs: PFI, asset sales, joint ventures, partnership companies, sales of business, partnership investment, policy partnership and wider market. Similarly, through literature review it is acknowledged that the key difference between PFI and other PPP models is that in PFI the private partner assumes all the risks and the financing, while in other models the two are usually shared (Akelere and Gidado, 2003, pp. 384). Most PFI projects in the UK and some outside the UK are regarded successful (Li *et al.*, 2005a). This is supported by a number of boundaries the major one being the value for money approach.

The PFI model is grounded on the need to achieve value for money while resolving the government financial constraints and the quest for improved public services (Li *et al.*, 2005a). The emphasis of the PFI concept in the UK is that the public sector only takes on PFI arrangement where it can deliver value for money (VfM). The ability to provide VfM in its PPP projects is centred on its commitment to efficiency, equity and accountability (Akintoye *et al.*, 2003).

### **3.2.4 Value for Money (VfM) Concept**

Different authors have defined the value for money (VfM) concept. National Audit Office (NAO) defines VfM as an optimal utilisation of resources to attain anticipated result. While in the UK, Her Majesty's (HM) Treasury defines VfM as the optimum combination of whole-of-life costs and quality (or fitness for purpose) of the good or service to meet the user's requirement (HM Treasury, 2006). In this case, the lowest cost bid is not the determinant of the selection of goods and services but in order to carry out a successful procurement, it is essential to consider at the very beginning of the procurement process what are the key criteria of VfM in the procurement process. The NAO (undated) suggests that in order to

achieve VfM in a project four criteria should be taken into account, namely: (1) economy; (2) efficiency; (3) effectiveness; and (4) equity (the four Es) which are considered as spending less, spending well, spending wisely and spending fairly, respectively (NAO, n.d.).

The economy criterion has been familiar and a common phenomenon to most government policies in the provision of public services. Minimum cost has been considered a crucial element in the provision of public services due to financial constraints and limited resources. However, the reliance on this criterion alone resulted in project failures, if the other three criteria are neglected because it is not possible to achieve the whole concept of VfM (HM Treasury, 2006). According to Glendinning (1988), efficiency means attaining maximum productivity from the given resources and effectiveness means fully achieving the anticipated outcome from the used resources. While equity means ensuring, the used resources provide the intended service fairly to the public.

In the UK as well as in other countries, the VfM approach has been considered as one of the key criteria involved in deciding whether a project should be procured under PPP method or traditional method (Khadaroo *et al.*, 2013; Tsamboulas *et al.*, 2013). According to Andersen and Enterprise (2000) in a report for the UK PFI, project managers accept that there are six variables of value for money and these are;

- i. Risk allocation (the most essential)
- ii. Competition
- iii. Private sector managerial skills
- iv. Long term nature of contract
- v. Output specification
- vi. Performance measures and incentives

Similarly, Grimsey and Lewis (2005) claimed that, in order to achieve VfM in PPP projects, a very high level of competition should be involved in awarding the project, along with fairness, proper risk allocation techniques between parties and a reasonable assessment made between public and private options for finance. However, in the UK and some other countries, extra VfM is required and this can be achieved through the use of a benchmark known as a Public Sector Comparator (PSC) (HM Treasury, 2003; Grimsey and Lewis, 2005; Coulson, 2008). The PSC depends on estimating the full costs, risks and revenue discounted to Net Present Value (NPV) at a public sector rate. Countries using PSC other than UK include Australia, Japan and South Africa. However, other regions/countries such as Hong Kong, British Columbia, Ireland and India are also adopting it (Grimsey and Lewis, 2005).

As the HM Treasury (2006) stress pursuing PFI only where it can deliver VfM. Therefore, PFI projects are linked to the concept of VfM. No VfM no PFI project and vice versa. Thus a public body purchases a service if and only if VfM can be attained. This is why the UK has been so successful in their PPP/PFI projects.

Similarly Alshawi (2009) agrees with (HM Treasury) guide by arguing that PFI has five key ideologies which the public sector should explore from its PPP projects: (1) VfM to the tax payer, (2) Buy services and not assets, (3) Risk management between partners, (4) Use of private sector skills and proficiency, and (5) Integrating entire life cycle costing in infrastructure projects. Hence, PFI puts a high emphasis on achieving value for money (VfM). Because each partnership is formed on and for different reasons, PPPs/PFIs are guided by a simple perception that when partners pool resources together, they will manage to deliver bigger projects that are more sustainable than had they been delivered by an individual actor. The whole concept of PPP/PFI is supported by the government need to bridge its financial

gaps in the delivery of public services by involving private management expertise in order to enhance efficiency, effectiveness and quality of asset and services delivery (HM Treasury, 2000). Therefore, the UK has worked hard to achieve VfM in most of its PPP/PFI projects due to good techniques used in evaluating the value of the project before implementation. Not only that but also, significant aspects on PPPs such as carefully evaluation of the associated risks, benefits, critical success factors and principles on implementing PPP projects have been seriously considered and researched both in the UK as well as in other countries. The following subsections discuss these aspects.

### **3.2.5 PPP Risks**

It appears, risk has become a vital aspect in today's society (Vasvári, 2015). Notably, numerous studies both in the developed and developing countries were undertaken to identify risks associated with PPP projects, their main attributes, and stakeholders' perception (Tang *et al.*, 2010b). Additionally, despite the countless studies on PPP in construction, most empirical studies have centered on three themes: risk, financing and relationship (Tang *et al.*, 2010). Furthermore, the uniqueness and complexity of PPP approach has led to the use of risk identification methods (Fischer *et al.*, 2010). According to Zhao *et al.* (2013) construction industries in developing countries are prone to uncertainties. However, a recent study by Chileshe and Kikwasi (2014a) has reported that there are still few studies on risk assessment and management practices in these countries including Tanzania. In addition, Bowers and Khorakian (2014) also argued that there is limited evidence of effective uses of risk management within construction projects in developing countries. Key reasons for this seem to be the absence of risk management capacity and knowledge (Serpell *et al.*, 2017).

Key aspects of political, financial and market risks have been argued to be most significant in PPP financing strategy (Tang *et al.*, 2010b). In addition, a Delphi survey study undertaken in China by Xu *et al.* (2010) ranked six most critical risk groups as: (1) government intervention; (2) government maturity risk; (3) economic viability risk; (4) market environment risk; (5) construction and operation risk; and (6) macroeconomic risk. For instance, in Nigeria, unstable government, inadequate experience in PPP and availability of finance are the three most significant PPP risk factors identified in a questionnaire survey study (Ibrahim *et al.*, 2006). These findings agree with those of (Zhao *et al.*, 2013). Consequently, it is observed that political risks/government intervention and financial risks appear to be the most critical risks in PPP projects in developing countries.

A study by Grimsey and Lewis (2004) commented that PPP arrangement has increased project risks awareness in ways that public procurement failed previously to do. This has resulted into risk identification, risk allocation and risk management becoming a significant part of PPP processes (Grimsey and Lewis, 2004). Nevertheless, inability to identify and manage project risks by many countries has hindered the success of PPPs (Zhang, 2005a). For example, Tanzania has experienced many PPP failures (World Bank, 2016) as a result of lack awareness of risk management processes, inexperience and lack of information (Chileshe and Kikwasi, 2014b).

Table 3.3 provides a summary of risk factors associated with PPP projects PPP project lifecycle obtained through literature review.

**Table 3.3: Risks identified based on PPP project life cycle** (Adapted from Li and Zou (2012))

<b>Risk Category</b>	<b>Risk Factors</b>	<b>References</b>
Feasibility study	Political risk (government intervention)	(Kumaraswamy and Zhang, 2001; Grimsey and Lewis, 2002; Li <i>et al.</i> , 2005b; Zou <i>et al.</i> , 2008)
	Land acquisition risks	(Bing <i>et al.</i> , 2005; Singh and Kalidindi, 2006)
	Social and public acceptance risks	(Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005; Zou <i>et al.</i> , 2008)
	Government leadership risks	(Kumaraswamy and Zhang, 2001; Shen <i>et al.</i> , 2006)
	Pre investment risks	(Singh and Kalidindi, 2006)
	Environment risks	(Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005)
	Market risks	(Kumaraswamy and Zhang, 2001; Grimsey and Lewis, 2002; Medda, 2007; Zou <i>et al.</i> , 2008)
	Poor public decision making process	(Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005)
Financing	Interest rate fluctuation	(Kumaraswamy and Zhang, 2001; Bing <i>et al.</i> , 2005)
	Economical risks (inflation, foreign exchange)	(Kumaraswamy and Zhang, 2001; Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005; Medda, 2007; Zou <i>et al.</i> , 2008)
	Legislation change	(Kumaraswamy and Zhang, 2001; Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005)
	High finance cost	(Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005)
	Poor financial market	(Bing <i>et al.</i> , 2005; Singh and Kalidindi, 2006)
	Poor financial attraction of project to investors	(Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005; Singh and Kalidindi, 2006)
Procurement and Design	Design deficiency	(Bing <i>et al.</i> , 2005; Singh and Kalidindi, 2006)
	Unproven engineering technics	(Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005)
	Government corruption risks	(Kumaraswamy and Zhang, 2001; Zou <i>et al.</i> , 2008)
	Contract risks	(Bing <i>et al.</i> , 2005; Shen <i>et al.</i> , 2006)
	Inadequate competition for tender	(Maslyukivska and Sohail, 2007)
	Inability of concessionaire	(Ng and Loosemore, 2007)
	Too many design changes	(Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005; Singh and Kalidindi, 2006)

<b>Risk Category</b>	<b>Risk Factors</b>	<b>References</b>
Construction	Construction cost overrun	(Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005; Singh and Kalidindi, 2006)
	Delays	(Bing <i>et al.</i> , 2005; Shen <i>et al.</i> , 2006)
	Technical risks	(Bing <i>et al.</i> , 2005)
	Material/labour non availability	(Kumaraswamy and Zhang, 2001; Bing <i>et al.</i> , 2005; Shen <i>et al.</i> , 2006; Ng and Loosemore, 2007)
	Too many late design changes	(Bing <i>et al.</i> , 2005; Singh and Kalidindi, 2006)
	Geological risks	(Bing <i>et al.</i> , 2005)
	Weather risks	(Bing <i>et al.</i> , 2005; Singh and Kalidindi, 2006)
	Environmental pollution risks	(Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005; Singh and Kalidindi, 2006)
	Completion risk	(Ng and Loosemore, 2007)
	Construction force majeure events	(Kumaraswamy and Zhang, 2001; Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005; Singh and Kalidindi, 2006)
	Poor quality workmanship	(Bing <i>et al.</i> , 2005)
	Difficulties in land acquisition	(Bing <i>et al.</i> , 2005, Singh and Kalidindi, 2006s)
	Infrastructure risks	(Shen <i>et al.</i> , 2006)
Operation	Revenues below expectation	(Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005; Singh and Kalidindi, 2006)
	Interest rate volatility	(Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005; Singh and Kalidindi, 2006)
	Inflation rate volatility	(Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005; Singh and Kalidindi, 2006)
	Legislation change	(Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005; Singh and Kalidindi, 2006)
	Market demand change	(Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005; Singh and Kalidindi, 2006)
	Operational risks	(Grimsey and Lewis, 2002; Bing <i>et al.</i> , 2005; Shen <i>et al.</i> , 2006)

However, it was noted the majority of these studies have been undertaken in the Asian region. This finding agrees with San Santoso *et al.* (2003). Therefore, the attention and quantity of research undertaken in the subject matter for the past two decades signifies a closer relationship between the success of the project and implementation of the risk management practices (Tabish and Jha, 2011).

Despite the level of uncertainty in developing countries' construction industries, as stated by Zhao *et al.* (2013), and the growing awareness of risks in PPP construction projects in various countries, no PPP risk study has been undertaken in countries, such as Tanzania. Therefore, based on this study's second objective, the issue of PPP risk is relevant and needs to be explored in the context of developing countries, such as Tanzania, to enhance PPP project performance and to bridge the knowledge gap.

### **3.2.6 PPP Benefits**

The increasing PPP trend is associated with the benefits demonstrated and achieved in other countries such as the UK, Australia, China, India, USA and Malaysia to name a few (Li *et al.*, 2005a; Zou *et al.*, 2008; Babatunde *et al.*, 2015). Although several financial challenges are evident, public service excellence has become a key driver at all levels of economic development across governments (Moskalyk, 2011; Zhou *et al.*, 2013; Zhou and Smith, 2013). A list of benefits of PPPs has been identified by a number of studies (Black *et al.*, 2000; Li and Akintoye, 2003; Sachs *et al.*, 2007; Zou *et al.*, 2008; Moskalyk, 2011; Ismail and Haris, 2014) in which the following appeared most significant:

- a) Innovation and Facilitating technology transfer
- b) Reducing government's financial burden
- c) On time delivery

- d) Performance/output based contract
- e) Risk sharing/transfer
- f) Resource sharing
- g) Promoting public infrastructure development and increased customer satisfaction
- h) Power of synergy
- i) Operation efficiency
- j) Enhance value for money

On the other hand, since many developing countries suffer from poor infrastructure (Sharma, 2012), the private sector participation is considered potential additional source of funding to facilitate achieving the Sustainable Development Goals (World Bank, 2016). Despite the inadequate experience and poor performance in these countries PPPs are still considered beneficial and have received much political support with the aim of achieving the Millennium Development Goals.

However, the adoption of PPP arrangement does not simply guarantee the attainment of the stated benefits. Parties have to adapt the required PPP guidelines, successful factors and lessons learned (Moskalyk, 2011; World Bank, 2016) and customise them to suit their project needs. In other words, a great deal of ground work needs to be done upfront.

### **3.2.7 Critical Success Factors (CSFs) for PPP Projects**

A review of the literature identified numerous studies on CSFs for PPP projects where two groups of CSFs of PPPs emerged as illustrated on Table 3.4. According to Osei-Kyei and Chan (2015) over the past two decades of PPP origin, studies on exploring the CSFs for PPPs has been increasing from one publication in 1992 to six publications in 2013. Notably, the majorities of studies on PPP CSFs are from developed countries (UK, Australia, USA, and

Hong Kong) which have contributed towards the improvement and success of their PPP projects (Osei-Kyei and Chan, 2015). On the contrary, it was noted that studies from sub-Saharan Africa on PPP CSFs have been considerably low in number. The potential reason could be the infancy of this sector in these countries.

### **3.2.7.1 General CSFs in PPP projects**

Table 3.4 shows a summary of CSFs identified in different countries. Based on Osei-Kyei and Chan (2015) study, the following were the top five most reported PPP CSFs in the past 23 years: (1) risk allocation and sharing; (2) strong private consortium; (3) political support; (4) community/public support; and (5) transparent procurement. These factors are also presented in Table 3.4. Despite the level of commonality of the CSFs across countries and sectors, it was noted that some were unique. For instance, a recent comparative study between Hong Kong, Australia and the UK by Cheung *et al.* (2012) demonstrated some similarities and differences.

A similar case is also observed in Nigerian studies (Babatunde *et al.*, 2012; Famakin *et al.*, 2012; Dairu and Muhammad, 2015). But surprisingly, similar studies undertaken within same country identified slightly different CSFs. Example Australian studies' findings between Jefferies *et al.* (2002) and (Cheung *et al.*, 2012) differed. However this could be contributed by the time difference (10 years) and different research methodology in this case Jefferies *et al.* (2002) adopted a case study approach while Cheung *et al.* (2012) adopted a questionnaire survey).

**Table 3.4: Critical success factors (CSFs) for PPP projects**

<b>Country</b>	<b>General CSFs for PPP PROJECTS</b>	<b>Author</b>
UK	A strong and good private consortium Appropriate risk allocation Available financial market Commitment Thorough and realistic assessment of the cost and benefit Effective procurement Project feasibility Government guarantee Favourable economic conditions Trust Transparency and communication A clear understanding of roles Consistency Flexible attitude.	(Black <i>et al.</i> , 2000; Akintoye <i>et al.</i> , 2003; Brotherton, 2004; Hardcastle <i>et al.</i> , 2005; Li <i>et al.</i> , 2005a)
Australia	Strong private consortium An efficient authorisation procedure Innovation in the financing strategies Commitment and responsibility between parties Appropriate risk allocation and risk sharing Good governance and Project technical feasibility	(Jefferies <i>et al.</i> , 2002; Cheung <i>et al.</i> , 2012)
China/Hong Kong	Stable macroeconomic environment; Shared responsibility between public and private sectors; Transparent Efficient procurement process; Stable political and social environment; and Judicious government control.	Chan <i>et al.</i> (2010b); (Meng <i>et al.</i> , 2011; Cheung <i>et al.</i> , 2012; Ng <i>et al.</i> , 2012)
South Africa	Publicly needed service and Achieving the objectives of the partnership	(Minnie, 2011)
Nigeria	Competitive procurement process accurate assessment of the cost and benefits, Favourable legal framework, Appropriate risk allocation and risk sharing, Government involvement by providing guarantee, Political support, Stable macroeconomic condition, Sound economic policy Economic viability Availability of suitable financial market. Sound financial package, Favourable investment environment Good governance”; Political stability, Strong private consortium Genuine commitment between parties.	(Babatunde <i>et al.</i> , 2012; Dada and Oladokun, 2012; Famakin <i>et al.</i> , 2012; Dairu and Muhammad, 2015)
Malaysia	Good governance Commitment of the public and private sectors Favourable legal framework Sound economic policy Availability of finance market	(Ismail, 2013)
Lebanon	Trust Openness Fairness	(Jamali, 2004)

Country	CSFs for PPP PROJECTS IN HOUSING	Author
Malaysia	Action against errant developers, Competition, Ample time to evaluate proposal, Consistent monitoring and Compatibility between partners.	(Abdul-Aziz and Kassim, 2011)
Ghana	Involvement of the government by providing guarantee, Accurate project identification and technical feasibility, Competitive and transparent procurement procedures, Adequate legal framework, Stable macro-economic condition and favourable economic policy and Availability of strong and robust financial market.	(Kwofie <i>et al.</i> , 2016)
Nigeria	A uniform National Policy on PPP housing projects. Incremental housing system Empowering the low income group financially Government should provide free land to private investors to lower the cost of the houses Lowering the building standards in order to lower the cost and enable the attainment of affordable housing for the low income.	(Ibem, 2011a)

Moreover, Jefferies study focused on BOOT project while Cheung study was more on the general side. Therefore, this proves that for each PPP model or strategy, PPP stakeholders need to consider both the general CSFs as well as specific factors pertinent to the nature of project. However, considering the scope of this study as well as the quantity of studies so far undertaken to identify the general CSFs for PPP projects as shown in Table 3.4, this study focused on identifying the specific CSFs for PPP projects in housing projects in order to bridge the literature gap.

Generally, it is also distinguished from the literature review that success factors in developing countries are more similar to each other as opposed to those in developed countries. For example, a strong and good private consortium, appropriate risk allocation and government commitment all were ranked top five in the UK and Australia (Cheung *et al.*, 2012). While in the developing countries apart from the above top three which were identified also in the developing countries, stable macroeconomic environment, accurate project identification and procurement, government involvement by providing guarantee, favourable legal framework,

and political support appeared common and significant in the developing countries (Abdul-Aziz and Kassim, 2011; Ibem, 2011a; Kwofie *et al.*, 2016). These findings imply that in the developing countries there is yet an established macroeconomic environment as in the UK and Australia and this agrees with Cheung *et al.* (2012) study. In addition, favourable legal framework is not an issue in the UK and Australia due to their significance experience in PPP projects as opposed to Malaysia, Nigeria and Ghana.

Furthermore, as shown in Table 3.4, South Africa had two main CSFs; “publicly needed service” and “achieving the objectives of the partnership”, as identified by Minnie (2011). These findings are somehow unique compared to results from other countries, both developed and developing, thus justifying the point that some CSFs can be country-specific/project-specific.

### ***3.2.7.2 CSFs in PPP housing projects***

A list of CSFs specific in HPPP projects are also listed in Table 3.4. Notably all studies were undertaken in developing countries. It is observed that the majorities are similar however some of the CSFs in HPPP projects were unique, example (1) action against errant developers, (2) ample time to evaluate proposal (3) Uniform National Policy on PPP housing projects (4) Lowering the building standards in order to lower the cost and enable the attainment of affordable housing for the low income (5) integration of incremental housing system, (6) Empowering the low income group financially, (7) Lowering the building standards and (8) free land provision by the government (Abdul-Aziz and Kassim, 2011; Ibem, 2011a). Remarkably, government involvement by providing guarantee emerged the first and significant towards the success of HPPP projects in Ghana (Kwofie *et al.*, 2016) as well as in Nigeria (Ibem, 2011a).

In conclusion, throughout literature review, it was observed that studies on CSFs in HPPP projects were very scarce. Similarly, it is noted that Tanzania lacks the empirical study on CSF for their PPP projects. These studies are important to help the PPP stakeholders improve the performance of PPP projects. Therefore, this research study intends to bridge the identified knowledge gap as evidenced in Chapter 1, Section 1.3, where the fifth objective of this study is to explore the critical success factors (CSFs) for successful implementation of HPPP projects. This study also addresses the calls in Ismail (2013) study for more specific research on CSFs in each sector implementing PPP.

### **3.2.8 Principles of PPP Project Implementation**

Abdel Aziz (2007) carried a detailed analysis of the UK and British Columbia's PPP programme structure, procurement processes, initiatives, VfM assessment reports, contracts formation and documentation, PPP critical success factors and PPP limitations. In the course of that analysis, Abdel Aziz identified eight principles as significant in the implementation of PPP projects. Table 3.5 presents the list of the identified principles. However, he further affirmed that two important components need to be established, namely; a PPP unit to oversee the implementation activities and a legal framework, (law, policies and regulations).

Likewise, Moskalyk (2011) identified eight key principles that PPPs should embrace in their implementation in order to increase the chances of their success (see Table 3.5). The PPP principles from both studies have shown some similarities and differences however, the aspect of VfM and adequate procurement process in terms of competition, transparency and fairness was identified in both studies hence, demonstrating the significance of these two principles.

**Table 3.5: List of PPP principles**

No	Author	PPP Principles	Comment
1.	Abdel Aziz (2007)	Availability of PPP institutional/legal framework; Availability of PPP policy and implementation units; Perception of private finance objectives; Perception of risk allocation and contractor’s compensation; Perception of value-for-money; PPP process transparency and disclosure; Standardisation of PPP procedures and contracts; and Performance specifications and method specifications.	Through the examination of these eight principles three themes emerged: (1) Enabling environment, (2) PPP skills and awareness (3) meeting output specifications. Both the themes and principles are comparable to CSFs identified in previous studies (see Table 3.4) which increases their reliability and validity.
2.	(Moskalyk, 2011)	The interest of the public is supreme; Good practices must be maintained throughout the life of the project; PPP project should be carefully planned and clearly defined in scope, size and objectives; Measuring the viability of the project against the criteria set by the initiating partner; The PPP model selected should offer VfM; Competitive, transparent and fair tendering process; For an urban sector PPP project, must mirror the needs of the community and Adequate management of the project throughout the agreement period as stated in the contract.	Likewise in this set 3 themes emerged: (1) Satisfying the need of the public (2) Meeting output specification (3) Measure project viability. These too are comparable to CSFs identified in previous studies (see Table 3.4).

Additionally, it is observed that the identified principles by both scholars are closely related and similar to the suggested CSFs of PPPs which increases their reliability and validity. Examining Table 3.5, “meeting output specification” was a common theme in both studies while other themes complement each other and agree with previous studies (see Table 3.4). Having discussed the general overview of PPPs, the next section presents a brief

discussion/synopsis of PPP implementation specifically in the Tanzanian context (the study area) in order to reveal its state of the art.

### **3.3 Overview of PPPs in Tanzania**

The PPP sector is still at its early stages in Tanzania. According to Kassanda (2012), Tanzania has been left behind by many of its neighbouring countries in the development of PPP in the last 20 years. The main contributing aspect has been the lack of adequate PPP legal framework to guide the implementation of such projects and insufficient skills and knowledge in planning, procurement and management of PPP projects (Kassanda, 2012). Despite the absence of the legal framework PPP existed as far back in 1980s and 1990s but it has mostly been undertaken through the privatisation programme and mostly involved in direct service delivery (URT, 2009). In the last 10 years, there were few new investments in physical infrastructure, with a few exceptions in power and communications sector however there has been little success to these projects (URT, 2009; World Bank, 2016). Most Tanzanian PPPs schemes were shorter because, most of them were in the form of concession. For example, the Kilimanjaro International Airport (Bowers and Khorakian) signed a 25 years' concession agreement with Kilimanjaro Airports Development Company (KADCO) in 1998 and the port of Dar es Salaam awarded a 10 years' concession (2000-2010) to the Tanzania International Container Terminal Services (TICTS). Both projects were unsuccessful as they were undertaken in the absence of PPP guidelines. This was proved in an empirical study by Itika *et al.* (2011) and non-empirical studies (URT, 2009; Kassanda, 2013) who identified main challenges for the unsuccessful implementation of these PPPs in Tanzania as tabulated on Table 3.6. The examination of the identified challenges on Table 3.6 revealed that 'inadequate legal framework' and 'Inadequate PPP skills and capacity' were identified by all three authors

(URT, 2009; Itika *et al.*, 2011; Kassanda, 2012; Kassanda, 2013). This implies that they could be the most critical and popular challenges in the Tanzanian PPP context.

**Table 3.6: PPP challenges in Tanzanian projects**

No	Challenges for PPP projects in Tanzania	Author
1	<ul style="list-style-type: none"> <li>a) lack of comprehensive policy and inadequate legal framework</li> <li>b) Inadequate PPP awareness by the public</li> <li>c) Poor risk sharing mechanism</li> <li>d) Poor mechanism for recovering private investors capital</li> <li>e) Lack of capacity to analyse the investment proposals</li> <li>f) Poor PPP enabling environment</li> <li>g) Poor long term financing instrument</li> <li>h) Inadequate capacity in negotiations, procurement, implementation and management of PPPs</li> </ul>	(URT, 2009)
2	<ul style="list-style-type: none"> <li>a) Lack of PPP legal framework</li> <li>b) Lack of awareness on PPP</li> <li>c) Poor commitment</li> <li>d) Conflicting interest and</li> <li>e) Bureaucracy</li> </ul>	(Itika <i>et al.</i> , 2011)
3	<ul style="list-style-type: none"> <li>a) Lack of experience,</li> <li>b) Lack of long term financing instrument,</li> <li>c) Inadequate risk allocation mechanism,</li> <li>d) Weaknesses in PPP tendering, implementation and management</li> <li>e) Poor understanding of the concept of PPP</li> <li>f) Inadequate legal framework</li> </ul>	(Kassanda, 2012; Kassanda, 2013)

Nevertheless, efforts have been made to facilitate, improve and promote private sector participation in PPP projects in Tanzania. For instance in 2009 the government of Tanzania (GOT) issued a PPP policy, then in 2010 the PPP act was passed later in 2011 the PPP regulations were approved (Mboya, 2013). Furthermore, after the establishment of the act in 2010, a PPP Coordination Unit was established within the Tanzania Investment Centre to coordinate and oversee the mainland Tanzanian PPP projects (Mboya, 2013).

The Act again formed another PPP Unit within the Ministry of Finance with the duty of assessing the viability/feasibility of all PPP proposals which involve finances from the public (Kassanda, 2012). Not only that but also to raise the PPP awareness and skills further efforts were made by the government to train about 60 PPP managers between October and December 2012 (Mboya, 2012) in order to raise the PPP awareness among the practitioners

and address the PPP skills challenge. Despite these efforts the performance and success of PPP projects has been very little.

The PPP environment in Tanzania is widely considered as positive. According to Mboya (2013), the government has confirmed its clear commitment towards promoting private sector involvement in the implementation of PPP projects. The reason is that, since 2009, the GOT has recognised that PPP as a powerful tool that will accelerate the achievement of the National Development Vision 2025 (URT, 2009). Additionally, it acknowledges that PPP is a feasible tool to address the public funding constraints and it can deliver public services efficiently and effectively (Mboya, 2013).

In terms of real physical PPP projects, Tanzania has a long experience of informal PPP projects as it did not use or follow the PPP principles or PPP framework tool. Majority of these projects were been implemented by faith based or religious organisations in education, health and water sectors (URT, 2009; Mboya, 2013). As described earlier most of them were concession agreements to operate existing enterprises, which did not include the rehabilitation or new investments (URT, 2009). Due to the complexity of PPPs, inadequate contracts and lack of legal framework, Tanzania has experienced mixed results (failures and few achievements) in education, health and telecommunication sectors (Mboya, 2013).

More so, from the Tanzanian perspective the following are considered the main benefits of PPPs (URT, 2009; Chedié, 2012; World Bank, 2016);

- a) It promotes creativity and innovative methods
- b) Improves government's capacity to addresses public needs;
- c) Reduces implementation costs

- d) Gain access to private sectors' technical and managerial expertise, financial resources and technology
- e) Enabling large capital projects while decreasing public debt and aid dependency
- f) Consumer satisfaction of supplied needs;
- g) Boost economic growth by the initiated new investment
- h) Increase in public goods and service provision
- i) Risk sharing
- j) Mutual benefit

The above benefits agree with the existing literature (Li and Akintoye, 2003; Sachs *et al.*, 2007; Moskalyk, 2011; Ismail and Haris, 2014). It is also noted through the literature that the PPP housing projects which were undertaken by Housing agencies such as NHC in Tanzania in form of joint ventures (JVs) as far back as the 1990s were not considered or even mentioned in any of the few published studies in the literature. This may be due to the fact that they were mostly being considered as JVs not knowing that JV is a type of PPP model as evidenced by Li *et al.* (2005a). Not only that but also NHC implemented their JV projects in the absence of PPP legal framework and relied on their JV policy.

Few empirical studies have been undertaken to widen the concept of PPP in project implementation. The few identified published studies on PPPs in Tanzania, have focused mostly in specific areas, e.g. Urban waste management, (Kironde, 1999); Health service delivery (Itika, 2003); Management of municipalities (Ngowi, 2006), and Joint-Venture formation (Minja *et al.*, 2013). The majority of these studies have been service specific. However, the author also identified two unpublished PPP research study undertaken in Tanzania housing sector (Maagi, 2010) and (Kavishe, 2010). This signifies that no study on

HPPP projects has been published apart from publications originating from this thesis. Therefore the present study intends to bridge the knowledge gap.

### **3.4 Chapter Summary**

A comprehensive review of PPP literature was undertaken. Several concepts and themes emerged from the review of PPP including value for money, PPP risks, PPP benefits and limitations (challenges), critical success factors (CSFs) and PPP principles. The above themes (see subsections 3.2.1 to 3.2.8) due to their significance towards the implementation and performance of PPP projects were noted to have been widely studied by various researchers across countries. It was also observed that with respect to the identified themes a number of studies have been conducted in both developed and developing countries. However, it was observed that majority of the reviewed PPP literature have been drawn from Australia, the UK, Hong Kong, China, Malaysia, Nigeria and South Africa. The major reasons being the wide experience in some of these countries like the UK, Australia and China, and also due to extensive research undertaken in PPPs by these countries.

Considering Tanzania, very few literatures were identified as listed on Section 3.3. The review of the literature thus identified the need for undertaking more empirical studies on the subject of PPP in the construction industry particularly within the Tanzanian context in order to shed more light and improve its performance considering its great willingness towards the adoption of the PPP strategy. Therefore the next chapter will specifically discuss the overview of PPP housing provision in Tanzania.

## CHAPTER 4

### PUBLIC PRIVATE PARTNERSHIP IN HOUSING PROVISION

#### 4.1 Chapter Introduction

This chapter specifically discusses PPPs in housing provision and further describes the implementation issues within selected countries including Tanzania. Significant aspects associated with the implementation of Housing PPP (HPPP) projects are examined, including: readiness to adopt HPPP, drivers for adopting HPPP projects, cost and affordability, benefits and challenges of HPPPs, sustainability aspects and critical success factors (CSFs).

#### 4.2 Conceptualisation and Theoretical Basis of the Study

Quite a few theories and perspectives have been used to underpin this study's theoretical framework. Each individual theory was used as an analytic lens to provide a clear understanding of concepts related to this study and make sense of the obtained data in order to arrive at conclusion. The following subsections discuss the theories underpinning this study.

##### 4.2.1 Giddens's Structuration Theory

Based on identifying the challenges affecting the delivery of the HPPP using Tanzania as its focus 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, p. 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, p. 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 to both the human agency and the 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).

#### **4.2.2 Transaction Cost Theory**

As a PPP is a unique arrangement between two different sectors (public and private) both with different organisational cultures, goals and resources it would be expected to have both benefits and challenges including complex financing however the PPP transaction costs are understated (Ho and Tsui, 2009). Because of the complexity of PPPs, transaction cost in PPP projects may include advisory service costs such as legal, technical, financial, organising and negotiating costs, as well as monitoring and management costs (Ho and Tsui, 2009). Previous studies by Akintoye *et al.*, (2001), and Li *et. al.*, (2005) acknowledged that “High tendering costs”, “Cost restraints on innovation”, “PPP complexity”, “Differing or conflicting

objectives among the partners”, “High participation cost” and “Over-commercialisation of projects” are among the issues that have made the PPP/PFI arrangement less appealing. This agrees to Ho and Tsui’s (2009) study which acknowledged that high transaction costs in PPPs could make it not the best alternative.

Drawing from Williamson (1985) transaction cost theory (TCT), in order to cut down the cost of goods or services, it is very important to take consideration of both production costs and transaction cost. This will assist in achieving the concept of value for money (HM Treasury, 2006) which is amongst the key benefits of PPP (World Bank, 2016). Hence low cost production technique on its own may not signify the economical aspect (value for money) if the transaction costs are ignored (Winch, 2001). Considering that it was necessary to identify the PPP benefits, cost and affordability aspects of PPPs, as well as sustainability factors and rank them accordingly in order to create more awareness and inform stakeholders on these important aspects. The main three dimensions or attributes of transaction cost theory employed in this study are those as advocated by Williamson (1985) as follows: 1) asset specificity; 2) uncertainty / complexity; and 3) frequency. Detailed applications and definitions of these dimensions or attributes are as provided in the empirical studies of De Schepper *et al.* (2015a, 2015b) within public infrastructure delivery and projects, and community PPP projects (Nisar, 2013).

#### **4.2.3 Equity Theory**

Public private partnership is collaboration between a public and a private sector. Undertaking this type of procurement arrangement successfully requires trust, openness and fairness (Jamali, 2004). Equity theory states that a partner will assess its own inputs and returns against the other partner’s input and return in an existing relationship. If a partner notices

some inequity in the relationship, will respond negatively (1965 cited in Zhang and Jia, 2010) and Scheer *et al.* (2003). Furthermore, Scheer *et al.* (2003) argues that a partner/firm in a project/collaboration experiences equity when it observes that both partners receive proportional outcomes according to their respective inputs to their association. However, when the inputs-to-outcomes ratios are not equal, inequity occurs. In other words, the more the inequity the greater the sadness, the drive to reinstate equity and the desire to end the partnership to search for an equitable relationship. Nevertheless, Scheer *et al.* (2003) warned that the assumption should not be made that parties will always behave in line with the equity theory predictions; it also depends on several factors such as culture, beliefs, morals, etc.

#### **4.3 Embarking on Housing Public Private Partnerships (HPPPs)**

PPPs are considered more efficient and provide better value for money (Akintoye *et al.*, 2003; Sobuza, 2010; Moskalyk, 2011). However, PPPs are more complex when compared to traditional procurement process, requiring a huge amount of preparation, training and experience as well as good monitoring and management skills (Moskalyk, 2011). A recent study by Akintoye and Kumaraswamy (2016) renewed the calls for more research on PPP and identified the seven research themes requiring further investigations. In spite of these calls, PPP empirical studies are limited within the developing countries example Tanzania in the construction and housing sectors. Therefore, in response to the research agenda and knowledge gaps identified by Akintoye and Kumaraswamy (2016), subsections 4.3.1 through to 4.3.6 review these PPP aspects, that is: readiness, drivers, cost and affordability factors, benefits and sustainability factors to tap in their existing state of knowledge and to later compare the results with empirical findings obtained from developing countries. Since most developing countries such as Nigeria, Ghana, Malaysia, India as well as Tanzania to mention a few has adopted PPP in housing provision (Sengupta, 2004; Maagi, 2010; Abdul-Aziz and

Kassim, 2011; Ibem, 2011b, 2011a; Ibem and Aduwo, 2012; Kwofie *et al.*, 2016), these countries have experienced mixed results with majority experiencing failures in their HPPP projects. Subsequently, from the literature review it is noted that Tanzania lacks empirical studies on HPPP unlike other mentioned countries therefore to bridge the knowledge gap Tanzania is the test bed for this study. Therefore, from the above given information, the aim of this study is to obtain a profound understanding on how to successfully improve the delivery of HPPP projects in developing countries, Tanzania being the case study.

#### **4.3.1 Readiness to Adopt HPPP Projects**

According to (Bernerth, 2004, pg.39), readiness is defined as: “a condition of the mind when reproducing willingness or interest to altering the way an individual thinks or does things”. Similarly, Al-shareem *et al.* (2013) and Al-shareem *et al.* (2015) described the readiness index as an indicator for measuring the extent of preparedness towards new knowledge. These studies used two main dimensions: drivers (optimism and innovativeness) and barriers (discomfort and security) see also Parasuraman (2000), when measuring the level of preparedness on embarking to HPPP in Yemen. Optimism and innovativeness were taken to mean: factors contributing towards the preparedness/readiness while discomfort and security means factors hindering the readiness. Al-shareem *et al.* (2015) demonstrated that there is an interrelationship between the external factors (market readiness, government policies and environmental uncertainty) and the degrees of readiness. Various studies have also confirmed these results by demonstrating the significance of these three aspects on PPP (Chan *et al.*, 2010b; Sharma, 2012; Verhoest *et al.*, 2014).

### 4.3.2 Drivers for Adopting HPPP Projects

The terminology ‘*Driver*’ in this study is taken to mean: a cause, an influence, a motivation or objective, which causes a particular thing to happen or be done by an individual/organisation. Both public and private parties, before embarking on to any partnership experience have drivers that compel them to act. Table 4.1 gives a summary of the identified drivers obtained through literature review.

**Table 4.1: Summary of drivers for adopting PPP projects**

COUNTRY	GENERAL PPP DRIVERS	AUTHOR
Hong Kong	Private initiative Economic development pressure demanding more facilities Requirement of high quality of services Provide an integrated solution Facilitate creative and innovative approaches Solve the problem of public sector budget restraint	(Chan <i>et al.</i> , 2009a; Cheung <i>et al.</i> , 2009)
UK	Government financing shortage Pressure to provide economic development and demand for more facilities Evading public investment constraints Transfer risk to the private partner	(Li, 2003); Cheung <i>et al.</i> (2009)
Australia	The need for high standard of services. Pressure for economic development Demand for more facilities	Cheung <i>et al.</i> (2009)
New Zealand	Acceleration of infrastructure provision, Better risk allocation, Whole of life cost savings, Improved quality of services, Access to additional revenue sources, Benefits for local, economic and social development Improved project scrutiny.	(Tookey <i>et al.</i> , 2011)
China	Provide an integrated solution Solve the problem of public sector budget restraint Reduce public money tied up in capital investment Reduce the total project cost Benefit to local economic development	(Chan <i>et al.</i> , 2009a)
Tanzania	Desire to bring about sustainable development Poor health services and the need for improving them Huge budgetary constraints Increase efficiency and effectiveness Improving public services	(Ngowi, 2006; URT, 2009; Itika <i>et al.</i> , 2011; Chedié, 2012; Mboya, 2013).

**Table 4.1 Cont: Summary of drivers for adopting PPP projects**

COUNTRY	HOUSING PPP DRIVERS	AUTHOR
Malaysia	Enhancing organisation reputation Project reputation Early completion On time delivery Attaining value for money Political pressure Islamic state councils forbidden to engage commercially	(Abdul-Aziz and Kassim, 2011).
India	To bring equity	(Sengupta, 2006)
Ghana	Huge housing deficit and Government's inadequate resources	(Kwofie <i>et al.</i> , 2016)

It was observed that different authors (Li *et al.*, 2005b; Sengupta, 2006; Chan *et al.*, 2009a; Abdul-Aziz and Kassim, 2011; Ismail, 2014; Onyemaechi and Samy, 2016) have identified the key drivers for adopting PPP strategy in procuring public goods and services. However, it was noted that from these studies two types of drivers emerged. The first type was general drivers for adopting PPPs. whereas the second type was specific drivers for adopting PPPs in housing projects. Since the focus of this study is on HPPP projects, the second type will be discussed in more detail.

But generally, developed countries face enormous pressure to further develop their economies as well as high demand for better facilities. For instance in China and Hong Kong, “economy-related drivers” and, “efficiency-related drivers”, were rated higher between the two countries respectively (Chan *et al.*, 2009a). China was demanding more public services while Hong Kong was more focused on attaining efficiency in their spending (Chan *et al.*, 2009a).

On the other hand, it is interesting to note that different countries adopted HPPP strategy out of different situations and circumstances (Abdul-Aziz and Kassim, 2011; Ismail, 2014). For instance in the USA and the UK “budget constraints” was the major influential factor for the community and non-profit housing developers to form collaborations with other parties, with the aim of financing the affordable housing schemes (Chan *et al.*, 2009a; Abdul-Aziz and

Kassim, 2011; Ismail, 2014). From the Tanzania government perspective PPPs were considered as a tool to achieve its responsibilities in the delivery of social economic goods and services in a more efficient, effective and of good quality (URT, 2009; Mboya, 2013).

Additionally, based on Table 4.1 housing related studies have identified drivers for adopting HPPP projects. For example (Abdul-Aziz and Kassim, 2011) study undertaken in Malaysia identified both internal and external drivers. It is generally observed that these findings, particularly the external drivers, to some extent are inconsistently ranked to a similar study by Ismail (2014). This clearly indicates that within the same country all factors or drivers may be regarded as important. However different sectors such as housing, transport, hospitals amongst others may have different priority for each driver. Conversely, some sectors may even have very unique driving forces depending on the existing situation.

It is interesting to note that in Nigeria, profit creation was a common motivation for both public and private partners (Onyemaechi and Samy, 2016). This eventually increases the cost of the houses thus making affordability to low income groups impossible in Nigeria HPPP projects (Ibem, 2011a; Ukoje and Kanu, 2014). By the same token these findings imply that it is contradicting for the government or its public agency to aim for profit maximisation and, at the same time, desire to deliver affordable housing. Such contradictory driving forces hinder the success of HPPP in developing countries since the unit costs are escalated by the partners driving forces.

Unlike Nigeria, the main motivation for adopting HPPP in Kolkata India was to bring, “equity” among their people (Sengupta, 2006). It was revealed that the housing provision under PPP strategy in Kolkata was remarkable in terms of costs and quality (Sengupta, 2006). This peculiar motivation can be considered as one of the successful criteria that enabled the

HPPP project in Kolkata to be successful. The generalisation that can be made is that the right motivations can add up to the success factors for HPPP projects.

Therefore from the literature it is clear that individual countries and sectors were differently motivated to adopt PPPs thus creating the need for more studies in this subject that examine the influencing factors and their role in achieving success in an intended project.

#### **4.3.3 Cost and Affordability**

The supply of affordable houses is still a big challenge in most developing countries, especially in Africa. However, the review of literature has highlighted a number of cost and affordability factors influencing the implementation of PPP in housing projects (Sivam *et al.*, 2001; Ong and Lenard, 2002; Li and Akintoye, 2003; Susilawati and Armitage, 2004; Moskalyk, 2008; Cheung *et al.*, 2009; Sobuza, 2010; UN-HABITAT, 2011). Earlier studies such as Sivam *et al.* (2001) proposed approaches to improve housing delivery systems for large cities in developing countries using India, and found that they could use these alternative approaches for making appropriate selection of delivery options.

Ong and Lenard (2002) examined the use of PPPs with a view to assessing the suitability of such financing solutions for the procurement of housing. Similarly, according to Canadian Mortgage Housing Company (CMHC), (1999 cited in Sobuza 2010), PPP has become almost the sole approach for delivery of affordable housing. Cheung *et al.* (2009) used findings from Hong Kong and Australia and compared these with the UK when they investigated the 18 measures that enhance value for money (VfM) in PPP. The following were identified as the top five VfM measures:

- 1) Efficient risk allocation;
- 2) Output based specification;

- 3) Competitive tender;
- 4) Private management skill; and
- 5) Private sector technical innovation.

A study by NAO (2010a) undertaken on a UK HPPP project acknowledged that delays, the use of external advisors, establishment of centralised PPP units in small local authorities tends to increase cost and limits the affordability of such projects. Equally the value for money test and risk identification was stressed as important tools to assess the cost and affordability aspects of PPP projects, in order to determine viability.

#### **4.3.4 Benefits of HPPP Projects**

As discussed earlier in Chapter 3, subsection 3.2.6, PPPs are considered beneficial if properly designed and prepared. However, the current subsection discusses the specific benefits for PPPs in relation to housing projects.

A review of the literature has identified few studies, which reported on the benefits that could be derived from adoption of PPP in housing projects, as shown in Table 4.2. Notably, through literature review it was evidenced that the majorities of HPPP benefits (see Table 4.2) are similar to the general PPP benefits discussed in Chapter 3, subsection 3.2.6. Similarly, it was noted that no study has been undertaken in the Tanzanian context to identify the benefits of adopting PPPs in housing projects.

**Table 4.2: Summary of benefits in HPPP projects**

NO.	HPPP BENEFITS	AUTHOR
1	On time delivery Cost savings Risk sharing Output based contract Improved level of service Enhancing public management and Increases the availability of infrastructure funds?.	(Moskalyk, 2011)
2	Brings private partners' efficiency in production, Enhances technical and marketing expertise.	Sengupta (2006).
3	Reasonable uses of resources Promote efficiency Capacity building Diffusion of best practices	(Otiso, 2003)

#### **4.3.5 Sustainability in HPPP Projects**

It is now well established that environmental sustainability is a significant issue when considering policies and procurement of housing and other urban redevelopment (Moskalyk, 2011). This resulted from an increase in environmental degradation and its impact on urban areas. Likewise, the rapid urbanisation process required a more sustainable approach towards the delivery of urban services such as housing, energy, water, waste collection and transport systems. Partnerships through private sector involvement have been considered as the best option in the developing, maintaining, and operating of sustainable urban infrastructures. The countries of the European Union (EU), the USA and other developed countries, during the 2002 UN Earth Summit in Johannesburg, affirmed and supported PPPs to be used as a tool to necessitate sustainable development and poverty eradication (United Nations, 2002). Additionally, a recent study by Zhou *et al.* (2013) clarified the need to have PPPs/PFI to promote sustainable development through technology because PPPs encourages private sector innovation, which materialises from technology development. By the same token in the UK PFI incorporates whole life costing and not the lowest price meaning that sustainability benefits are measured against value and not cost (Hill and Collins, 2004).

However, Moskalyk (2011) argued that in majority of countries the PPPs responsibilities are vested within ministry departments such as ministry of finance who are less aware of environmental issues, thus failing to integrate sustainability principles into their PPP project processes. Thus, the key question is: how can private sector involvement improve sustainability of urban infrastructure or sustainability development?

Zhou *et al.* (2013) noted that the UK government is keen and realises the significance of sustainable development. It has paid much attention to the subject matter through the development of different platforms, frameworks and strategies such as:

- i. Building Research Establishment Environmental Assessment Method (BREEAM) established to assess, rate and certify the sustainability of building since 1990s.
- ii. The low impact building innovation platform launched in 2008 to promote sustainable technologies and innovation.
- iii. Green Public Private Partnership to guide sustainable development and PPPs/PFI projects.

The success of incorporating sustainability principles in PPP/PFI projects is demonstrated in some of the UK PFI projects. For example, the Barts and the London Hospitals which was studied under the four sustainability dimensions (social, economic, environmental and technical) was judged the largest PFI hospital project and a master piece of sustainable building in the Health PFI scheme (Zhou and Smith, 2013). Nevertheless, it is observed that in other similar studies undertaken in developing countries for example Nigeria and Malaysia, sustainability has been considered under three major dimensions; economic, environmental and social (Nwokoro and Onukwube, 2011; Abolore, 2012; Hussin *et al.*, 2013). Technical aspects are not incorporated in the sustainability development principles as is the case in the

UK case study. Therefore, the sustainability assessment themes/dimensions in developing countries need to be updated to match the international standards and to achieve the highest sustainability standards.

With the rapid rate of urbanisation, most cities have become home for the majority of their population (Cohen, 2006; Indongo, 2015). Hence sustainable development is inevitable in both developing and developed countries. Many countries are aware of the challenge and have considered green building/sustainable development (Sood *et al.*, 2011). Table 4.3 provides a list of countries and their relevant green building sustainable development framework/tools. It can be noted that, from the African countries included in Table 4.3, only South Africa has its own Measurement framework, namely ‘Green Star SA’ whereas Tanzania and other African countries are reliant on the South African framework”.

In many developing countries, such as Tanzania, efforts have been made to create awareness in sustainability development. For example, in January 2014, the Tanzania Green Building Council (TGBC) was launched with the aim of promoting sustainable development in the country’s built environment. Further efforts towards sustainable development have been made through the Tanzanian Green Building Council (TGBC) by initiating collaboration with Green Building Council South Africa (GBCSA) in order to acquire and apply Green Star SA rating tool to Tanzania (Green Building Council SA, 2016). But, it was noted that a lot still needs to be done in terms of training in order to obtain local certified personnel qualified to use the tool across the built environment sector.

**Table 4.3: Summary of sustainable development assessment tools for buildings**

No	Country	Measurement framework
1	UK	BREEAM
2	USA	LEED
3	Australia	Nabers/Green Star
4	Brazil	AQUA/LEED Brazil
5	Canada	LEED Canada/ Green Globes/ Built Green Canada
6	New Zealand	Green Star NZ
7	Philippines	BERDE/Philippines Green Building Council
8	Germany	DGNB
9	Italy	Protocollo Itaca/Green Building Council Italia
10	France	HQE
11	Finland	Promise
12	Japan	CASBEE
13	Korea	KGBC
14	China	GBAS
15	Hong Kong	Beam
16	Indonesia	Green Building Council Indonesia (GBCI)
17	Singapore	Green Mark
18	Mexico	LEED Mexico
19	South Africa	Green Star SA
20	Jordan	EDAMA
21	Tanzania	Green mark Singapore/ Green Star SA
22	Netherlands	BREEAM Netherlands
23	Switzerland	Minergie
24	Kenya	Green Star SA
25	Uganda	Green Star SA
26	Nigeria	Green Star SA
27	Ghana	Green Star SA
28	Rwanda	Green Star SA
29	Namibia	Green Star SA
30	Mauritius	Green Star SA

Nevertheless, according to a World Green Building Council (2015) report, the NHC Place incorporated green technologies and have been certified by Green Mark Singapore as the first green building in Tanzania with zero incremental cost. This is an office building and headquarters for the National Housing Corporation (NHC). Similarly, NHC owns another housing project known as Kigamboni Housing Estate which has too been certified green by the Building and Construction Authority. Both projects have integrated green features in the design and construction hence managed to cut down the energy usage.

Therefore in order to successful achieve the 11<sup>th</sup> goal (Make cities and human settlements inclusive, safe, resilient and sustainable) of the 2030 agenda for sustainable development,

previous studies have suggested that environmental impact assessment or sustainability principles should be integrated right from the planning and design stages of the project (Nwokoro and Onukwube, 2011). However, a recent comparative study between Nigeria and Malaysia by Abolore (2012) acknowledged that in some developing countries like Nigeria there is still low level of awareness and moderate level of awareness in Malaysia towards sustainable construction.

Consequently, as evidenced above very few buildings in countries such as Tanzania have fully integrated green building/sustainability principles. Similarly, there is a paucity of empirical studies that examine sustainability issues in the developing country context. Therefore, as observed by (Nwokoro and Onukwube, 2011; Abolore, 2012; Hussin *et al.*, 2013) the following recommendations will be of benefit to construction industry in developing countries towards achieving the 2030 sustainable development goals:

- i. The sustainability laws, guidance and principles should be formulated and streamlined to reflect the developing country context. Their implementation can be made either through the Green Building Council, National Construction Council or other similar platforms. And this guidance must be made mandatory in housing policies and procurement methods such as PPP in order to be consistently included in the built environment projects.
- ii. Awareness, training and education on the sustainability concept should be increased to the construction industry practitioners through conferences, workshops, seminars and training. Also collaborations between stakeholders and academics should be undertaken to share and transfer the knowledge.
- iii. Developing countries have to refine and improve their construction process and technology to be able to achieve the global goals.

- iv. Last but not the least, more empirical studies should be carried out to examine sustainability issues and PPPs; there is a great need for more research to be undertaken on these subjects in order to identify the success factors and challenges pertinent to adopting PPPs in attaining sustainable construction.

Observed suggestions such as these have been made in developing countries such as Nigeria and Malaysia (Nwokoro and Onukwube, 2011; Abolore, 2012; Hussin *et al.*, 2013).

#### **4.3.6 Challenges in HPPP Projects**

Various studies have identified numerous challenges in PPP projects (Sengupta, 2004, 2006; Abdul-Aziz and Kassim, 2011; Ibem, 2011a; Moskalyk, 2011; Ibem and Aduwo, 2012; Al-shareem *et al.*, 2014; Ismail and Azzahra Haris, 2014; Liu *et al.*, 2014; Babatunde *et al.*, 2015; Kwofie *et al.*, 2016), where some of these studies have specifically identified challenges hindering the success of PPP strategies in housing provision. According to Trangkanont and Charoenngam (2014b), the identification of these challenges is useful for both policy makers and operational practitioners as it provided a basis for preparing a strategic risk management framework.

Through literature review it was distinguished that some challenges are similar or common across countries and some are unique (country specific). For example Sengupta (2006) highlighted a number of constraints to PPP housing projects in Kolkata India, nevertheless it was noted that among other challenges ‘out dated legislation’, ‘high levels of municipal taxes’, ‘stamp duties’ and ‘sanction fees’ appeared country specific. Similarly Ibem and Aduwo (2012) identified one unique challenge experienced in Nigeria which is the high building standards in PPP housing projects. This was a setback towards attaining the affordability aspects to low income earners. Additionally, Ukoje and Kanu (2014) revealed that most of the works in the PPP mass housing project in Abuja were done on ad hoc basis.

For instance, many houses in this project had neither building plans nor development control's approval (Ukoje and Kanu, 2014). This approach was a clear recipe for failure. Interestingly, the two studies (Ibem and Aduwo, 2012; Ukoje and Kanu, 2014) identified almost similar challenges regardless the studies being undertaken in different states in Nigeria and at different point in time.

On the other hand a non-empirical study (Moskalyk, 2011) prepared for the United Nations Human Settlement Programme clarified that HPPP challenges depends on countries level of understanding and development towards partnership model. This implies that the challenges vary according to the degree of knowledge towards PPP. Hence suggesting that PPP awareness, skills and knowledge is a significant aspect towards the success of PPP projects. Moskalyk (2011) further noted that rich countries have been successful in delivering affordable housing due to high level of government subsidies, which lowers housing costs. He added that these subsidies are a 'luxury' and cannot be afforded in the developing world. However it is possible to argue that these subsidies need not be a "luxury" but essential provided they are incorporated into a developing country's long term budget planning. If planned in advance and taken as a priority, such subsidies can be afforded. Hence it is necessary to have strategic plans and favourable policies unlike the practice in the PPP mass housing project in Abuja (as explained above) to successfully deliver affordable housing.

Table 4.4 provides a summary of PPP challenges identified in various studies. Examination of this table demonstrates that the majorities of PPP housing studies have been undertaken mainly in the developing countries. This implies that housing deficit is highly experienced in these countries may be due to high population growth in regions of Asia and Africa. Moreover, the table also indicates that very few HPPP studies have been undertaken.

Furthermore, based on Table 4.4, the total frequencies on each challenge indicate its popularity. For instance, '*inadequate PPP skills and knowledge*' (n=9) appeared as the most popular and significant challenge in PPP projects. Followed very closely by '*Inadequate PPP legal framework, policy and guidelines*' (n=8) and '*High cost in procuring PPP projects*' (n=7) appearing second and third. Likewise, '*corruption*', '*delays*' and '*poor enabling environment to attract competent partners*' appeared the fourth, fifth and sixth but with similar frequencies (n=6). The analysis of these findings reveals that the top six most mentioned challenges appeared more popular in developing countries as they were identified by over 50% of the relevant studies from developing countries.

In addition, the most popular challenge (*inadequate PPP skills and knowledge*) as it appears in Table 4.4 is in agreement with (Zhang, 2005b; Moskalyk, 2011; Wibowo and Alfen, 2015; Akintoye and Kumaraswamy, 2016). It also corroborates the argument made above by the author that 'PPP awareness, skills and knowledge is a serious aspect towards the success of PPP projects'.

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). Example, inadequate feasibility study (n=2) within the themes of 'PPP project evaluation'. This implies that little has been studied in that area.

**Table 4.4: Summary of selected literature on challenges affecting the delivery of PPP projects**

No	Challenges	References																							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	No
1	Differing goals between partners	*																							1
2	Corruption				*	*			*			*			*							*			6
3	Misinformation on financial capacity of private partners				*	*									*										3
4	Poor PPP contract and tender documents				*	*		*		*												*			5
5	Delays				*		*		*									*		*				*	6
6	Inadequate PPP legal framework, policy and guidelines			*		*	*		*	*		*		*	*									*	8
7	Inadequate PPP skills and knowledge	*			*	*	*		*						*			*		*			*	*	9
8	Lack of competition																		*	*	*	*			4
9	Inadequate feasibility study																*					*			2
10	Inadequate project management by the public sector				*				*						*		*								4
11	Long term disputes and conflicts between parties								*							*	*			*					4
12	Inadequate government commitment and support				*								*												2
13	Insufficient capacity in procurement and negotiations				*				*						*										3
14	Poor risk identification, allocation and management							*	*						*		*					*			5
15	In experienced private partner				*			*																	2
16	Unequal qualifications and contributions of expertise				*										*										2
17	Poor enabling environment to attract competent partners				*	*			*			*		*	*									*	6
18	Inadequate mechanisms for recovery of private investors' capital				*																				1
19	High cost in procuring PPP projects	*	*	*			*		*			*		*	*									*	7
20	Lack of public consultation and transparency																					*			1
21	Accounting problems such as off balance sheet financing																					*			1
22	Inadequate performance monitoring																					*			1
23	lengthy procurement period																						*		1
24	immature financial market																							*	1
25	High end-user charges						*		*																2
26	Lack of transparency									*	*														2
27	High cost of building materials and construction equipment											*	*												2
28	Poor infrastructure services											*													1
29	Public acceptability										*														1

**Notes:** 1. Moskalyk (2011); 2. Ibem and Aduwo (2012); 3. Sengupta, (2006); 4. Ngowi (2006); 5. Trangkanont and Charoenngam (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. Ibem (2011a); 13. Ibem (2011b); 14. Chidieli (2012); 15. Chou and Lin (2012); 16. Akintoye *et al.* (2003); 17. (Chan *et al.*, 2006; Chan *et al.*, 2009b); 18. Abdul-Aziz (2001); 19. Li *et al.* (2005b); 20. KPMG (2010); 21. Fombad (2013); 22. Carrillo *et al.* (2008); 23. (Osei-Kyei and Chan, 2017). **★The challenges numbered 25 through 39 were identified by HPPP studies. \*Challenges identified in developing countries**

**Table 4.4 Contd...: Summary of selected literature on challenges affecting the delivery of PPP projects**

No	Challenges	References																							No
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
30	Lack of uniform policy in PPP housing provision												*												1
31	Lack of coordinating agency in PPP housing												*												1
32	Poor access to developable land		*																						1
33	High building standards		*																						1
34	Housing Finance constrains	*				*																			2
35	Difficulties to low income group					*																			1
36	Political intervention					*																		*	2
37	High levels of Municipal taxes, stamp duties and sanction fees			*																					1
38	Out dated legislation			*																					1
39	Inability to integrate sustainability principles			*																					1

**Notes:** 1. Moskalyk (2011); 2. Ibem and Aduwo (2012); 3. Sengupta, (2006); 4. Ngowi (2006); 5. Trangkanont and Charoenngam (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. Ibem (2011a); 13. Ibem (2011b); 14. Chidieli (2012); 15. Chou and Lin (2012); 16. Akintoye *et al.* (2003); 17.(Chan *et al.*, 2006; Chan *et al.*, 2009b); 18. Abdul-Aziz (2001); 19. Li *et al.* (2005b); 20. KPMG (2010); 21. Fombad (2013); 22. Carrillo *et al.* (2008); 23. (Osei-Kyei and Chan, 2017). ★The challenges numbered 25 through 39 were identified by HPPP studies. \*Challenges identified in developing countries

Based on the identified challenges presented above, there is a significant need of addressing these challenges in order to reduce the failure rate and improve the implementation of HPPP projects in developing countries. Various studies as shown in Table 4.4 have been undertaken to identify the challenges in PPP projects but very few have demonstrated ways of addressing these challenges. For example, both developing (example Brunei Darussalam, China and Thailand) and developed countries (such as the UK, Australia and Hong Kong) have developed various PPP frameworks (Qiao *et al.*, 2001; Tutesigensi and Mohammad, 2008; Zou *et al.*, 2008; Cheung, 2009; Li *et al.*, 2009; Zhou *et al.*, 2013; Trangkanont and Charoenngam, 2014b; Almarri and Abuhijleh, 2017) to enhance the delivery of PPP projects. Table 4.5 identifies and summarises eight existing frameworks in which six are from developing countries. Notably based on the literature review, majority of the frameworks tend to address the following issues; Introducing/initiating PPP projects, risk management issues, sustainability assessment, critical success factors and public engagement strategies. Barely any PPP frameworks are available to address the existing housing PPP challenges. Therefore, based on the identified knowledge gap, and in order to achieve the aim of the study the last objective of this study (see Chapter 1, Section 1.3) is to develop a PPP conceptual model for housing projects in order to address the existing challenges as evidenced in (Kavishe, 2010).

#### **4.4 PPP Housing Experience 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 organisations, 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

**Table 4.5: List of existing PPP frameworks/Conceptual model**

Country	Author	Existing frameworks	Framework features
❖Hong Kong	(Cheung, 2009)	A best practice framework for implementing PPP projects in Hong Kong	<ul style="list-style-type: none"> <li>• Focused to develop and initiate PPP projects in Hong Kong</li> <li>• A Generic framework for Hong Kong PPP projects</li> </ul>
❖UK	(Zhou <i>et al.</i> , 2013)	Framework for sustainability assessment for PFI projects in the UK	<ul style="list-style-type: none"> <li>• Focused on sustainability indicators for the UK PFI projects</li> <li>• Measures PFI sustainability performance.</li> <li>• Applicable to other PPP projects not only PFI</li> </ul>
★China	(Qiao <i>et al.</i> , 2001)	Framework for critical success factors of BOT projects in China.	<ul style="list-style-type: none"> <li>• Specific to Chinese BOT projects</li> <li>• It is conceptual and not validated</li> <li>• The framework mirrors the significance and characteristics of BOT project.</li> <li>• It provides a list of success factors.</li> </ul>
★China	(Li <i>et al.</i> , 2009)	A framework of public engagement for PPP projects in china	<ul style="list-style-type: none"> <li>• Focused on public engagement in Chinese PPP project</li> <li>• Features in 7 stages; ‘project inception’, ‘feasibility study’, ‘procurement’, ‘agreement and financing’, ‘development’, ‘delivery’ and ‘exit’.</li> <li>• It ensures that the PPP projects meet the interest of the general public by capturing public opinions</li> </ul>
★Brunei Darussalam	(Tutesigensi and Mohammad, 2008)	A framework for introducing PFI in Brunei Darussalam construction industry	<ul style="list-style-type: none"> <li>• It provides a starting point on developing PPPs in Brunei</li> <li>• Built on five key features: ‘organisation’, ‘training’, ‘participation’, ‘implementation’ and iteration</li> <li>• Incorporates Brunei structure and systems of governance</li> </ul>
★*Thailand	(Trangkant and Charoenngam, 2014b)	Contractors’ effective risk management framework in PPP Low Cost Housing projects	<ul style="list-style-type: none"> <li>• It’s a contractors’ guide towards decision making on risk response strategy</li> <li>• Specific to low cost HPPP projects in Thailand</li> </ul>
★United Arab Emirates (UAE)	(Almarri and Abuhijleh, 2017)	A framework for developing projects in the UAE, a developing country	<ul style="list-style-type: none"> <li>• It’s a generic framework to develop projects through PPPs</li> <li>• Focused to beginners in developing countries</li> </ul>
General	(Zou <i>et al.</i> , 2008)	A risk management framework for infrastructure PPP projects	<ul style="list-style-type: none"> <li>• Generic framework to Manage life cycle risks in PPP projects</li> </ul>

**Notes:** ★ denotes developing countries; ❖ denotes developed countries and \* denotes a HPPP framework

very successful. For example According to Kavishe (2010) it was evidenced the public partner (NHC) had secured a total of 190 projects of Tshs.410.11 Billion worth under the Public Private Partnership strategy. Out of those 190, only 29 (15%) projects worth Tshs.41.06 Billion were completed. 48 (25%) projects of Tshs 96.64 Billion worth were uncompleted and had exceeded the contract duration because of various challenges and delays. Furthermore, up to 100 projects were under preparation stage for a long time due to PPP incompetence, disputes and refusal from previous tenants to vacate the properties to be redeveloped. Likewise, 10 projects were stalled for several reasons including pending cases in the court of law and financial constraints.

Despite recent developments undertaken by the Tanzanian government in enhancing the Regulatory Frameworks via PPP Regulations in 2011, and the Public Procurement Act 2011, as observed by Mboya (2013), a number of challenges still remain, such as the relative infancy of rather complex PPPs and lack of experience across the stakeholder chain (Mboya, 2013).

#### **4.4.1 National Housing Corporation (NHC): Historical Context**

The old NHC was established by the Act of Parliament No. 45 of 1962. The Corporation was given the responsibility of providing and facilitating the provision of houses and other buildings. This role was included in the following tasks:

- i. Lending or granting finance to Local Authorities for the purpose of implementing approved housing Scheme undertaken by this authority.
- ii. Making or guaranteeing loans made to a persons or body of persons to acquire and construct thereon approved houses or other buildings.
- iii. Constructing houses or other buildings and carrying out Approved Housing Scheme.

Generally, the establishment of NHC was a government response to mitigate the alarming housing problem that faced the majority of African urban dwellers. In this respect, the Corporation was charged with the role of providing affordable housing to the urban poor.

Between 1962 and 1974, the Corporation constructed a total of 14,145 housing units under slum clearance, rental and tenant purchase schemes. At that time the Corporation financed its projects through various ways including, government subventions, grants, equity funds and loans.

Between 1975 and 1989, the Corporation managed to construct 1,894 housing units. The decrease was attributed to the government budget decline, increased construction costs and high inflation rates that resulted from economic crisis. The number of units constructed indicates that the contribution of NHC to the housing sector during that period was not significant. Consequently, the units constructed were very few as compared to the population influx of people in urban areas.

In the 1980s and 1990s, the Corporation owned a substantial stock of buildings that were already condemned or were near to being condemned (Maagi, 2010). The redevelopment or rehabilitation of such buildings required substantial funds which NHC itself could not afford. Therefore, the Corporation had to consider other sources of funds and funding arrangements available such as PPP to meet short-term and long-term financial needs for the purpose of project implementation. PPP was NHC's next alternative and strategy for redeveloping prime plots hosting condemned buildings in partnership with potential real estate investors. During this period, several projects were implemented. Such projects included the Singida Motel Project (1982), 16 flats complex along Chagga Street in Dar es Salaam (1984) and Mafuta House Project was initiated in 1988 but due to lack of funds it was not completed until later it

was purchased by the National Social Security Fund (NSSF) and its construction resumed in 2004. In these projects RoB collaborated with Regional Development Director's office (RDD) Singida and Tanzania Petroleum Development Corporation (TPDC), respectively.

However, at that time there was no clear Corporation or PPP policy to guide these joint venture undertakings. As such, the terms and conditions for participation in these undertakings varied from one project to another depending on the cost and magnitude of an individual project. To a greater extent, the terms and conditions were holistic governed by trust between partners. Later the influx of prospective investors necessitated the need to have quantum guidelines or policy that would spell out terms and conditions of participating in joint venture partnership with NHC. Since then the NHC has executed a substantial number of projects under joint venture partnership strategy as shown in Table 4.6. However, 15 (14.29%) of these projects have stalled for various reasons including financial difficulties. This status clearly indicates the existence of PPP challenges to its performance as acknowledged by Maagi (2010) and World Bank (2016) report. A study by (Maagi, 2010) further admitted that most of the stalled or delayed projects belong to the indigenous investors inferring inadequate PPP capacity (Moskalyk, 2011).

**Table 4.6: NHC projects under PPPs in Dar es Salaam region**

No	Project Status	No of projects	%
1	Completed	65	61.90
2	Under Construction	25	23.81
3	Stalled	15	14.29
	Total	105	100

#### ***4.4.1.1 NHC JVs policy at a glance***

According to Kavishe (2010), the NHC adopted joint ventures (JVs) as a form of PPP approach to housing projects and used the build-own-operate (BOO) and the build-operate-transfer (BOT) models. The adoption of JV strategy necessitated the formation of JV policy

(see Chapter 2, subsection 2.4.4). The aim of the policy was to put clear objectives and procedures to be followed by parties in the JV projects.

For instance, within the policy, it was stated that a period of 12 years is adequate for investors to recoup their capital invested in projects. This time frame was stipulated for all projects irrespective of the size and nature of the project and was stipulated in NHC JV Policy (2006) Article 4.2.51. Thereafter for BOT projects the property was to be transferred fully to the public partner. Drawing from Kavishe (2010) the study demonstrated that the NHC JV policy had loopholes and flaws which led to failure of some of these projects. For example another clause in the policy stipulated that NHC's contribution was limited to the project land, which accounts for 25% of the project shares. However, partners financed the projects fully to completion had their share account for 75%. Unfortunately, valuation of land was not employed in determining NHC shares in these projects. Nevertheless the 75:25 ratios applied to all projects regardless of the magnitude and locality of the project. Furthermore, NHC was entitled to hold a 50% share in projects requiring big cash outlays, which NHC could not afford to finance. However, the policy provided for NHC to start with minority shares of not less than 25% but had the right to acquire another 25% after a period of 12 years. Moreover, it was discovered that some contracts stated that "at the end of the 12th year if NHC fails to increase its share to 50% then the property will be fully owned by the private partner". Most investors benefited from this clause since NHC was not capable of increasing its share within the stipulated time because of its poor financial situation. As a result, several properties were taken up by the investors. Generally, the NHC JV policy was inadequate and it contributed to the HPPP failure.

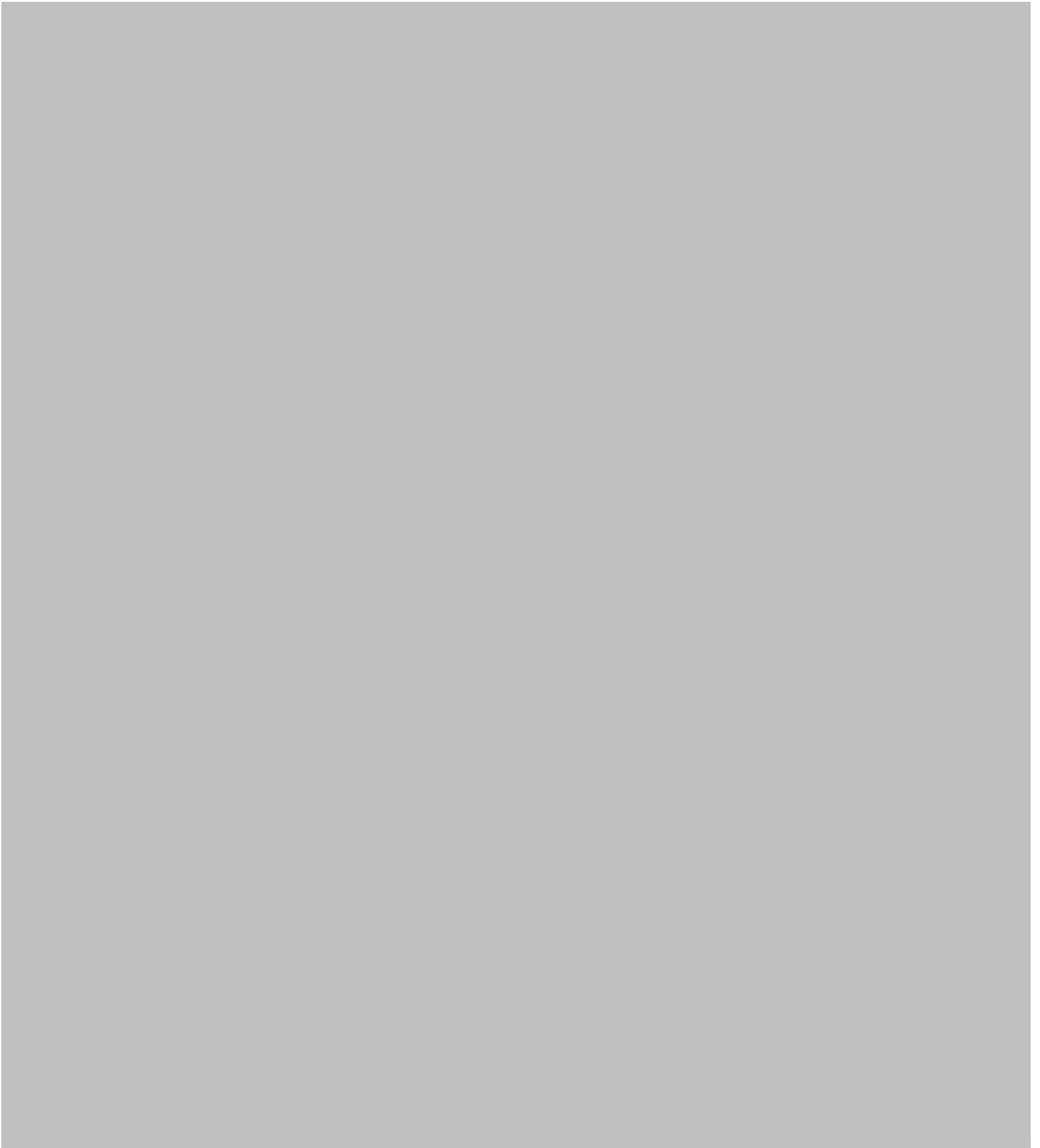
#### ***4.4.1.2 NHC procedures to obtain potential partner for its JV projects***

During their very early projects the selection of their partner was in the manner of first come first served (Kavishe, 2010) . There was no room for competition; 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 prudently considered which would have assisted the Corporation to secure more potential investors. Its desperateness resulted from lack of funds and the fear of loss of some of their plots and properties that had been declared by the Ministry of Land ripe for redevelopment. Therefore NHC identified an area or a plot for redevelopment and it advertised in the local media inviting prospective investor to enter into partnership for redevelopment. The advertisement calls upon individuals/existing tenants in the condemned buildings, private enterprises and public institution to team up with NHC on joint venture partnership.

Therefore, the interested investor had to apply through an official letter pinpointing the area or plot he was interested in redeveloping. The NHC management gives out a preliminary offer with conditions to be followed by prospective investor in redevelopment once it is confident that the area or plot is ready for redevelopment. In addition, NHC has to be satisfied by the applicants that they are financially and technically capable of running the project in a beneficial manner if selected. Thus, applicants were required to submit project write ups that show funding scheme, technical skills and risks associated to the project, marketability and other aspects which would guide NHC to select a potential partner. However, this was done to a lesser degree as the evaluation then the decision was made based on a single proposal due to lack of competition. In 2004, the Corporation extended its program by inviting investors in redeveloping NHC plots with condemned buildings in all regional headquarters (Maagi, 2010). The adverts were placed in both the Express and Daily newspapers on 11 November

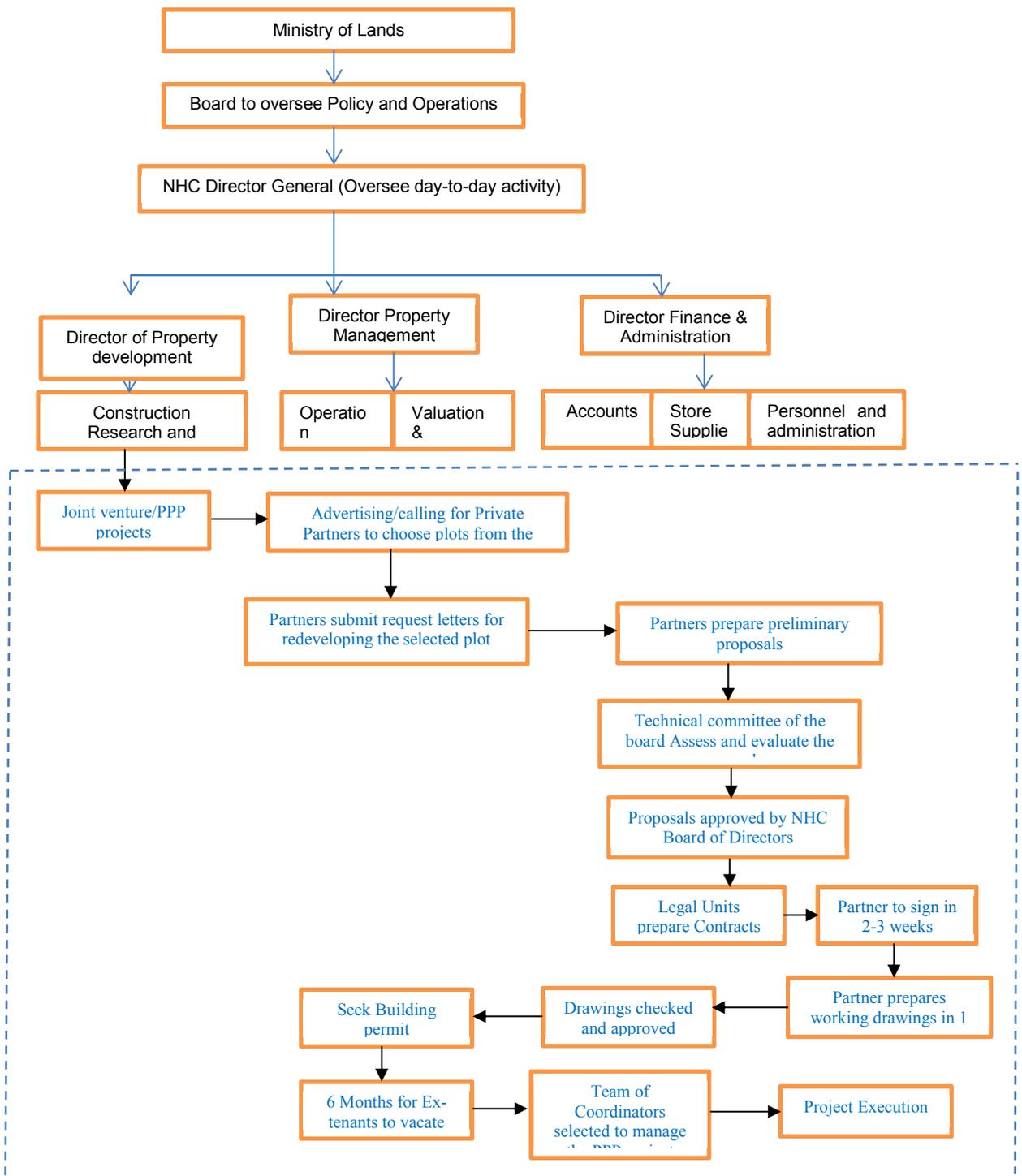
2004 (Maagi, 2010). In 2005, the Corporation suspended new applications for Dar es Salaam central business district (CBD) and at the same time invited interested investors to lodge application for redeveloping plots located in other urban centers. The call was made in the Citizen Newspaper dated on 30<sup>th</sup> December 2005. Unlike in the previous call, this call was not effective because many investors opted to invest only in the centres which are sound economically, such as Mwanza and Arusha. Thus, most other centres, for example, Tanga, Singida and Lindi, remained undeveloped (see the map in Figure 4.1 below).

During that time, competitive tendering was yet to be adopted. However, after the amended JV policy of 2006 came into force, it required NHC to expose its properties to the public in line with the Public Procurement Act (PPA) No. 21 of 2004. In conformity with the requirements of the PPA, the NHC now choose their partners through competitive tendering. Figure 4.2 describe the procurement process of the NHC JV partners.



***Figure 4.1: Map of Tanzania showing the regions***

Source: <https://www.mapsofworld.com/tanzania/maps/tanzania-political-map.jpg>



**Figure 4.2: NHC PPP Procurement Framework adopted for 1995–2010**

#### 4.4.2 National Social Security Fund (NSSF)

The National Social Security Fund (NSSF) replaced the defunct National Provident Fund (NPF) and it was established by the Act of Parliament No. 28 of 1997 (URT, 1997). The NSSF is a public organisation, which is responsible to providing social security/pension funds to Tanzanians. It caters for a wide range of people (employers and employees) including the private sector, public sector, self-employed and parastatals (organisations owned or controlled wholly or partly by the government). All the collected funds are exclusively invested in different projects such as through PPPs for the purpose of generating more funds to increase the capacity of financing the benefit payments.

Therefore, for that reason it recently started to undertake PPP projects see the summary on Table 4.7. Based on Table 4.7 the Kigamboni Bridge, 680 meters long was its first PPP project worth TZS 49.06 billion (£17.6 million). The commencement of this bridge project was in 2012, and it was completed and opened on 16 April 2016. The second PPP project known as Dege Eco Village was PPP housing which started its construction in 2013 and it is being built on 300 acres of land located in Kigamboni, Dar es Salaam, 23 kilometres from Magogoni Ferry. This project will cost TZS 96.64 billion (£34.7 million) and used a Design and Build (DB) PPP model and it is collaboration between NSSF (public partner) and Azimio Housing Estate (Canadian Council for Public Private Partnerships). The project is being built by M/s Mutluhan Construction Industry Company Limited, a foreign company from Turkey using modern technology known as Tunnel Formwork System.

**Table 4.7: NSSF projects under PPPs**

No	Project Name	Project Status	Duration	Value in Tshs. Billions <sup>1</sup>
1	Kigamboni bridge	Completed	2012 - 2016	49.06
2	Dege Eco village Housing	Under Construction	2013 – 2018	96.64

Notes: <sup>1</sup> Exchange rate (£1 = TZS 2786.76) as produced by OANDA website 05/01/2017.

According to the former Director General the project was planned to be implemented in three phases; scheduled for completion by the end of 2016, 2017 and 2018, respectively. The first phase of the project involved the construction of mixed-use residential apartment catering for high and medium income group. All the residential apartments are for sale, while other social and commercial properties will either be for sale or lease. The second phase was planned to cater for the low-income group. However, since April 2016, construction activities have stopped and the project is stalled for over a year now, main cause being private partner financial difficulties hence the project goals stated above have not been achieved yet.

#### ***4.4.2.1 Project financing and shareholding arrangement in NSSF DB model***

The financing arrangement for the NSSF housing PPP project was different from that of NHC. However the public partner in this case (NSSF) is contributing 45% of equity to the project while the private investor (Azimio Housing Estate) contributed 300 acres of land which was valued as 20% of the whole project and 35% of equity making a total of 55%. As stated earlier properties will be sold out to people and partners will share the profit according to their contribution. Additionally the clients intended to develop estate housing to oversee and operate the facilities on their behalf.

#### **4.4.3 Private Partners Involved in HPPP Projects**

Several individuals were involved in these HPPP projects as private partners. Majority of these individuals were Tanzanians with Asian ethnicity, who have been born or migrated and settled in Tanzania and others were few local Tanzanians. However due to poor record keeping it was not possible to obtain the total number of private partners involved. Furthermore, for NHC joint ventures, most of their partners were their previous tenants (ex-tenants) as priority and opportunities were granted to them before others. More so, most PPP

projects undertaken by NHC were redevelopment of condemned properties hence initiating the involvement of the existing tenant from the beginning. This clearly indicates that chances are high that the majorities of the partners did not have the PPP skills.

For NSSF since Dege Eco village is their first PPP housing project then so far they have one private partner who initiated the project (unsolicited proposal) in this case the procurement of the partner was non-competitive.

#### **4.4.4 Financing Challenges of HPPP 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% and 25% and loan repayment terms are generally short thus the near absence of mortgage financing limited the property developers such as NHC. Therefore, NHC was forced to depend mainly on equity to finance its projects. Their equity funds were normally derived from the existing projects, particularly houses for sale and rental revenue in case. 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.

In addition, the absence of detailed financial assessment of private partners highlighted the lack of integrity due to the limited scrutiny of the process. As a result, a number of partners

were facing financial difficulties a few months after the start of the project, which led to delays, poor performance and unsuccessful delivery of projects.

#### **4.5 Experience in HPPP Projects Across Countries**

Although this study is focused in the Tanzanian context, it is worth noting that HPPP has been undertaken across countries. Therefore, the purpose of this section is to draw out experiences from other countries as well as demonstrating the knowledge gap. Their positive practices will assist in developing the proposed PPP housing conceptual model which will address the identified challenges. However it is worth noting that the international experience in HPPP cannot be directly replicated to the Tanzanian housing condition due to some differences and uniqueness that each country possess as opined by Tang *et al.* (2010a), but still the international experience and the success features can shed light by providing lessons learnt and these can be tailor made to suit the Tanzanian context. Therefore, experience from few countries (one or two) within few selected regions (Asia, Africa and Europe) will be discussed. The reasons why these countries were selected is the fact that it fulfils at least one of the following criteria:

- i. The country has wider experience in PPP housing projects
- ii. The country has comparable economic, cultural and social conditions to Tanzania
- iii. The country forms part of the sub-Saharan Africa.

##### **4.5.1 Asian Region**

Asian region has been selected to demonstrate its HPPP because of its wider experience in PPP and the fact that some of its countries such as Malaysia (Abdul-Aziz and Kassim, 2011) and India (Sengupta, 2006) have experienced some successful outcome.

#### ***4.5.1.1 Malaysian experience***

In Malaysia, the private developer undertakes all development tasks including designing, building and financing as well as providing internal infrastructure and necessary social facilities (Abdul-Aziz and Kassim, 2011). Whereas the public sector provide the specifications for the project including number of houses, types to be built, the sizes for the open spaces, communal facilities, selling prices for various house units, profit allocation, risk allocation and phases for the project development (Gilbertson, 2005 cited in Abdul-Aziz and Kassim, 2011). More so, the government provides free land or at discounted price to the private developers to support low cost housing. 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 that all its citizens particularly the low-income group had guaranteed access to adequate housing (Abdullahi and Aziz, 2011). 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. The “*cross subsidy policy*” was a key feature of the housing policy where the rich subsidised 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 thorough and open registration system. This eliminated much corruption, cheating and inequality as a fair system was adopted. From the Malaysian experience, it is clear that government incentives and

controls, detailed groundwork, strong policies and clear objectives needed to exist before the adoption of the strategy and have worked as a catalyst towards its success.

#### ***4.5.1.2 Indian experience***

In Kolkata India, the PPP housing projects were undertaken in the form of joint ventures (JVs) as they were in Tanzania. The Indian government owned less than 50% of the joint venture shares with majority being owned by the private partners (Sengupta, 2006). Furthermore, the government put controls by making sure that among the developed housing units at least 10%–15% targeted middle- and low-income earners who were given transfer restrictions and 99 years of leasehold (Sengupta, 2006).

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 (Sengupta, 2004, 2006). Its government ensured that regulations related to supply of land, building materials, intended groups, affordability, building by-laws and regulatory framework were revised accordingly when necessary (Sengupta, 2004). The PPP approach included the public organisations and big reputable private partners who were able to qualify following the fulfilment of two major conditions including; (1) ownership of a minimum net worth of INR 50 million (US\$1.1 million) and (2) should have accomplished building 500,000 square feet of building space within the last five years (Mookherjee, 2003, cited in Sengupta, 2004, p. 5).

Strict and competitive selection criteria played a role in obtaining suitable and experienced partners. Selection of reputable/strong private consortium is among the critical success factors of PPP projects as evidenced in (Zhang, 2005a, 2005b; Abdul-Aziz and Kassim, 2011; Ismail, 2013; Kwofie *et al.*, 2016). Similarly the success of their PPP housing projects was supported by government provision of subsidies to work as an incentive to the private partners and

social consideration to the low income group (Sengupta, 2004). More so, the government of India took a role of prescribing some of the house specifications such as the cost limits and minimum sizes to the private developers in order to make them affordable to the low income earners (Sengupta, 2004).

It is also noted that a significant fall in interest rates (from 16.5% to 8.25%) occurred in the period 1999–2003 which encouraged borrowing. However, despite government efforts and success stories, a similar study conducted by Sengupta (2006) highlighted a number of constraints to PPP housing projects in Kolkata including; *"poor access to finance by low-income families"*, *"outdated legislation"*, *"high levels of municipal taxes"*, *"stamp duties"* and *"sanction fees"*. Therefore, there was still lack of sufficient mortgage financing service to the prospective buyers, who were the low-income earners and could hardly secure any loan due to their inability to fulfil the conditions. Nevertheless, despite the challenges PPP is increasingly viewed as a viable approach in Kolkata.

#### **4.5.2 African Region**

Nigeria and Ghana have been selected to demonstrate their HPPP experience as they are countries from the sub-Saharan Africa like Tanzania. Similarly it was thought necessary to draw out examples from this region as the case study in this research forms part of this region.

##### ***4.5.2.1 Nigerian experience***

Nigeria unlike Tanzania has a housing policy known as National Housing Policy (NHP) formulated in 1991 then revised in 2000 (Abdullahi and Aziz, 2011). This policy boosted private investors to take the responsibility of housing provision (Abdullahi and Aziz, 2011). According to studies by Ibem (2011a) and (Ibem, 2011b), 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. An empirical study by Ibem (2011a) through interview surveys undertaken with the government housing agencies in six cities, 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 a uniform national policy was acknowledged as the main challenge. Likewise, a similar study by Ukoje and Kanu (2014) identified that a HPPP 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.

#### ***4.5.2.2 Ghanaian experience***

In Ghana, the HPPP is also a new approach. According to Kwofie *et al.* (2016) the recent government of Ghana reintroduced PPP in the housing sector despite the fact that PPP existed in other sectors before and even in the housing sector as far back as in the early 2000 they were some initiatives made to introduce HPPP. The initiatives were made because the previous government experienced many failures such as inadequate housing supply however they were not successful (Kwofie *et al.*, 2016). Until recently a study by Kwofie *et al.* (2016) opined that the main challenge causing the failures in the initiated PPP housing projects resulted from the inability to pinpointing, examining, classifying and matching the critical success factors (CSFs) that can considerably influence the HPPP performance. This agrees with (Abdul-Aziz and Kassim, 2011). Therefore, Kwofie *et al.* (2016) identified a list of CSFs for HPPP projects as summarised in Table 3.4. To date in Ghana, little is known about HPPPs

due to the country's inexperience as well as scarce research undertaken in the PPP housing sector.

### **4.5.3 Europe**

Considering the fact that UK is considered the pioneer of PPP (Smyth and Edkins, 2007; Lop *et al.*, 2016; Sadeghi *et al.*, 2016) worldwide and across the European region then it was necessary to draw out its experience and lessons for its advancement.

#### ***4.5.3.1 UK experience***

A study by Hodkinson (2011) proves that the UK has wide experiences in the PPPs in the housing sector. Social housing supply in the UK has depended on the private sector financing since 1988 (Moskalyk, 2008). The local authority signs long term contracts (30years) with private developers to purchase works and services for council houses (NAO, 2010b; Liu *et al.*, 2014). The central government provides the funds in the form of PFI tax credits, whereby the local authorities uses it as cash to buy the private sector (Office of the Deputy Prime Minister, 2003, cited in Moskalyk, 2008, p. 17). Therefore the local authorities pay the construction costs to the private developer through yearly payments (NAO, 2010b). Two types of PFI housing projects are developed including council houses and non-council houses. According to NAO (2010b) report, the key actors in the PFI housing projects included:

- 1) The Treasury responsible for overall PFI Policy,
- 2) Department for communities and local government responsible for housing policy, governance and project fund allocation,
- 3) Local authorities responsible for procurement of PFI projects, contracting with the private partners and local delivery of the projects,
- 4) The homes and communities agency managing PFI programmes and

- 5) Tenants who were main users possessed the right to be involved in the decision for their houses.

The specification of the output and the Payment Mechanism are the two main features of the PFI contract. The local authority specifies the output while the private partner provides advance financing for the project, and it is repaid on a monthly basis by the local and central government (Liu *et al.*, 2014).

An empirical study was undertaken by (NAO, 2010a) where seven PPP housing case studies in the UK were being examined, the following findings were obtained:

- i. PFI housing project can be very long and expensive.
- ii. Innovative models and the use of centralised/specialised private finance unit can increase efficiency gains and save cost
- iii. Non-competitive procurement (single bidder selection) should be avoided as it risks the attainment of value for money.
- iv. Standardised PFI contracts are significant towards achieving value for money in a PFI project.
- v. Community restoration can lead to sustainable improvements
- vi. More involvement of tenant and leaseholder improved partnership relationship
- vii. Effective communication made the project better
- viii. Having in house specialist experts minimises the use of external advisors hence cost effective
- ix. Centralised PPP unit is good but it can be expensive to small local authorities.
- x. Commitment and consistence is important in order to develop an effective centralised PPP unit.

- xi. The inclusion of performance mechanism in the contract created significant motivations for the private developer to achieve the agreed performance levels.

Despite the success factors, PFI housing projects in the UK have also suffered severe cost increases and delays as a result of lengthy negotiations among other factors (NAO, 2010b; Hodkinson, 2011).

#### **4.6 Implications Drawn from Other Countries' Experience**

It is noted that the route to successful PPP in housing projects is complex and requires much government involvement. No country has been able to fulfil all the success criteria. Generally, the experience drawn from each region with the exception of Europe had some similarities in terms of success or challenges. For instance, it is observed that Malaysia and India had similar HPPP model and this information agrees to (Awil and Abdul-Aziz, 2006, cited in Abdul-Aziz and Kassim, 2011). Similarly, the experiences drawn from each country suggest that the adoption of PPP does not guarantee the success of the HPPP project in a straightforward manner instead adequate groundwork and detailed planning needs to be done in advance as was the case for India (Sengupta, 2004, 2006) and Malaysia (Abdul-Aziz and Kassim, 2011). This implies the need for adequate feasibility study and planning as proposed in various studies (Jefferies *et al.*, 2002; Cheung *et al.*, 2012; Ismail, 2013; Kwofie *et al.*, 2016) in Chapter 3.

Moreover, the existence of centralised PPP units in the UK local authorities and careful allocation of the roles to the key players have enhanced the performance of PPP projects as evidenced in the UK case studies (NAO, 2010a). This information agrees with a study by Black *et al.* (2000) who acknowledged that commitment and clear understanding of roles among other factors are important criteria in making PPP project succeed. Equally, El-Gohary

*et al.* (2006) argued that the involvement of Stakeholders should not be overlooked when preparing and planning for a PPP project (Black *et al.*, 2000; Akintoye *et al.*, 2003; Hardcastle *et al.*, 2005; Li *et al.*, 2005a).

Stricter control mechanisms such as the spell out of the output specifications and enough government support were amongst the major success criteria for Malaysia, India and the UK HPPP projects. Equally it was evidenced by an interviewee in the UK case study that inclusion of the performance mechanisms in the contract worked both as a performance control mechanism as well as a motivation to the private partner to work hard to achieve the agreed standard (NAO, 2010a). Furthermore it was observed that the Indian government imposed strict conditions by restricting the transfer of any of the developed PPP housing units and these were under 99 years of leasehold. The restriction policy worked as a control mechanism to avoid the misuse of these properties by making sure that only the intended people (low income group) receive the benefits. The absence of this regulation would have led to a situation of the beneficiaries re-selling these houses at a higher rate to the higher income group or to the private real estate investors and then go back to their poor dwellings, a situation which would have proved failure to the government. Table 4.8 below summarises the identified key success features in HPPP projects. Few countries from three different regions including Asia, Africa and Europe have been selected. The reasons for their selection have been described in Section 4.4.

**Table 4.8: Summary of key success HPPP features in selected countries**

Country	Success Feature	Reference
Malaysia	<ul style="list-style-type: none"> <li>• Cross subsidy policy</li> <li>• Condition to develop at least 30% of the houses to be low cost housing</li> <li>• Favourable housing policy</li> <li>• Removal of low income financial barriers</li> <li>• Allocation of low cost housing was through open registration system.</li> <li>• Submission of monthly progress reports supported by oral presentations to top management</li> </ul>	(Abdul-Aziz and Kassim, 2011; Abdullahi and Aziz, 2011)
India	<ul style="list-style-type: none"> <li>• Appropriate regulations</li> <li>• Strong criteria in private partner selection</li> <li>• Prescribing the housing specifications</li> <li>• Provision of subsidies</li> <li>• Restriction to resell the subsidised units</li> </ul>	(Sengupta, 2004, 2006)
Nigeria	NIL	
Ghana	NIL	
UK	<ul style="list-style-type: none"> <li>• Use of centralised/specialised private finance unit.</li> <li>• The inclusion of performance mechanism in the contract.</li> <li>• Competitive procurement</li> <li>• Involving the tenants and leaseholder</li> <li>• Effective communication</li> <li>• In-house PPP specialist save cost</li> <li>• Innovative models</li> <li>• Value for money assessment</li> </ul>	(NAO, 2010a)

#### 4.7 Chapter Summary

This chapter provided an overview of PPP in the housing sector by identifying key issues including readiness for adopting HPPP projects, influencing factors, cost and affordability factors, benefits of HPPPs, sustainability in HPPPs and major PPP challenges particular to housing sector. More so the Tanzanian PPP housing experience has been discussed as well as experience from few selected countries in order to tap in their best practices as illustrated on table 4.8 above. It was revealed that no HPPP studies were published in the Tanzanian context except for the studies originating from this thesis. Besides, this chapter exposed that no Housing PPP framework/conceptual model was developed to address the existing HPPP challenges despite the fact that some studies had identified the challenges. Therefore, having

clearly identified the knowledge gap, the next chapter presents the research methodology adopted to carry out the entire study.

## **CHAPTER 5**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **5.1 Chapter Introduction**

This chapter outlines the approach used in the research presented in this thesis. Additionally, the research design is provided in order to illustrate the structure of the research and how each objective was addressed.

#### **5.2 Research Approach**

The choice of a research approach depends on the research problem/issue, researcher's personal experiences and the intended audience for the study (Creswell, 2014). A number of authors, example Kothari (2004) define research as an art of scientific enquiry; a process of request for information (enquiry), and investigation, it is organised and systematic and it adds new knowledge. Creswell (2014) identified three main approaches to research (1) Qualitative (2) quantitative and (3) mixed methods which are not as distinct instead, they portray different ends on a scale (Newman and Benz, 1998). Because this study adopted mixed-methods approach, it is further reviewed below.

##### **5.2.1 Mixed-Methods Research**

The mixed-methods research approach uses a combination of both qualitative and quantitative research method (Creswell, 2014). It focuses on gathering analysing and combining data from both qualitative and quantitative methods (Creswell and Plano Clark, 2007). The logic behind the combination of the two approaches is to offset the weaknesses of each approach in order to obtain a better understanding of the problem being studied hence yielding realistic answers (Kothari, 2004; Creswell, 2014). Halcomb and Hickman (2015) argued that “mixed method is

more than just collecting quantitative and qualitative data within one study” it goes further to scrutinise the reasons for adopting the mixed-methods approach, understanding the several mixed-methods typologies and considering the required skills to mention a few. Therefore, drawing from Halcomb and Hickman (2015), four mixed-methods designs are illustrated in Table 5.1. The main difference between the four mixed-methods depends on the priority of one method over the other as shown in the last column in Table 5.1 below.

**Table 5.1: Mixed-methods designs**

Mixed-methods designs	Process	Purpose	Priority
Embedded nested	Qual quant or Quant Qual	To get different data to answer a Complementary research question	Either qualitative or quantitative
Sequential exploratory	Qual →quant	Quant data builds on qualitative findings to provide generalisability	Qualitative dominant
Sequential explanatory	Quant →qual	Qualitative data are collected to explain the quantitative findings	Quantitative dominant
Convergent parallel (concurrent)	Qual + Quant	To get different but complementary data to answer a single research question	Equal

**Source:** Adopted from (Halcomb and Hickman, 2015, p. 8)

**Notes:** Qual=Qualitative; Quant=Quantitative

### 5.3 Adopted Research Method for This Study

The research present in this thesis used a mixed-methods (triangulated) approach undertaken in two different phases (see Section 5.5.3) in order to gain complete understanding of the research problem. Since the main objective was to obtain different but complementary data to answer a single research question this study implemented a *convergent parallel (concurrent)* mixed-methods design. A questionnaire survey method (quantitative research) and semi-structured interviews (qualitative research) were used. In addition, according to (Love *et al.*, 2002) construction management researchers can effectively solve construction industry related problem by adopting a robust research methodology such as mixed methods as this is able to take into account ontological and epistemological perspectives. In other words (Love

*et al.*, 2002) contends that the mixed-methods approach is an appropriate method in construction management research for enlarging the scope of theory. In this case different methods are used to assess the same phenomenon toward convergence and increased validity (Cameron, 2009). Both Molina-Azorín (2007) and Halcomb and Hickman (2015) considered that both the quantitative and qualitative approaches have equal priority status. From the level of an interaction perspective, the data were collected and analysed independently. This method is similar to that used by Nguyen and Chileshe (2015) and Kurniawan *et al.* (2014), and included the following six steps: literature review; pilot survey; questionnaire survey; interviews; statistical analysis; and content analysis.

### **5.3.1 Justification of Selected Research Method**

The mixed-methods approach was adapted because it is well established in literature, that it provides the opportunity for increasing the reliability and validity of the research because it tries to check, cross-validate or verify findings see 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). Moreover, Easterbrook *et al.* (2008) argues that concurrent mixed-methods design is preferred as frequently what people say may be dissimilar to what people do. Additionally considering the study was undertaken in a developing country, where most people lack training on research ethics and accountability (Litewka, 2011) there was a greater need of adopting mixed methods to corroborate findings for reliability purposes. Therefore, by collecting data simultaneously by both methods the analysis from each technique can be used to examine emerging results from each tool (Easterbrook *et al.*, 2008).

## 5.4 Sampling

The sample was purposely selected in order to obtain valid and relevant information needed. The purposive sampling technique is a non-probability sampling approach which is based on the characteristics of the existing population and the purpose of the study. Simply put, it is the deliberate selection of a respondent due to the qualities the respondent possesses. It is considered most effective when a researcher wants to study a sample of population with certain knowledge. Therefore, based on this study not all building construction participants are familiar with PPP as it is still a new approach in developing countries such as Tanzania. Moreover the purposive sampling approach has been considered appropriate and widely adopted by other researchers in PPP research studies example (Zhang, 2005a; Liu and Wilkinson, 2011; Trangkanont and Charoenngam, 2014b; Babatunde *et al.*, 2015; Osei-Kyei *et al.*, 2017). This is because PPP practices and markets in many countries' are still emerging in many developing countries (World Bank, 2015). Most importantly, the complexity of the qualitative decision factors often requires experts with sufficient experience. Therefore, the target population for this study is stakeholders involved in PPP housing projects in public sector authorities (i.e. ministry, department, and housing agencies), private partners and the project consultants involved in HPPP projects in Dar es Salaam, Tanzania.

The rationale for choosing Dar es Salaam as the study area includes: accessibility to conduct survey and to obtain required data; also about 60% of HPPP projects, PPP experts, construction professionals and head offices are located in Dar es Salaam (Kavishe, 2010). 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 sample size involved in this study could not be easily determined. Based on this the researcher identified the target population through Public agencies involved in HPPP projects

and PPP experts. Not only that but also the researcher intended as well to obtain suggestions of the most relevant people to participate in the main study through the pilot study. This was sought by including the following question; "Is there any particular person in your organisation or outside your organisation to whom you think would be most relevant to take part in this study survey?" This question supported the recruitment of most suitable and more respondent for the main study. This approach is used for sampling hidden populations, also known as chain-referral sampling as suggested by Erickson (1979, cited in Heckathorn, 2002). However this was only possible because members of the target population knew each other and are closely interconnected. It is on this note that only two public organisations were identified (see Chapter 4, Section 4.3) alongside their list of projects, private partners and consultants.

The selected sample population was believed to be knowledgeable and have experience with PPP and housing delivery within the industry. Therefore the nominated respondents were purposely selected to meet the following criteria:

- Willingness to participate in the study.
- A key actor of the NHC/NSSF and have been involved in the PPP projects for a reasonable period of time (at least one year or above) .
- Had a coordinator role, e.g. head, member or staff of the PPP unit in Tanzania.
- Have been a public partner or private partner in PPP housing delivery projects.
- Practical experience in PPP projects.
- General understanding on PPPs
- Worked as a consultant in the selected PPP projects.
- Participated in PPP policy making in Tanzania.

Therefore in order to obtain the targeted population the above criteria were included as control variables in the part A (General information) of the questionnaires. Hence respondents' questionnaires not fulfilling one of the stated criteria were not considered in the analysis stage.

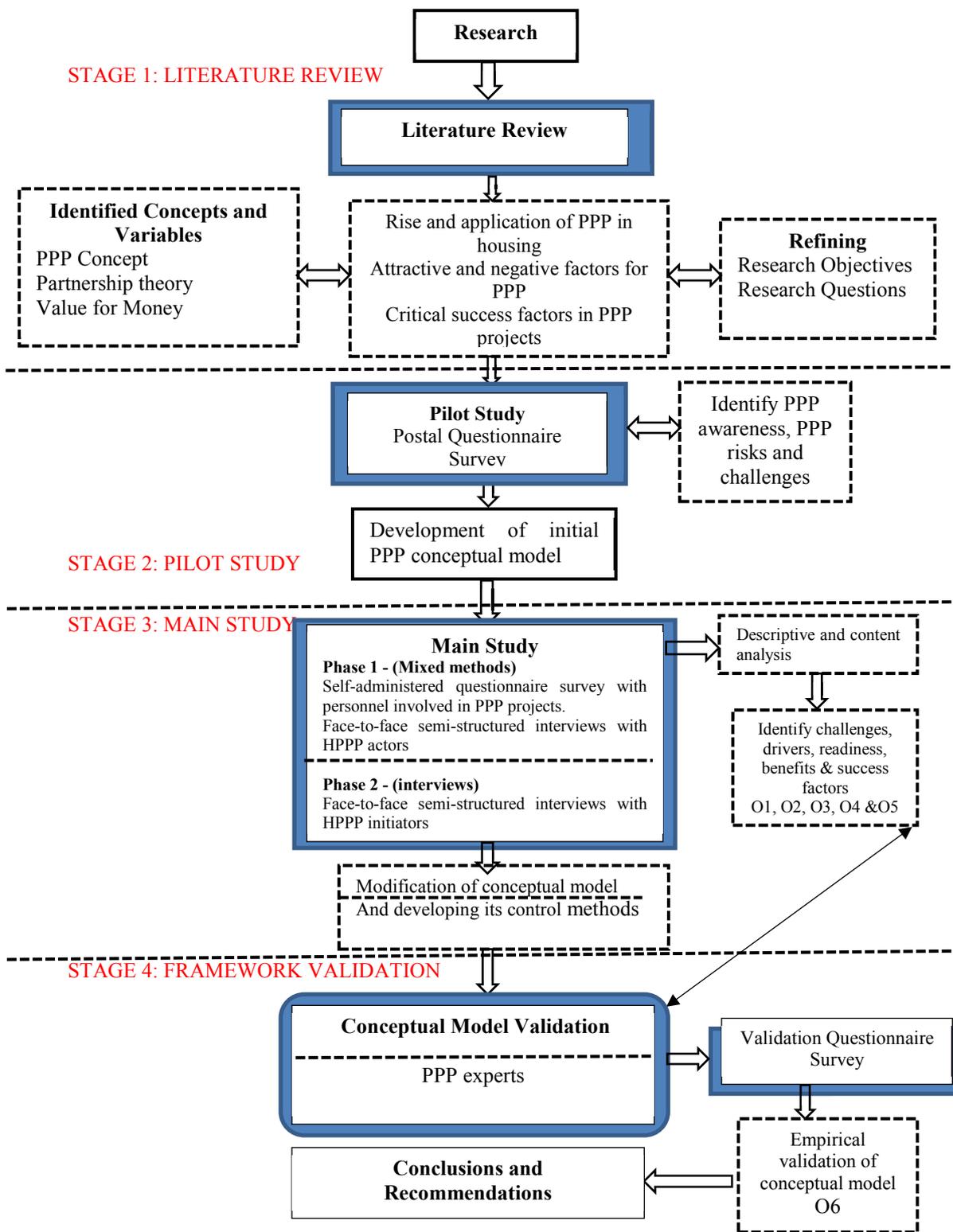
## **5.5 Research Design**

Research design can simply be viewed as the structure or organisation of a research. It is a well laid out plan that provide conditions for collecting and analysing data in a style that will aim to generate answers to the research problem (Kothari, 2004). To achieve the aim of this research (see Chapter 1), the study's research design has been developed, as presented in Figure 5.1. The research design, clearly indicates what, how, when, where, why and with who the researcher carried out the study in order to answer the research questions (see Chapter 1, Section 1.4). The research design used in this study was divided into four main stages.

Stage 1 dealt with an intensive literature review in order to gain a detail understanding of the topic, identifying key concepts and variables. Stage 2 consisted of two activities, a pilot study and then the development of initial PPP conceptual model, which were both supported by the information gained in stage one. However, the conceptual model development was also based on the information obtained from the pilot study. Stage 3 consisted of the main study, improvement of the proposed conceptual model and development of its control method. The main study stage followed a two-phase approach as demonstrated by Figure 5.1. Stage 4 then dealt with empirical validation of the proposed model through the use of PPP experts.

### **5.5.1 Stage 1: Literature Review**

As shown in Figure 5.1, Stage 1 of the research design involved carrying out an intensive literature review in order to find out what has been researched and discovered in the same



Legend: O1 through O6 represent Objective 1 to Objective 6

**Figure 5.1: Research design**

topic by previous scholars while focusing to identify the gaps and additional data required to bridge the knowledge gap. This is also known as problem identification. From the preliminary research questions and objectives, parameters were defined followed by literature evaluation. Similarly a study by Tranfield *et al.* (2003) argues that the purpose of an intensive literature review is to facilitate the researcher to map and to evaluate the existing body of knowledge, and to identify a research question in order to further develop the existing body of knowledge.

With that emphasis, key concepts and variables were mapped out and were used to formulate the research questions through a review of literature. In this study the research problem is based on the prevailing shortage of adequate and affordable houses in developing countries such as Tanzania, despite alleviation efforts made by their governments. Recently, the government of Tanzania has shown willingness to adopt PPP by redirecting its public agencies to involve the private sector in improving public services in different sectors including the housing sector. Nevertheless, it is noted from the literature review that Tanzania lacks empirical evidence on how the private and public sector are better prepared to adopt or implement PPP projects. Similarly very little research has been done in Tanzania in the area of HPPP as further described in subsection 1.2. Based on this gap, this study specifically aims to bridge the literature gap and also improve the delivery and the implementation of PPP in housing projects by addressing the identified challenges.

The literature process also facilitated to address important aspects of the research objectives, and it is on this note that the significance of this PhD research will be judged in relation to other previous research and their findings (Saunders *et al.*, 2009).

### ***5.5.1.1 Development of questionnaire***

A reflection on the aim and objectives of the study was made alongside the expected responses. Supported by the literature, subsection (v) within Section 3 of the questionnaire included 19 challenges drawn from the summarised studies (see Table 4.4). The majority of the items were mostly from the following countries and studies: In Malaysia, (Abdullahi and Aziz, 2011); Nigeria, Ibem (2011a); China, Liu *et al.* (2014); Hong Kong; Chan *et al.* (2009b); and Thailand, Trangkanont and Charoenngam (2014a). This provides a cross-section of different developing countries globally. Similarly it ensures validity and breadth to the conclusions made. Such an approach has been used in PPPs studies such as De Schepper *et al.* (2015b). Questions relating to all specified objectives were clearly written down bearing in mind that only questions relating to the study were formulated to provide focus and to avoid a lengthy questionnaire. Though there is no rule about the number of questions to be included in a questionnaire (Denscombe, 2014). It is good practice to keep questionnaires as short as possible and precise. Therefore, the developed questionnaire was designed under guidelines suggested by Denscombe (2014) to meet the following three criteria:

- 1) Should contain a list of written questions
- 2) Gather information by asking the respondents directly on the research issues and
- 3) It should obtain information which can be used as data for analysis.

Additionally through literature review the questions were underpinned by Giddens structuration theory in understanding the structural issues affecting PPP implementation.

As the survey was undertaken in a developing country, where most people lack training on research ethics and accountability (Litewka, 2011), it was important to design nearly 90% of the questions to be closed ended. This ensured answer fitted into distinct category. However, a variety of questions were prepared example a yes or no question, multiple choice questions

(choosing from the given list of options), Likert scale and open statement in order to avoid the respondents from being bored with same type of questions. The questionnaire was divided into three major parts (part A to C), where each part was associated with its own theme.

### **5.5.2 Stage 2: Pilot Study**

A pilot study was conducted in order to refine the research questions and test the questionnaires in case of any ambiguity. The pilot study was carried out from September to November 2014. A structured questionnaire was sent through email to 20 people with PPP knowledge/experience in housing sector. Purposive sampling was used to select the targeted audience (see Section 5.4 for more details). Similarly, the obtained preliminary information facilitated the initial development of the proposed PPP conceptual model and selection of case studies. Likewise, it assisted the researcher to refine the questionnaire as well as developing relevant approaches that will further be used in stage three for carrying out the main study as illustrated on Figure 5.1. Some of the questions after the pilot study were rephrased in order to bring clarity as the former questions were found to cause little confusion. For instance, in question two it was identified that; the range of years was confusing because some numbers were repeated in two groups. Therefore instead of 5-10 years and 10-15years it was changed to read 6-10 years and 11-15 years respectively. Similarly, having identified from the pilot study that majority of the respondents lacked enough PPP skills, it was necessary to include another question in part B of the questionnaire to identify how many respondents had undertaken official PPP training course. The aim was to establish the cause of the poor PPP skills, as whether it was poor training or completely lack of training. Furthermore, some open ended questions were changed to be close ended questions so that the given choices will clarify the meaning of the question to avoid irrelevant answers. For example, question 6 in Section B in the pilot study was open-ended but was changed to be closed-ended. This

decision was made after having received a relative low response rate of 33.3%. Finally in the pilot testing phase, the researcher identified non-respondents who were more willing to respond to interviews rather than questionnaires. Therefore, the mixed-methods approach was incorporated in the main study to address the problem.

### **5.5.3 Stage 3: Main Study**

The third stage was divided into two phases (see Figure 5.1). The following section describes the approach undertaken in each phase.

#### **5.5.3.1 Phase 1**

Phase 1 consisted of a mixed-methods approach including both quantitative and qualitative methods. The adoption of two methods in the same phase was influenced by the poor response experienced during the pilot study (see subsection 5.5.2). The mixed-methods strategy was preferred, as justified in subsection 5.3.1. Structured questionnaires and semi-structured face-to-face interviews were the tools used for collecting data to solve the research problem. Each instrument produced its own kind of data which was distinct from each tool used but both instruments allowed complementary information to be gathered in order to address the research issue (Halcomb and Hickman, 2015). The following section describes each method individually:

##### **a) *Questionnaire survey***

The final version of improved questionnaires was hand delivered to selected respondents between July and August 2015. The questionnaire as administered in the Tanzanian construction industry comprised of the following three distinct sections:

- **Section A** encompassed general demographics of the study sample, that is, working experience, designation, professional background and experience within PPP housing projects.
- **Section B** captured opinions on a range of issues affecting affordable housing projects.
- **Section C** comprised five subsections 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 PPP skills and training; (iii) evaluation of costs and affordability; (iv) aspects of PPP policy and the regulatory framework; and (v) challenges in implementing PPP projects. For subsections (i) through to (v), 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. Further details of the response rate are explained subsection 6.1.1

**b) *Semi-structured interviews***

Semi-structured interviews provided an intensive and in-depth method of gathering information from respondents. In this study the researcher carried out face-to-face semi-structured interviews with the top management levels in the housing delivery agencies, PPP Finance Unit and PPP Coordination Units, Private Partners, consultants and Public sector staff who have been involved in HPPP projects. The questions were prepared following the guidance as suggested by Qu and Dumay (2011) whereby themes were identified in a consistent and systematic manner intervened with probes planned to produce more elaborate responses. As was the case in questionnaires they were reinforced by Giddens structuration theory in order to understand the structural issues affecting the PPP implementation. The key focus was to gain insights into issues concerning interviewees' experience and opinions on the research questions (Denscombe, 2014).

It was therefore desirable to get rich information from the PPP key players in Tanzania through the interview method. Similarly, the selected interviewees were all located in the same geographical area (city of Dar es Salaam) and were not widely scattered, making it more convenient to use interview method. The interviews were one-to-one semi-structured which means that the researcher (interviewer) had a list of questions to be answered but in a more flexible manner in order to allow the respondents to bring out ideas and express them freely and broadly. Most respondents did not want to be recorded during the interview session. In these cases the interviewer had to take up written field notes with the help of a research assistant to make sure that all information were captured. Furthermore, 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.* (2003) and Chileshe *et al.* (2016).

Additionally semi-structured interview was more reliable than structured interview in this study because it allowed the researcher to omit some questions in some interviews, include some additional questions or change the flow of questions depending on the context of the organisation/individual interviewed (Saunders *et al.*, 2009). It is clear that two sectors (public and private) which were completely different were interviewed. Each had different PPP experience and practice hence the need to make adjustment to the type of questions asked but still focusing on addressing the research issue. In addition it is known that the benefit of using a semi-structured interview is that it permits the in-depth exploration of the topic and the exploration of questions in areas that could provide new dimensions for issues that had not been pre-conceived (Axinn and Pearce, 2006).

### **5.5.3.2 Phase 2**

In Phase 2, the researcher had already gained an understanding of the subject as well as respondents' behaviour and experience. Therefore, Phase 1 findings informed the Phase 2 study and, in this case, only semi-structured interviews were undertaken with a specific target audience. Bearing in mind the nature of the questions in this phase such as (PPP readiness, drivers, critical success factors, benefits, and management of risks to mention a few) the majority of the selected respondents in this phase targeted the HPPP project initiators and or managers/directors of HPPP projects from both sectors. In this phase the researcher planned to conduct 20 interviews considering that the population sample was small and however due to busy schedule and unwillingness of some selected respondents to subsequently be interviewed, only 10 semi-structured interviews were undertaken.

This set of interviews aimed to identify richer, deeper and accurate information to provide a clearer and conclusive image of the existing situation. More so since this is amongst the first or very few HPPP empirical studies undertaken in Tanzania. It was intended to obtain richer information in order to bridge the knowledge gap and provide a firm base for future studies. The interview instrument contained a total of 28 questions sub-divided in to five parts covering:

- i. General Information
- ii. Drivers for adopting HPPP projects
- iii. Readiness assessment
- iv. Benefits and critical success factors for HPPP projects
- v. Risks associated with HPPP
- vi. Project management

The adopted methodology approach concur to the suggestion that construction management research requires hybrid approach in order to adequately address the research problem (Blackwood *et al.*, 1997) and Holt and Faniran, (2000 cited in Love et al., 2002).

#### **5.5.4 Stage 4: Conceptual Model Validation**

In the last stage the proposed HPPP conceptual model developed during the study was validated by PPP experts. The selection of qualified experts is one of the most critical requirements (Chan *et al.*, 2001; Okoli and Pawlowski, 2004). The selected respondents were carefully chosen as discussed below in subsection 5.5.4.2 in order to identify experts with enough experience and deeper knowledge in PPPs hence increase reliability and validity. A similar testing approach of the conceptual model has been implemented by other comparable studies such as Cheung (2009) and Javed *et al.* (2013a). Therefore, to achieve the last objective of this study a separate tool (questionnaire) was designed.

##### ***5.5.4.1 Development of validation questionnaire survey***

The aim of the questionnaire was to evaluate the key aspects on each phase of the conceptual model including preparation, planning, and procurement, building and operating. The questionnaire survey was divided into four major sections:

- a) Background Information
- b) Introduction to the Conceptual Model
- c) Key Concepts and Validation Questions
- d) General/Overall Validation Questions

Respondents were asked to rate proposed measures and control methods on a scale of 5, where 5 represented 'strongly agree' and 1 represented 'strongly disagree'.

#### ***5.5.4.2 Sampling PPP experts (survey respondents) for model validation***

Purposive sampling was used to select the survey respondents for the validation process. A three-stage sampling approach was adopted in selecting potential respondents

- First, it was important to comprehend who qualifies to validate the model prior to selecting them.
- Second, pre-defined criteria as described below were used to identify initial prospective respondents.
- At the third stage, the identified respondents were requested to recommend potential colleagues who may be willing to take part in this study

In stage one through literature review, O'leary (1991) identified various types of validators that could be used in validating a system or a model including:

- Same expert from whom knowledge/information was gathered during the study
- Different expert than from whom the knowledge was gathered
- End-user
- Knowledge engineer
- Sponsor of the project
- Independent validator

Based on the nature of the current study and the type of framework developed, the approaches involving experts were considered the most appropriate category for its validation. Hence, the first two categories of validator, as listed above, were considered more appropriate as the PPP is still a new approach in developing countries. End-users, therefore, would not be the right option.

While some similar studies such as Cheung (2009) have suggested against using the same participants or respondents in the development of the model and validation process, there is nevertheless two different schools of thought regarding this aspect. For, instance, according to O'leary (1991) it is permissible for the same respondents/experts to be involved in the development (providing information/data) and validation despite the noted disadvantages of biasness. And also, the fact that the expert has participated in the model development, there is possibility that overlooked assumptions continue to be unnoticed since the expert may appear to be too close to notice inconsistencies or incompleteness. However, the key advantage to using same expert is that the effort and participation captures their expertise.

Conversely, the usage of a different expert offers benefits such as the possibility for a different view of the problem which may create awareness of unstated assumptions in the proposed framework (O'leary, 1991). For that reasons both same experts from whom knowledge/information was gathered and different expert than from whom the knowledge was gathered were both considered and purposely selected.

In second stage, two main criteria also similar to those adopted by Cheung (2009) study which aimed at developing (and validating) a best practice framework for implementing PPPs in Hong Kong were identified and used including;

- Respondents needed to have adequate knowledge in PPP,
- Respondents needed to have either hands-on experience in PPP projects or research,

In addition to the above criteria, the following criterion was also incorporated:

- Respondents needed to be involved in the PPP housing projects.

Finally at stage three, the selected respondents were invited through emails and asked whether they were willing and available to participate in the study. Furthermore they were requested to recommend potential colleagues who may be willing to participate in the study.

## **5.6 Data Analysis**

Data analysis is the processing of raw data collected by a researcher in order to make them convey meaningful information. Little information is sent or portrayed to most people before the data were analysed or when data were still in their raw state (Lewis *et al.*, 2007). In that case all the valid data collected were analysed in order to reveal and deliver the hidden information that it carried. Since both quantitative and qualitative methods were adopted, then both descriptive statistics and content analysis were used to analyse the collected data.

Quantitative data were analysed using the Statistical Package for the Social Sciences (SPSS) computer programme version 22.0. This software was used because it has the capacity of handling large data hence it save time and minimises human errors as opposed to doing it manually. 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 (SD) and mean scores. In addition to the SPSS-generated values, the third technique of the Relative Agreement Index (RAI), as described by Holt (2014), was computed. The following subsections present a brief discussion of each approach.

### 5.6.1 Single Sample *t*-Test of the Mean

A one (single)-sample *t*-test of the mean was used 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” ( $\mu = 3.5$ ), where  $\mu$  is the test value and the hypothesis was 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 applied 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 test value ( $\mu$ ) is set at 3.5, with a 95% confidence level. Using the procedures as outlined in (Cronk, 2016) the analysis for the single-sample *t*- test was conducted. It was assumed that  $H_0: p \leq 0.05$  and  $H_1: p > 0.05$ , also responses from each respondents were independent from one another and reasonably normally distributed. The formulated hypotheses were used to measure the extent of the following identified factors:

- a) The HPPP challenge affects the delivery of the projects to a significant effect, whereas the alternative hypothesis is that the HPPP challenge is not significant, and less important.
- b) The HPPP cost and affordability factors associated with project delivery have a significant effect, whereas the alternative hypothesis is that HPPP cost and affordability factors are not significant and are less important.

- c) The HPPP sustainability factors associated with project delivery have a significant effect, whereas the alternative hypothesis is that HPPP sustainability factors are not significant and are less important.
- d) The HPPP benefits associated with project delivery have a significant effect, whereas the alternative hypothesis is that HPPP benefits are not significant and are less important.
- e) The HPPP policy and regulatory framework factors associated with project delivery have a significant effect, whereas the alternative hypothesis is that HPPP policy and regulatory framework factors are not significant and are less important.

### **5.6.2 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 (SD), as generated by the descriptive statistics, provided the variability in the information to make it easier to comprehend the information (Forza, 2002, p. 182). Other PPP-related studies that have previously employed this approach (i.e. the mean score ranking technique and RAI) include Hwang *et al.* (2013) in Singapore; and Ismail and Haris (2014) in Malaysia. Likewise, to summarise the advancement of the identified challenges, the derived RAI value was aimed at overcoming the weaknesses associated with the computed mean score (Doloi *et al.*, 2012; Holt, 2014).

### **5.7 Methods, Tools and Techniques Chosen for Addressing Each Objective**

Having identified the research design which explains the structure/layout of this study, it was deemed important to provide a brief summary to clearly describe the approach used in addressing each objective as shown in Table 5.2 below.

### **5.8 Chapter Summary**

In this chapter, the adopted methodology for this study has been clearly explained, in which a ‘mixed-methods’ approach was chosen and reasons for selecting the particular approaches were given. The research design provided the detailed methods, tools and techniques and methods of data analysis, interpretation and validation that were used to achieve the set-out objectives. This chapter also highlighted how the sampling was undertaken in order to obtain relevant and reliable information.

**Table 5.2: Summary of methods, tools and techniques chosen for each objective**

No.	OBJECTIVE	METHOD	Tool/Technique	JUSTIFICATION
1	To investigate the PPP awareness and skills for implementing HPPP projects	Mixed methods	Literature review Questionnaire	The justification for adopting this method and tools is that the literature review informed the researcher in advance about the PPP being in its infancy in Tanzania as well as having inadequate PPP knowledge. Therefore in order to obtain reliable and relevant data the questions posed were guided (multiple choice: see appendix B, part B, question 1- 4) in order to collect the required and relevant information. Henceforth questionnaire survey was the appropriate tool.
2	To identify challenges and risks involved in PPP housing projects in Tanzania.	Mixed methods	Literature review Questionnaire Interviews	The justification for adopting the mixed method and identified tools was; first to identify the existing PPP challenges and risks across countries through literature review. Secondly was to rank the identified challenges in order to pinpoint the most relevant and critical challenges in Tanzanian HPPP projects. Finally, semi-structured interviews were used to corroborate the survey data and also to give an opportunity for new challenges to be identified particularly those which are more unique to Tanzanian HPPP project.
3	To establish the PPP antecedents for adopting HPPP projects.	Mixed methods	Literature review Questionnaire Interviews	The same logic as stated above was also applied for this objective
4	To evaluate the cost and affordability factors for successful implementation of HPPP projects.	Mixed methods	Literature review Questionnaire	This objective was addressed in a similar way as the first objective. Literature review and questionnaire survey were used. In this objective the already identified factors were listed and respondents were asked to rank them accordingly.
5	To explore the sustainability factors influencing the adoption of HPPP.	Mixed methods	Literature review Questionnaire	Likewise the same approach adopted in objective 4 was adopted in addressing objective 5.
6	To develop an effective HPPP conceptual model to address the challenges, draw conclusions and empirically validate the developed model.	Mixed methods	Literature review Questionnaire Interviews	In this last objective the obtained findings from the first five objectives assisted in developing the proposed HPPP conceptual model. In validating the model, it was not possible to interview the experts as they needed to assess the model thoroughly hence; questionnaire survey was considered most reliable and convenient tool for validation process because the purpose of the validating questionnaire was to evaluate the key aspects on each phase of the conceptual model.

## CHAPTER 6

### DATA ANALYSIS AND PRESENTATION OF FINDINGS

#### 6.1 Chapter Introduction

This chapter presents both the quantitative and the qualitative analysis and is divided into two parts, corresponding to the two phases set out in Chapter 5, subsection 5.5.3. Part 1 presents Phase 1 results obtained from convergent parallel (concurrent) mixed-methods approach (Section 6.2) and Part 2 presents Phase 2 results obtained from semi-structured interviews (Section 6.3).

#### PHASE 1 RESULTS: CONCURRENT MIXED METHODS (QUESTIONNAIRE SURVEY AND INTERVIEW FINDINGS)

##### 6.1.1 Questionnaires

A total of 38 questionnaires were administered between July and August 2015 to the targeted population, 30 questionnaires were returned but only 28 questionnaires were considered valid as the other two were not filled in. The sample size of 28 questionnaire survey respondents may appear small. But, according to Coviello and Jones (2004) study ‘high-quality survey data are obtainable from a smaller sample drawn using well developed selection criteria, and that meaningful findings can still result’. On that basis, this quantitative sample of 28 questionnaires was similarly drawn on well-developed selection criteria such as prior knowledge and involvement in HPPP projects (see Table 6.1). Furthermore, 28 responses are considered satisfactory when compared with similar studies. For example, (Ameyaw and Chan, 2015) had 35 responses, (Sachs *et al.*, 2007) had 29 responses and Salman *et al.* (2007) had 15 respondents. Moreover, in this research the usage of interviewees’ data further

complimented the overall data as collected. The questionnaire survey aimed at looking to see if the findings from the literature were applicable to Tanzanian context. 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 one-sample t-tests and measures of central tendencies and frequency analysis as identified by Forza (2002). The analysis is presented in the following order to address the research questions:

- i. Part A – Demographic information
- ii. Part B – Aspects of housing affordability in Tanzania
- iii. Part C – Public private partnership aspects in housing projects

#### ***6.1.1.1 Part A: Demographic information***

The first section of the questionnaire gathered information on the demographics of respondents. As shown in Table 6.1, a reasonable balance was achieved across key professions. The inclusion of a 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. Table 6.1 also shows that there was a reasonably even spread of respondent across the categories of experience of PPP in housing and the length of service.

**Table 6.1: Profile of questionnaire study sample**

<b>Characteristics</b>	<b>Number (frequency)</b>	<b>Overall (%)</b>
<b><i>Designation</i></b>		
Consultant	9	32.15
Private developer	2	7.14
Public partner	11	39.29
Contractor	1	3.57
Financer	1	3.57
Researcher (Academic) <sup>1</sup>	2	7.14
PPP advisor <sup>1</sup>	2	7.14
<b><i>Total</i></b>	<b>28</b>	<b>100</b>
<b><i>Professional background</i></b>		
Quantity surveyor	5	17.86
Engineer	4	14.29
Land valuation agent <sup>1</sup>	3	10.71
Architect	3	10.71
Lawyer	1	3.57
Other professional roles*	12	42.86
<b><i>Length of service in current position (years)</i></b>		
Less than 5 years	8	28.57
5-10	7	25.00
11-15	8	28.57
More than 15	5	17.86
<b><i>Experience with PPP housing projects (number of projects)</i></b>		
< 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 valuer’, \*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.

### **6.1.2 Interviews**

Interviews were held between July and August 2015 corresponding to the time the questionnaire survey was sent out. The Interviews took place in Dar es Salaam, Tanzania, for reasons explained in Chapter 5, Section 5.4. Based on the prepared interview questions (see Appendix D) the duration of the semi-structured interviews was between approximately 45–100 minutes and were conducted following the protocol suggested by Sharifirad (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, for instance, Swahili. Semi-structured interviews were preferred 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 that are not pre-conceived (Axinn and Pearce, 2006). In total, 13 semi-structured interviews were carried out with the key management staff of the public and private sectors (details of selection process are discussed in Chapter 5, Section 5.4), while the questionnaire participants were restricted to company staff involved in similar projects. The low numbers of interviews signify the relative infancy and lack of experience in PPP projects and understanding currently demonstrated in the Tanzanian construction industry.

#### ***6.1.2.1 Characteristics of the sample***

The participants' designations within their organisation, years of experience, level of education and professional affiliation are shown in Table 6.2 where the largest group of interviewees (n=5, 38%) fell within the "11-15 years" and "more than 15 years" categories whereas two (15%) were in the "6-10 years" category. Table 6.2 further illustrates that, based on the sector; the majorities (69%) were from the public sector. The limited numbers of the public sector interviewees is due to the fact that, in Tanzania, currently only two public organisations are actively undertaking PPP in housing projects (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 6.2).

This was complemented by the literature review to reinforce and validate the private sector's views. Table 6.2 shows a summary of information on the participants (profile of the interviewees). The number of interviewees (n=13) and the response rate for the qualitative survey can be considered as more than adequate in view of the PPP infancy and limited research undertaken within the Tanzanian context to date. Moreover, the sample size can be deemed as sufficient as the threshold of between five and 50 interviews required for the purpose of achieving saturation (Patton, 2002).

### **6.1.3 Part B: Housing Affordability in Tanzania**

This section of the questionnaire provided information on the housing affordability aspects in Tanzania.

#### ***6.1.3.1 Growth of affordable housing projects***

Respondents were asked about the current rate of growth of affordable housing (AFH). They were given a list of options from which to choose (“poor growth”, “average growth”, “high growth” and “no growth”). A total of 28 respondents answered this question, with 67% answering “average growth”. Other respondents (25%) indicated “poor growth” whereas only 18% indicated “high growth”. Similar findings were obtained from the interviewees, as most (n=7, 54%) indicated “average growth”, whereas others (n=4, 31%) and (n=2, 15%) answered “poor growth” and “high growth”, respectively.

**Table 6.2: Interviewee profiles**

Interviewee	Name of organisation <sup>1</sup>	Designation	Experience (years)	Sector <sup>2</sup>	Professional background	Experience with HPPP projects (Number of projects)
A	[redacted]	Legal officer	6 - 10	Public partner	Lawyer	Over 10
B	[redacted]	Director of property	> 15	Public partner	Engineer	Over 10
C	[redacted]	Project manager	11-15	Public partner	Engineer	1- 2
D	[redacted]	Managing director	>15	Public partner	Engineer	1-2
E	[redacted]	PPP Advisor	11-15	PPP Unit	Economist	none
F	[redacted]	Consultant	>15	Public Sector	Quantity surveyor	Over 10
G	[redacted]	Assistant director	11-15	Investment centre	Economist	none
H	[redacted]	Director	>15	Private partner	Architect	3-5
I	[redacted]	Director	11-15	Contractor	Engineer	1-2
J	[redacted]	PPP Clerk of works	6-10	Public partner	Engineer	1-2
K	[redacted]	Manager	11-15	Public partner	Quantity surveyor	1-2
L	[redacted]	Director	>15	Private partner	Business	3-5
M	[redacted]	Regional manager	None (< 1 year)	Public partner	Land Valuation agent (Valuer)	Over 10

**Notes:** [redacted]  
[redacted]  
[redacted]  
[redacted]  
[redacted]  
[redacted]  
[redacted]  
[redacted]

### 6.1.3.1 Common procurement methods in delivering AFH project

Similarly in this question respondents were given a list of common methods used in delivering housing projects and they were asked to choose from the list which was the most popular approach used in delivering the AFH projects.

Similarly 28 respondents answered this question and as shown in Figure 6.1 both traditional method and individual construction were found to be the most widely used approach with (39%) response each. Additionally, 11% of respondents answered that both traditional and individual construction are the common approach in delivering AFH. Other respondents (7%) chose private developers and (3%) which is equivalent to one person chose PPP. These findings agree with Ibem and Aduwo (2012) who claimed that more high cost houses are built through the PPP approach and not affordable houses.

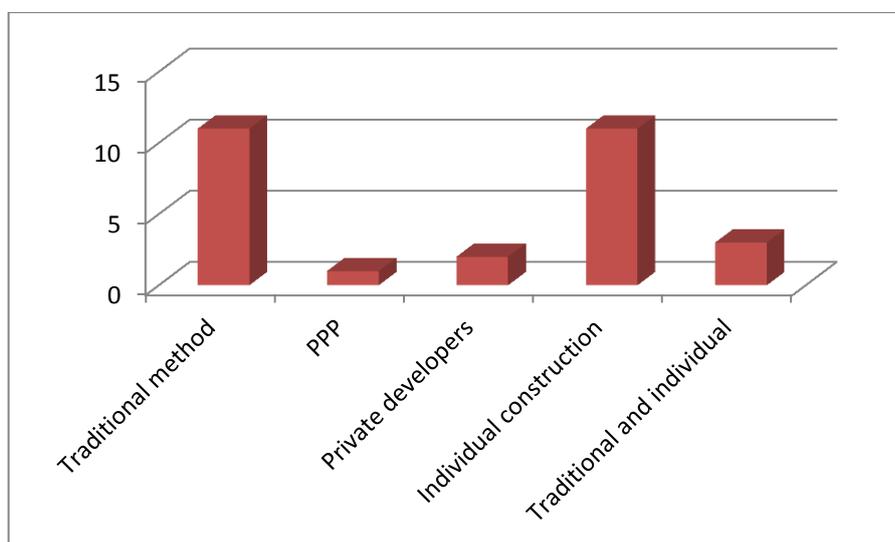


Figure 6.1: Common procurement methods in delivering AFH projects

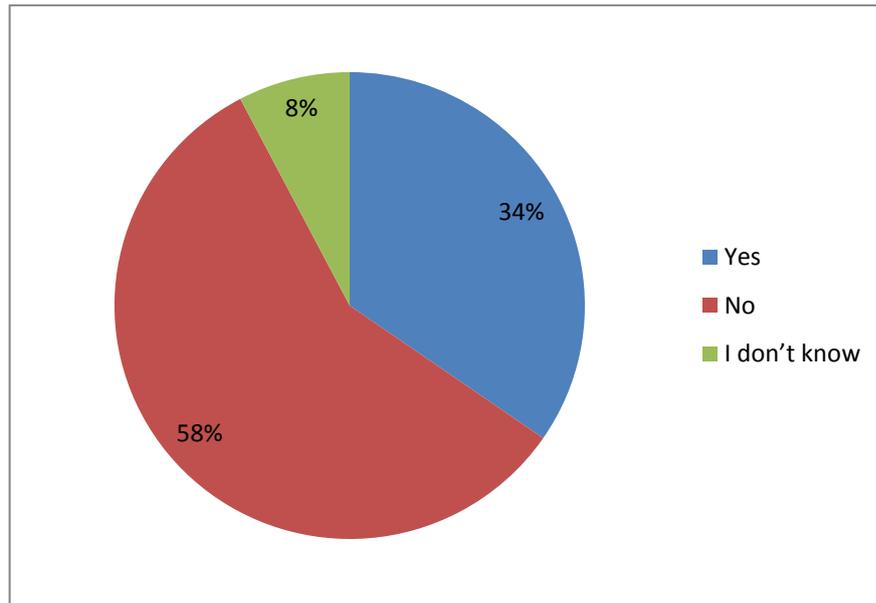
### **6.1.3.2 Housing affordability**

The respondents were asked whether the supply of housing was being offered at an affordable rate where the majority of low income earners could afford to buy or rent. The required response was 'yes' or 'no'. 28 respondents answered this question whereby 68% responded negatively while 32% responded positively.

### **6.1.3.3 Existence of housing policy in Tanzania**

Before embarking on to PPP questions it was also important to know whether Tanzania had a housing policy. The respondents were asked if there is any housing policy existing in Tanzania. As illustrated on Figure 6.2 illustrating that the majority responded negatively. These findings were further supplemented by interview findings and **Interviewee M** revealed this;

*Currently Tanzania does not have a housing policy; however, efforts were made and a draft of the policy has been developed since 2014 but unfortunately it has not been approved (legitimised.) Being among the team members selected in the policy making, I strongly see the need of having this policy legitimised as soon as possible because Tanzania lacks its own minimum standard for housing against which the housing stock can be compared.*



**Figure 6.2: Existence of housing policy in Tanzania**

**6.1.4 Part C: Public Private Partnership Aspects in Housing Projects**

This section presents the questionnaire and interviews identified by the type of PPP project respondents have been involved with. Also was included whether they possess any PPP skills or have undertaken PPP training. Moreover, respondents identified and ranked challenges for implementing HPPP projects and affordable HPPP projects. Finally, the questionnaire responses identified and ranked the cost and affordability factors, sustainability drivers (factors) and benefits associated with HPPP delivery projects. The ranking of these different factors was based on the mean score generated from the descriptive statistics techniques of SPSS as explained in subsection 5.6.2. The identified findings assisted in the development of the proposed HPPP conceptual model.

**6.1.4.1 Respondents' PPP type of project involvement**

A total of five sectors were listed on the survey instrument. The respondents were asked to select the most relevant option by ticking the appropriate box. Table 6.3 illustrated that a total

of 27 respondents answered this question with the majority 82% (22) indicating that their organisations have been involved in housing PPP projects in the last 5-10 years. The minority 11% (3) and 7% (2) had been involved in PPP projects in other sectors and in the transportation sector, respectively. Of the 13 interviewees, most (85%, 11) had been involved in HPPP projects in the last 5-10 years and 15% (2) had been involved in transportation. These results suggest that, despite the PPP being in its infancy in Tanzania (Mboya, 2013), HPPP projects are a growing trend. Moreover, the findings confirm that most selected respondents were suitable for the study, hence, ensuring the reliability of the data.

**Table 6.3: With which of the following PPP projects has your organisation mostly been involved in the last 5-10 years? (survey results)**

	Frequency	%	Valid % <sup>1</sup>	Cumulative %
Valid Transportation	2	7.1	7.4	7.4
Valid Housing	22	78.6	81.5	88.9
Valid Others	3	10.7	11.1	100.0
Valid Total	27	96.4	100.0	
Missing 999.00	1	3.6		
Total	28	100.0		

Note: (1) Valid results included corrections to eliminate missing responses.

#### ***6.1.4.2 Engagement of PPP training skills and self-reflection***

In order to ascertain their PPP training capabilities, respondents were asked to be reflective and assess themselves to see whether they possess enough skills/knowledge on PPP and also to indicate whether they had undertaken any PPP training to improve their skills into the type of housing projects and respond by giving a ‘yes’ or ‘no’ answer.

From the survey a total of 27 respondents answered both questions as indicated on Table 6.4 and 6.5. Table 6.4 illustrate that majority 55% (15) responded negatively indicating that they

did not have enough skills and knowledge on PPP as obtained through formal training while 44% (12) responded positively.

**Table 6.4: If you are to assess yourself, do you think that you have enough skills and knowledge on PPPs?**

	Frequency	%	Valid % <sup>1</sup>	Cumulative %
Valid Yes	12	42.9	44.4	44.4
Valid No	15	53.6	55.6	100.0
Valid Total	27	96.4	100.0	
Missing 999.00	1	3.6		
Total	28	100.0		

Note: (1) Valid results included corrections to eliminate missing responses.

Looking at Table 6.5, most respondents (70%, 19) responded negatively indicating that they had not undertaken any PPP training, while 25% (7) responded positively.

**Table 6.5: Have you undertaken any PPP training to improve your skills in this type of project?**

	Frequency	%	Valid % <sup>1</sup>	Cumulative %
Valid .00	1	3.6	3.7	3.7
Valid Yes	7	25.0	25.9	29.6
Valid No	19	67.9	70.4	100.0
Valid Total	27	96.4	100.0	
Missing 999.00	1	3.6		
Total	28	100.0		

Note: (1) Valid results included corrections to eliminate missing responses.

Looking at this information it shows that over 50% of respondents who are key PPP actors in the housing sector have demonstrated lack of enough PPP capacity. Further the majority 69% (9) of the interview respondents have not undertaken any formal PPP training. The respondents were further asked to consider whether they had [sufficient] skills and knowledge on PPP. A similar result occurred with the majority 69% (9) of the interviewee responding negatively. Interestingly, out of the minority 31% (4) who responded affirmatively,

**Interviewee F,** [redacted] acknowledged as still

needing further skills development in PPP due to changes in technology and techniques in the world.

Similarly, Table 6.6 shows the cross-tabulation results in response to the following survey questions: 1) *“If you are to assess 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]”?*

**Table 6.6: Cross-tabulation for ‘If you were to assess yourself, do you think that you have enough skills and knowledge on PPPs? \* Have you undertaken any PPP training to improve your skills in this type of project? (survey results)**

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?	5	7	12
	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

As can be seen from Table 6.6, the majority, 12 out 26, responded in the negative. However despite 43% (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. However, examination of the Pearson Chi square test see Table 6.6 revealed that type of PPP training to improve the practitioner’s skills undertaken by the practitioners with enough skills and knowledge on PPP and those without was not significantly different amongst the occupations ( $\chi^2(1), 2.462, p = .260 > 0.05$ ).

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. Thus these results imply that there is no relationship between training and skills

#### **6.1.4.3 One sample *t*-test results**

A single sample *t*-test was conducted to determine if a statistically significant difference existed between variables (challenges, costs and affordability factors, sustainability factors, benefits, PPP policy and regulatory framework factors) affecting the delivery of HPPP from the sample as used in this study and the general population of Tanzanian stakeholders involved in HPPP 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. According to Ghasemi and Zahediasl (2012) the violation of the normality assumption should not cause major problems with large enough sample sizes greater than 30 or 40. However, the sample size for this study is less than 30 hence the need to determine the normality of the sample. Therefore, normality test was undertaken to identify whether the sample data was drawn from a normally distributed population. The results revealed that no assumptions were found to be violated. Examination of Table 6.7 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. 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.

#### **6.1.4.4 Ranking of challenges influencing HPPP delivery**

Based on the aggregated 19 challenges influencing the delivery of HPPP projects, the questions were designed to require the respondents to rate their opinions using a five-point Likert scale as described in the research methods section. Table 6.7 shows the results of these mean agreement responses, descriptive statistics such as the standard deviation (SD), one sample *t*-values, degrees of freedom (*df*) and sig (2-tailed).

As illustrated in Table 6.7, the *t*-tests of the means show that 13 out of the 19 factors were significant in influencing the delivery of HPPP projects. Furthermore, 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 SD of all 19 challenges ranged from 0.390 to 1.193, the highest SD being “Higher costs in procuring PPP projects”. Since the *p* values for the top 13 ranked challenges were less than 0.05, this demonstrated that these challenges would significantly hinder the successful implementation of HPPP projects. As shown in Table 6.7, about a third (31.5%) of the challenges to the HPPP as delivered in Tanzania are not statistically significantly different (Test 1: mean > 3.5, *t*-value positive, *p* > 0.05) with mean differences ranging from 0.29 to -0.14. Further examination of the different values for the minimum and maximum scores (not listed in Table 6.7) suggests that the data and sample were not biased.

**Table 6.7: Overall ratings of challenges in implementing HPPP projects in Tanzania (questionnaire survey)**

Challenge	<i>t</i> -Test ( $\mu = 3.5$ )	<i>df</i>	Sig (2-tailed)	Mean Score <sup>1,2</sup>	SD	RII	Rank	Significant ( $p < 0.05$ )
<b>Inadequate PPP skills and knowledge leading to poor planning and application</b>	17.928	27	0.000*	4.82	0.390	0.964	1	Yes
<b>Poor PPP contract and tender documents</b>	9.731	27	0.000*	4.64	0.621	0.928	2	Yes
<b>Inadequate project management and monitoring by public sector</b>	9.899	27	0.000*	4.57	0.573	0.914	3	Yes
<b>Inadequate legal framework</b>	7.909	27	0.000*	4.54	0.693	0.908	4	Yes
Misinformation on financial capacity of private partners	10.392	27	0.000*	4.50	0.509	0.900	5	Yes
Lack of competition	8.855	27	0.000*	4.46	0.576	0.892	6	Yes
Delays	9.500	27	0.000*	4.39	0.497	0.878	7	Yes
Corruption	6.931	27	0.000*	4.29	0.600	0.858	8	Yes
Inadequate feasibility study	6.000	27	0.000*	4.21	0.630	0.842	9	Yes
Differing goals between partners	4.385	27	0.000*	4.18	0.819	0.836	10	Yes
Long term disputes and conflicts between parties	4.088	27	0.000*	4.11	0.786	0.822	11	Yes
Inadequate government commitment and support	3.437	27	0.002*	4.00	0.770	0.800	12	Yes
Insufficient capacity in procurement and negotiations	2.091	27	0.046*	3.89	0.994	0.778	13	Yes
Poor risk allocation and management	1.580	27	0.126	3.79	0.957	0.758	14	No
Inexperienced private partner	1.154	27	0.259	3.68	0.819	0.736	15	No
Unequal qualifications and contributions of expertise	.366	27	0.718	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	0.621	3.39	1.133	0.678	18	No
High costs in procuring PPP projects	-.634	27	0.532	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; <sup>1</sup>Mean score based on valid N= 28 (list wise); <sup>2</sup>Mean score of the challenge variable where 5 = strongly agree; 4 = Agree; 3 = Neutral; 2 = Disagree; and 1 = Strongly disagree. <sup>2</sup>The higher the mean score, the more critical the challenge; *df*= degrees of freedom.

For ease of discussion, only the top four ranked challenges (mean score > 4.50) as based on the degree of central tendency are discussed here. While there was no statistical difference (Table 6.7,  $p < 0.05$ ) between the opinions in the perception for the majority (68.4%) of the challenges, it is evident that the top four challenges were as shown in bold in Table 6.7.

Similarly Table 6.10 provides a summary of challenges identified by interviewees. The following subsections present a brief discussion of these highly ranked challenges.

#### ***6.1.4.4.1 Inadequate PPP skills and knowledge leading to poor planning and application***

Based on Table 6.7 ‘inadequate PPP skills and knowledge leading to poor planning and application’ was the highest ranked challenge (mean = 4.82) and statistically significant ( $t(27) = 17.928, p = 0.000 < 0.05$ ) 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 also be found in previous PPP studies (Zhang, 2005b; Moskalyk, 2011; Wibowo and Alfen, 2015; Akintoye and Kumaraswamy, 2016). 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 interrelated. 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, 2014a) 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).

**Table 6.8: Summary of challenges in implementing HPPP projects in Tanzania (interviewee perceptions)**

No	Challenges	Interviewees <sup>1</sup>													No (F) <sup>2</sup>
		A <sup>#</sup>	B	C	D	E	F	G	H	I	J	K	L	M	
1	Inadequate PPP contract/legal documents	✓											✓		2
2	Poor procedure for determining Financial Capacity of private partners	✓													1
3	Non adherence to the rules and regulations.	✓													1
4	Poor management decisions	✓											✓		2
5	Lack of competition	✓								✓					2
6	Bad determination of initial shareholding Ratio	✓													1
7	Lack of government support and commitment		✓								✓				2
8	In experienced/incapacity private partners		✓	✓										✓	3
9	Delays		✓							✓			✓	✓	4
10	Inadequate feasibility study		✓												1
11	High risks			✓											1
12	Inadequate PPP skills and capacity.			✓						✓	✓				3
13	Poor contractual relationship.			✓											1
14	Poor risk allocation			✓											1
15	Long negotiations.				✓										1
16	A new approach hence lack of experience				✓										1
17	Poor PPP enabling environment					✓	✓								2
18	Underutilisation of PPP units and PPP advisors					✓									1
19	Inadequate housing finance						✓	✓						✓	3
20	Inadequate PPP policy and legal institutional framework						✓	✓							2
21	Different project goals between partners												✓		1
22	Less commitment in preparing PPP bankable projects.							✓							1
23	Undeveloped capital market to cater for long term financing.							✓							1

**Table 6.8 Contd...:** Summary of challenges in implementing HPPP projects in Tanzania (interviewee perceptions)

No	Challenges	Interviewees <sup>1</sup>													No (F) <sup>2</sup>	
		A <sup>#</sup>	B	C	D	E	F	G	H	I	J	K	L	M		
24	Lack of seriousness							✓								1
25	Tenants refusal to vacate properties								✓						✓	2
26	Complexity of PPP projects								✓							1
27	Private partner not paying the contractor on time									✓						1
28	Frequent design Changes									✓						1
29	Inadequate market										✓					1
30	Inability to pay back invested capital.										✓					1
31	Inexperienced/incapacity of contractor									✓	✓					2
32	Lack of subsidies												✓			1

**Notes:** <sup>1</sup>See Table 6.2 for detailed demographical profiles of interviewees (i.e. Organisational background, designation, experience); F<sup>2</sup> = Frequency of occurrence of the challenges. <sup>#</sup> Interviewee identified as Legal officer [REDACTED]

For example, the study by Moskalyk (2011) advocated that inadequate PPP skills clearly indicate the cause for its slow progress and failures. Similarly, Zhang (2005c) study had previously considered this as a big challenge. Additionally, the study by the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP) (2012, cited in Wibowo and Alfen, 2015) highlighted the benefits of having well-trained and experienced public sector officials, with benefits ranging from having the knowledge of where difficult issues would most likely arise, and the ability to select the appropriate tools for addressing the identified problems.

On the other side, interviewees (see Table 6.8) also identified the associated challenges. For example, **Interviewees B, C, D I and M** identified “*inexperienced private partners*”, “*inadequate PPP skills and capacity*” and “*incapacity of contractors employed by private partners*”, respectively are among some of the challenges in implementing PPP housing projects in Tanzania. Moreover, **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 risky and a recipe of having inequity among the partners as posited by the equity theory (Scheer et al., 2003). In this scenario due to lack of skills partner may not realise the need of assessing equity in a relationship as defined by Adams (1965); hence, the project may be executed but ends up with undesirable results.

#### **6.1.4.4.2 Poor PPP Contract and Tender Documents**

Based on Table 6.7 ‘poor PPP contract and tender document (mean = 4.64, SD = 0.621, mean difference of 1.143)’, was second ranked and statistically significant ( $t(27) = 9.731, p = 0.000 < 0.05$ ). These findings are consistent with (Sengupta, 2006; Abdul-Aziz and Kassim, 2011; Ismail and Haris, 2014; Trangkanont and Charoenngam, 2014a). 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, Tanzanian specific studies such as Mboya (2013) attributed the poor performance of PPP to unfavorable contractual terms for the contracting authorities.

On the other side, similar findings were obtained from the interviewees as shown on Table 6.8. For example, **Interviewees (A, C, D and L)** identified some of the contractual issues. Specifically, **Interviewee A** identified the following as major causes of failure of partnership projects: (1) Lack of an exit clause; (2) Contradictory contractual provisions; (3) Agreements biased in favour of [some] partners; and (4) Non-adherence to the rules and regulations. With regard to ‘poor PPP contract and tender documents’, the issue of the ‘bidding processes’ and inadequate contract document were identified. Some of the selected comments by **Interviewee A** (i.e. Legal officer [REDACTED]) 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 regard to the contradictory provisions,

*[t]he 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.*

The challenge of ‘poor PPP contract and tender documents’ was further evident as observed by **Interviewee A**:

*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.*

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. The only other comment related to the challenge of “*poor PPP contract*” was noted by **Interviewees A and L**.

Generally, from the above observation, the inference to be drawn is thus, the procedures of awarding more projects to partners were inappropriate. 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 Giddens’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 (Mackintosh, 1992) over the other actors, namely ‘public partners’.

#### ***6.1.4.4.3 Inadequate project management and monitoring by public sector***

‘Inadequate project management and monitoring by public sector (mean = 4.57, SD = 0.573)’ and significant ( $t(27) = 9.899, p = 0.000 < 0.05$ ) with a mean difference of 1.071, was the third ranked challenge. This finding is also consistent with previous Tanzanian PPP studies

(Ngowi, 2006; Chediel, 2012) as well as international studies (Akintoye *et al.*, 2003; Zhang, 2005c). 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 organisational 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 (2014a), 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 authorised design, hence, leading to disputes”.

#### **6.1.4.4 Inadequate legal framework**

‘Inadequate legal framework’ (mean = 4.54, SD = 0.693, mean difference of 1.036) was ranked fourth and statistically significant ( $t(27) = 7.909, p = 0.000 < 0.05$ ). According to URT (2009), the lack of an adequate PPP legal framework to guide the implementation of PPP projects delayed its progression. Similarly, within the context of Thailand, the study by Trangkanont and Charoenngam (2014a) pointed to ‘ineffective PPP policy and strategy’.

Correspondingly, similar results were obtained from the interviewees (**A**, **F** and **G**) as shown on Table 6.8. For example, **Interviewee A** commented that;

With regard to the ‘non-adherence of the rules and regulations’,

*[i]t 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.*

Similarly, **Interviewees F** and **G** singled out the “Inadequate PPP policy and legal institutional framework”. Thus the following implication emerges from these results; poor legal framework will lead to poor contracts and the rise of disputes.

#### **6.1.4.5 Ranking and One Sample t-Test Results of Costs and Affordability Factors**

The respondents were asked to rank the costs and affordability factors influencing the delivery of HPPP projects, the questions were designed to require the respondents to rate their opinions using a five-point Likert scale (see Chapter 5, subsection 5.5.3.1). Table 6.9 shows the results of these mean agreement responses, descriptive statistics such as the standard deviation (SD), degrees of freedom (*df*), *t*-values and sig (2-tailed). The *t*-tests of the mean indicate that two of the five costs and affordability factors were significant. Furthermore the results shows that their mean score ranged from 3.64 (“PPP procurement is economical compared to traditional procurement”) to 2.85 (“High PPP costs are a major setback for more PPP projects in Tanzania”). In contrast, the SD of all five factors ranged from 0.989 to 1.353, the highest SD being the highest ranked cost and affordability factor.

**Table 6.9: Ranking of the five cost and affordability factors influencing the implementation of HPPP projects in Tanzania**

Cost and affordability	<i>t</i> -Test ( $\mu = 3.5$ )	Sig (2-tailed)	MS <sup>1,2</sup>	SD	RII	Ranking	Significant ( $p < 0.05$ )
PPP procurement is <b>economical</b> compared to traditional procurement	0.764	0.451	3.643	0.989	0.729	1	No
PPP brings about <b>value for money</b> in housing delivery projects in Tanzania	0.171	0.865	3.536	1.105	0.707	2	No
PPP can facilitate the <b>supply of affordable housing outcome</b> in Tanzania	0.000	1.000	3.500	1.202	0.700	3	No
Most PPP implementing bodies are capable to afford the <b>project transaction costs</b>	-2.566	<b>0.016*</b>	2.964	1.105	0.593	4	Yes
High PPP <b>costs are a major setback</b> for more PPP projects in Tanzania	-2.514	<b>0.018*</b>	2.857	1.353	0.571	5	Yes

**Notes:** \*Results significant at 95% level ( $p < 0.05$ ), degree of freedom = 27; RII = Relative importance index; <sup>1</sup>Mean score based on valid list wise N=28; <sup>1</sup>Mean score of the cost and affordability factor where 5 = Strongly agree; 4 = Agree; 3 = Neutral; 2 = Disagree; and 1 = Strongly disagree. <sup>2</sup>The higher the mean score (MS), the more critical the cost and affordability factor

Table 6.9 also shows that more than half 3 (60%) of the cost and affordability factors influencing the implementation of PPP housing projects are not statistically significantly different (Test 2: mean > 3.5, t value positive,  $p > 0.05$ ) as delivered in Tanzania.

However, despite the higher ranking of these three factors, the results were contradictory to a number of studies such as (Sengupta, 2006; Moskalyk, 2011; Ibem and Aduwo, 2012). One plausible explanation for this contradiction could be due to the fact that the selection of partners done by the █████ HPPP projects in Tanzania was noncompetitive in the first place and was on the first come first served basis as identified in the literature findings and by **Interviewee G<sub>2</sub>**.

Additionally the procurement of HPPP project did not involve the use of any advisory service such as legal, economical, financial, organising and management (Ho and Tsui, 2009), thus it did not have any cost implications towards the transaction process. These findings agree with Williamson's (1985) transaction cost theory as the transaction costs were heavily minimised. For ease of discussion, only the top three ranked cost and affordability factors are discussed below.

#### ***6.1.4.5.1 PPP procurement is economical compared to traditional procurement***

Based on the mean score in Table 6.9, this was the highest ranked 'cost and affordability' factor (mean = 3.64, SD = 0.989) not statistically significant ( $t(27) = 0.764, p = 0.451 > 0.05$ ) with a mean difference of 0.1429. The only comment made by the interviewees regarding this factor was by **Interviewee A** who noted that "Public sector benefits from private sector resources". However, while the response was in relation to the benefits (see Table 6.12), the synergies with the procurement aspect are evident.

More so, this finding is consistent with PPP literature regarding comparative benefits between PPP and traditional procurement (Chan *et al.*, 2010a; Hoppe *et al.*, 2013; Roehrich *et al.*, 2014). For instance, the study by Hoppe *et al.* (2013) identified provision of stronger incentives to make cost-reducing investments among the benefits of PPP when compared to traditional procurement. More so, from the performance evaluation perspective, the same study established that, similar to traditional procurement, ex-post-evaluation is being widely used in PPP projects. However, it appears that when economics is the motivating factor for PPP adoption, the results drawn might be different. In developed countries such as Australia, one of the litmus test when assessing the viability of PPP proposals is to assess and identify the net benefit of PPP over the traditional procurement methods (Chan *et al.*, 2009a). Hence drawing from Ping Ho *et al.* (2015), transaction cost theory (TCT) may enhance the existing practice in evaluating PPP feasibility and managing PPP projects. Similarly, as asserted by Tang *et al.* (2010b), the experiences of PPPs cannot simply be copied from one country to another as different countries have different practices in terms of culture and policy.

#### ***6.1.4.5.2 PPP brings about value for money in housing delivery projects in Tanzania***

This was the second ranked cost and affordability factor (mean = 3.536, SD = 1.105) which was not statistically significant ( $t(27) = 0.171, p = 0.865 > 0.05$ ) having a mean difference of .0357. This finding is also consistent with PPP related studies within the developed and developing economies (Cheung *et al.*, 2009; World Bank, 2016). More so, this factor is similar to one of the benefits (see Table 6.12) and could thus be used interchangeably as an influencing factor in form of ‘cost and affordability’ as well as the ‘benefit’ arising from the adoption of the PPPs. Similarly, the World Bank (2016, p. 26) report highlighted the need of selecting partners through a competitive process to ensure that the government received the best price (VfM). This implies that the Tanzanian practitioners would benefit from VfM

drivers (measures) such as ‘Private management skills’ and ‘Competitive tender’(Cheung *et al.*, 2009). Given the high proportion of Tanzanian PPP projects that have been subjected to early termination compared to the global average (World Bank, 2016, p. 44), the identified benefit of “Private management skills” could go a long way in assisting the Tanzanian public sectors in carrying out their distinctive roles of identifying projects and monitoring and evaluation (Mboya, 2013).

#### ***6.1.4.5.3 PPP can facilitate the supply of affordable housing outcome in Tanzania***

This was the third ranked cost and affordability factor (mean = 3.500, SD = 1.2020)’, and not statistically significant ( $t(27) = 0.000, p = 1.000 > 0.05$ ) with a mean difference of -0.0000. While only **Interviewee A** commented on this facilitation of the supply of affordable housing by stating that “PPPs increases the supply of housing”. This factor is also consistent with the findings in the study by Ukoje and Kanu (2014). In Nigeria, PPPs were employed by the government in the capital city of Abuja as a means of providing affordable housing for its citizens (Ukoje and Kanu, 2014). Similarly, within the context of South Africa, a study by Sobuza (2010) suggested that PPP can act as a “*vehicle to fast deliver more houses*”. In Tanzania’s capital city of Dar es Salaam, and the main focus of this study, holds 10% of the country’s population while 70% of its residents live in informal settlements (Kidata, 2013). Therefore, PPPs could be used a vehicle for reducing the shortage of residential plots in peri-urban Dar es Salaam as well as the informal settlements. However, this study acknowledges that the attainment of this benefit is conditional upon resolving any substantial governance and pricing problems and transaction inefficiencies or costs as argued in Ping Ho *et al.* (2015) study. Hence the need for developing HPPP framework model to guide and improve delivery.

Moreover, the above results should nevertheless take into consideration, the prevailing conditions and regulations of the host Country. For example, earlier studies such as Susilawati and Armitage (2004) conducted in Queensland, Australia; found that PPPs may not facilitate increasing the supply of affordable housing without major guideline changes. Similarly another study by Kwofie *et al.* (2016) attributed that inability to identify, examine, classify and matching the critical success factors (CSFs) can considerably hinder the HPPP performance.

#### ***6.1.4.6 Ranking and One Sample t-Test Results of Sustainability Factors***

This subsection presents a discussion of the quantitative (survey) results. Based on the aggregated five sustainability factors influencing the delivery of HPPP projects, the questions were designed to require the respondents to rate their opinions using a five-point Likert scale as described in Chapter 5. Table 6.10 shows the results of these mean agreement responses, descriptive statistics such as the SD, *t*-values, *df* and significance (sig) (2-tailed). As illustrated in Table 6.10, the mean agreement scores of the 5 sustainability factors ranged from 3.889 (Sustainability assessment always starts from the feasibility stage) to 2.714 (Sustainability is not highly important in PPP projects in Tanzania).

In contrast, the SD of all five sustainability factors ranged from 0.678 to 1.150. Interestingly, the highest SD was the third ranked sustainability factor, “There is no evaluation mechanism framework used for sustainability assessment”. However, the lower SD, with the exception of the lowest ranked factor, suggests a broad consensus of opinion among respondents regarding the importance of these sustainability factors.

**Table 6.10: Ranking of the five sustainability factors influencing the implementation of HPPP projects in Tanzania**

Sustainability factors	<i>t</i> -Test ( $\mu = 3.5$ )	Sig (2-tailed)	MS <sup>1,2</sup>	SD	RII	Ranking	Significant ( $p < 0.05$ )
Sustainability assessment always starts from the feasibility stage	0.593	0.558	3.889	1.050	0.778	1	No
Sustainability factors are always considered when evaluating project viability	1.400	0.173	3.714	0.810	0.743	2	No
There is no evaluation mechanism used for sustainability assessment	-1.114	0.275	3.357	0.678	0.671	3	No
Sustainability assessment always starts at the procurement stage	-2.806	<b>0.009*</b>	3.000	0.943	0.600	4	Yes
Sustainability is not highly important in PPP projects in Tanzania	-3.615	<b>0.001*</b>	2.714	1.150	0.543	5	Yes

Table 6.10 also shows more than half (60.0%) of the sustainability influencing the implementation of PPP are not statistically significantly different (Test 2: mean > 3.5,  $t$ -value positive,  $p > 0.05$ ) as delivered in Tanzania. Further examination of the different values for the minimum and maximum scores (not listed in Table 6.10), suggests that the data and sample was not biased. Top three ranked factors are further discussed below.

#### ***6.1.4.6.1 Sustainability assessment always starts from the feasibility stage***

Based on Table 6.10, this was the highest ranked factor (mean = 3.889) and not statistically significant ( $t(27) = 593$ ,  $p = 0.558 > 0.05$ ) with a mean difference of 0.1071. The analysis revealed that the practitioners are aware of the need for sustainability assessment to always start from the feasibility stage.

Furthermore, this finding implies that prior to undertaking the PPPs, the Tanzanian practitioners were supposed to carry out the sustainability assessment during the feasibility stage if the delivery of the PPP housing projects were to be successful. For example, within the context of Asian emerging economies, it is well established that *project* outcomes can be improved through the inclusion of environmental sustainability, among other factors, (Atmo and Duffield, 2014). Similarly, within the Indian context, recent studies such as Patil and Laishram (2016) highlighted the need for undertaking environmental impact assessment within the PPP procurement process. Accordingly, this approach would lead to enhancement of the procurement process. It is worth noting that various studies have argued that the sustainability assessment encompasses the three dimensions of social, economic and environmental (Abolore, 2012; Hussin *et al.*, 2013) as further discussed in Chapter 4, subsection 4.2.5. For instance it is evidenced some of the UK PPP/PFI projects have been

successful by incorporating four sustainability dimensions (social, economic, environmental and technical) (Zhou and Smith, 2013).

#### ***6.1.4.6.2 Sustainability factors are always considered when evaluating project viability***

This factor was ranked second (mean = 3.714) and not statistically significant ( $t(27) = 1.400$ ,  $p = 0.173 > 0.05$ ) having a mean difference of 0.2143. This finding implies that despite the PPPs adoption being in its infancy in Tanzania, the practitioners are beginning to acknowledge the importance of undertaking the crucial economic, social and environmental assessment of the project. As indicated in literature and existing PPP models and frameworks, 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 (Chan *et al.*, 2010a; Trangkanont and Charoenngam, 2014b). For example, project technical feasibility has been identified as being among the important consideration when considering PPP procurement options (Chan *et al.*, 2010a).

#### ***6.1.4.6.3 No evaluation mechanism framework is used for sustainability assessment***

This factor was ranked the third (mean = 3.357), and not statistically significant ( $t(27) = -1.114$ ,  $p = 0.275 > 0.05$ ) with a mean difference of -0.1429. Despite this ranking, it had the lower value of the standard deviation (SD = 0.678) which further reinforces the consensus amongst the respondents with regards to the importance of this sustainability factor. However, this finding implies that Tanzania lacks appropriate mechanisms and checks and balances among the Tanzanian practitioners for the effective delivery of the PPP projects. This finding is of concern given the importance and need of robust PPP project evaluation and performance measurement frameworks (Liu *et al.*, 2014; Akintoye and Kumaraswamy, 2016). For instance, both studies suggested the need for more robust performance measurement and

project evaluation within the context of PPPs. and have gained more traction in literature including evaluations during and post PPP. For example, (Liu *et al.*, 2014) study which examined the effectiveness of current ex-post-evaluations of PPPs found that conventional ex-post-evaluations are not robust enough to measure the performance of PPP projects.

#### ***6.1.4.7 Ranking and One Sample t-Test Results of Benefits from Adoption of HPPP Projects in Tanzania***

Table 6.11 lists six benefits surrounding the adoption of PPP. The analysis of the survey response data shows that the mean agreement scores of the six benefits ranged from 4.423 to 3.385. More than half (66.6%) of the benefits are statistically significantly different (Test 4: mean > 3.5, *t*-value positive, *p* < 0.05). Further examination of Table 6.11 shows that, with the exception of the least ranked benefit (i.e. reduction of whole life costs of a project), the remaining five benefits achieved a mean score > 3.50 with their SD being very low and ranging from 0.5778 to 1.209.

To enhance the validation of the results, the findings from the survey research are triangulated with those from the interviews. Table 6.12 presents a summary of benefits of PPP in delivery of housing projects in Tanzania as perceived by the interviewees. A total of 21 benefits were further identified by the interviewees, and based on the frequency and percentage counts, the most important benefit was ‘Resource sharing’ (n=6, 46.2%). This was followed by ‘Better (improved) services’, ‘Risk sharing’ and ‘Opportunity to own land in prime location’ with 2 counts each (15.4%). The remaining 17 benefits were cited once. However, when compared to the 6 benefits elicited from the survey findings (see Table 6.11), despite the minimum counts Table 6.12 provides additional lists of benefits as perceived by the Tanzanian practitioners. All four significant benefits are discussed in detail based on Table 6.11 and 6.14.

**Table 6.11: Ranking of the six benefits from adoption of HPPP projects in Tanzania (questionnaire survey)**

Benefits	N <sup>1</sup>	t-Test ( $\mu = 3.5$ )	Sig (2-tailed)	MS <sup>1,2</sup>	SD	RII	R <sup>3</sup>	IL <sup>4</sup>	Significant ( $p < 0.05$ )
Encourage private sector <b>innovation and management skills</b>	26	8.146	<b>0.000*</b>	4.423	0.578	0.885	1	H	Yes
Possibility of <b>risk sharing</b> between parties	27	6.099	<b>0.000*</b>	4.370	0.742	0.874	2	H	Yes
PPP provides <b>value for money (VfM)</b>	27	2.679	<b>0.013*</b>	3.963	0.898	0.793	3	M	Yes
Encourage on <b>time delivery</b>	26	2.702	<b>0.012*</b>	3.962	0.871	0.792	4	M	Yes
Acceleration of affordable housing provision and <b>improved quality of services</b>	27	0.716	0.480	3.667	1.209	0.733	5	M	No
Reduction of <b>whole life costs</b> of a project	26	-0.625	0.538	3.385	0.941	0.677	6	M	No
Average score				<b>3.962</b>				M	

**Notes:** \*Results significant at 95% level ( $p < 0.05$ ), degrees of freedom = 27; RII = Relative importance index; <sup>1</sup>Mean score based on valid list wise; <sup>2</sup>Mean score of the variable where 5 = strongly agree; 4 = Agree; 3 = Neutral; 2 = Disagree; and 1 = Strongly disagree. <sup>2</sup>The higher the mean score (MS), the more important the benefit; <sup>3</sup>R = Ranking <sup>4</sup>IL = Importance level where H = High, M = Medium and L = Low

**Table 6.12: Summary of benefits of PPPs in delivery of housing projects in Tanzania (interviewee perceptions)**

No	Benefits	Interviewees <sup>1</sup>													No (F) <sup>2</sup>	%		
		A	B	C	D	E	F <sup>#</sup>	G	H	I	J	K	L	M				
1	Increases the supply of housing	✓															1	7.7
2	Increase public sector revenue	✓															1	7.7
3	Better quality buildings	✓															1	7.7
4	Public sector benefits from private sector resources	✓															1	7.7
5	Speedier construction		✓														1	7.7
6	Non-payment of new technology			✓													1	7.7
7*	Better (improved) services			✓		✓											2	15.4
8	Mass production			✓													1	7.7
9	Resource sharing				✓	✓	✓			✓	✓	✓					6	46.2
10	Risk sharing					✓	✓										2	15.4
11	Increases efficiency							✓									1	7.7
12	Utilises private partner's management skills								✓								1	7.7
13	Opportunity to own land in prime location									✓				✓			2	15.4
14	Increases security when partnering with public sector									✓							1	7.7
15	Mass construction is made possible										✓						1	7.7
16	Technology transfer										✓						1	7.7
17	Improves quality and quantity											✓					1	7.7
18	Government transfers risks to the private sector												✓				1	7.7
19	Condemned properties were rescued														✓		1	7.7
20	Increase in organisation revenue															✓	1	7.7
21	Growth in NHC property portfolio															✓	1	7.7
<b>Total</b>		<b>4</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>3</b>			

**Notes:** <sup>1</sup>See Table 6.2 for detailed demographical profiles of interviewees (i.e. Organisational background, designation, experience); \* Other interviewees referred to this as improved services, hence the benefits are used interchangeably; <sup>#</sup> Interviewee identified 'sharing risks and resources' hence its split up into 'sharing risks' and 'Resource sharing' for the purpose of the analysis; <sup>2</sup>F = Frequency of occurrence of the benefit. NHC = National Housing Corporation

#### ***6.1.4.7.1 Encourage private sector innovation and management skills***

Based on the mean scores, encouraging private sector innovation was the highest ranked benefit (mean = 4.423, SD = 0.578). Examination of Tables 6.11 and 6.12 shows that the mean value of this benefit when compared to a population value (test value) of 3.5, a significant difference was found ( $t(26) = 8.146, p = 0.000 < 0.05$ ) with a mean difference of 0.9231. This result is also consistent with PPP literature regarding the associated benefits (Hodge, 2004; Cheung *et al.*, 2009; Nisar, 2013; Roehrich *et al.*, 2014; World Bank, 2016). For example, Hodge (2004) found that “Accessing rare skills” is one of the PPP outcomes. The higher ranking of this benefit is hardly surprising given the prevailing challenges in Tanzania, such as training. These findings are also consistent with earlier literature on PPP training skills (Debrah and Ofori, 2005, 2006; Osabutey *et al.*, 2012). For example, according to Osabutey *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 and less innovative. Vocational training schools do exist in most of the countries but many workers and contractors see formal training as a cost rather than investment.

Similarly, according to Chan (2008 cited in Babatunde *et al.* 2012), among the main objectives (benefits) of PPP includes maximising efficiencies and innovations of private enterprises. In other sectors such as health, Roehrich *et al.* (2014) also suggested that the PPP benefits could emanate from combining the strengths of private actors such as innovation, technical knowledge and skills, and managerial efficiency amongst others. However, this benefit also extends to developed economies. For example, Cheung *et al.* (2009) identified ‘Private management skill’ and ‘private sector technical innovation’ among the key VfM drivers for the delivery of Australian and Hong Kong PPP projects.

Interestingly, none of the interviewees made a particular reference to ‘innovation’ although **Interview G** acknowledged the benefit such as ‘utilising private partner’s management skills’. The above findings further reinforces the existence and application of the transaction cost theory ‘asset specificity’ where the public sector could exploit the information as provided by the private sector (Williamson, 1985; De Schepper *et al.*, 2015a, 2015b).

#### **6.1.4.7.2 Possibility of risk sharing between parties**

According to Jin and Doloi (2008 cited in Osei-Kyei and Chan, 2015, pp. 142), allocating and sharing risk has always been one of the fundamental components of PPP arrangements. This assertion is further reinforced by the findings as the possibility of risk sharing between parties was the second ranked benefit associated with the adoption of HPP projects in Tanzania (mean = 4.370) and statistically significant ( $t(27) = 6.099, p = .000 < 0.05$ ) with a mean difference of .0.8704. While only **Interviewees E** and **F** as seen on Table 6.12 commented on this benefit, the support of this benefit is very evident across a number of disciplines and different sectors (Cheung *et al.*, 2009; Tang *et al.*, 2010b; Osei-Kyei and Chan, 2015; Akintoye and Kumaraswamy, 2016; Hashim *et al.*, 2016). For example, Cheung *et al.* (2009) identified ‘Efficient risk allocation’ among the key VfM drivers for the delivery of PPP projects. In addition, the private sectors are able to bring commercial decisions into public projects (Tang *et al.*, 2010b, pg. 685). However, these findings should be treated with caution as Roehrich *et al.* (2014) study within the health sector suggested that notions such as VfM and risk transfer are regularly conflated. This finding implies that, for this benefit of risk-sharing between the public and private participants to be actually achieved, according to Nisar (2007, cited in Hashim *et al.* 2016), it needs some conditions in place such as agreeing on a project to be developed through PPP scheme.

However, despite the advocated benefits as reported by the survey respondents, Tanzanian practitioners are beset with numerous challenges that might hinder the actualisation of the risk sharing amongst the parties. For example, in response to the question on the ‘awareness of PPP and its benefits’, 60% of the interviewees agreed that the awareness is still little; benefits are marginal and very slow because of lack of enough skills and expertise. The sentiments expressed by the interviewees regarding the marginal benefits of the PPPs are further supported by the transaction cost theory dimension of ‘*frequency*’ which is normally low when the PPPs are immature (De Schepper *et al.*, 2015b). **Interviewee C** observed that there was poor risk allocation due to lack of experience whereas **Interviewee A**, with more legal experience drew attention to problems of prevailing practices associated in the ‘transfer of right of occupancy’ by the public sector organisations, such as the National Housing Corporation (NHC). Other examples of bad practices included the trend of transferring title deeds to reflect 25%–75% share arrangements in some projects even before those projects were complete. According to **Interviewee A**, such practices tended to create a picture of unfairness treatment among partners. The views expressed by **Interviewees A** and **C** are further supported by the transaction cost theory dimension of ‘*asset specificity*’ which highlighted both the ‘incentives’ and ‘opportunistic behaviour’ that both parties could exhibit during such transactions (Nisar, 2013). Similarly, the ‘lack of experience’ of the public partners disadvantages them as previous partnership experience has been identified as the cornerstone for successful partnerships (De Schepper *et al.*, 2015a). This further contributes to having lower ‘*frequency*’ dimension of the transaction cost theory. The implication of this finding is that for the benefit of ‘risk sharing between parties’ to materialise, there was a need of creating more PPP awareness amongst the practitioners, formulation of clearer contracts as well as the presence of trust and commitment, which are the cornerstones of the relational

characteristics of joint ventures (Vivek and Richey, 2013). Finally, as advocated by a number of studies within the Tanzanian context (Debrah and Ofori, 2005, 2006; Chileshe and Kikwasi, 2014a, 2014b) and developing countries in general (Van Egmond, 2012), the recourse or pathway to enhanced training is through encouraging the Tanzanian stakeholders (particularly contractors) to collaborate with foreign contractors on projects through joint ventures.

#### ***6.1.4.7.3 PPP provides value for money***

‘PPP provides value for money (VfM)’ was the third ranked benefit (mean = 3.963) and statistically significant ( $t(27) = 2.679, p = .013 < 0.05$ ) with a mean difference of .04629. Notably, none of the interviewees identified this benefit; however, **Interviewee G** identified a comparable finding “*PPP increases efficiency*”. The linkages between the improvement of project outcomes (efficiency) and considerations of the benefits from VfM are well established in literature (see Chapter 3, subsection 3.4.3). For example, within the construction and project management literature, Bing *et al.* (2005) observed that PPP procurement is seen as an effective way to achieve value for money (VFM) in public infrastructure projects. Recent World Bank (2016) reports provided evidence using the Kenyan context where PPP provided VfM. However, the same report stated that this was conditional upon having appropriate regulatory frameworks. Additionally it is noted that in the UK as well as other countries VfM approach has been considered as one of the key criteria involved in deciding whether a project should be procured under PPP method or traditional method (Tsamboulas *et al.*, 2013). Additionally, the suggestion in the HM Treasury (2006) report was that, in the UK, PFI should only be pursued where it can deliver value for money (VfM). Moreover, VfM can also be achieved through the lens of transaction cost theory (TCT) as discussed in the literature review (see subsection 5.5.1).

#### ***6.1.4.7.4 PPP Encourage on-time delivery***

‘Encourage on-time delivery’ was the fourth ranked benefit (mean = 3.962) and was statistically significant ( $t(27) = 2.702$ ,  $P = 0.012 < 0.05$ ) with a mean difference of .04615. This survey finding is also consistent with the PPP literature regarding the associated benefits of ‘completion on time’ (Sengupta 2006; Abdul-Aziz and Kasim 2011; UN-HABITAT 2011; World Bank 2016). For example, within the Malaysian context, Abdul-Aziz and Kasim (2011) identified ‘on-time completion’ as among the highly ranked objectives of HPPP whereas, in a study conducted by Sengupta (2006) within the Indian context, the conducted housing projects case study in Kolkata was identified successful in terms of cost and quality in adopting PPPs in housing. Both Malaysia and India share similar economic characteristics as developing countries. Additionally, according to UN-HABITAT (2011, p. 4), the ability of the private sector to have a direct financial interest ensures that projects and services are delivered on time, if not ahead of time.

#### ***6.1.4.8 Overall Ranking of Benefits***

Examination of Table 6.11 shows that the overall average weighted benefits score was 3.962 which imply that, despite the PPPs being in their infancy, the Tanzanian housing and construction practitioners perceived the advocated benefits from adoption of PPPs to be of medium levels as shown in Table 6.13. This finding further reinforces the suggestion by Akintoye and Kumaraswamy (2016, p. 23) regarding the need for developing a communications strategy that demonstrates the benefits achieved from PPP projects. This mechanism would encourage the uptake of HPPPs projects.

**Table 6.13: Scoring the levels of benefits of adopting HPPP projects in Tanzania**

Average Score ( $\sum_{a=1}^5 Wi / N$ )	RAI	Benefits level
4.0 to 5.0	0.8 to 1.0	High (H)
3.0 to < 4.0	0.6 to < 0.8	Medium (M)
1.0 to < 3.0	0.20 to < 0.6	Low (L)

**Source:** Adapted from Chileshe and Kikwasi, (2014a); RAI = Relative Agreement Index

#### ***6.1.4.9 Overall ranking of the cost and affordability factors, sustainability drivers and benefits***

Table 6.14 presents the aggregated summary of all the cost and affordability factors, sustainability drivers and benefits factors. As can be seen from the Table 6.14, the top four ranked factors were drawn from the ‘benefits’ category and were significant ( $p < 0.05$ ).

The classification and scoring of the levels of the benefits of adopting the HPPP projects in Tanzania as illustrated in Table 6.13 and applied in Table 6.11 is a move towards that attainment. Overall, the least ranked was drawn from the sustainability drivers (factors) category, namely, ‘Sustainability is not highly important in PPP projects in Tanzania’. However, despite the low ranking, the result, as evidenced by respondents’ ‘disagreement’ with the statement, this overall finding is rather encouraging for Tanzanian practitioners and alleviates the World Bank (2016) report’s observation regarding poor project design arising from the failure to undertake feasibility analysis for PPP projects. This finding also confirmed their awareness towards the importance attached to the integration of sustainability principles in the PPP procurement process as documented in Patil and Laishram (2016).

**Table 6.14: Overall ratings of cost and affordability, sustainability factors and benefits influencing the implementation of HPPP projects in Tanzania**

Cost and affordability, Sustainability factors and benefits	N <sup>1</sup>	t-Test ( $\mu = 3.5$ )	Sig. (2-tailed)	MS1 ,2	SD	RII	R3	OR 4	Significant ( $p < 0.05$ )
Encourage private sector <b>innovation and management skills</b>	26	8.146	<b>0.000*</b>	4.423	0.578	0.885	Benf	1	Yes
Possibility of <b>risk sharing</b> between parties	27	6.099	<b>0.000*</b>	4.370	0.742	0.874	Benf	2	Yes
PPP provides <b>value for money (VfM)</b>	27	2.679	<b>0.013*</b>	3.963	0.898	0.793	Benf	3	Yes
Encourage on <b>time delivery</b>	26	2.702	<b>0.012*</b>	3.962	0.871	0.792	Benf	4	Yes
Sustainability assessment always starts from the feasibility stage	28	0.593	0.558	3.889	1.050	0.778	Sust	5	No
Sustainability factors are always considered when evaluating project viability	28	1.400	0.173	3.714	0.810	0.743	Sust	6	No
Acceleration of affordable housing provision and <b>improved quality of services</b>	27	0.716	0.480	3.667	1.209	0.733	Benf	7	No
PPP procurement is economical compared to traditional procurement	28	0.764	0.451	3.643	0.989	0.729	Co&af	8	No
PPP brings about value for money in housing delivery projects in Tanzania	28	0.171	0.865	3.536	1.105	0.707	Co&af	9	No
PPP can facilitate the supply of affordable housing outcome in Tanzania	28	0.000	1.000	3.500	1.202	0.700	Co&af	10	No
Reduction of <b>whole life costs</b> of a project	26	-0.625	0.538	3.385	0.941	0.677	Benf	11	No
There is no evaluation mechanism used for sustainability assessment	28	-1.114	0.275	3.357	0.678	0.671	Sust	12	No
Sustainability assessment always starts at the procurement stage	28	-2.806	0.009*	3.000	0.943	0.600	Sust	13	Yes
Most PPP implementing bodies are capable to afford the project transaction costs	28	-2.566	0.016*	2.964	1.105	0.593	Co&af	14	Yes
High PPP costs are a major setback for more PPP projects in Tanzania	28	-2.514	0.018*	2.857	1.353	0.571	Co&af	15	Yes
Sustainability is not highly important in PPP projects in Tanzania	28	-3.615	0.001*	2.714	1.150	0.543	Sust	16	Yes

**Notes:** \*Results not significant ( $p > 0.05$ ); RII = Relative importance index; <sup>1</sup>Mean score based on valid list wise; <sup>2</sup>Mean score of the variable where 5 = strongly agree; 4 = Agree; 3 = Neutral; 2 = Disagree; and 1 = Strongly disagree. <sup>2</sup>The higher the mean score (MS), the more critical the factor and benefit under consideration; <sup>3</sup>R = Ranking for individual categories; <sup>4</sup>OR= Overall Rank; Where Benf = Benefits, Sust = Sustainability factors and Co&af = Cost and affordability.

#### **6.1.4.10 Ranking of PPP policy and regulatory framework**

Table 6.15 shows the results of the 4 mean agreement responses, ranged from 3.889 to 2.963.

Each factor will be discussed to draw implications in the next subsection below.

##### **6.1.4.10.1 Current PPP policy and guidelines in Tanzania need further improvement**

Based on Table 6.15, the mean scores illustrate, the current PPP Policy & guidelines in Tanzania needs further improvement was the highest ranked factor (mean = 3.889, SD = 1.0500). This finding implies that the current PPP policy and guidelines are inadequate. This finding is supported by results presented in Table 6.7 and 6.8 which identified that “Inadequate PPP policy and legal institutional framework” is among the major challenges in implementing HPPP projects. For instance, as shown in Table 6.7, “Inadequate legal framework” was ranked as the fourth challenge and as significant, thus increasing the reliability of this finding. Moreover, these results also agree with numerous studies such as (Sengupta, 2006; Ibem, 2011a; Ismail and Haris, 2014; Trangkanont and Charoenngam, 2014a; Kwofie *et al.*, 2016) as they have all identified inadequate PPP legal framework is a major hindrance towards the success of PPP projects. Supporting evidence from the interviewees also reinforced this quantitative finding. For example, **Interviewees F and G** (see Table 6.8).

**Table 6.15: Ranking of policy and regulatory framework factors**

Policy and regulatory framework factors and challenges	N <sup>1</sup>	df	t-Test ( $\mu = 3.5$ )	Sig (2-tailed)	Mean Score <sup>1,2</sup>	SD	RII	Rank	Significant ( $p < 0.05$ )
Current PPP policy and guidelines needs further improvement	27	26	1.924	0.065	3.889	1.050		1	No
Tanzania has a PPP policy and clear regulatory framework	27	26	.088	.930	3.519	1.087	0.778	2	No
Provides adequate opportunity to attract more private partners	27	26	-1.616	<b>.118</b>	3.111	1.251	0.704	3	Yes
The Tanzanian PPP policy and regulatory framework is clear and provides appropriate guidance	27	26	-2.478	<b>.020</b>	2.963	1.126	0.622	4	Yes

**Notes:** \*Results significant at 95% level ( $p < 0.05$ ); df = degree of freedom; RII = Relative importance index; <sup>1</sup>Mean score based on valid list wise; <sup>2</sup>Mean score of the challenge variable where 5 = strongly agree; 4 = Agree; 3 = Neutral; 2 = Disagree; and 1 = Strongly disagree. <sup>2</sup>The higher the mean score the more critical the policy and regulatory factor and challenges

Specifically **Interviewee F** claimed that *the PPP guidelines and regulations are insufficient* whereas **Interviewee G** also mentioned that *“there is inadequate PPP policy and legal institutional framework”*.

#### **6.1.4.10.2 Tanzania has a PPP policy and regulatory framework for implementation of PPP projects**

Despite the HPPP projects not using the PPP policy in their projects it was deemed important to understand their awareness towards the existence of the policy. Therefore, from the findings, it was identified as the second ranked factor (mean = 3.519, SD = 1.0873) and not statistically significant ( $p = 0.088 > 0.05$ ). It was noted through the literature that PPP policy and its regulatory framework has been considered as a crucial feature towards motivating the private sector involvement in the PPP projects (URT, 2009). While Tanzania has a strong

legal and institutional framework for the setting up and implementing PPP projects as opined by World Bank (2016), applying this framework to these projects is another thing.

#### ***6.1.4.10.3 Current PPP guidelines in Tanzania provide adequate opportunity to attract more private partners***

Examination of Table 6.15 shows that this factor was ranked third in the survey (mean = 3.111, SD = 1.2506). The SD indicates that less consensus was found among the opinions in the majority of respondents' perception. Interestingly these findings are consistent with (World Bank, 2016) but inconsistent with previous results presented on Table 6.7 and 6.8, inconsistent with other studies in Tanzania such as (Itika *et al.*, 2011; Chediel, 2012) as well as studies in other countries (Sengupta, 2006; Abdul-Aziz and Kassim, 2011; Ismail and Haris, 2014; Trangkanont and Charoenngam, 2014a). This implies that the existing PPP guidelines are not adequate enough to attract private partners as it has been reported in this study with the exception of the Tanzanian World Bank (2016) report.

#### ***6.1.4.11 Ranking of challenges facing successful implementation of PPP in affordable housing schemes (AFHS) in Tanzania***

A total of eight challenges influencing the implementation of PPP in AFHS were identified and the respondents were requested to rank each challenge using a 5-point Likert scale. Table 6.16 shows the results of these mean agreement responses. The mean agreement scores ranged from 4.75 to 3.46. The SD of all eight AFH challenges ranged from 0.441 to 1.138. Table 6.16 also shows that half (50%) of the AFH challenges are statistically significant (Test 1: mean > 3.5, *t*-value positive, *p* < 0.05). The following subsections present a brief discussion of the three most highly ranked challenges.

**Table 6.16: Ranking of challenges influencing the implementation of PPP in affordable housing schemes (AFHSs)**

Challenges	N <sup>1</sup>	df	t-Test ( $\mu = 3.5$ )	Sig (2-tailed)	Mean Score <sup>1,2</sup>	SD	RII	Rank	Significant ( $p < 0.05$ )
Poor planning skills and analytical capacity	28	27	15.000	<b>.000*</b>	4.750	0.441	0.950	1	Yes
High costs of building materials	27	26	10.832	<b>.000*</b>	4.556	0.506	0.911	2	Yes
Inadequate access to housing finance	28	27	8.855	<b>.000*</b>	4.464	0.576	0.893	3	Yes
High costs and difficulties of acquiring land	27	26	2.533	<b>.018*</b>	3.926	0.874	0.785	4	Yes
Poor access to land	28	27	.986	.333	3.714	1.150	0.743	5	No
Poor project planning	27	26	10.832	.018	3.714	1.213	0.743	6	No
Lack of government subsidies	28	27	1.044	.306	3.679	0.693	0.736	7	No
Poor performance by the housing sectors in the country	28	27	-.166	.869	3.464	1.138	0.736	8	No

**Notes:** \*Results significant at 95% level ( $p < 0.05$ ); df = degree of freedom; RII = Relative importance index; <sup>1</sup>Mean score based on valid list wise; <sup>2</sup>Mean score of the challenge variable where 5 = strongly agree; 4 = Agree; 3 = Neutral; 2 = Disagree; and 1 = Strongly disagree. <sup>2</sup>The higher the mean score the more critical the challenges

#### **6.1.4.11.1 Poor planning skills and analytical capacity**

Based on the mean score, this was the highest ranked challenge (mean = 4.750) and significant ( $t(28) = 15.000, p = 0.000 < 0.05$ ). The lower value of the standard deviation (SD = 0.441) further strengthens the consensus among the respondents in the higher ranking of this challenge. This finding strongly confirms and complements the initial challenge identified in delivering HPPP projects “Inadequate PPP skills and knowledge leading to poor planning and application” (see Table 6.7) which was also the highest ranked. Despite this challenge being ranked the highest none of the interviewees identified this challenge. Drawing from previous studies as summarised in Chapter 4, Table 4.4 the issue of poor and inadequate PPP skills in delivering projects has been a significant challenge in most developing countries. Along the lines of having the ‘planning skills’ as the common denominator in both challenges affecting ‘the delivery of HPPP’ and ‘PPP in AFHS’ provides a justification for non-detailed discussion of this challenge.

#### **6.1.4.11.2 High costs of building**

Examining Table 6.16, this was the second ranked challenge (mean = 4.556) and significant ( $t(27) = 10.832, p = 0.000 < 0.05$ ) with standard deviation (SD = 0.506). While ‘high costs and difficulties of acquiring land’ a component towards the cost of the building was the fourth ranked challenge. This finding was strongly supported by the majorities of interviewees (77%) as shown in Table 6.17. From the interviews this was the most mentioned challenge (n=10) out of 13 respondents (see Table 6.17). In contrast, a high land price was mentioned only twice (n=2). Moreover, previous related studies (Ibem, 2011a, 2011b) are consistent with this challenge.

**Table 6.17: Summary of challenges hindering successful application of PPPs in affordable housing projects in Tanzania (interviewee perceptions)**

No	Challenges	Interviewees <sup>1</sup>													No (F) <sup>2</sup>	%		
		A	B	C	D	E	F	G	H	I	J	K	L	M				
1	Inadequate subsidies	✓										✓					2	15.4
2*	Lack of government support (and commitment)	✓				✓											2	15.4
3	High costs of building materials	✓	✓	✓	✓	✓	✓		✓	✓	✓			✓			<b>10</b>	<b>77.0</b>
4	High VAT value at 20%	✓													✓		2	15.4
5	Lack of govt subsidies		✓	✓	✓	✓											<b>4</b>	<b>30.8</b>
6	Public sector are forced to deliver affordable housing without Govt support thus not achieving the affordability aspect		✓														1	7.7
7	Housing is not considered in the government annual budget		✓														1	7.7
8	Inadequate housing finance			✓				✓						✓			<b>3</b>	<b>23.1</b>
9	Low income groups don't qualify for loans				✓												1	7.7
10	Lack of housing policy					✓											1	7.7
11	Private partner desire to obtain high profit					✓											1	7.7
12	High land prices							✓							✓		2	15.4
13	PPP is very complex and demanding							✓	✓								2	15.4
14	PPP housing projects are not assessed or coordinated by the PPP unit								✓								1	7.7
15	PPP approval process is not legally binding nor streamlined								✓								1	7.7
16	Less profitable to the developer									✓							1	7.7
17	Not preferred profitable to the private partners										✓			✓			2	15.4
18	Low financial capacity										✓						1	7.7
19	Lack of cheap financial market											✓					1	7.7
20	Difficult to pay back the invested capital											✓					1	7.7
21	Lack of mass housing production												✓				1	7.7
Total		4	4	3	3	5	4	3	2	3	3	2	2	3				

**Notes:** <sup>1</sup>See Table IV for detailed demographical profiles of the interviewees (i.e. organisational background, designation, experience), \*Other interviewees referred to this challenge as 'lack of government' and 'lack of government and commitment', hence this is now combined to read as 'lack of government support (and commitment)'; improved services, hence the terminology for the challenge is used interchangeably. <sup>2</sup>F = Frequency of occurrence of the challenge

For instance, in Nigeria, Ibem (2011a) claimed that high cost of building materials due to massive importation of materials is a major challenge towards the implementation of HPPP to low income earners. This implies that due to high building standards, few local materials are used either because of their substandard or unavailability, hence compelling people to import. This challenge is also exposed in Mukhtar et al.'s (2016) study revealing that 60% of building materials are imported, hence, the reason for high prices. Likewise, in the Tanzanian context, it is observed that private developers strive to build modern houses using imported materials rather than traditional/local materials in order to fetch higher income from rents (Wells *et al.*, 1998). The use of local building materials in housing construction can significantly reduce the high cost of building a house (Makinde, 2013). Therefore, it is important for the government to initiate and encourage the manufacturing of local materials, to be produced at a good standard through research and innovation.

#### ***6.1.4.11.3 Inadequate access to housing finance***

This challenge 'inadequate access to housing finance' appeared the third ranked challenge (mean = 4.464) and significant ( $t(28) = 8.855, p = 0.000 < 0.05$ ) with standard deviation (SD = 0.576). The lower value of the SD reinforces and illustrates the consensus among the respondents. These findings were also supported by the interviewee results, as shown on Table 6.17, interviewees (n=3, 23%) identified this as among the associated challenge. This finding agrees with previous related studies (Sengupta, 2006; Moskalyk, 2011; Trangkanont and Charoenngam, 2014a). For example Moskalyk (2011) argues that lack of finance makes it difficult to undertake PPP projects. Similarly Trangkanont and Charoenngam (2014a) contended that the limitation of housing finance brought about the HPPP project failure for low-income earners. This challenge is observed to be common in most developing countries (India, Thailand, Malaysia, Tanzania and Nigeria to mention a few) due to high interest rates

resulting from high finance risks. Additionally, it is reported that most of the housing finance initiatives carried out by governments in developing countries often benefit the high and middle income group (Kyessi and Furaha, 2010). The recent alternative to the low-income group in developing economies has now been the microfinance institutions which are highly increasing in number (Germain, 2008 as cited in Kyessi and Furaha, 2010). Notably, lack of financial securities such as sovereign credit rating makes it harder for lenders and investors to operate in such environment because of high risks making it very expensive. There is a great need for the governments and financial institutions in developing countries to look for ways to improve the housing finance to cater for the poor.

#### ***6.1.4.12 Recommended and Advocated Solutions for Improving PPP Delivery of Affordable Housing in Tanzania***

During the early stages of the data collection, it was evident there were some challenges hindering the successful implementation of HPPP projects. Therefore interviewees were asked if they could give any recommendations to improve the delivery of HPPP. Table 6.18 shows the proposed advocated solutions as recommended by interviewees.

Some interviewees (n=4) identified “*PPP training*”, “*public sector to invest on training its PPP staff*”, “*capacity building to government stakeholders*” and “*creating more PPP awareness*” as aspects important for PPP success. Moreover, **Interviewees A, B, F and I** also emphasised “*government support in various areas to enhance the AFH PPP projects*”. Similarly the need to undertake more research on building materials was suggested by **Interviewee M** in order to discover cheaper building materials produced locally. Besides some unique and interesting recommendations were made by **Interviewee F**, “*empowering the PPP unit to take legal action in case of non-adherence to PPP regulations*”, “*Government to allow the PPP trained personnel to practise/utilise their knowledge by*

*listening to their advice and properly using them for the benefit of the country” and  
“involving the local community in the supply of low-cost houses”.*

**Table 6.18: Summary of recommended and advocated solutions for improving delivery of PPP in affordable housing (interviewee perceptions)**

No	Recommended solution	Interviewees <sup>2</sup>													No (F) <sup>3</sup>		
		A	B	C	D	E	F	G	H	I	J	K	L	M			
1	PPP Training	✓															1
2*	Formulation of clear contracts	✓															1
3	Government support	✓									✓						2
4	Removal of VAT on affordable housing	✓															1
5	Careful financial assessment of private partners	✓															1
6	Government support of projects by including housing sector in the annual budget		✓														1
7	Provision of housing loans at zero interest to low income earners		✓														1
8	Public sector to invest on PPP training to its staff			✓													1
9	Provision of attractive environment for private partners to invest in the housing sector				✓					✓							2
10	Capacity building to government stakeholders					✓											1
11	Empowering the PPP unit to take legal action in case of non-adherence to PPP regulations						✓										1
12	Government to allow the PPP trained personnel to exercise/utilise their knowledge by listening to their advice and properly utilising them for the benefit of the country						✓										1
13	Involving the local community in the supply of low cost houses						✓										1
14	Projects must be approved by PPP Unit prior to start						✓										1
15	PPP facilitation fund is to be formed to support PPP development and awareness							✓									1
16	Provision of free land to private developers										✓						1
17	Adequate feasibility study											✓					1
18	Adequate planning											✓					1
19	Creating more PPP awareness												✓				1
20	Providing more enabling environment (i.e. Tax holiday to investors)												✓				1
21	Doing more research on building materials so as to come up with cheaper building materials produced locally													✓			1
Total		5	2	1	1	1	4	1	1	1	1	2	2	1			23

**Notes:** <sup>2</sup>See Table 6.2 for the detailed demographical profiles of interviewees (i.e. organisational background, designation, experience), <sup>3</sup>F = Frequency of occurrence of the challenge.

## **PHASE 2 RESULTS: INTERVIEW FINDINGS**

### **6.2.1 Semi-Structured Interviews**

This subsection presents the Phase 2 empirical findings from the semi-structured interviews. The Phase 2 interview processes using the prepared interview transcript (see Appendix E) were undertaken between July and August 2016 in Dar es Salaam, Tanzania. Details justifying the need for this approach were discussed in Chapter 5, subsections 5.3.1 and 5.5.3.

The semi-structured interviews were conducted face-to-face and lasted approximately between 45 and 100 minutes. They are particularly good in providing more detailed information, not least because they are flexible enough to allow exploration on issues not pre-conceived (Axinn and Pearce, 2006). Moreover, Denscombe (2014) highlighted that interviews are an effective tool when a researcher wishes to gain people's opinions, feelings, emotions and experiences. Most interviewees were not willing to be audio recorded hence all the responses were manually recorded. In total, 10 semi-structured interviews were carried out with the management staff of the public and private sectors, researcher (academia), PPP advisors and consultants in order to obtain their insight into the HPPP practice. This set of interviews aimed to identify richer, deeper and accurate information to provide a clearer and conclusive image of the existing situation.

### **6.2.2 Characteristics of Interviewee Sample (Part A)**

Examination of Table 6.19 shows that over 50% of respondents' designations were at management level. Moreover, the interviewees' experience in their current position ranged from one year to over 20 years. Half (50%, 5) had experience of more than 15 years, with two individuals indicating experience of 20 years or more. Those with less than five years and

between 11-15 years each representing 20% (2) in the interview sample used, whereas one had 6-10 years of experience.

In terms of education, all respondents had a minimum of a Master's degree or above. Table 6.19 illustrate their current position in the built environment field and majority 4(40%) of the respondents coming from the public sector, 3 (30%) were private partners, with 1 each for consultant, researcher and PPP advisor, respectively.

The inclusion of the PPP advisor was necessary to determine their involvement in the HPPP projects since their responsibility is to oversee by advising and approving the PPP projects (Mboya, 2013; World Bank, 2016). Additionally, Table 6.19 indicates that 80% (8) of respondents confirmed to have participated in implementing HPPP projects while 20% (2) responded negatively. In determining their experience with HPPP projects, the Majority 40% (4) indicated to have over 10 years and 1-2 years of experience each while the minority 10% (1) had no experience one being the PPP advisor confirming not being involved into HPPP projects and the other who is a researcher claimed to participate in PPP waste collection. The above interviewees' information is useful because it describes the characteristics of the sample and how relevant the sample is to the study which confirms the reliability and validity of the data obtained from them.

### **6.2.3 Drivers for Adopting HPPP Projects (Part B)**

Prior to attempting to understand the benefits for adopting HPPP projects in Tanzania, it was deemed important to understand what motivated the PPP stakeholders to start implementing HPPP projects. It was noted that this information could be clearly generated by the main initiators of the HPPP in the public sector and the main actors in the private sector in which the majorities are in senior position within their organisation.

**Table 6.19: Interviewee profiles**

<b>Interviewee<sup>2</sup></b>	<b>Designation of respondents</b>	<b>Experience in current position</b>	<b>Educational level</b>	<b>Current position in the Built environment field</b>	<b>Implementing PPP Housing Projects</b>	<b>Experience with PPP housing projects</b>	<b>Type of PPP contract adopted in your organisation</b>
A <sub>2</sub>	Managing director	11~15years	Master's degree	Public Partner	Yes	Over 10 projects	BOT and TURNKEY
B <sub>2</sub>	Senior Legal officer	< 5 years (4yrs)	Master's degree	Public Partner	Yes	Over 10 projects	BOT and DB
C <sub>2</sub>	Assistant legal officer	< 5 years (1yr)	Master's degree	Public Partner	Yes	1-2 projects	BOT and DB
D <sub>2</sub>	CEO	11~15yrs (12yrs)	Master's degree	Private Partner	Yes	1-2 projects	DB
E <sub>2</sub>	Project manager	> 15 years (20yrs)	Master's degree	Public Partner	Yes	Over 10 projects	DB
F <sub>2</sub>	PPP clerk of works	> 15 years	Master's degree	Consultant	Yes	1-2 projects	DB
G <sub>2</sub>	Managing director	> 15 years	PhD in Economics	Private Partner	Yes	1-2 projects	DB
H <sub>2</sub>	Project manager	> 15 years	Master's degree	Public Partner	Yes	Over 10 projects	BOT and DB
I <sub>2</sub>	Associate Professor	> 15 years (>20yrs)	Associate Professor	Teaching/consultant & researcher	NO	No, but PPPs in waste collection	N/A
J <sub>2</sub>	Acting Director	6-10 years	Master's degree	PPP advisor	NO	N/A	N/A

**Notes:** <sup>2</sup>Interviewees A<sub>2</sub> through to J<sub>2</sub> = Phase 2 interviewee respondents

Hence, interviews were considered the most appropriate approach in Phase 2. Table 6.20 through Table 6.22 displays a summary of the responses to each question given by the 10 interviewees. Responses were tallied to provide the significance and implications of the results.

Interview participants were asked: “What were the driving factors for adopting PPP in housing delivery in their organisation”? As shown on Table 6.20, interview participants identified 19 factors. Responses were tallied, in the occasion where the response was only given once it was considered less significant and significant for the responses given more than once. Therefore based on Table 6.20 the findings show that amongst the 19 factors identified, three factors (the need for redeveloping condemned properties, Lack of enough capital and fear to lose their condemned properties) were the most mentioned (n=5). The remaining 16 factors, three were tallied twice and the rest 13 were tallied once. The lack of consensus of the results may be due to the fact that they were only two participants from the private sector whereas half (50%) were from the public sector.

During the content analysis process the researcher noted a pattern of responses from the public and private sector. Therefore, considering the pattern the identified driving factors are grouped into two main parts to reflect each sector (public and private) independently. Some similarities and differences are drawn to bring deeper understanding and implication of the identified factors.

### ***6.2.3.1 Public sector factors***

Based on Table 6.20 it was noted that public sector respondents, for instance, **Interviewees A<sub>2</sub>, B<sub>2</sub>, C<sub>2</sub>, E<sub>2</sub> and H<sub>2</sub>**, identified six different factors.

**Table 6.20: Driving factors for adopting HPPP projects**

Driving factors	Interviewees <sup>2</sup>										Counts
	A <sub>2</sub>	B <sub>2</sub>	C <sub>2</sub>	D <sub>2</sub>	E <sub>2</sub>	F <sub>2</sub>	G <sub>2</sub>	H <sub>2</sub>	I <sub>2</sub>	J <sub>2</sub>	
<b>The need for redeveloping condemned properties,</b>	✓	✓	✓		✓			✓			<b>5</b>
<b>Lack of enough financial capacity to undertake housing project</b>	✓	✓	✓		✓			✓			<b>5</b>
<b>Fear to lose their condemned properties</b>	✓	✓	✓		✓			✓			<b>5</b>
Government circular No. 1 of 1992 which required all public enterprises to operate commercially in order to be self-sustaining.	✓										1
Organisation major role of facilitating the provision of housing and other buildings to the general public.	✓										1
Prime location				✓			✓				2
Being a previous tenant				✓			✓				2
The deal looked viable				✓							1
Negotiations were straight forward				✓							1
Ability to share and minimise risks in case of loss or failure						✓					1
Replace deficits like funds, equipment, Technology, materials etc.						✓					1
Share resources						✓					1
The bragging behaviour from other private investors particularly the Indians, claiming to be the only ones capable to undertake joint ventures with government.							✓				1
Desire from many other private developers wanting to redevelop the same plot I wanted to.							✓				1
Public sector failure									✓		1
Motivation to adopt “new ways of doing things”.									✓		1
It seemed to work in other countries									✓		1
Increasing revenue (profit)			✓		✓						2
To enhance the value of property which was lower than the value of land				✓							1

**Notes:** <sup>2</sup>Interviewees A<sub>2</sub> through to J<sub>2</sub> = Phase 2 interviewee respondents.

The first three factors on Table 6.20 had the highest responses, (n=5 counts) hence indicating their significance towards the adoption of PPP by the public sector in the housing projects.

For instance, one of the public sector respondents highlighted that;

*NHC was attracted to partnership project because it lacked funds required to adequately support re-development of its prime plots which were hosting condemned buildings to raise their values and revenue ... Additionally, the organisation feared to lose some of its potential plots which were confirmed by the Ministry for Lands ripe for redevelopment.*

Furthermore, **Interviewee A<sub>2</sub>** added on the issue of circular no 1 of 1992 which required public organisations to operate commercially in order to be self-sustaining.

Based on Table 6.20, organisation major role of facilitating the provision of housing and other buildings to the general public and the need to increase revenue were observed as public sector driving factors. The former was mentioned once while the latter was mentioned twice revealing that uplifting revenues was also a significant factor to the public sector considering the fact that they were allowed to operate commercially.

More so **Interviewee F<sub>2</sub>**, also from the public sector, identified that the need to replace deficits like funds, equipment, technology, materials, etc. motivated their public organisation.

For instance, he further explained that:

*The private partner owned a vast majority of land (300 acres) and this was valued to 20% of the whole project cost. Similarly, the selected contractor recommended by the private partner was from Turkey and was bringing in a new building technology to Tanzania known as tunnel form construction that had a major benefit of saving time through speedy construction.*

These findings are supported by other researchers (Chan *et al.*, 2009a; Cheung *et al.*, 2009; Kavishe, 2010; Maagi, 2010; Onyemaechi and Samy, 2016). For example, Onyemaechi and

Samy (2016) emphasised that eliminating budget constraints was a public sector motivating factor in adopting PPP in housing provision in Nigeria. Likewise in the Tanzanian context both Kavishe (2010) and (Maagi, 2010) identified similar findings.

### **6.2.3.2 Private sector factors**

Again in Table 6.20 it is noted that respondents from the private sector identified different factors from those identified by public sector. These factors; '*prime location*' and '*being an existing tenant*' were each mentioned twice by private partner respondents indicating that they were important and attracted private investors.

Other findings,

*the deal looked viable; negotiations were straight forward, the bragging behaviour from other private investors claiming to be the only ones capable to undertake joint ventures with government and desire from many other private developers wanting to redevelop the same plot.*

were mentioned only once by **Interviewee G<sub>2</sub>**. However, the factors, 'the deal looked viable' and 'straightforward negotiations' led the interviewer ask the probing question as to why the interviewee claimed negotiations were straightforward? **Interviewee G<sub>2</sub>** responded that;

*Being an existing tenant to NHC, and being able to come up with a good proposal and a financial report was enough qualifications to be awarded the project for redevelopment. There was no competition it was on first come first served basis and thus negotiations were mainly centred on improving the design since private partner funded the construction of the whole project.*

In relation to the existing studies these findings (being a previous tenant and prime location) appear to be unique to Tanzania HPPP projects but consistent with (Kavishe, 2010; Maagi, 2010). While increasing revenue is consistent with both Tanzanian (Kavishe, 2010; Maagi,

2010) and non-Tanzanian studies (Tookey *et al.*, 2011; Onyemaechi and Samy, 2016) undertaken in New Zealand and Nigeria, respectively.

#### **6.2.4 Government Support Towards Development of HPPP Projects**

Inadequate government support was identified as a challenge in HPPP projects; therefore, during the Phase 2 data collection stage, it was deemed important to undertake further research on the issue. Interview participants were asked if they received any government support towards the development of their PPP housing projects. **Interviewees I<sub>2</sub>** and **J<sub>2</sub>** were a researcher and a PPP unit coordinator, respectively: hence, the question was not applicable to them. Therefore, eight interviewees responded to this question, with all answering “yes” but arguing that the support was “*very little*”. Then a probing question was asked to enquire about the type of support they received for those who said “yes”. Table 6.21 illustrates four different supports that were provided by the government. The provision of “*tax exemption*” was mentioned eight times indicating that the majority received that support.

Other identified supports included, “*government approval to undertake partnership projects as long as there was no change in land use*”, “*provision of building permit*” and “*political support*”. These appeared to be more government approval related and besides they support previous related studies (Sengupta, 2006; Abdul-Aziz, 2012). Additionally, these findings support Giddens (1984) structuration theory on the issue of human agency defined to have the capacity to make choices and decisions.

**Table 6.21: Government support towards the development of HPPP projects**

Responses	*Interviewees <sup>2</sup>										No	%
	A <sub>2</sub>	B <sub>2</sub>	C <sub>2</sub>	D <sub>2</sub>	E <sub>2</sub>	F <sub>2</sub>	G <sub>2</sub>	H <sub>2</sub>	I <sub>2</sub>	J <sub>2</sub>		
Government approval to undertake partnership projects as long as there was no change in land use	✓	✓	✓		✓			✓	N/A	N/A	5	50
Provision of building permit	✓	✓	✓					✓			4	40
Tax exemption on imported materials to all projects worth 500,000 USD and above	✓	✓	✓	✓	✓	✓	✓	✓			8	80
Political support	✓	✓	✓		✓	✓					5	50

Notes: <sup>2</sup> Interviewees A<sub>2</sub> through to J<sub>2</sub> = Phase 2 interviewee respondents; \*for detailed information on the designation (profile of interviewees), please refer to **Table 6.19**

## **6.2.5 Benefits and Critical Success Factors (CSFs) (Part D)**

After contributing their understanding of the driving factors for adopting PPP in housing projects in Tanzania, the interview respondents were asked to identify the benefits and CSFs for these projects. This section had only three main questions as discussed in the following subsections.

### ***6.2.5.1 Benefits of employing PPP in housing projects***

Interview participants were asked: “What are the benefits of employing PPP strategies? This question was purposely repeated in Phase 2 of data collection as it has been already presented in Phase 1 results (see subsection 6.1.8). The main reason was to validate or corroborate the findings obtained from the previous methods from different respondents and at different points in time. It was noted that more similar results were obtained, for instance in the Phase 1 interview, resource sharing was mentioned the most (six times, see Table 6.12) whereas in the Phase 2 interviews, resource sharing was again mentioned the most (five times, see Appendix I).

### ***6.2.5.2 Critical success factors of PPP projects***

It was important to identify the CSFs for the HPPP projects in order to tap in the Tanzanian experience; therefore, interviewees were asked; “what were the CSFs of the HPPP projects in their organisations?” As can be seen from Table 6.22, a total of 17 factors were identified by the interviewees whereby the following; “*a dedicated team of professionals to oversee the PPP projects*” was mentioned the most (six times). The popularity of this factor reinforces the fact that adequate PPP skills and capacity (Jefferies *et al.*, 2002; Cheung *et al.*, 2012; World Bank, 2016) is essential towards the success of these projects likewise it addresses the identified challenge “inadequate PPP skills and knowledge” (see Table 6.7 and Table 7.1) as

illustrated in the proposed framework (see Figure 7.1). Additionally, this CSF strongly supports Fong and Lung (2007) who argued that, as the construction industry is project based, then each project requires different people with different professionals, experience and knowledge to work as a team to achieve project goals.

*“Government support and guarantees”* was mentioned 3 times. This finding is consistency with (Ismail, 2013; Kwofie *et al.*, 2016). Furthermore, it implies that the existence of government support motivates private partner participation as better enabling environment is initiated by the government and certain risks are minimised.

The other CSF *“official and unofficial site visits and inspection”* (also mentioned 3 times) infers strategic project monitoring aimed at achieving specified quality, cost and duration. According to the PMBOK guide, quality control in project quality management requires various tools and techniques such as inspection as suggested by the respondents. *“Trust and Integrity”*, *“carefully scrutiny of PPP project proposal”* and *“undertaking checks and balance from design stage to construction stage”* these were mentioned twice. According to Vivek and Richey (2013), trust and integrity are the basis of successful joint ventures/partnerships. Careful scrutiny of proposals falls on the planning stage of a construction project (as proposed in the framework model in Figure 7.1) and is significant towards preparation of a feasible project that can deliver value for money. Likewise undertaking checks and balance comes throughout the project life cycle and as stated above it is among the quality control tools in project management.

**Table 6.22: Critical success factors of HPPP projects**

No	Responses	Interviewees <sup>2</sup>										No
		A <sub>2</sub>	B <sub>2</sub>	C <sub>2</sub>	D <sub>2</sub>	E <sub>2</sub>	F <sub>2</sub>	G <sub>2</sub>	H <sub>2</sub>	I <sub>2</sub>	J <sub>2</sub>	
1	Undertaking checks and balance from design stage to construction stage		✓			✓						2
2	Official and unofficial site visits and Inspection	✓		✓					✓			3
3	Commitment							✓				1
4	Dedicated team of professionals to oversee the PPP projects	✓	✓	✓		✓	✓		✓			6
5	Carefully scrutiny of PPP project proposal			✓					✓			2
6	Good management				✓							1
7	Transparency at every stage							✓				1
8	Sense of ownership				✓							1
9	close monitoring and supervision				✓							1
10	An effective PPP unit										✓	1
11	Good contractors							✓				1
12	Government support and guarantees						✓	✓		✓		3
13	Trust and Integrity				✓			✓				2
14	Adequate contract documents							✓				1
15	Adequate PPP policy and legal framework									✓	✓	1
16	Adequate financial analysis to assess project viability							✓				1
17	Experienced/skilled private partner							✓				1

Notes: <sup>2</sup> Interviewees A<sub>2</sub> through to J<sub>2</sub> = Phase 2 interviewee respondents; \*for detailed information on the designation (profile of interviewees), please refer to Table 6.19

.Based on Table 6.22, the remaining 11 factors were mentioned once and the majorities such as *commitment, Good management, Transparency at every stage, Sense of ownership and close monitoring and supervision* are human related and project management related CSFs in construction projects as claimed by (Chan *et al.*, 2004; Yu *et al.*, 2006; Toor and Ogunlana, 2009). Besides commitment and transparency enhances fairness thus giving a richer demonstration of the equity theory.

### **6.2.6 Risks Associated with HPPP Projects**

This subsection answers the second part of the second objective (see Chapter 1, Section 1.3. When the interviewees were asked; “what major risks did their organisation encounter in the course of implementing HPPP project?” A total of 28 risks were identified as shown in Table 6.23. The majority of the interviewees (70%, 7) mentioned that delays had been the most prevalent risk in these projects triggered by various reasons. For example **Interviewee C<sub>2</sub>** explained that a delay caused by disputes is a major risk in these partnership projects whereas **Interviewee E<sub>2</sub>, F<sub>2</sub> and G<sub>2</sub>** described risk of delays resulting from inadequate funds. Additionally, it was noted that 60% of respondents also mentioned that “*private partner inadequate financial capacity*” and “*poor quality end product/work*” were the second and third ranked risk. **Interviewee F<sub>2</sub>** further explained that;

*Private partner inadequate finance is a serious risk in PPP project, and can easily occur if adequate financial examination is not undertaken to ascertain his capacity. For example our project has been delayed and stopped its construction process for a couple of months since April 2016 because the private partner lacks funds to continue financing the project. This has resulted into numerous problems such as theft at the project site due to workers not being paid their salary, conflicts and disputes between the contractor and workers because of failure to pay them on time and higher maintenance cost in terms of electricity and security to protect the completed*

**Table 6.23: Summary of risks associated with HPPP projects**

Responses	Interviewees <sup>2</sup>										No
	A <sub>2</sub>	B <sub>2</sub>	C <sub>2</sub>	D <sub>2</sub>	E <sub>2</sub>	F <sub>2</sub>	G <sub>2</sub>	H <sub>2</sub>	I <sub>2</sub>	J <sub>2</sub>	
Delays	✓	✓	✓		✓	✓	✓	✓			7
Private partner inadequate financial capacity	✓	✓	✓		✓	✓		✓			6
Poor quality product/work	✓	✓	✓	✓			✓	✓			6
Uncompleted projects	✓					✓			✓		2
Government interference									✓		1
Disputes and conflicts between parties		✓	✓		✓			✓	✓		5
Adverse weather conditions						✓					1
Inadequate contract			✓								1
Risk to buy the shares back in case of financial incapacity by the public sector		✓	✓		✓			✓			4
Contractor risks				✓							1
Mistrust/uncertainty				✓					✓	✓	3
Theft and vandalism				✓		✓					2
Variation				✓							1
Management risks, because the first batch of all partnership projects were managed by private partners					✓						1
Inexperienced private partners					✓						1
Loss of revenue due to delays					✓						1
Public partner putting itself into competition with the private developers		✓			✓						2
High rent charged by private partners					✓						1
Unfair contract since land did not have monetary value					✓						1
Political changes/change in government leadership						✓					1
Cost overruns										✓	1
Currency fluctuation						✓				✓	2
Market risk						✓	✓			✓	3
High financing cost							✓			✓	2
Land ownership risks				✓							1
Inadequate feasibility study						✓					1
Poor surrounding infrastructure						✓					1
Higher maintenance cost						✓					1

Notes: <sup>2</sup>Interviewees A<sub>2</sub> through to J<sub>2</sub> = Phase 2 interviewee respondents; \*For detailed information on the designation (profile of interviewees), please refer to Table 6.19

According to Kikwasi (2013) study on delays and disruptions in Tanzanian projects, 78%, 70% and 56% for clients, consultants and contractors respectively claimed to have faced projects delayed. These findings are consistency and signify that delay is a prevailing challenge in the Tanzania construction industry.

Based on Table 6.23 the second mentioned risk '*private partner inadequate financial capacity*' and '*poor quality end product*' both were mentioned 6 times each signifying their prevalence. 'Disputes and conflicts between parties' (5 times) and 'risk to buy the shares back in case of financial incapacity by the public sector' (4 times). The majorities of the identified risks were more or less similar to the literature findings as listed on Table 3.3. During the literature review, it was observed that risk is among the subjects in PPP studies which have largely been researched as evidenced on Table 3.3. However, it was discovered that barely any research has been conducted that focuses on risk in PPP projects within the sub-Saharan Africa. This result agrees with (Chileshe and Kikwasi, 2014b). Therefore the identification of risk in this study shed light to preconceived knowledge in PPP, besides it increases awareness of the risks that can erode or lessen potential benefits of PPPs in the housing sector.

### **6.3 Risk Management Strategies in HPPP Projects**

Subsequent to identifying the associated risks in HPPP projects (see Table 6.23) it was deemed important to understand the existing risk management strategies adopted in HPPP projects considering the huge failures experienced along the way. Interviewees were asked how they managed these risks in order to achieve project goals. Table 6.24 shows the risk management strategies as identified by the interviewee respondents.

**Table 6.24: Summary of risk management strategies in HPPP projects**

Responses	Interviewees <sup>2</sup>										No	
	A <sub>2</sub>	B <sub>2</sub>	C <sub>2</sub>	D <sub>2</sub>	E <sub>2</sub>	F <sub>2</sub>	G <sub>2</sub>	H <sub>2</sub>	I <sub>2</sub>	J <sub>2</sub>		
Undertaking quality control and assurances of the materials				✓								1
Private partners required to submit proof of their financial capacity	✓		✓									2
Submit a collateral support in terms of money in an Escrow account.	✓				✓							2
Team of professionals to manage and monitor the projects from both parties	✓	✓			✓							3
Readjustment of the payback period		✓										1
Careful risk identification and analysis		✓										1
Contract revision					✓							1
Carefully examination of the project proposals			✓					✓	✓	✓		4
A thorough financial assessment to proof partners financial capacity.			✓				✓	✓	✓	✓		5
On site supervision throughout the construction period				✓								1
Any variation or alteration had to be brought to clients attention for approval				✓								1
No payment was made until quality check was done on weekly basis				✓								1
Amendments were made to the joint venture Policy					✓							1
Introducing new investment policy which allows NHC to inject capital					✓							1
Adequate supervision and report writing on daily basis							✓					1

**Notes:** <sup>2</sup> Interviewees A<sub>2</sub> through to J<sub>2</sub> = Phase 2 interviewee respondents; \*for detailed information on the designation (profile of interviewees), please refer to Table 6.19

It was observed that the majorities of the identified strategies (see Table 6.24) complements the identified risks shown in Table 6.23. For instance 50% of the respondents identified “*thorough financial assessment to proof partners’ financial capacity*” which appeared to be the most important strategy aiming to address the risk of partners’ inadequate financial capacity which too was identified by 60% of respondents (see Table 6.23). Furthermore, the revealed strategies appeared to be more project management related hence indicating the need for adequate project management skills. Moreover the identified strategies highly support and compliment the identified CSF and further agree with the existing literature (Abdul-Aziz and Kassim, 2011; Moskalyk, 2011; Abdul-Aziz, 2012; Babatunde *et al.*, 2012; Dairu and Muhammad, 2015; Kwofie *et al.*, 2016).

#### **6.4 HPPP Project Operation**

The last section of the questionnaire asked the interviewees how the housing PPP projects were being operated after the construction is completed. Considering the fact that only two public sector organisations (the NHC and NSSF) were involved in this study, only one major operation strategy (from NHC) emerged because NSSF was undertaking its first HPPP project which had been delayed and had not yet reached the operation stage. Despite drawing experience from only one organisation, these findings are still reliable as it was identified in Table 4.6 that NHC owned 105 PPP projects and so, overall, provides a wider experience.

In this case the majority of the interviewees (n=6, 60%) who had undertaken PPP project with the NHC responded to this question. It was made clear by the interviewees that partners fully finance the projects to completion. The NHC’s contribution is limited to the project land which accounts for 25% of the project shares. Therefore in most projects NHC had a share of 25% while the partner had a share of 75%. This 25:75 ratio applied to the majority of the

projects regardless of the magnitude and locality of the project up until the 1998 JV policy amendments were made. The NHC board of directors made modifications on the shareholding and stipulated that in all partnership projects NHC was to hold 50% shares of the total project (NHC, 2006). But in projects requiring big cash outlays, since NHC could not afford to contribute to the project, the new NHC (2006) joint venture policy provided for NHC to start with minority shares of not less than 25% in the completed building but had the right to acquire another 25% through purchase to reach 50%. Therefore, in major urban centres (Dar es Salaam, Arusha and Mwanza), private partner(s) will hold these shares in surrogacy for duration of 12 years after project completion.

**Interviewee A<sub>2</sub>** further added that *“In the context of Build Operate Transfer (Kwofie et al.) model projects, after the expiry of the 12 years the other 25% share reverts freely to the NHC.*

Notably (NHC, 2006) joint venture policy, in the shareholding arrangement clause took cognisance of the fact that 12 years is a sufficient period for the investor to recover his capital.

But for minor urban centers with slow rate of return on property investment the NHC Director General is mandated to negotiate for longer periods but should not exceed 15 years.

In the actual operation, it was identified by both **Interviewees A<sub>2</sub>** and **D<sub>2</sub>** that either of the following methods could be used to operate and manage the completed building depending on the type of partnership agreed and shareholding among the parties:

- *There is a possibility of the private partner operating the property and pay NHC rent or each operating its own allotted space within the property mainly on the completed floors or apartment basis.*
- *It is possible to engage an independent property management agent or*
- *Form joint venture companies for the purpose of operating and managing the completed properties.*

On the other hand, **Interviewees A<sub>2</sub>, B<sub>2</sub>, C<sub>2</sub>, E<sub>2</sub> G<sub>2</sub> and H<sub>2</sub>** explained that the “[m]ajorit[y] of the properties are operated by private partners on behalf of NHC. This has been considered easier, reliable and convenient to the NHC. However, some projects are being operated by NHC themselves depending on the initial agreement”.

Finally, on the financial incomes obtained, **Interviewee E<sub>2</sub>** disclosed that; “[u]pon successful completion of the project, the property is rented and the proceeds are shared among partners proportionally based on the number of shares held.

## **6.5 Chapter Summary**

This chapter has presented the empirical findings of the questionnaire survey and interviews undertaken. However, a low response rate (28 out of 38 in questionnaire survey and 23 semi-structured interviews) were achieved. This was due to the relative infancy of PPP approach in Tanzania. Nonetheless, data were obtained from appropriate respondents having acceptable education level, (i.e. at least a Bachelor degree), PPP experience and awareness to provide reliable and valid information on the research questions.

Based on the presented findings it was first identified that there is poor growth of affordable houses and less adoption of PPPs in Tanzania. More results demonstrated that most developing countries such as Tanzania experience numerous risks and challenges that derail the delivery of the HPPP. Inadequate PPP skills and knowledge leading to poor planning and application was ranked first and appeared as the root cause of all other challenges. Additionally it was noted that in Tanzania, practitioners are aware of the importance of considering sustainability aspects in HPPP projects. Notably, the findings revealed that HPPP practitioners perceived benefits of adopting PPPs to be of medium level. This informed that there is a great need of developing communicating strategy to demonstrate benefits achieved from implementing PPPs in order to encourage more HPPP projects.

Moreover, it was also observed that the readiness prior to adopting PPP in housing projects in terms of preparation was not fully achieved hence the reason for the excessive failure experienced in these projects. Despite the shortcomings the respondents showed some awareness on the CSF of PPP projects however knowing them is as important as knowing how to implement them. Therefore, these findings necessitated the need for developing a HPPP framework model (see Chapter 7, Figure 7.1) to guide the implementation of PPPs and improve the delivery of housing projects through addressing the identified challenges.

## CHAPTER 7

### CONCEPTUAL MODEL DEVELOPMENT AND VALIDATION

#### 7.1 Introduction

This chapter addresses the final objective of this study by presenting development and the validation of the proposed PPP Housing conceptual model. Tools adopted in the development process are described. Moreover, the need for developing the framework/conceptual model is presented through the triangulation of both literature and empirical findings (through both questionnaires and semi-structured interviews). Finally, the validation process and results are also presented herein.

#### 7.2 Key Findings Necessitating Development of Proposed Conceptual Model

From both the existing literature and empirical findings the study demonstrates that HPPP is still in its infant stage in developing countries such as Tanzania (Babatunde *et al.*, 2013; Mboya, 2013; Kwofie *et al.*, 2016) hence the reason for its challenges and major failures. However, it is noted that there is an increasing trend of HPPP projects in developing countries (Abdul-Aziz and Kassim, 2011; Kwofie *et al.*, 2016) also evidenced in Table 6.1 and 6.2.

Moreover, based on Table 6.4 and 6.5 the study revealed that majority of the respondents (HPPP actors) did not have enough PPP skills and knowledge obtained through formal training. The implication of this finding reveals the problems facing developing countries with regard to the training of its professionals as claimed by Osabutey *et al.* (2012).

Furthermore, the study findings revealed that '*inadequate PPP skills and capacity*' was identified and ranked as the highest challenge in delivering HPPP projects (see Table 6.7 and 6.8). This challenge appears as the basis of the majority of the other challenges identified in

this study. Similarly, the study also identified and ranked challenges affecting the employment of PPPs in affordable housing projects as evidenced in Table 6.16. Again *'Inadequate PPP skills and knowledge leading to poor planning skills and analytical capacity'* was ranked the highest. Equally, in the previous studies as evidenced in Chapter 4, Table 4.4 inadequate PPP skills and knowledge had the highest count in comparison to other challenges. These three sets of similar results demonstrate broad consistency; also they indicate the significance of the challenge.

On the other hand, the present study demonstrated that housing and construction practitioners in developing countries like Tanzania perceived the recommended PPP benefits to be of medium levels as shown in Table 6.13. This indicates that there is a greater need for the PPP units to create more awareness on the PPP benefits in order to encourage both private and public sectors to collaborate. Likewise, the present study has drawn lessons from the identified cost and affordability, sustainability factors to inform future implementation of PPP practice and policies.

The findings in the current section above necessitated the need to address the challenges and improve the implementation of HPPPs through the development of a tool (a HPPP conceptual model) to guide and enhance HPPP project delivery.

### **7.3 Model Development Approach**

The model development approach followed three stages: (1) Critical literature review; (2) Questionnaire survey; and (3) Interview survey:

- A critical review and analysis of literature was undertaken on the attribute of PPP housing projects by drawing experiences from across countries in order to identify best practices and success factors (see Chapters 3 and 4).

- Questionnaire and Interview surveys were carried out in order to study the local context in terms of the practice, challenges and perceptions (see Chapter 6)

In order to incorporate the lessons learnt into the proposed conceptual model, further review of literature was considered necessary. From the literature, success factors, drivers for adopting PPP, challenges and risks in PPPs and HPPP projects were identified (see Chapters 3 and 4). Drawing upon the approach undertaken in Chileshe *et al.* (2013) who proposed diagnostic models for strategic risk assessment, (see Archer (2003, cited in Chileshe *et al.* 2013), the agents (public and private stakeholders) have the ability of incorporating the lessons learnt due to their prior understanding of historical issues. The main purpose of the conceptual model was to address and enhance the HPPP challenges in developing countries. 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 as shown in Table 3.4, different countries adopted different success factors in PPP housing projects, as well as other PPP projects. From the list it is quite evident that some success criteria are similar and cut across all the sectors in the construction industry. In the present study 16 principles (see Chapter 3, Table 3.5) and success factors (Table 3.4) were identified as the appropriate mitigation strategies or responses in solving the challenges faced in PPP housing projects in developing countries. Furthermore, these principles and success factors were regarded as the basis for the development of the HPPP conceptual model. The proposed conceptual model was designed to facilitate the attainment of these features in the HPPP projects for developing countries in consideration to the identified challenges. To illustrate this Tanzania has been used as the test bed country (see Chapter 5 for further discussion). The researcher 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.

## **7.4 Proposed Conceptual Model**

In developing the PPP housing conceptual model, the adopted approach was based on the construction project life cycle approach. This involved designing systematically and customising the construction project phases to address the vital stages that need careful attention throughout the life cycle of the project with respect to challenges identified (see Table 6.7). The key features of the model developed in the research presented herein, is to address major constraints thwarting the delivery of adequate housing in developing countries such as Tanzania. In contrast to other developed PPP frameworks (see Chapter 4, Table 4.5) the proposed model consists of five major phases originating from a standard construction project life cycle (planning, preparation, procurement, implementation and operation) featuring five key aspects: skills, planning, procurement, monitoring and controlling. Through a critical analysis of the identified challenges (see Table 6.7), inadequacy of these features/aspects was considered as the main cause of the challenges. Hence, unlike other models the proposed conceptual model aims at providing systematic guidance while addressing the challenges to enhance the delivery of PPP housing projects. The proposed conceptual model is shown in Figure 7.1.

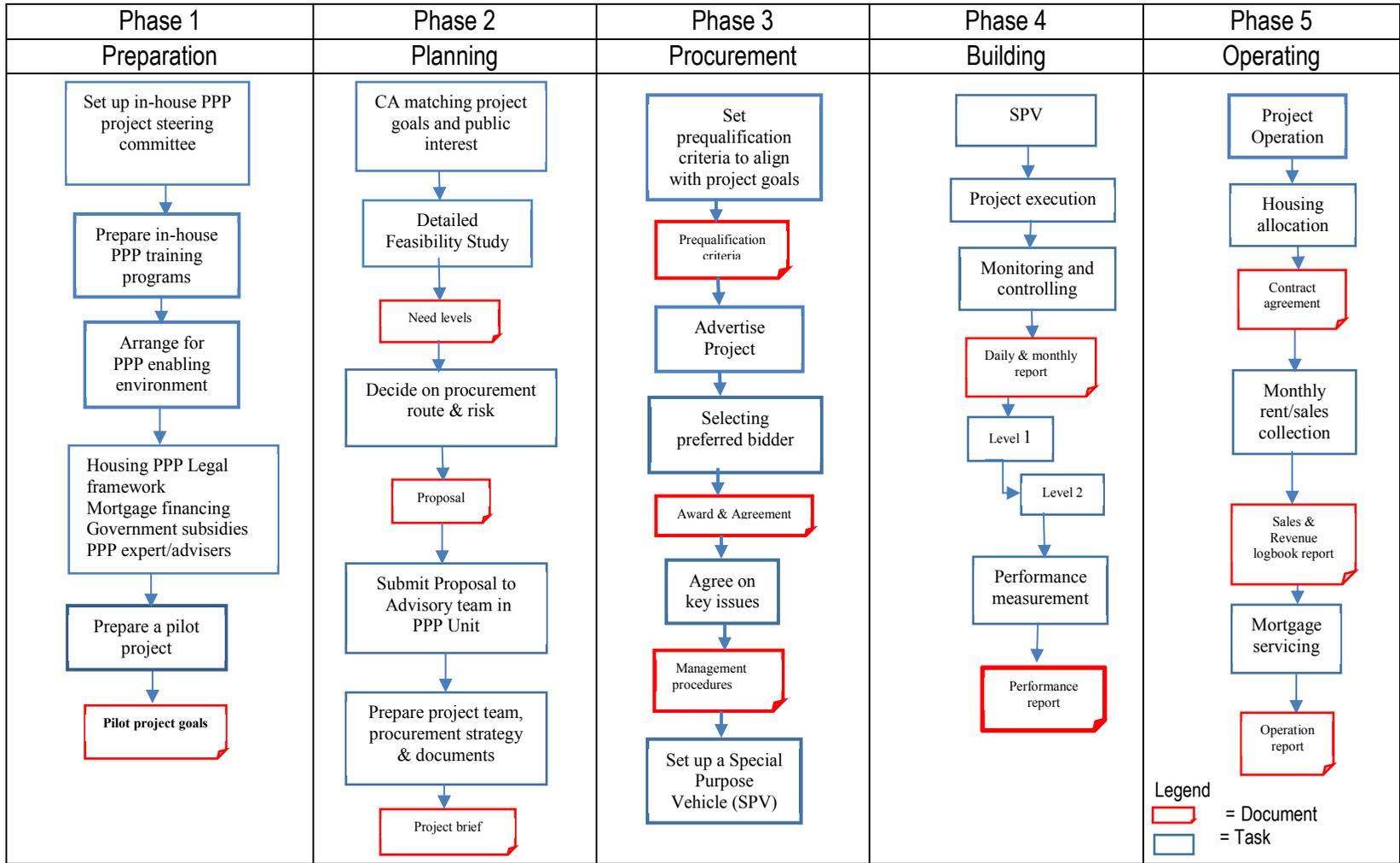
### **7.4.1 Explanation of Phases of the Model**

#### ***7.4.1.1 Phase 1: Preparation***

In ***Phase 1***, ‘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 crucial in the attainment of procedural justice as identified by Zhang and Jia (2010). Because in developing countries PPPs are still immature, particularly in the areas of skills and experience, this challenge is ranked as the highest, (see Chapter 6, Table 6.7) and also highlighted as one of the major challenges from the reviewed studies in Chapter 4, Table 4.4. To overcome this challenge, it is important to provide training to public officials as well as other PPP actors’.

However, PPP training should be preceded by assessing levels of PPP knowledge-base and skills in order to recognise their level of awareness and tailor-make the course as appropriate. Nonetheless, 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 also by (Morledge and Owen, 1998) and (Mitchell, 2007). Therefore, during this stage emphasis is on the need to equip various professionals both from the public and private sectors with adequate skills so that they gain knowledge and capacity 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.



**Figure 7.1: Proposed PPP conceptual model for housing projects**

The ultimate goal of the pilot study is to assess the capacity and understanding of the trained personnel. Hence, the pilot project assessment should be accredited by the team of PPP experts who offered the training. The control method for this phase is the PPP training programme. This control method will ensure that only personnel with the necessary skills sets will administer such projects.

#### ***7.4.1.2 Phase 2: Planning***

In **Phase 2**, ‘Planning’, the client/public sector needs to carry out a detailed feasibility study in order to determine the real needs of the public/people not considering the political needs as the public needs because the two may utterly differ. This implies that end-users are involved to obtain their actual needs. 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 (2014a), cases had occurred in Thailand where the private sector had convinced the public sector that a project was viable and that demand for it was high when this was not the case. Realistic reports of demand enhance the assessment of PPP projects enabling genuine and correct decisions to be made. The following challenges including; “Inadequate PPP skills and knowledge”, “Poor PPP contract and tender documents”, “Inadequate project management and monitoring by public sector” and “Feasibility study”, ranked 1st, 2nd, 3rd and 9<sup>th</sup>, respectively (see Chapter 6, Table 6.7), and are addressed in this planning phase. The reason is that they are oriented towards project management and procurement as evidenced by the project management body of knowledge (PMBOK) areas (Project Management Institute, 2008). For example, planning is a critical element in project management as 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 proposed PPP project to go through screening and checks to further ascertain its viability, affordability, value for money and appropriate risk transfer. Thus, the proposal is submitted to the national PPP Unit, an independent body comprising 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 the procurement stage.

#### ***7.4.1.3 Phase 3: Procurement***

**Phase 3**, ‘Procurement’, is the phase in which 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, advertising of the project and submission of bids by prequalified bidders would occur. A two-stage bidding process is suggested here in order to secure a strong and sound winning bidder. In stage one the prequalified bidders are shortlisted, followed by a preferred bidder being selected in stage two. Since “corruption” is ranked as the 8<sup>th</sup> challenge (see Chapter 6, Table 6.7) affecting the delivery of HPPP projects, therefore in this stage negotiations are discouraged because they sometimes lead to corruption, or unnecessary alterations. Instead, adequate planning and preparation is emphasised as it minimises the need for negotiations. However, parties still have to agree early on a number of issues on management procedures as challenges ranked 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> 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 with two stage bidding process and transparency are the control methods for this phase; hence, unsuccessful bidders should be informed why the

preferred bidder was chosen in preference. As asserted by Zhang and Jia (2010), effective cooperation among the parties could be achieved through exercising procedural control.

#### ***7.4.1.4 Phase 4: Building***

**Phase 4**, ‘Building’ is the phase in which the special purpose vehicle (SPV), a managing and operating body/company for PPP projects (Chowdhury *et al.*, 2012), 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 the first tier and ministry/PPP unit as the second tier to address the third ranked challenge (inadequate project management and monitoring by public sector). To assist with the compilation of monthly reports, 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, output specifications can be used to measure project performance.

#### ***7.4.1.5 Phase 5: Operating***

**Phase 5**, ‘Operating’ involves the allocation of 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 and Thailand studies (Abdul-Aziz and Kassim, 2011; Ismail and Haris, 2014; Trangkanont and Charoenngam, 2014a, 2014b) both required an honest, fair and transparent allocation system to ensure that the houses reached the intended group. Thus, to cater for a

specific segment of the population it is significant to establish smooth and fair mechanisms such as a database of qualified house buyers beforehand. Furthermore, for transparency and trust building between the partners, 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 joint account with the inclusion of a specific clause in the contract that will compel the private partner submit monthly financial reports.

## **7.5 Model Verification**

According to (Preece, 2001) verification simply means “building the system right” while validation is “building the right system”. The significance of the verification procedure is to check if the conceptual model was built right (Adrion et al., 1982; Preece, 2001). Besides, the verification process also checks that there are no errors in the logic (Uslu et al., 2013); based on the nature of the developed conceptual model. Therefore, in this study after developing the proposed conceptual model, a mapping exercise was done as a verification process to check if the model was designed right.

### **7.5.1 Mapping PPP Challenges with Advocated Remedial Solutions to Conceptual Model**

This section illustrates how the framework, as presented in Figure 7.1, maps the identified challenges 1 through to 19 (see Chapter 4, Table 4.4, and Chapter 6, Table 6.7) with the advocated remedial solutions. These challenges and solutions were further mapped to the appropriate phases of the conceptual model. Table 7.1 presents the summary of this mapping exercise. An examination of Table 7.1 shows that the majority (6.5, 34%) of these challenges were more prevalent in the procurement phase followed by the preparation phase with six (32%) and, in third place, the planning phase with four (21%).

**Table 7.1: Mapping the PPP challenges with advocated remedial solutions to the conceptual model**

No	Challenges	Advocated remedial solutions	Supporting Literature	Model strategy	Phase <sup>1</sup>
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)*, <b>World Bank (2016)**</b>	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)**, <b>World Bank (2016)**</b>	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), <b>World Bank (2016)**</b>	'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)*, <b>World Bank (2016)**</b> , <b>URT (2009)**</b>	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

**Table 7.1 Cont: Mapping the PPP challenges with advocated remedial solutions to the conceptual model**

No	Challenges	Advocated remedial solutions	Supporting literature	Model strategy	Phase <sup>1</sup>
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)**; <b>World Bank (2016)**</b>	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); <b>World Bank (2016)**</b> , <b>URT (2009)**</b>	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)*, <b>URT (2009)**</b>	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), <b>World Bank (2016)**</b> , <b>URT (2009)**</b>	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), <b>URT (2009)**</b>	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)**; <b>World Bank (2016)**</b> , <b>URT (2009)**</b>	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)*, <b>World Bank (2016)**</b> , <b>URT (2009)**</b>	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 <sup>1</sup> Where the phase relates to the states as shown in Figure 2 and P1 = Preparation; P 2 = Planning; P3 = Procurement; P4 = Building; and P5 = Operating

Interestingly, the final phase, the operating phase, had no challenges assigned to it. Furthermore, the mapping exercise clearly portrayed and verified that relevant solutions were supported by related studies. The implication of this ‘mapping exercise’ highlights that the conceptual model was built right. In addition, it exhibits the need of the 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 developing countries such as Tanzania are clearly delineated, but implementation is less than perfect”.

## **7.6 Validation of Conceptual Model**

This section presents the findings of the validation process. This is a final stage and a significant process intended to address the last part of the final objective by confirming the quality and validity of the proposed conceptual model. Thus the main purpose of the validation process in this study is to determine the correctness and assess the quality of the proposed conceptual model (O’Keefe and O’Leary, 1993). Similarly, Preece (2001) claims that validation is the process of checking whether the developed framework/conceptual model meets the actual requirement of the users. The designing of the validating tool and sampling process is presented in Chapter 5, subsections 5.5.4.1 and 5.5.4.2

### **7.6.1 Survey Respondents**

A total of 48 potential experts from various countries including Tanzania, who met the specified criterion see Chapter 5, subsection 5.5.4.2 were identified. Invitation emails enquiring whether they were available and willing to complete an email-based questionnaire survey to validate the proposed HPPP conceptual model were sent to them. The email explained the purpose and requirements of the research, moreover a consent form was

attached for the respondents who are willing to participate to sign and return via email before receiving the questionnaires.

Subsequently, 16 PPP experts signed the consent forms, expressing willingness and availability to participate in the study. This sample size is clarified by these two reasons:

- Some email addresses obtained were outdated; thus, some invitation emails were not delivered and
- Some respondents were not willing to participate due to their busy schedules/commitments to other duties, and/or limited HPPP experience.

Validating questionnaires and the proposed conceptual model were administered between May and June 2017 to the willing respondents. Despite the number of reminders sent only 12 responses were received. According to (Ameyaw and Chan, 2015; Osei-Kyei and Chan, 2017) surveys conducted through 'email' usually results in low response rates in comparison to face by face or hand delivery. Their demographic information is as shown in Table 7.2 below.

#### **7.6.2 Respondents' Demographic Information**

Examination of Table 7.2 illustrates that the majority of the respondents 83% (10 of 12) had prior experience with HPPP projects' and 75% (9 of 12) had 'formal education on PPP'. These findings demonstrate that the respondents had the necessary knowledge acquired through formal education and experience, hence satisfied and met the first, second and fourth criteria as set by the researcher and supported by (Cheung, 2009).

**Table 7.2: Profile of questionnaire study sample for validation process**

No	Country	Current position	Sector	Experience (years)	Education level	Professional background	Formal education on PPP	Experience with HPPP projects	Type of PPP Projects involved last 5yrs
1*	Nigeria	Financer	Private	11-15	PhD	Economist	Yes	Yes	Housing
2*	Nigeria	Consultant researcher	& Public	5-10	PhD	Quantity surveyor	Yes	Yes	Housing
3	UK	PPP advisor	Public & Private	>15	MSc.	Strategy Expert	Yes	Yes	Transport & school
4	Hong Kong	Researcher	University	5-10	MSc.	Quantity surveyor	No	No	Transport & housing
5*	Ghana	Researcher	University	< 5	PhD	Architect	Yes	Yes	Housing
6*	Nigeria	Consultant researcher	& Public & Private	5-10	PhD	Quantity surveyor	Yes	Yes	Transport, housing, shopping complex
7*	South Africa	Consultant researcher	& University	>15	PhD	Quantity surveyor	Yes	No	Hospital, transport & school
8*	Tanzania	Project Manager	Public & Private	< 5	MSc.	Engineer	Yes	Yes	Housing
9*	Tanzania	Public Partner	Public	5-10	BSc	Quantity surveyor	No	Yes	Housing
10*	Tanzania	Researcher/PPP Advisor/consultant	Public	>15	MSc.	Quantity surveyor	Yes	Yes	Transport & housing
11*	Tanzania	Public Partner		>15	MSc.	Architect	No	Yes	Housing
12*	Tanzania	Consultant	Public	>15	MSc.	Economist	Yes	Yes	Housing

**Note:** \* Denotes respondents from developing countries

Similarly, all the respondents proved to have a minimum of Bachelor degree level of education with half (50%, 6 of 12) having Master's degree qualifications whereas 42% (5 of 12) had PhD qualifications. Most importantly Table 7.2 demonstrate that respondents possessed rich experience in PPP research and/or industry, as only 2 respondent had less than 5 years of experience. Furthermore, it was noted that respondents were obtained from 5 different countries besides Tanzania. The significance of their countries (Nigeria, U.K, Hong Kong, South Africa and Ghana) is based on the level of maturity of PPP projects undertaken in those Countries. For instance, globally the UK is considered as the pioneer and the leading in PPPs (Biginas and Sindakis, 2015; Lop *et al.*, 2016; Sadeghi *et al.*, 2016). Likewise according to (Osei-Kyei and Chan, 2017) Hong Kong, is evidenced to have a wider PPP experience since it has practiced the PPP concept for over two decades. Likewise, in the African context, despite Nigeria and Ghana still being in their development stage in PPPs the two economies are among the top five in adopting and widely researching on PPP and are being led by South Africa in the region (World Bank, 2016). Therefore, the above respondents' profile made their responses adequate, valid and reliable.

### **7.6.3 Validation**

#### ***7.6.3.1 Rating of proposed solution measures***

Table 7.3 illustrates the results obtained from the validation questionnaire survey. The respondents were asked to rate the proposed measures on each phase of the conceptual model using the five-point Likert scale as explained previously (see Chapter 5). Moreover, a blank space was also provided beneath each question to allow the respondents to provide the rationale for their responses. For instance, if the response is negative, it was considered worthy receiving further details that will assist improving the conceptual model. The mean scores as illustrated in Tables 7.3 through 7.5 were computed manually due to the small

sample size. For example, the mean score was derived by summing up the scoring as assigned by the respondents and dividing by 7 (the total number of respondents). Respondents were asked to answer the questions using the five-point Likert scale. Drawing upon Cheung (2009) who adopted a similar scale, set a score above “3” would signify satisfactory solution towards an identified challenge. Examination of Table 7.3 shows that 100% of the proposed measures within the conceptual model were rated above 3 the highest rated measure “Detailed feasibility study”, originated from Phase 2 (‘Planning’) with a mean score of 4.4. The second rated measures “Prequalification criteria prepared to align with the project goals”, “competitive tendering and transparency” and “Establishing a database” each with a mean score of 4.2 originated from Phases 3 and 5. “Two tiers monitoring mechanisms” and “Establishing a joint account” were the second and first least rated measure with mean scores of 4.0 and 3.2. All criteria were considered satisfactory as they achieved a mean above 3 (test value) suggested in this study.

**Table 7.3: Results of validation of questionnaire survey**

Phase	Validation criteria	Respondents												Mean
		1	2	3	4	5	6	7	8	9	10	11	12	
1-Preparation	In-house steering committee	4	5	1	4	5	5	5	5	4	4	4	5	4.3
2- Planning	Detailed feasibility study	4	5	2	5	5	5	5	5	5	5	5	5	4.7
3-Procurement	Prequalification criteria prepared to align with the project goals	5	5	1	4	5	5	5	5	4	5	4	4	4.3
3- Procurement	Competitive tendering and transparency	5	5	2	4	5	4	5	5	5	5	4	5	4.5
4- Building	Two-tier monitoring mechanisms	4	5	2	5	5	4	3	4	2	5	4	3	3.8
5- Operation	Establishing a database	4	5	1	5	5	5	5	4	4	5	4	4	4.3
5- Operation	Establishing a joint account	4	4	3	2	2	3	5	4	5	5	4	3	3.7

### 7.6.3.2 Overall applicability of proposed conceptual model

Section D of the questionnaire contained general validation questions which enquired on the overall applicability of the conceptual model and suggestions for improvement. Table 7.4 shows the overall rating of the applicability of the framework. Three different questions were designed evaluating applicability, effectiveness and adaptability. From the analysis, Table 7.4 illustrate that applicability, effectiveness and adaptability of the conceptual model was rated at 3.9, 3.8 and 3.3 respectively which is higher than the satisfactory score of 3 discussed above.

**Table 7.4: Results of overall applicability of conceptual model**

Validation criteria	Respondents												Mean
	1	2	3	4	5	6	7	8	9	10	11	12	
Applicability	4	4	2	4	4	5	4	4	4	5	4	3	3.9
Effectiveness	4	4	2	3	4	4	4	4	3	5	4	4	3.8
Adaptability	4	4	1	3	2	3	5	4	2	5	4	3	3.3

### 7.6.3.3 Recommendations

Table 7.5 presents the summary of the recommendations obtained from questionnaire survey.

In this section respondents were asked three questions:

- 1) To briefly explain any deficiency observed in the conceptual model
- 2) To briefly explain the major benefits of the conceptual model
- 3) To suggest how to improve the conceptual model.

Examination of Table 7.5 illustrates that only four respondents (Respondents 1, 7, 8 and 10) highlighted deficiencies/commented on the proposed conceptual model. Respondent 1 commented that the conceptual model should have identified financial options for affordable housing through PPP as it is targeting developing countries. This comment was valid; however, it was beyond the study's scope and thus is considered as an area for future study.

**Table 7.5: Summary of recommendations for proposed conceptual model**

No	Deficiency observed	Major benefits of the conceptual model	Suggestion to improve the proposed model
1	(a) It may need to identify financial options that will enable developing countries achieve affordable housing through PPP since majority of its citizens are low-income earners.	The model has strong control mechanism and promotes transparent at both the selection and operation stages. This will ensure most suitable partner emerges and outcome for PPP in housing	(a) The model may recommend e-tendering in HPPP selection process so as to eliminate corruption, improve transparency and save time
2	NONE The conceptual model looks fantastic – very thorough and rigorous	This is a thorough conceptual model for delivering HPPP projects. It can be used in different PPP building projects because it covers all activities in all phases. Therefore, it provides a useful guide for the successful HPPPs	The conceptual model is very fantastic. I cannot fault it.
3	NIL	NIL	NIL
4	NIL	It will help to some extent on the practice of housing PPPs	(a)How can external stakeholders like commuters and land owners be managed within the conceptual model, I think there should be some practices for that. (b)Also try to include best practices which are very unique and specific to developing countries if the conceptual model is for developing countries
5	NIL	Attempts to integrate the PPP housing process	Clarity be given to Risk Sharing and turn over/payback period
6	I think it is ok	It will enhance the performance of PPP projects and improves its adoption in developing countries	NIL
7	(a) Training should be preceded by assessment of levels of PPP knowledge-base & skills & not just training – this is not raised; (b) Output specifications should be used and avoid intermediate controls.	The fact that the process allows the contractor(s) to be involved early in the housing project will remove the issues of ‘fragmentation’ in procurement which for some time have caused so many challenges in housing projects	A two stage bidding process can have a strong & sound winning bidder.

**Table 7.5: Summary of recommendations for proposed conceptual model Cont.**

<b>No</b>	<b>Deficiency observed</b>	<b>Major benefits of the conceptual model</b>	<b>Suggestion to improve the proposed model</b>
8	Minor flaws on technical terms used in Phase 4. Instead of using the word Construction, the author used building	If properly followed, main goal will be achieved	NIL
9	NIL	It can work in developing urban cities	The conceptual model should suggest what type of projects are best suited under the PPP
10	Revise Phase 4 to read 'Implementation' stage instead of 'Building' stage	Easy to implement and follow Reduces various risks and costs Easy to assign roles and responsibilities	NIL
11	NIL	Easy to follow and it is clear	NIL
12	NIL	Easy to follow and it has considered all checks and balances	It should be put into operation to further enhance it

Respondents 7, 8 and 10's comments were taken into consideration and improvements were made as evidenced in Section 7.7 below.

### **7.7 Improved and Validated Conceptual Model**

Based on the validation results and recommendations made by the team of selected PPP experts, some of their concerns have been considered and incorporated within the conceptual model to further improve it. For example, phase 1 of the original model, (Figure 7.1) had 5 tasks but after the validation process respondent 7 recommended that Training should be preceded by "assessment of levels of PPP knowledge and skills". This was indeed a very good and valid recommendation as it provides the chance to determine the stakeholders' capacity needs before training them. Furthermore, respondent 7 also recommended having, a two-stage bidding process in Phase 3 in order to obtain a strong and sound winning bidder.

This recommendation is similar to Zhang and Kumaraswamy (2001) who claimed that a two stage tendering process is useful for better tender selection in PPP projects. Likewise same respondent added that in phase 4, “Output specifications should be used instead of intermediate controls” in PPP projects. Support of this recommendation can be found in Javed *et al.* (2013b), study which has depicted that, for PPP projects a good set of output specifications is conducive to the achievement of value for money, innovation, risk transfer and whole life asset performance

Finally, respondents 8 and 10 raised similar concern (see Table 7.5). Both suggested renaming phase 4 with an appropriate technical term. Based on the recommendation given, phase 4 has been renamed as ‘Implementation’ stage instead of ‘Building’ stage (see Figure 7.2).

However, concerns raised by respondents 1 and 4 (see Table 7.5) were carefully thought through but not incorporated as they required more resources to be accomplished and were beyond the scope of this study, hence, highlighting areas for future studies. The suggestion made by respondent 5 was sensible; however, through the literature review it was noted that a number of studies and a framework for managing risks in HPPP projects in developing countries (Trangkanont and Charoenngam, 2014b) already existed.

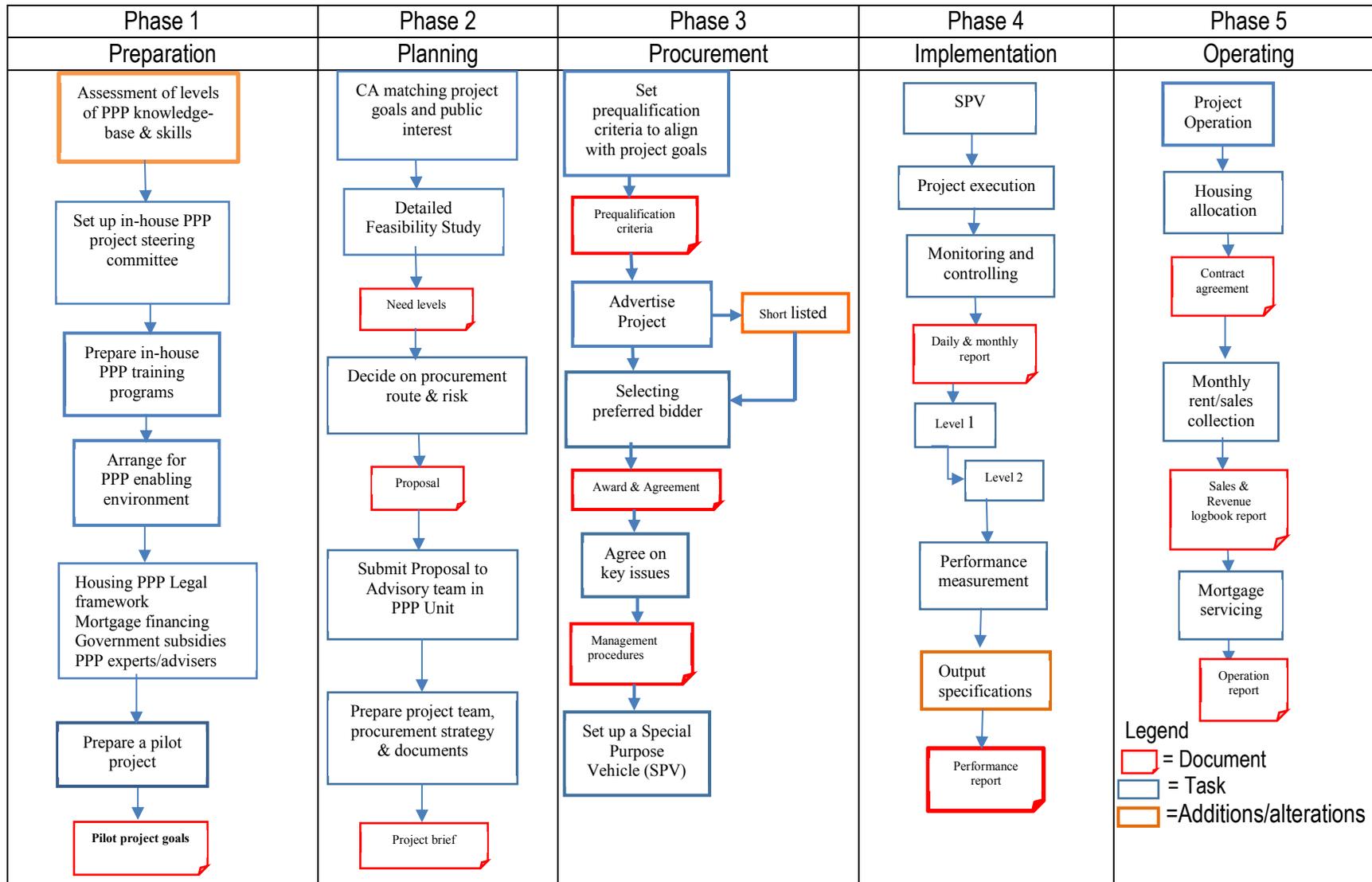


Figure 7.2: Validated PPP conceptual model for housing projects

## **7.8 Comparison of New Proposed Framework/Conceptual Model to Existing Frameworks**

The need and the benefits of the proposed conceptual model are generally twofold: (1) to address the identified HPPP challenges and (2) to guide and improve the implementation of HPPP projects in developing countries.

Based on a multi-stage critical review and analysis of existing studies, there was no a similar HPPP conceptual model with the above purposes in the past studies. However, through literature review the study identified six existing PPP conceptual model which were developed for the developing countries (see Table 4.5). Notably, from the identified frameworks only one was specifically for HPPP projects and none was for addressing the challenges. This clearly indicates the existing gap and the significance of this study.

Moreover, the new proposed conceptual model in this study is distinct to the existing conceptual model in the following ways:

- It is grounded on the construction project life cycle.
- In terms of its purpose (addressing the HPPP challenges) by mapping out the most critical challenges within the respective phases of the project life cycle. Also as a guiding tool through the alignment of the proposed remedial solutions/success criteria across the five phases as shown in Table 7.1.
- Its key features (skills, planning, procurement, monitoring and controlling) are incorporated into the conceptual model. None of the frameworks had exact similar features however some were common.

- Its unique control methods integrated within each phase (see Chapter 7, subsections 7.3.1.1 to 7.3.1.5 in the project life cycle)
- Based on Tables 7.3 and 7.4, the conceptual model has been validated by a team of seven PPP experts whereby the mean scores were above 3, signifying a satisfactory solution is proposed within the conceptual model to guide and address the existing challenge
- Besides, based on the PPP experts' opinions, the conceptual model can be easily adapted in various developing countries by simply customising it to suit specific features in a particular country such as governance system, culture, social aspects, relative size of the public and private sectors, political stability and transparency of the government to mention a few.

## **7.9 Implications of the Study**

The present study's findings suggest that, regardless of the identified challenges, there is some level of PPP awareness demonstrated, benefits, and increase in HPPP projects and political support. Hence, the PPP approach has great prospects to deliver better outcomes when compared to traditional approach if the PPP stakeholders are made aware of the challenges, risks, benefits and critical success factors, sustainability aspects and PPP regulatory frameworks. In order to facilitate creative and innovative approaches in motivating the private sector, the government and the PPP unit should consider the key recommendations made in the present study when implementing HPPP projects.

## **7.10 Chapter Summary**

This chapter has drawn out the key findings from literature review and Chapter 6 leading to the development of the proposed conceptual model. The need and the approach used in the

development of the HPPP conceptual model have been provided. Additionally, in light of the identified findings, a tool (the proposed HPPP conceptual model) was developed, empirically validated and presented in order to ascertain its validity, applicability and effectiveness. Finally, a discussion on how the new framework compares to existing PPP frameworks and study implications has also been explained in order to explicitly draw out the key contribution to knowledge.



## CHAPTER 8

### CONCLUSIONS AND RECOMMENDATIONS

#### 8.1 Chapter Introduction

This chapter concludes the research study undertaken to investigate the challenges affecting the delivery of HPPP projects in developing countries, and then propose a PPP conceptual model to address the identified challenges. Specifically, this chapter highlights how the research aims and objectives have been realised as well as the study's contribution to the body of knowledge. Moreover, study limitations and recommendations for further research are also presented.

#### 8.2 Summary of Research Findings

The following sub-sections below explain how each objective was addressed in achieving the research aim.

##### 8.2.1 Objective 1: To investigate PPP awareness and practice for implementing HPPP projects

This objective was addressed in Chapters 3, 4, 6 and 7. At the same time, answers to the following questions were obtained to achieve the objective:

*If you are to assess yourself, do you think you have enough skills/knowledge on PPPs?*

It was concluded that over 50% of respondents who are key PPP actors in the housing sector demonstrated the lack of sufficient PPP capacity, as presented in Chapter 6, subsection 6.5.2, and Table 6.4. This finding demonstrated the need to emphasise PPP training.

***Have you undertaken any PPP training to improve your skills in this type of project?***

As presented in Table 6.5, it was concluded that the majority (70%) of the respondents did not undertake any formal PPP training. Only the minority (26%) responded affirmatively. Some respondents acknowledged that they had learnt about PPPs through self-directed learning (i.e. through reading books) and by undertaking the projects.

These findings were further supported in the definition by Giddens (1984) of the term “signification” in structuration theory, as detailed in subsection 6.2.4.2, which inferred that, regardless of respondents’ inadequate PPP skills and knowledge, they were still qualified to provide reliable feedback on the subject.

Additionally, the implication of this finding concluded that developing countries still face problems with respect to the training of their professionals. Formal training was considered as a cost rather than as an investment.

**8.2.2 Objective 2: To identify challenges and risks involved in HPPP projects**

***8.2.2.1 Challenges involved in HPPP projects in Tanzania***

The first part of the second objective was addressed in Chapters 4 and 6 by obtaining answers to the following questions:

***Rank the challenges in implementing PPP projects in Tanzania***

Through the literature review, 19 challenges were firstly identified then ranked. The results demonstrated that Tanzanian construction professionals ranked the following challenges as having significant ( $p < 0.05$ ) opportunity to derail the delivery of HPPP projects (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 the financial capacity of private partners (mean = 4.500)

***What are the major challenges in developing housing projects through the PPP option in Dar es Salaam (DSM) and Tanzania at large?***

The study's interviews confirmed the findings from the survey and the literature, as discussed in Chapter 6, subsection 6.2.4.3. Notably, the issue of inadequate PPP skills and capacity among PPP practitioners was identified as significant which was attributed to the newness of this approach in the Tanzanian context. Additionally, new challenges were revealed that were mostly common in developing countries and unique to Tanzania. For example, some interview findings indicated that most NHC-HPPP contracts had major legal issues, such as the lack of an exit clause; contradictory provisions in an agreement; a bias in favour of some private partners; double standards; uncertain practices in the transfer of the right of occupancy; and non-adherence to the rules and regulations by partners.

Likewise, it was concluded that the identified findings supported the equity theory and enabled the explanations of inequity between private and public Tanzanian stakeholders (partners). This was particularly with regard to addressing and managing issues associated with the "Poor PPP contract, tender documents" and "Inadequate legal framework".

These results imply that inadequate PPP skills and knowledge is the key issue and central to all other challenges. Therefore, most effort should be directed towards improving this inadequacy for PPPs applied to housing projects.

#### **8.2.2.2 Risks involved in PPP housing projects in Tanzania**

In addressing the second part of the second objective, this question was addressed:

##### **What major risks did your organisation encounter in the course of implementing HPPP projects?**

The literature review revealed that the subject of risk in PPPs has largely been researched, as evidenced in Chapter 3, Table 3.1. However, it was also revealed that few studies on risk in PPP projects have been conducted within sub-Saharan Africa.

Therefore, the current study filled this knowledge gap with a total of 28 risks identified (see Table 6.23). It was established that “*Delays*” were a major risk, with this risk identified by 70% of interviewees. Likewise, “*Private partner inadequate financial capacity*” and “*Poor quality product/work*” appeared as the second and third most-identified risks, respectively. These findings were consistent with the existing literature, as presented in Chapter 6, subsection 6.3.6. Most importantly, risks that were unique to and prevalent in developing countries were identified including: “*Theft and vandalism*”, “*Poor surrounding infrastructure*”, “*Government interference*”, “*Currency fluctuation*” and “*Inexperienced private partners*”, to mention a few.

#### **8.2.3 Objective 3: To establish the PPP antecedents for adopting HPPP projects**

The third objective sought to identify the antecedents for adopting HPPP projects with these including HPPP benefits, influential factors and critical success factors (CSFs). This objective

was addressed in Chapters 3, 4, 6 and 7 and was achieved, as explained in subsections 8.2.3.1 to 8.2.3.3 below.

#### ***8.2.3.1 HPPP benefits***

As shown in Table 6.12, six benefits were identified through the literature review. The questionnaires were used to rank the benefits according to their mean scores to find the most significant benefit. Interviews were undertaken to validate and reveal any additional benefits. For example, benefits such as “Opportunity to own land in prime location” and “Increased security when partnering with public sectors” were added and appeared to be more Tanzanian-specific given the limited studies in this area. Both results were triangulated and discussed (see subsection 6.2.4.7).

Through the ranking, it was concluded that the first to the fourth ranked benefit [i.e. (1) “Encourage private sector innovation and management skills”; (2) “Possibility of risk sharing between parties”; (3) “PPP provides value for money”; and (4) “Encourages on-time delivery”] were significant. In the interviews, most respondents identified “Resource sharing” as the main benefit of PPP adoption. This finding provided the opportunity to confirm some of the theoretical perspectives (Nahapiet and Ghoshal, 1998).

#### ***8.2.3.2 What were the influential factors for adopting PPP in housing delivery in your organisation?***

From the literature review presented in Chapter 4, subsection 4.2.2, it was noted that various studies have presented different drivers that motivated a country, an organisation or an individual to adopt public private partnerships (PPPs). Table 4.1 presents a summary of the identified drivers taken from literature sources worldwide. Two sets of drivers were identified: (1) general drivers for PPP projects and (2) specific PPP drivers for specific

projects such as housing. It was interesting to note that different countries adopted HPPP strategy for diverse situations and circumstances, for example, India (Sengupta, 2006); Tanzania (Maagi, 2010); Malaysia (Abdul-Aziz and Kassim, 2011; Ismail, 2014); Nigeria (Ukoje and Kanu, 2014; Onyemaechi and Samy, 2016); and Ghana (Kwofie *et al.*, 2016).

In the current study, the findings from the interviews are presented in Chapter 6, subsection 6.3.3. The most mentioned drivers, as shown in Table 6.20, all of which were mentioned more than once, included the following:

- The need for redeveloping condemned properties (n=5)
- Lack of enough financial capacity to undertake housing project (n=5)
- Fear of losing their condemned properties (n=5)
- Prime location (n=2)
- Being a previous tenant (n=2)
- Increasing revenue (profit) (n=2)

As further discussed in Chapter 6, some drivers were unique to a specific sector. For instance, the top three identified drivers (those mentioned five times) originated from public sector respondents (see Table 6.19) whereas those mentioned twice originated from private sector respondents. The discussion in Section 8.5 reveals that agreement was found between the literature review findings and the public sector responses in the current study. Likewise, agreement was found between the driving factors of private partners (as mentioned above) and the existing literature, except for “*Being a previous tenant*” which appeared to be more specific to a country or an organisation.

### **8.2.3.3 What are the critical success factors of the PPP projects in your organisation?**

Critical success factors (CSFs) in PPPs were found to have been widely researched. Throughout the literature, two types of studies on CSFs emerged comprising: (1) CSFs of PPPs in general and (2) CSFs of PPPs in specific sectors such as housing. The majority were similar with only a few exceptions, as illustrated in Table 3.2. Additionally, it was noted that the UK and Nigeria have undertaken extensive research on the CSFs in PPPs, followed by other countries such as Australia and Hong Kong.

Through the interviews, 17 CSFs were identified, as shown in Table 6.22. The factor *“Dedicated team of professionals to oversee the PPP projects”* emerged as the most important factor as it was mentioned the most by interviewees, followed by *“Official and unofficial site visits and inspection”*. These factors imply that Tanzanian PPP stakeholders are aware of the need for professionalism and close project monitoring.

Generally, it is observed that over 50% of CSFs identified by interviewees in this study agree with the CSFs established in the literature (see Tables 3.2 and 6.23). This also indicates that, despite Tanzanian PPP practitioners’ inadequate experience, PPP skills and capacity, they still have shown some PPP awareness which increases the reliability and validity of the data.

The identification of these CSFs would support PPP practitioners in successfully implementing HPPP projects; in addition, the CSFs were used in the development of the HPPP conceptual model.

### **8.2.4 Objective 4: To evaluate the cost and affordability factors for successful implementation of HPPP projects**

This objective was addressed in Chapters 4, 6 and 7. The five cost and affordability factors identified through the literature were ranked by respondents. It was noted that 40% of the

factors were significant while the top three (60%) ranked factors were not significant and comprised: (1) “PPP procurement is economical compared to traditional procurement”; (2) “PPPs bring about value for money in housing delivery projects in Tanzania”; and (3) “PPPs can facilitate the supply of affordable housing outcomes in Tanzania”. These results were contradictory to the existing literature, as discussed in subsection 6.2.4.5: nevertheless, implications were drawn for the contradiction. It was concluded that the non-competitive selection of partners in HPPP projects in Tanzania and the non-adoption of PPP advisory services at any stage of project could be the main causes of the contradiction as neither had cost implications towards the transactions, which agrees with Williamson’s (1985) transaction cost theory (TCT) as transaction costs were minimised. It is envisaged that the costs were minimised, either knowingly or unknowingly, by considering the existing challenges (PPP inexperience, lack of skills, poor PPP policy and legal frameworks, as revealed by the second objective) at the expense of attaining better outcomes.

Furthermore, it was noted that the current study is among the first that identifies and ranks the cost and affordability factors influencing the delivery of HPPP projects in developing countries.

### **8.2.5 Objective 5: To explore the sustainability factors influencing the adoption of HPPP projects**

Five sustainability factors were identified through the literature and then ranked. The results showed that the Tanzanian construction professionals ranked the following three sustainability factors as influencing the delivery of PPP housing projects: (1) “Sustainability assessment always starts from the feasibility stage”; (2) “Sustainability factors are always considered when evaluating project viability”; and (3) “There is no evaluation mechanism framework for sustainability assessment”. Conversely, the results for the two lowest ranked

factors, as shown in Table 6.10, were rather worrying and confirmed the comment in the World Bank (2016, p. 36) report regarding poor project design resulting from the failure to carry out feasibility analysis for PPP projects. One likely justification for the lack of importance attached to the fifth ranked factor might be attributed to the lack of expertise and experience among the Tanzanian administering organisations.

Finally, through triangulation of the research results with the existing literature, the opinion formed through this research was that PPP units and PPP coordinating units in Tanzania, as well as in other countries, are vested within the Ministry of Finance which is less aware of environmental issues, a view supported by Moskalyk (2011). Therefore, this matter requires serious consideration by ensuring that experienced personnel are within these units and capable of critically assessing the sustainability component in submitted PPP proposals.

#### **8.2.6 Objective 6: To develop an effective HPPP conceptual model, empirically validate it and draw conclusions**

This research objective was addressed throughout the thesis and was built upon the outcome of the first five objectives, as discussed in subsections 8.2.1 to 8.2.5. The novelty of the proposed PPP conceptual model is the inherent associated mapping exercise which enables the identification of the appropriate solutions to the challenges across the project life cycle. Some studies have simply proposed solutions to PPP implementation; but this study is unique as it has developed a HPPP conceptual model and contains both the 'mapping exercise' and "solutions to challenges".

## **8.3 Contribution to the Body of Knowledge**

### **8.3.1 Relationship with Existing Research**

This study has demonstrated its relationship with existing research fulfilling the criterion of contributing to the body of knowledge. To be able to make an independent contribution to knowledge, the research gap firstly needs to be established. As explained in Section 5.5, subsection 5.5.1 and Figure 5.1, this research began with an intensive literature review that aimed to identify what has been studied and discovered on similar subjects in the existing research, while focusing on identifying the gaps. The literature review added to the development of knowledge in the following ways:

1. Chapters 2 to 4 set the context of the study and discussed the relationship between urbanisation, population growth, the housing shortage and the adoption of PPPs as an alternative approach for delivering more houses. Additionally, it was observed that most PPP research had been undertaken in civil infrastructure projects while limited studies had been conducted in social infrastructure projects, such as housing, to study the above phenomenon and to propose ways/approaches to address the existing challenges. Therefore, this thesis adds to the body of knowledge on the PPP subject by providing a fresh investigation into social infrastructure, in this case, housing.
2. In Chapter 3, a detailed and fresh overview of PPP practice in Tanzania has been presented to provide the state of the art from various literature sources, including unpublished materials.

### **8.3.2 Scholarly Contribution to Knowledge**

Handfield and Melnyk (1998, p. 322) specified what the contribution to the knowledge must provide; likewise (Phillips and Pugh, 2010, pg. 69-70) listed nine characteristics of PhD thesis originality and contribution to the knowledge.

This research has shadowed the suggestions made by Phillips and Pugh (2005) and Handfield and Melnyk (1998) in carrying out the research in order to make a substantial original contribution to the knowledge. Therefore, the following contributions made to the body of scholarly knowledge are presented under different criteria as outlined in subsections 8.3.2.1 to 8.3.2.6 :

#### ***8.3.2.1 A method of organising and categorising things (a typology)***

This criterion was achieved as shown in Chapter 7, Section 7.5, and in Table 7.1. A mapping exercise (as a method) was undertaken to explicitly demonstrate how the identified challenges were addressed by incorporating the advocated solutions in the developed HPPP conceptual model (Figure 7.1). The implication of this ‘mapping exercise’ is to highlight the need for key stakeholders to be aware of the existing challenges and of ways to strategically address the challenges based on international best practices.

#### ***8.3.2.2 A sense of understanding about causes of events***

1. Through the literature review, it was noted that Tanzania and other developing countries are experiencing significant failures in their PPP projects (Sengupta, 2006; Kavishe, 2010; Abdul-Aziz and Kassim, 2011; Moskalyk, 2011; Ibem and Aduwo, 2012; Trangkanont and Charoenngam, 2014a, 2014b; World Bank, 2016). In that context and using Research Objective 2, it was deemed important to understand the causes of such failures. Therefore, this research identifies and ranks the 19 challenges and risks associated with PPP for housing project delivery within the Tanzanian context, as presented in Chapter 6, subsections 6.2.4.3, 6.2.4.12 and 6.3.6, and as illustrated in Tables 6.7, 6.8, 6.17 and 6.24.

2. Through the alignment and mapping of the identified challenges (see Table 7.1) to the proposed remedial solutions across the five phases within the proposed PPP conceptual model (see Figure 7.1), the study has brought a clear sense of understanding about the causes of events (challenges). Thus, this research has fulfilled one of the objectives for contribution to the body of knowledge, as suggested by Handfield and Melnyk (1998).

#### ***8.3.2.3 Making a synthesis that has not been previously made***

The usage of a convergent parallel (concurrent) mixed-methods approach has enabled the confirmation of the existence and applicability of some of the key determinants of transaction cost theory as advocated by Williamson (1985) within the Tanzanian context as discussed in chapter 6, subsection 6.1.6 . Furthermore, the comparison through the literature review with prior applications of this theory (Nisar, 2013; Vivek and Richey, 2013; De Schepper *et al.*, 2015a, 2015b) has further provided confirmation and validity of the current study's findings. For example, our findings have demonstrated the presence of low levels of “frequency” and “specificity asset” among the Tanzanian PPP practitioners. These findings were reinforced and supported by the “immature state” of PPP adoption in Tanzania, as well as the inexperience of public sector participants (see Tables 6.1 and 6.2), thus leading to the “opportunistic behaviours” exhibited by the private sector.

#### ***8.3.2.4 Carrying out empirical work that has not been previously done***

As shown in Table 8.1, this study has carried out an empirical study on HPPP projects in the Tanzanian context. Based on Phillips and Pugh (2005, p. 62), this is an original attempt as no trace was found of previous studies that had undertaken a similar study. Additionally, no HPPP conceptual model has been previously developed to address the challenges.

**Table 8.1: Summary of unprecedented empirical work in HPPPs**

No.	State of existing literature	Originality of the findings provided by this study
1	Findings of the review of the literature indicated that no empirical work on identifying risks and challenges in housing PPP projects has been undertaken in the Tanzanian construction context (see <b>subsection 3.2.5</b> ).	This empirical study is among the first to identify risks and challenges of PPPs for housing project delivery within the Tanzanian context (see <b>Table 6.7, 6.8 and 6.23</b> ).  The identification of the challenges enabled their ranking to highlight the most critical ones.
2	No attempt has been made to study cost and affordability, and sustainability factors influencing the delivery of PPPs for housing project delivery within the Tanzanian context  Similarly, no empirical study has been carried out to identify PPP benefits in housing projects in Tanzania (see <b>subsection 3.2.6</b> ).	This study is also the first to identify and rank cost and affordability, and sustainability factors influencing the delivery of PPPs for housing projects within the Tanzanian context, as well as the emergent benefits from HPPP adoption.
4	It was noted through the literature review that no HPPP conceptual models had been developed to address the existing challenges.	The study presents the first HPPP conceptual model (see <b>Figure 7.2</b> ) which serves as a mechanism for providing practical solutions as well as reducing the level of severity of the identified challenges that are preventing the delivery of an adequate amount of housing in Tanzania, as well as in other developing countries. Such a validated HPPP conceptual model has never previously been presented by other researchers.

**8.3.2.5 Using already known material but with a new interpretation**

This study has used various existing theories, firstly, to bridge the gap between theory and the existing literature (Yorks, 2008; Rocco and Plakhotnik, 2009) and, secondly, to bridge the gap between theory and practice as theory building (Wacker, 1998), as illustrated on Table 8.2 below:

**Table 8.2: Summary of selected known theories but with a new interpretation**

No.	Known materials (theories)	New interpretation
1	According to Giddens' <b>structuration theory</b> (1984, cited in Chileshe et al. 2013, p. 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 needed for action to take place.	Within the context of the current study, these 'structures' refer to the "PPP policy, guidelines, legal framework and procurement regulations" which act as a set of rules, with the power to manage and inform the actions of members of a society or organisation (i.e. PPP coordinating units, Tanzanian public and private organisations/stakeholders).
2	According to Adams (1965, in (Scheer <i>et al.</i> , 2003; Zhang and Jia, 2010), <b>equity theory</b> states that a partner will assess their own inputs and returns against the other partner's input and return in an existing relationship. If a partner notices some inequity in the relationship, they will respond negatively.	This study applied the <b>Adams (1995) equity theory</b> to both the qualitative and quantitative findings. This theory enabled the explanations of inequity among the private and public Tanzanian stakeholders (partners).  For example, inequality between partners was demonstrated by some findings from the interviews, such as: lack of an exit clause; contradictory provisions in an agreement; bias in favour of some private partners; and double standards. The lack of equity led to PPP failure irrespective of whether or not the partner responded negatively as mutual commitment and responsibility were considered vital. (see subsection <b>8.3.3.1</b> )
3	According to Williamson, (1985, 1996) the essence of <b>transaction cost theory (TCT)</b> is that, to cut down the cost of goods or services, it is very important to take into consideration both production costs and transaction cost. Low costs in the production technique on their own may not signify the economical aspect if the transaction cost is ignored.	This study applied <b>transaction cost theory (TCT)</b> to offer some insights into understanding HPPP projects' viability and how cost and affordability, sustainability factors and benefits influenced the delivery of these projects. Transaction cost theory (TCT) was interpreted with the view that PPP projects should deliver value for money. Value for money can be achieved only if transaction costs are effectively controlled (Ho and Tsui, 2009). This is possible via competitive procurement, transparency, etc. Applying TCT in PPPs supports the achievement of value for money (see subsection <b>8.3.4</b> ).

1. Using the project life cycle approach, this research has presented a conceptual model for HPPPs (see Figure 7.2). The conceptual model does not aim to introduce new alternatives but instead improves and builds on existing practices to provide a valuable guide and road maps for the successful delivery of PPP housing projects.

Various project failures have been experienced with efforts made by the Tanzanian government to improve PPP projects. However, PPP practitioners in developing countries and, in particular, in Tanzania, are only told what to do and are not shown how to do it in order to successfully achieve PPP project goals. Therefore, this study's conceptual model is intended to fill this gap. It has been validated by 12 PPP experts with local and international experience, thus integrating the best practices and lessons learnt from abroad to fit the unique local context. In line with Phillips and Pugh (2010), this research has made a contribution to the body of knowledge by using already known material/information, that is, adopting the project life cycle approach within the proposed HPPP conceptual model.

#### ***8.3.2.6 Trying out something locally that has previously only been done abroad***

This thesis has reported on the study's investigation of several areas within the Tanzanian HPPP context: the viability of sustainability issues, cost and affordability aspects, and benefits accruable from public private partnerships (PPPs). This study is among the first within the Tanzanian context to offer some insights into understanding the viability of these issues and aspects, and the benefits accruable from public private partnerships (PPPs). Additionally, transaction cost theory and its three key determinants, namely, assets specificity, uncertainty and frequency, were used in this study to offer some insights into understanding viability and how cost and affordability, and sustainability factors influenced the delivery of HPPP projects. Thus, this research has broadened the understanding of the prevailing local conditions for HPPP adoption as well as the emergent benefits which, in turn, could lead to an increased awareness and uptake of the PPP as a viable procurement method for delivering affordable housing schemes (AFHSs).

### ***8.3.2.7 Being cross-disciplinary and using different methodologies***

The theoretical points of departure and the value for money (VfM) concept in this study are borrowed from various disciplines, such as management (equity theory, Giddens' structuration theory); business and procurement (transaction cost theory [TCT]), and the humanities and social sciences (Giddens' structuration theory). These were used to underpin the findings within the context of the construction industry by integrating knowledge from a wide range of disciplines. The originality of this study lies in the triangulation of ideas articulated in a multidisciplinary background.

### ***8.3.2.8 Adding to the knowledge in a way that has not been previously done***

Drawing upon Chileshe *et al.* (2013, p. 165), the proposed conceptual model opens the possibility of examining the critical success factors (CSFs) (Table 3.2) of agents (Tanzanian PPP practitioners) in relation to the delivery of PPPs in housing projects, and their failures (challenges) in dealing with the external environment and associated regulatory factors. Consequently, an additional list (see Tables 6.25 and 6.8) has been added to the known CSFs and HPPP challenges as a result of this study.

## **8.4 Research Limitations**

This study has produced a validated HPPP conceptual model that can be applied in the successful delivery of housing projects in developing countries and in Tanzania, in particular. In addition, various prospects associated with the successful delivery of HPPP projects have been identified. Despite the study's contributions, the following study limitations have been identified:

1. The interview and survey sample consisted of stakeholders drawn from only one city in Tanzania, namely Dar es Salaam: consequently, the results may not be

generalisable to surrounding countries that share similar economic conditions, such as the East African Community (Burundi, Kenya, Rwanda, South Sudan and Uganda).

2. Considering the private sector's confidentiality concerns in relation to PPP projects, their willingness to participate in this study was limited. Some private partners were not willing to be interviewed while others did not want to respond to questionnaires. Fortunately, this limitation was identified early; hence, a rigorous (two-phase) mixed-methods data collection approach was adopted to increase the reliability and validity of the data collected. Some respondents were then willing to respond to questionnaires but not to be interviewed and vice versa.
3. Similarly, the applicability of the proposed conceptual model is limited to housing projects as the data collected for this study were mainly obtained from organisations that adopted PPPs only in housing project delivery. In this study, only two public sector organisations qualified to take part in the research.

### **8.5 Recommendations for Further Research**

Through the triangulation of the research findings with the existing literature it is of the opinion that, in order to facilitate creative and innovative approaches in improving housing delivery, engagement of PPP is a viable option.

Despite the various PPP studies undertaken to date, PPPs remain a growing trend worldwide. Much can be learned through the application of PPP frameworks in delivering housing projects:

1. The real-world application of the proposed HPPP conceptual model in the housing sector would provide further information on its effectiveness. For instance,

organisations adopting the conceptual model could monitor its progress throughout their project's life span and then compare the outcome with other organisations/projects that did not follow the conceptual model proposed in the current research. The differences obtained could be noted and examined for further improvements. Therefore, it is recommended that this conceptual model should undergo further testing in actual HPPP projects. This experimentation would facilitate its refinement, hence, increasing the validity and reliability of the conceptual model.

2. As discussed in Section 7.2, this research has identified that Tanzania is still in its infancy in PPP projects in both skills and experience, with this inadequacy being the highest ranked challenge (Table 6.7). Moreover, during the validation of the conceptual model, one of the highly experienced PPP experts queried the issue of training duration. Hence, in addition to providing training to public officials, it will be worthwhile to explore how long it takes to develop adequate competence in public officials.
3. In Section 7.4, subsection 7.4.1.4, it was identified that “Inadequate project management and monitoring by public sector” and “Inadequate government commitment and support” were the 3<sup>rd</sup> and 12<sup>th</sup> ranked challenges, respectively. Therefore, it is considered important to further investigate how these complementary challenges, the most common in developing countries, could be satisfactorily addressed.
4. This research has also identified that “Poor enabling environment to attract competent partners” is another barrier to the successful delivery of HPPP projects. A similar concern was raised by **PPP Expert A** on the issue of investors' securities and guarantees in developing countries. Hence, it is deemed important to further

investigate what securities and what form of guarantees would be offered to investors in a country, such as Tanzania, without a sovereign credit rating.

5. Based on the identified risks, challenges and CSFs, both the government and policy makers could use the findings as the basis for re-examining the existing PPP policy and regulations. They could also reflect on the existing situation with a view to improving the delivery of future HPPP projects.
6. Future research would require longitudinal studies to take into consideration the time-lag factors between the adoption of a PPP project and the realisation of benefits, as well as exploring the relationships between these factors.

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## APPENDICES

### Appendix A: List of Publications

1. **Kavishe, N.** and Chileshe, N. (2018d), Readiness assessment and project management practices within the Tanzanian Public-Private Partnerships (PPPs) housing projects: An Innovation Diffusion Theory (IDT) approach, *International Journal of Managing Projects in Business*, **(still under review)**.
2. **Kavishe, N.**, Jefferson, I. and Chileshe, N. (2018c), Public-private partnerships in Tanzanian affordable housing schemes: Policy and regulatory issues, pitfalls and solutions. *Journal of Built Environment Project and Asset Management* **(Accepted)**.
3. **Kavishe, N.** and Chileshe, N. (2018c), Critical success factors in public-private partnerships (PPPs) on affordable housing schemes delivery in Tanzania: A qualitative study, *Journal of facilities Management*, DOI: [10.1108/JFM-05-2018-0033](https://doi.org/10.1108/JFM-05-2018-0033) **(Accepted)**.
4. **Kavishe, N.** and Chileshe, N. (2018b), Driving forces for adopting public-private partnerships in Tanzanian housing projects, *International Journal of Construction Management*, DOI: [10.1080/15623599.2018.1502931](https://doi.org/10.1080/15623599.2018.1502931) **(Accepted)**
5. **Kavishe, N** and Chileshe, N (2018a) Motivational Factors for Adoption of Public-Private Partnerships (PPPs) in Housing Projects in Tanzania: A Qualitative Study In: Gorse, C and Neilson, C J (Eds) Proceeding of the 34th Annual ARCOM Conference, 3-5 September 2018, Belfast, UK, Association of Researchers in Construction Management, 445-454. **(Published)**.
6. **Kavishe, N.**, Jefferson, I. and Chileshe, N. (2018b), Evaluating issues and outcomes associated with housing public-private partnership projects delivery: Tanzanian practitioners' preliminary observations. *International Journal of Construction Management*, DOI: [10.1080/15623599.2018.1435154](https://doi.org/10.1080/15623599.2018.1435154) **(Published)**.
7. **Kavishe, N.**, Jefferson, I. and Chileshe, N. (2018a), An analysis of the delivery challenges influencing public private partnership in housing projects: The case of Tanzania. *Journal of Engineering Construction and Architectural Management*. 25 (2), pp. 202-240. **(Published)**.

8. **Kavishe, N. (2018)**, Risks Associated with Public Private Partnership (PPP) Housing Projects Delivery in Tanzania, *International Journal of Construction Engineering and Management*, 7(2) pp. 81-87 (**Published**)
9. **Kavishe, N. and An, M. (2016)**, Challenges for Implementing Public Private Partnership in Housing Projects in Dar es Salaam city, Tanzania. In: P. W. Chan & C. J. Neilson (eds.), Proceedings of the 32nd Annual ARCOM Conference, 5-7 September 2016. Manchester, UK: *Association of Researchers in Construction Management*, Vol. 2, pp. 931-940. (**Published**).

## **Appendix B: Questionnaire Survey Instrument for Pilot Study**

Dear Participant:

My name is Neema Kavishe; I am a PhD student at the University of Birmingham in the School of Civil Engineering, under the supervision of Dr. Min An. You are kindly invited to participate in a research project entitled: **“PUBLIC PRIVATE PARTNERSHIP IN DELIVERING HOUSING PROJECTS IN DEVELOPING COUNTRIES :(The case of Tanzania).”**

The purpose of this survey is to evaluate the appropriateness of PPP as a procurement system in delivering quality and affordable housing projects in Dar es Salaam, Tanzania.

This questionnaire was developed to ask you a few questions regarding Housing and Public Private Partnership in Tanzania. It is my hope that this information will be useful especially in formulating better PPP policy and regulatory framework and strategies hence improve the delivery of housing through better PPP practice in Tanzania. There are no any identified risks from participating in this research. The questionnaire survey is confidential and anonymous.

The survey will take approximately 12-15 minutes to complete. If you would like to know the results of this research, please provide your email address.

Thank you for your consideration. Your response is greatly appreciated.

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**PART A: DEMOGRAPHIC INFORMATION**

- 1. Name of Organization.....
- 2. Experience in your current position/field  
 < 5years    5~10 years    10 ~ 15 years    >15 years
- 3. What is your current position in the Built environment field/your Organization  
 Consultant  
 Private Developer  
 Public Partner  
 Contractor  
 Financer  
 Any other   specify.....
- 4. Please tick your professional background  
 Quantity Surveyor  
 Engineer  
 Land Valuer  
 Architect  
 Lawyer  
 Any other   specify.....

**PART B: HOUSING AFFORDABILITY IN TANZANIA**

- 1. What is the current growth of affordable housing in in Dar es Salaam City in Tanzania?  
 Poor growth,    Average growth,    High growth    No growth.
- 2. What is the common housing procurement method in delivering affordable housing in Tanzania particularly to low income earners?  
 Traditional method (government)  
 Public Private Partnership  
 Community involvement  
 Private developers  
 Individual construction

3. Is the supply of social housing being offered at an affordable rate where the majority of low income earners can afford to purchase or rent a house?  
 Yes  No

4. Is there any housing policy existing in Tanzania?  
 Yes  No

**PART C: PUBLIC PRIVATE PARTNERSHIP (PPP)**

1. Which of the following PPP projects has your organization mostly been involved with in the last 5-10 years?

- Hospital
- Transportation
- Housing
- Health services
- Schools and education
- Others Specify:.....

2. If you are to assess yourself do you think you have enough skills/knowledge on PPP  
 Yes  No

3. What are the major hindrances towards acquiring the PPP skills and Training to Tanzanian PPP stakeholders?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Ignorance					
Lack of expertise					
High Costs of the PPP training courses					
Lack of government support					

4. What are the benefits of PPP in house delivery in Tanzania.....

**IN THIS SECTION PLEASE RANK ACCORDING TO THE LEVEL OF AGREEMENT OR DISAGREEMENT**

(Use the scale 1= strongly disagree 2= Disagree 3= neutral 4= Agree 5 =strongly agree)

## 5. Challenges in implementing HPPP projects in Tanzania

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Inadequate PPP skills and knowledge leading to poor planning and application					
Inadequate understanding of the PPP concept from the public sector at present					
Insufficient long term financing instrument					
High risks involved in the PPP projects					
Poor risk allocation due to lack of enough experience					
Insufficient capacity in negotiations, procurement, implementation and management of PPPs.					
Inadequate PPP policy & legal framework					
Inadequate mechanisms for recovery of private investors' capital.					
Differing goals between					
Poor PPP contract and tender document					

## 6. Challenges facing the successful implementation of PPP in affordable housing schemes in Tanzania.

		strongly agree	Agree	Neutral	Disagree	strongly disagree
1	Inadequate access to housing finance					
2	Poor access to land					
3	High cost of building materials					
4	Poor project planning					
5	High costs and difficulties of acquiring land					
6	Lack of government subsidies					
7	Poor performance by the housing sectors in the country					
8	Poor planning skills and analytical capacity in formulating affordable housing proposals					

## 7. Costs and Affordability

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
PPP procurement is economical compared to traditional procurement					
Most PPP Implementing bodies are capable to afford the project transaction costs					
High PPP costs are a major setback for more PPP projects in Tanzania.					
PPP can facilitate the supply of affordable housing outcome in Tanzania					
PPP brings about value for money in housing delivery projects in Tanzania					

### 8. Sustainability in PPP housing Projects in Tanzania

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Sustainability factors are always considered when evaluating project viability					
There is an evaluation mechanism framework used for sustainability assessment					
Sustainability assessment is not highly important in PPP projects in Tanzania					
Sustainability assessment always starts from the feasibility stage					
Sustainability assessment normally starts at the procurement stage					

### 9. PPP policy and regulatory framework

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Tanzania have a PPP policy and clear regulatory framework for implementation Of PPP projects.					
The Tanzania PPP policy and regulatory framework is clear and provides appropriate guidance for PPP project implementation.					
The current PPP guidelines in Tanzania provide adequate opportunity to attract more private partners					
The current PPP Policy & guidelines in Tanzania needs further improvement					

**END**

**THANKS FOR YOUR TIME AND VALUABLE INFORMATION**

## **Appendix C: Questionnaire Survey Instrument for Main Study**

Dear Participant:

My name is Neema Kavishe; I am a PhD student at the University of Birmingham in the School of Civil Engineering, under the supervision of Dr. Min An. You are kindly invited to participate in a research project entitled: **“IMPROVING THE DELIVERY OF PPP HOUSING PROJECTS IN DEVELOPING COUNTRIES: The case of Tanzania”**

The purpose of this survey is to examine the challenges affecting the delivery of HPPP projects in developing countries and, secondly, to propose a PPP conceptual model to address the identified challenges in order to facilitate improved delivery of HPPP in developing countries.

This questionnaire was developed to ask you a few questions regarding Housing and Public Private Partnership in Tanzania. It is my hope that this information will be useful especially in formulating better PPP policy and regulatory framework and strategies hence improve the delivery of housing through better PPP practice in Tanzania. There are no any identified risks from participating in this research. The questionnaire survey is confidential and anonymous.

The survey will take approximately 12-15 minutes to complete. If you would like to know the results of this research, please provide your email address.

Thank you for your consideration. Your response is greatly appreciated.

### **CONTACTS:**

**Neema W. Kavishe**

**The University of Birmingham**

**School of Civil Engineering**

**Edgbaston**

**Birmingham**

**B15 2TT**

**United Kingdom**

**EMAIL:**

**PART A: DEMOGRAPHIC INFORMATION**

1. Name of Organization.....
2. Experience in your current position/field  
 < 5years    6~10 years    11 ~ 15 years    >15 years
3. What is your current position in the Built environment field/your Organization  
 Consultant  
 Private Developer  
 Public Partner  
 Contractor  
 Financer  
 Any other   specify.....
4. Please tick the box that identifies your designation  
 Chief Executive officer  
 Project Manager  
 Legal officer  
 PPP clerk of works/project supervisor  
 Managing Director  
 Any other   specify.....
5. Please tick your professional background  
 Quantity Surveyor  
 Engineer  
 Land Valuer  
 Architect  
 Lawyer  
 Any other   specify.....
6. Experience with PPP housing projects  
 1-2 projects    3-5 projects    6- 10 projects    over 10 projects

**PART B: HOUSING AFFORDABILITY IN TANZANIA**

1. What is the current growth of affordable housing in in Dar es Salaam City in Tanzania?  
 Poor growth,    Average growth,    High growth    No growth.

2. What is the common housing procurement method in delivering affordable housing in Tanzania particularly to low income earners?

Traditional method (government)

Public Private Partnership

Community involvement

Private developers

Individual construction

3. Is the supply of social housing being offered at an affordable rate where the majority of low income earners can afford to purchase or rent a house?

Yes

No

4. Is there any housing policy existing in Tanzania?

Yes

No

### **PART C: PUBLIC PRIVATE PARTNERSHIP (PPP)**

1. Which of the following PPP projects has your organization mostly been involved with in the last 5-10 years?

Hospital

Transportation

Housing

Health services

Schools and education

Others

Specify:.....

2. If you are to assess yourself do you think you have enough skills/knowledge on PPP

Yes

No

3. Have you undertaken any PPP training to improve your skills into this type of projects?

Yes

No

**IN THIS SECTION PLEASE RANK ACCORDING TO THE LEVEL OF AGREEMENT OR DISAGREEMENT**

(Use the scale 1= strongly disagree 2= Disagree 3= neutral 4= Agree 5 =strongly agree)

**4. Challenges in implementing HPPP projects in Tanzania**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Inadequate PPP skills and knowledge leading to poor planning and application					
High costs in procuring PPP projects					
Delays					
Poor risk allocation and management					
Insufficient capacity in negotiations, procurement, implementation and management of PPPs.					
Inadequate PPP policy & legal framework					
Inadequate mechanisms for recovery of private investors' capital.					
Inadequate enabling environment to attract competent private partners					
Poor government commitment and support					
Long term legal disputes					
In experienced private partners					
Corruption					
Lack of competition					
Inadequate feasibility study					
Unequal qualifications and contributions of expertise.					
Inadequate project management and monitoring by public sector					
Misinformation on financial capacity of private partners					
Differing goals between					
Poor PPP contract and tender document					

**5. Challenges facing the successful implementation of PPP in affordable housing schemes in Tanzania.**

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Inadequate access to housing finance					
2	Poor access to land					
3	High cost of building materials					
4	Poor project planning					
5	High costs and difficulties of acquiring land					
6	Lack of government subsidies					
7	Poor performance by the housing					

	sectors in the country					
8	Poor planning skills and analytical capacity in formulating affordable housing proposals					

### 6. The benefits of PPP in house delivery in Tanzania.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
PPP provides value for money					
Acceleration of affordable housing provision and improved quality of services					
Possibility of risk sharing between parties					
Reduction in whole life costs of a project					
Encourage private sector innovation and management skills					
Encourage on time delivery					

### 7. Costs and Affordability

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
PPP procurement is economical compared to traditional procurement					
Most PPP Implementing bodies are capable to afford the project transaction costs					
High PPP costs are a major setback for more PPP projects in Tanzania.					
PPP can facilitate the supply of affordable housing outcome in Tanzania					
PPP brings about value for money in housing delivery projects in Tanzania					

### 8. Sustainability in PPP housing projects in Tanzania

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Sustainability factors are always considered when evaluating project viability					
There is an evaluation mechanism framework used for sustainability assessment					
Sustainability assessment is not highly important in PPP projects in Tanzania					
Sustainability assessment always starts from the feasibility stage					
Sustainability assessment normally starts at the procurement stage					

### 9. PPP policy and regulatory framework

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Tanzania has a PPP policy and clear regulatory framework for implementation Of PPP projects.					
The Tanzania PPP policy and regulatory framework is clear and provides appropriate guidance for PPP project implementation.					
The current PPP guidelines in Tanzania provide adequate opportunity to attract more private partners					
The current PPP policy and guidelines in Tanzania need further improvement					

**END**

**THANKS FOR YOUR TIME AND VALUABLE INFORMATION**

## **Appendix D: Interview Instrument (Phase 1)**

### **PART A: GENERAL INFORMATION**

1. What is the name of your Organization?
2. What is the experience in your current position/field?
3. What is your current position in the Built environment field/your Organization
4. Please identifies your designation
5. What is your professional background
6. What is your experience with PPP housing projects

### **Part B: Housing affordability**

5. What is your opinion on the current growth of the affordable Housing projects in Tanzania?
6. What is the common housing procurement method in delivering affordable housing in Tanzania particularly to low income earners?
7. Is the supply of housing being offered at an affordable rate where the majority of low income earners can afford to purchase or rent a house?
8. Is there any housing policy existing in Tanzania?

### **Part C: Public Private Partnership aspects in housing projects**

1. Which of the PPP projects has your organization mostly been involved with in the last 5-10 years?
2. If you are to assess yourself do you think you have enough skills/knowledge on PPP
3. Have you undertaken any PPP training to improve your skills into this type of projects?
4. What are the key challenges in delivering PPP housing projects in Tanzania?
5. What are the major challenges hindering the successful implementation of PPP in affordable housing schemes (AFHS) in Tanzania
6. What do you recommend as advocated solutions to improving the delivery of PPP in affordable housing?
7. What are the benefits of PPP in delivery of housing projects in Tanzania?

**END**

## **Appendix E: Interview Instrument (Phase 2)**

### **PART A: DEMOGRAPHICS**

1. What is your designation?
2. What is your experience in your current position/field
3. What is your Education level?
4. What is your current position in the Built environment field/your Organization?
5. Is your organization currently implementing PPP housing projects?
6. What is your experience with PPP housing projects?
7. What type of PPP contract is your organization mostly involved?

### **PART B: PPP READINESS ASSESSMENT**

8. When did your company first adopt PPP strategies?
  - Did you make advance preparation?
  - What sort of preparations?
9. Did your organization carry out housing need survey/feasibility study in an area prior to developing a PPP proposal?  
Probe: Who did it? Private partner or public?
10. Did you have any PPP Framework when starting up your PPP project?
11. Did you have a group of experts to assess the viability of the project?  
Probe: Did your projects go through the PPP Unit for assessment?  
If NO, why not?
12. Did you have a group of staff/people who were trained up already to adopt the strategies?  
Probe: How many had the knowledge?
13. Have your employees undertaken any PPP courses/training to improve their skills into this type of projects?
14. How did you select your private partners?  
Probe: Competitive selection? Single source? Why did you use that route?

### **PART C: DRIVERS FOR HPPP PROJECTS**

15. What were the influential factors for adopting PPP in housing delivery in your organization?

16. Did you receive any government support towards the development of your PPP housing projects?

Probe: If yes, what support?

**PART D: BENEFITS AND CRITICAL SUCCESS FACTORS**

17. What are the benefits of employing PPP strategies?

18. What are the critical success factors of the PPP projects in your organization?

**PART E: RISKS AND CHALLENGES INVOLVED IN HPPP**

19. What major risks did your organization encounter in the course of implementing a HPPP project?

20. How did/do you manage the risks?

**PART F: PROJECT MANAGEMENT**

21. After building the project, how do you operate the project?

**END**

**THANK YOU.**

## Appendix F: PPP Expert Invitation Letter

**Subject:** Invitation to participate in the Evaluation of a Public Private Partnership conceptual Model

Dear.....,

I am currently a Doctor of Philosophy student in the School of Engineering at the University of Birmingham in the U.K under the supervision of Professor Ian Jefferson and Dr. Dexter Hunt. The title of the study is "***IMPROVING THE DELIVERY OF PPP HOUSING PROJECTS IN DEVELOPING COUNTRIES: The case of Tanzania***"

The purpose of my study is to examine the challenges affecting the delivery of HPPP projects in developing countries and, secondly, to propose a PPP conceptual model to address the identified challenges in order to facilitate improved delivery of HPPP in developing countries. Hence in order to successful achieve the secondary aim the last part of my study uses experts' opinion approach to validate the proposed conceptual model.

Therefore, I kindly invite you to participate in this study. While I look forward to your invaluable contribution to the study, you could recommend another expert by providing me with their contact information if you are unable to participate.

Your participation is totally voluntary and you are assured of complete confidentiality. Should you wish to know the findings of the research, I will gladly send you a summary of the results obtained. I am looking forward to hearing from you. Your participation in this study *will improve the delivery of houses in developing countries using Tanzania as the context.*. Should you require additional information feel free to contact me or my supervisor using the information given on the participant information sheet attached.

Yours faithfully,

Neema Kavishe  
PhD Candidate

## **Appendix G: Information Sheet for Participants**

### **Information Sheet for Participants in a Research Study**

#### **University of Birmingham**

**Full title of Project:** **IMPROVING THE DELIVERY OF PPP HOUSING PROJECTS IN DEVELOPING COUNTRIES: The case of Tanzania.**

**Researcher:** NEEMA KAVISHE, (PhD Student School of Engineering)

Email: [REDACTED]

Mobile: [REDACTED]

**Supervisors:** Professor Ian Jefferson (Email: [REDACTED])

Dr. Dexter Hunt (Email: [REDACTED])

#### **Description of the research and your participation**

You are invited to participate in a research study conducted by Neema Kavishe. The purpose of this part of the research is to validate a Public Private Partnership conceptual Model developed for improved house delivery in the developing countries the case of Tanzania.

#### **Risks and discomforts**

There are no known risks associated with this research.

#### **Potential benefits**

Ultimately, this research may be published on the University of Birmingham website and it is hoped that a paper is published from the research. There are no known benefits to you that would result from your participation in this research. But, this research may help us develop a validated PPP conceptual Model for the building construction sector in the building construction sector in Tanzania and can be adopted elsewhere.

#### **Protection of confidentiality**

The records of this study will be kept strictly confidential. Research records will be kept in a locked file and all electronic information will be coded and secured using a password protected file. We will not include any information in any report we may publish that would make it possible to identify you. Your identity will not be revealed in any publication resulting from this study.

#### **Voluntary participation**

Your participation in this research study is voluntary. You may choose not to participate and you may withdraw your consent to participate at any time. You will not be penalized in any way should you decide not to participate or to withdraw from this study.

## CONSENT FORM

	<b>Item</b>	<b>Yes</b>	<b>NO</b>
1	I understand that my participation is voluntary and that I am free to withdraw at any time, without giving reason.		
2	I agree to take part in the study.		
3	I agree to the use of anonymised quotes in publications		
4	I understand that while information gained during the study may be published, I will not be identified and my personal information, comments, and results will remain confidential.		

.....

Name of participant

.....

Date

.....

Signature

## Appendix H: Questionnaire Survey Instrument for Validation Process

### A: Background Information

1. Years of experience in managing/involvement in PPP projects/research  
 < 5years    5~10 years    11 ~ 15 years    >15 years
2. What is your current position in the Built environment field/your Organization  
 Consultant    Private Developer    Public Partner    Researcher  
 PPP advisor    Financer    Any other   specify.....
3. Location/country.....
4. Please tick your professional background  
 Quantity Surveyor    Engineer    Land Valuer    Architect    Economist  
 Lawyer    Any other   specify.....
5. What is your highest educational qualification?  
 Bachelor Degree    Master's Degree    PhD    Any other   specify.....
6. Are you a member of any professional organisation?  Yes    No
7. If Yes which one? .....
8. Do you have any experience with PPP housing projects  Yes  No
9. Have you undertaken any formal education or training on PPP project management?  
 Yes    No
10. Which of the following PPP projects have you mostly been involved with in the last 5 years?  
 Hospital  
 Transportation  
 Housing  
 Health services  
 Schools and education  
 Others   Specify.....

## B: Introduction to the Conceptual Model

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 prevailing challenges, best practices and success factors.
- *Questionnaire* and *Interview* surveys were carried out in order to study the local context in terms of the practice, challenges and perceptions.

In developing the PPP housing conceptual model, (see figure 1) the adopted approach was based on the project life cycle approach. This involved designing systematically and customizing to address the vital stages that need careful attention throughout the life cycle of the project with respect to weaknesses identified. The 19 identified challenges were mapped with advocated remedial solutions to the framework (see Table 1 attached). Hence the purpose of the developed conceptual model is to suggest solutions in the form of a conceptual PPP model that will address the identified challenges and boost the chances of success.

The proposed model consist of five major phases, (preparation, planning, procurement, building and operating 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 in Tanzania.

## (C) Key Concepts and Validation Questions

This section provides the key concepts of the framework. Validation questions are attached in the end of each key concept.

**C1: In phase one, namely 'Preparation'**, the main goal of this model stage is for preparation and critical focus on the necessary groundwork in order to enhance skills and improve a PPP enabling environment. Because PPP is still immature in some countries in the areas of skills and experience, inadequate PPP skills and knowledge leading to poor planning and application appears as a significant challenge.

**Model strategy:** To overcome this challenge caused by economic problems and financial constraints, it is important to provide training to public officials. However, it is expensive for developing countries 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'.

Q1: To what extent do you agree that the above strategy will strongly address the skills/capacity challenge? [Fill with X]

Strongly agree  Agree  neither agree nor disagree  Disagree  Strongly disagree Please give a short rationale for your opinion.

**C2: 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 in the literature, leaving such tasks in the remit of the private sector may result in dishonesty and artificial demands. The following challenges 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"***. This is because they are project management and procurement oriented as evidenced by the Project Management Body of Knowledge areas (see PMI, 2008). 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.

**Model strategy:** 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 framework suggest detailed feasibility study to be undertaken and afterwards the proposal to be 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. 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.

Q2: To what extent do you agree that the consideration of feasibility study, value for money, affordability, and approval measures provides a strong solution for the four identified challenges? [Fill with X]

Strongly agree  Agree  neither agree nor disagree  Disagree  Strongly disagree Please give a short rationale for your opinion.

**C3: 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.

**Model strategy:** A set of prequalification criteria should be prepared to make sure that they align with the project goals because differing goals between parties was identified as a challenge. Additionally in this stage negotiations are discouraged because they sometimes lead to dishonesty 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 related to project management, procurement and legally related were identified. This may include the structure of communication, decision making, problem solving, performance evaluation and conflicts management. Competitive tendering and transparency are the control methods for this phase hence unsuccessful bidders should be informed why the winner was chosen in preference.

**Q3: To what extent do you agree that the set of prequalification criteria prepared to align with the project goals will address the differing goals challenge?**

Strongly agree  Agree  neither agree nor disagree  Disagree  Strongly disagree

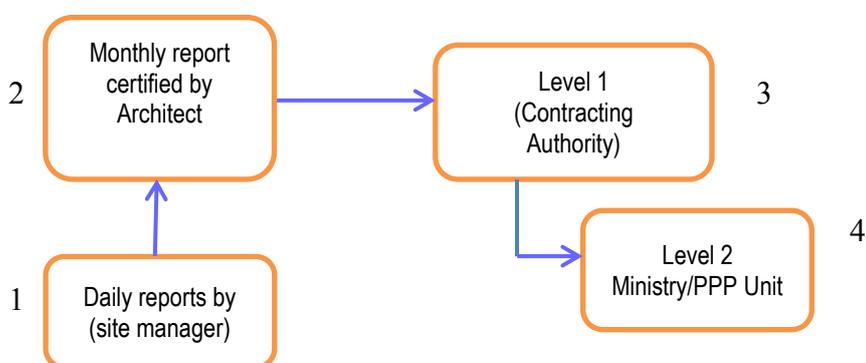
Please give a short rationale for your opinion.

**Q4: To what extent do you agree that competitive tendering and transparency are adequate control measures in the procurement phase?**

Strongly agree  Agree  neither agree nor disagree  Disagree  Strongly disagree Please give a short rationale for your opinion.

**C4: 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.

**Model strategy:** it is important to have a clear mechanism to monitor its performance. In this case, the framework suggest; the 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 following challenge; “inadequate project management and monitoring by public sector”. 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.



**Q5:** To what extent do you agree that the two tier monitoring mechanisms intended to provide a double check will ensure effectiveness and accountability?

Strongly agree  Agree  neither agree nor disagree  Disagree  Strongly disagree Please give a short rationale for your opinion.

**C5: 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 literature require an honest, fair and transparent allocation system to ensure that the houses reached the intended group.

**Model strategy:** Thus, a listing of public sector (database) and qualified house buyers, mechanisms would have to be established to control and regulate house allocation to a particular income group. In addition, for transparency and trust building between partners, 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.

**Q6:** To what extent do you agree that the concept of establishing a database is useful and significant towards adequate house allocation to the intended group such as the low income?

Strongly agree  Agree  neither agree nor disagree  Disagree  Strongly disagree Please give a short rationale for your opinion.

**Q7:** To what extent do you agree that the concept of establishing a joint account is useful and significant towards transparency on gained revenue and smooth operation of the project?

Strongly agree  Agree  neither agree nor disagree  Disagree  strongly disagree Please give a short rationale for your opinion.

#### **(D): General Validation Questions**

This section contains general validation questions which enquire on the applicability of the conceptual model and suggestions for improvement.

- **D1: Applicability**

**Q8.** To what extent do you agree that the proposed conceptual model is applicable in delivering PPP housing projects in developing countries?

Strongly agree  Agree  Neither agree nor disagree  Disagree  Strongly disagree

Please give a short rationale for your opinion.

**Q9.** To what extent do you agree that the proposed conceptual model can effectively address the identified challenges?

Strongly agree  Agree  Neither agree nor disagree  Disagree  Strongly disagree Please give a short rationale for your opinion

Strongly agree  Agree  Neither agree nor disagree  Disagree  Strongly disagree Please give a short rationale for your opinion

• **D2: Recommendation**

**Q11.** Please explain briefly any deficiency you have observed in the conceptual model?

.....  
.....  
.....

**Q12.** Please explain briefly any major benefits you have observed in the proposed conceptual model?

.....  
.....  
.....

**Q13.** What can you suggest to improve the proposed conceptual model?

.....  
.....  
.....

**END**

**Thank you for taking part in this study**

## Appendix I: Benefits of PPP in Housing Projects

Responses	Interviewees										No
	A <sub>2</sub>	B <sub>2</sub>	C <sub>2</sub>	D <sub>2</sub>	E <sub>2</sub>	F <sub>2</sub>	G <sub>2</sub>	H <sub>2</sub>	I <sub>2</sub>	J <sub>2</sub>	
Resource sharing	✓	✓			✓	✓		✓	N/A	N/A	5
Increased revenue		✓	✓		✓			✓			4
Increased property portfolio		✓	✓		✓			✓			4
Improved the quality and value of condemned properties		✓	✓		✓		✓	✓			5
Managed to rescue their properties which were under condemnation			✓								1
Opportunity to own properties in prime location of the city				✓			✓				2
Risk sharing						✓					1
Large mass construction was made possible						✓					1
Job creation to local people						✓					1
Knowledge transfer and sharing from the foreign company						✓					1
Modernize the beauty of towns and cities							✓				1
Sense of security partnering with public sector							✓				1

