

# **Development of Framework for PPP Initiatives for Affordable Housing**



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This is to certify that the Final Year Project titled  
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## **ABSTRACT**

Pakistan is facing the deficit in housing units like other developing countries, and this shortage of housing units has reached approximately 10 million due to an explosion of population and urbanization. The poorest and financially underserved segment are the most affected part of society majorly due to unreachable prices of houses. This study concluded that the framework of Public Private Partnership (PPP) and Real Estate Investment Trust (REIT) can resolve the issue of housing shortage especially for low-income families. The framework helped to simplify the mechanism for utilization of the expertise and investment (directly or indirectly) of private sector. The analysis of data collected from the experts of public and private sectors helped to develop a framework of public and private partnership models that delineated the roles and responsibilities of both sectors.

## **1. INTRODUCTION**

Due to surge in population, Pakistan is at verge of urban transformation. The total population explosion of Pakistan might reach to 380 million by the year 2050 if contemporary rate of population increases i.e., of 3 percent is considered (Kugelman et al., 2014). To guarantee adequate resources of housing, education, health, infrastructure, and food for this exponentially increasing population is necessity. Presently, 78% of the country's gross domestic product (GDP) is made through urban areas making it economic base of Pakistan (Karrar et. al., 2013). The half of the total population of the country will be reckoned as urban by 2025 as estimated by United Nations Population Division (Jabeen et al., 2017). The demand for housing in Pakistan, especially in the major metropolitan areas, is growing increasingly because of rapid urbanization. Seventy percent (70%) of the annual incremental demand for housing is constituted by low-income households (Yuen et al., 2012). Currently, there is a backlog of housing of more than 10 million units in Pakistan, and existing affordable housing has substandard living and poor infrastructure (Jabeena et al., 2015 & World Bank, 2018). This deficit of housing establishes the dire need to form a proper housing policy/rule to assist in handling the demand and supply gap of housing through provision of adequate quality in public and private sectors/institutions (Chohan et al., 2015).

Pakistan is facing the deficit in housing units like other developing countries and this shortage of housing units is increasing day by day. The housing which is being built by the developers is too expensive for the poor segment of the society and the prices are increasing exponentially. The poorest and financially under-served segment is the one who is suffering the shortage of the houses due to unreachable prices of houses. The financing of the houses is a major issue in Pakistan.

The government in its independent capacity is unable to provide the housing units to its people. The housing schemes initiated by the government of Pakistan in past majorly resulted in failure because of lack of financing and delay disbursement of funds by government (Riazul Haq et al., 2016). The private housing sector is also not considering the need of low-cost housing because of profit oriented approach.



In PPP, government agency and private sector enters into an agreement in which the private party executes a public function on behalf of a government agency and assumes substantial risks in link with the performance and execution of such public function. In the return of the investment of the private party, the party is reimbursed on the agreed terms and conditions. The projects in PPP are very complex especially when it is implemented in housing sector. The complexity and high risks of these projects often leads them towards the failure of the project. However, through proper planning and formulating the framework models of PPP. The projects executed under framework models of PPP can be landmark in the history of Pakistan.

Real Estate Investment Trust (REIT) is security that retails like a stock and invests in real estate either directly or indirectly. REIT can help to find the investment for real estate projects. Sometimes, the private sector is not in position to fully invest in a project and need to find the other sources of financing, in those cases the implementation of REIT along with private sector investment can create new framework models of PPP. This research comes because of high demand of low-cost housing in Pakistan and through development of new framework models for low-cost housing using PPP and REIT; a roadmap to success of projects for low-cost housing can be developed.

Thus, this research will focus on developing a framework model for low-cost / affordable housing using PPP and REIT which will help to simplify the mechanism for increasing the funding / capital through private wealth/investment (directly or indirectly), and public funding for projects. This study will also cover the stakeholder's management by delineating their duties within the framework.

## **2. LITERATURE REVIEW**

The housing deficit issue has been the main point of contention for low-income families. One of the causes of this deficit is that how markets were perceived by them (Ghaus et al., 1990). The market mechanism is having speculation, and mismanagement. Pakistan had a backlog of approximately 10 million housing units due to an explosion of population and urbanization (Shah et al., 2018). The initiation of private housing schemes has contributed to address this deficit in

Pakistan (Rahman et al., 2016), but the low-income families are most vulnerable part of the society in terms of the availability of affordable housing. The private and government sectors have not been able to cater for the need of housing of the low-income families in their independent capacity. The government is already overburdened in terms of financial and human resources. The private developers have started business in the real estate and property market, but their major motive is maximum profit. Furthermore, the private party in its independent capacity cannot address this housing deficit issue and have not considered the low-income segment as their potential customers. Government needs to formulate a policy for implementation of partnership model with private sector. Because, through only participation of the public and private sector, the housing deficit issue can be resolved.

## **2.1. CAUSES OF HOUSING CRISIS IN PAKISTAN**

The reasons for housing shortage in Pakistan were identified through a systematic literature review. To formulate the basis of this study, it was necessary to find out the causes of the housing crisis in Pakistan. A lot of researchers have worked to determine the reasons for shortage of housing in Pakistan. A chunk of articles (ranging from 2000-2019) related to housing crisis / shortage in Pakistan were perused and analysed to meet the desired objective. Sana et al., (2019) found that in Pakistan variety of housing institution with overlapping roles and responsibilities, intricate institutional framework with no clear distinction of regulatory or executing body, inadequate policy vision with no understanding of collaborative engagement and absence of PPP for affordable housing are major constraints of present institutional arrangements. Nuzhat Ahmad et al., (2002) found unemployment, less per capita income of household and excessive taxation on real estate as main causes for shortage of housing in Pakistan.

Likewise, Shah et al., (2007) and Hina et al., (2014) found out monopoly of real estate tycoon, weak urban planning & management, and flawed system of approvals as the major shortcomings for availability of housing. Furthermore, they pointed out that miserable economic growth, rapid urbanization, and rising population have resulted in an augmented demand for housing. It was argued that with passing time as population is increasing, housing poverty will become more critical aspect of overall poverty. Furthermore, Arif Hassan et al., (2018) highlighted that no legislation of land acquisition for low-cost housing, irregular

informal housing, inappropriate housing standards and land speculation are major reasons for housing crisis in Pakistan.

Azra Jabeena et al., (2015) established that exponential population growth, aging housing stock, overcrowding, development of slums, shortage of supply, Katchi Abadis, and lack of financial resources have aggravated the housing crisis in Pakistan. The accessibility of affordable housing in vicinity of public transport or mass transit has become imbalanced due to rapid regional urbanization and rising density convergence. The rising property prices and housing expenses, enormous informal settlements, inadequate investment in housing and slight formal mortgage institutions indicate significant probable distortions. Furthermore, a range of impediments including the absence of housing laws, frail property rights along with ineffective enforcements, costly construction, inappropriate subdivision regulations, unproductive urban planning regulations and policies, limited funding for property acquisition and development, distortive taxation mechanisms and rent controls are leading to crisis of housing availability.

Masoom Ilyas et al., (2018) concluded in the research that the problems of housing deficit do exist in the real-estate market of Pakistan. The major cause of housing deficit crisis was found to be rampant speculation by investors and information asymmetry, as most of the investors and developers were reluctant to share critical information with the market. This study also pointed out that government and real estate developers have a vested interest in the market.

Afshan et al., (2018) and Hina et al., (2019) found out low housing standards, inappropriate financing techniques, vague implementation framework of by-laws, limited financing opportunities, rural-urban migration, inflation, and population explosion as major causes for shortage of housing in Pakistan. This review identified major twelve (12) reasons for the shortage of housing in Pakistan. These shortages were then ranked according to their frequency of Occurrence as tabulated in Table 2.1.

Table 2.1. Frequency of occurrence of causes of housing crisis in Pakistan

Causes of Housing Crisis in Pakistan	Authors														Frequency	%age of Occurrence
	Azra Jabeen (2015)	Hina Shai kh (2019)	Arif Hasan (2018)	UP N. (2018)	Tri bne . (2018).	The Ne ws. (2018)	Afs han Su boh i (2018)	Sa bir Sh ah (2018)	Hi na Na zli (2014)	M Q Hus snai n et al (2016)	AIS HA GH AU S (1990)	NU ZH AT AH MA D (2002)	Sha h and Afr idi (2007)	San a Mal ik (2019)		
Population explosion	1	1	1	1	1	1	1	1	1	1	1	1		1	13	92.85714
Inflation	1	1	1			1	1		1	1	1	1		1	10	71.42857
Rural-Urban Migration		1	1		1		1	1		1		1	1		8	57.14286
Limited Financing Opportunities	1	1	1	1						1		1			6	42.85714
Vague Implementation Framework of By-Laws			1		1	1	1	1	1		1			1	8	57.14286

Inappropriate financing technique		1				1						1		1	4	28.57143
Housing Standards	1		1		1	1	1	1		1	1		1	1	10	71.42857
Per capita Income of a household	1	1	1			1	1		1		1	1		1	9	64.28571
Urban Planning, Management and flawed system of approvals		1	1		1	1	1	1	1	1			1		9	64.28571
Monopoly of Real Estate Tycoons			1	1	1				1		1	1	1		7	50
Excessive Taxation on Real Estate	1		1		1	1	1	1	1	1				1	9	64.28571
Unemployment		1			1			1		1		1		1	6	42.85714

## **2.2. LOW-COST HOUSING TECHNIQUES**

Dhiraj B Tapkir<sup>1</sup> et al., (2016) studied numerous techniques that can decrease the cost of project and analysed different factors which increases the cost of the project. The research was established on the study of aluform, precast and conventional techniques. The objective of study was to control/regulate the cost, but by upholding the quality of the project, that is the biggest concern nowadays. They determined that by reducing the time required for construction of the project and using efficient construction technique the cost of the project can be reduced. Their study concluded that by adapting the different construction technique like pre-cast and Aluform instead of conventional construction technique, the cost of the project can be reduced. It was further found that using aluform construction technique construction cost reduced up to 32.28%, and time reduction is 58.33% along with minimum waste production and declared this technique as best construction technique. Moreover, pre-cast construction technique strengthened the structure and reduced the cost and time than conventional technique, but it was more than aluform construction technique.

Manjesh Srivastaval et al., (2017) studied different methods/techniques being used for low-cost housing in India. By substituting the conventional methods of construction including planning and execution of project based on needs can help to achieve the targeting of mass construction of affordable housing. If the material or product is economical and effective, then acceptance of any alternative method can guarantee the market to function. Construction of affordable housing for low-income families is a great challenge. Developing new technologies/methods using different alternative materials required excessive efforts in the construction sector. They studied different low-cost housing techniques, and usage of the potential alternative construction materials. Although various techniques of low-cost housing have been established but due to unavailability of proper guidelines for implementation of alternate construction materials, the shortage of affordable housing is still intact. No proper guidelines have led to lack of awareness among builders/developers and the end users on the usage and benefits of these materials. One of the alternative methods for low construction cost is the usage of the filler slab instead of conventional slab. Furthermore, fly ash and rice husk ash and fly ash usage instead of cement can also be one option. The bamboo can also be used instead of steel as reinforcement. Under controlled environment and conditions,

prefabrication (partial) can also be used. By consuming less costly and conventional material having a reduced amount of investment can help to achieve low-cost housing. By avoiding transportation cost and using local materials, the construction cost can be reduced by 20 % to 30%.

### **2.3. OVERVIEW OF PPP**

PPP is a contractual procedure between public (federal or state, local) and private agencies to share tools, resources, skills and assets of each sector for efficacious delivery of a facility or service for use of public (Bloomfield et al., 2006). It is an alternative option of private financing initiatives and is globally documented as an effective and efficient way of achieving value for-money (Takim et al., 2009). It pursues to combine advantages of both the competitive tendering/bidding and flexible negotiations and assigns risks on agreed upon/mutual basis between both the public and private sectors through partnership (Carbonara et al., 2014). The allocation of risk is clearly communicated, and also understood and agreed upon between all project stakeholders. Consequently, private bidders and public clients need to assess all potential risks throughout project life cycle to guarantee fair results (Carbonara et al., 2014). A delicate steadiness must be sought among private sector capacity, government regulatory function and public satisfaction with the increasing demand and increasing pace of market-oriented transformation. (Demirag et al., 2011; Ameyaw et al., 2015). PPP projects are generally long-lasting agreements for provision of services and other related properties or facilities. Private sector body is liable for designing, and afterwards constructing the facility or infrastructure, and operating, maintaining, and providing services throughout the agreement term (Albalade and Bel, 2009). Practically, concessions have various variety and cannot be adjusted into a single group. Nevertheless, guidelines, byelaws and regulations concerning tendering and public finances have affected due to technical differences between concessions and operating concessions.

## **2.4. IMPLEMENTATION OF PPP IN HOUSING INDUSTRY**

Abdul-Aziz A.-R. et al., (2011) in their study focused on the aspect to identify the objectives of housing-PPP, and to determine the success and failure factors of housing-PPP. There are series of objectives which a public agency has while implementing PPP in housing which are organizational reputation, the reputation of the project, completion before stipulated time, completion of the project on time and value for money. The implementation of PPP in housing has certain success and failure factors. The success factor for projects was action against the errant and misbehaving developers and failure factor was the absence of the clear and robust agreement with developers (Abdul-Aziz A.-R. et al., 2011). Shi Wei et al., (2015) found that housing market growth in China has gone along with a fast increase in house prices making home acquisition gradually unaffordable for low- and middle-income families. Meanwhile, the absence of affordable housing provision has produced severe problems for the sustainability of urbanization. The Chinese government has reached a consensus that this imbalance between the housing and socioeconomic development is largely attributed to the inefficiency and insufficiency of the state for provision of housing. The affordable housing policy in china upholding the economic growth and urbanization as well as ensuring the political consolidation. The affordable housing system can be established by attaining the balance among various policy priorities of housing design, by putting the affordability of housing as primary priority, by reducing the dependence of local state on land revenue and by forming a housing finance system that is effective and efficient (Shi Wei et al., 2015). Ibem Eziy et al., (2011) in his study narrated that worldwide, PPP in housing has been getting wider acceptability for certain reasons. Firstly, state provision of public services has been apparently less efficient because of monopoly and lack of financial incentives to struggle for efficiency and resultantly public housing policies have been unsuccessful to meet the needs of the of the urban residents in less-developed nations. PPP is therefore observed as a means of decentralizing the housing distribution process by encouraging the participation of people and their organizations in providing services and housing in a more effective way at subsidized cost within a structure of government funding (Selskey et al., 2005; Yamamoto et al., 2007; Ikekpeazu et al., 2004). Advocates of this school of thought consider that partnerships among communities and the private sector reconciled by government encourage sharing of duties and provide interaction in overcoming complicated societal challenges. They further claimed that strengthening groups



through partnerships is the only way forward to achieve efficacy in public service delivery as well as a persistent market economy (Miraftab et al., 2004). He further added that this position had merit, because going by current certainties, it is evident that neither government sector nor private market sector can independently bear the responsibility of addressing the challenges of housing delivery in most of the developing countries. The role of PPP in improvement of access of low-income group to houses in Southern Nigeria demonstrated that study of state-owned housing projects in six different cities revealed that PPP has not been successful in providing the affordable housing to low-income earners due to nonexistence of State Policy on PPP. It further suggested that by developing and implementing a comprehensive National Policy on PPP, by providing the state land to the private partners at no cost and by decreasing the high standard of building will ensure better results (Ibem Eziy et al., 2011). Osei-Kyei R. et al., (2016) revealed through their research that five critical success factors for implementing the PPP policy in public construction project at Ghana were government backing and commitment, strong public support and relationship, frequent and open communication between project parties and the public, project viability and capable private partners. The study for issues and challenges of affordable housing among the middle-income group of the people of Malaysia measured that the issues for middle income group of society to get the affordable housing and discovered that major issues were availability of loan, the affordability of housing, the policy of the housing scheme, the attitude of the consumer, the neighbourhoods, the quality of house, the economic development, and the availability of transportation. The results of the research indicated that prices of the houses were increasing day by day, the housing loan policy was getting strict instead of facilitating, the less options were available to middle income segment of society for getting the house at desired location and the policy of housing scheme also needed revision (Baqutaya S. et al., 2016). Governments are determined to provide housing at reasonable/affordable rates and are searching for inventive methods to meet the growing demand. A PPP framework can be applied in affordable housing through variety of procurement prototypes, from design and build only to full engagement of private sector engagement. Normally, PPP framework are considered more complex than other in vogue procurement methods and require more experience and research (Moskalyk et al., 2011). Moreover, investment in affordable housing for low-income segment is classified riskier as compared to other private sector investments in rental housing (SusilaWati et al., 2009). The

projects of housing do not have accumulative revenues, unlike other utilities and infrastructure developments. Thus, applicability of PPP in housing provision is restricted.

In developing states, PPP in affordable housing for low-income segment of society are still evolving, and their applicability has been based on financial strength, the political atmosphere, and housing customs. The most PPPs in low-cost / affordable housing projects in Thailand, and other developing states failed to achieve targets of permitting low-income individuals to afford their own houses, and the basic reasons for failures of PPP-projects were unused fiscal funds, and weakened national economies (Sengupta et al., 2006). The study for determining critical success factors for PPP in affordable housing in the United Arab Emirates revealed that good governance, commitment and responsibility of public and private sectors, government guarantees, a favorable legal framework, political support and stability, and demand for and the debt paying ability of the project were the top critical success factors for PPP projects in affordable housing in (Alteneiji K. et al. 2019). The study for finding out the need for increasing the success of providing the adequate housing in Egypt revealed that housing policy should consider the enabling approach. The enabling approach is measured as latest inclinations in housing supply that is to change the role of the government/public sector from being the only provider of housing to the enable the housing markets and partnership. John Turner discussed that public sector should cease doing what they did badly, i.e., building/constructing and managing housing. He proposed that instead of public institutions being the main provider of housing units, the end users should be one of the main actors. Ghada Farouk Hassan. et al. (2012) described that the enabling the housing markets is setting up the supervisory framework/model that is needed and reform public sector institutions, focusing on different goals, and ensuring the accessibility of the machineries of housing supply that consist of land, labor, infrastructure, service providers, building materials suppliers, along with technical assistance and training. He further added that enabling partnership means involvement of all stakeholders in the process, accommodating the informal sector as its partner, examined land supply, finance, servicing informal areas and providing security during contract, and enable numerous mechanisms of housing finance and land towards poverty mitigation. To summarize, in his research he argued that the government intervention by integrating the areas of i) formation of the regulatory framework ii) government institution reforms iii) the guaranteeing the availability of

components of housing supply iv) refining partnership v) facilitating and increasing the housing finance and land assembly in order to enable housing markets and partnership vi) accommodating the informal sector as partner, can be helpful. There are different factors which are hindering the affordability of houses in developing country. The research identified that through efficient location of housing scheme, environmentally friendly and efficient construction material, smart infrastructure, and services having less capital and operating cost, and through financial assistance to low-income class, the affordable housing can be achieved (T. Fariha et al. 2018). The challenges for implementation of PPP in construction of housing projects in Dar Es Salaam city, Tanzania were inadequate PPP skills and knowledge, poor tendering and contracting documents, inadequate project management, inadequate legal framework, and misinformation on financials capacity of private partners. It was also concluded that proper regulations and favorable housing policies among other factors were necessary to the success of housing public and private partnership projects (Kavishe, N et al. 2016). The critical success model for PPP in delivery of public housing in Ghana revealed that there were six critical success factors which could lead the PPP model for public housing towards success. The six critical factors were guarantee by government, right project identification along with technical project feasibility, transparent and competitive procurement process, efficient and legal framework, stable and sound macroeconomic conditions and policies, availability of strong and robust financial market (Titus Ebenezer Kwofie et al. 2015). The critical failure factors in implementation of PPP in low-cost housing in Thailand in different project life cycle were identified as the pressure of policy, ineffective change management of public office for new challenges, inappropriate and defective bidding documents and TORs, incompetent contractors, undermined organizational culture and non-transparent staff's behavior, financial, attitude and behavior difficulties of low-income groups, political risks due to politicians' intervention and opponent government, economic crisis due to construction materials market price instability and market interest rate escalation, relative law and policy risks and the limitation on the housing finance (Surangkana T. et al. 2014). The research for the motives and inspiring factors for implementation of PPP for provision of public housing in Nigeria for both private and public sector partners indicated that the major motives for public sector partners are: i) resolving the budget constraint problem ii) earnings from sale of housing units iii) providing affordable and decent abode to the citizens iv) reduce the burden

of provision of housing from the government and shift to private developers v) cities and town's development vi) minimize the problem of housing shortage. The major motivating factors for the private developers are i) maximum profit ii) availability of large market iii) land availability for project iv) high and fast return on investment due to project viability v) prime location of project vi) fast approvals from government regulatory authorities. These motivating factors can be enhanced by the reforms in the policy and supporting the private sector involvement (Paschal Onyemaechi et al., 2016). The study for private sector involvement in the achieving the expected outcomes of housing development for low-income group in Nigeria and Malaysia through comparative study highlighted that Malaysia had boosted the success of partnership with institutional framework of the regulations, policy of government presence, encouraging socioeconomic structure which enhanced the income and the availability of the housing loans from the financial institution on favourable terms and conditions. While due to absence of vibrant government involvement in framing and implementing successful policies and proper established framework to direct, control, monitor, and manage the scheme to success, Nigeria had fell short to meet its quantified goals of provision of affordable and decent abode to low-income people (Bawa Chafe A. et al., 2011).

## **2.5. IMPLEMENTATION OF REIT IN HOSUING INDUSTRY**

Afolayan et al., (2017) through research explored the implementation of REIT as housing finance option in Nigeria and found that funding is the core of housing delivery. The traditional and recent modes of housing funding in Nigeria are prone to the inadequacies. The inadequacies of the present domestic methods of housing funding deserve a shift towards REIT. A REIT instruction and regulatory institute is desirable in Nigeria because the level of its awareness is low. Moreover, the operations of REIT must be explicitly defined and supervised. The necessary infrastructures anticipated for REIT to survive must be placed and raised in Nigeria. The stock exchange deserves strengthening in respect of REIT and more transparency.

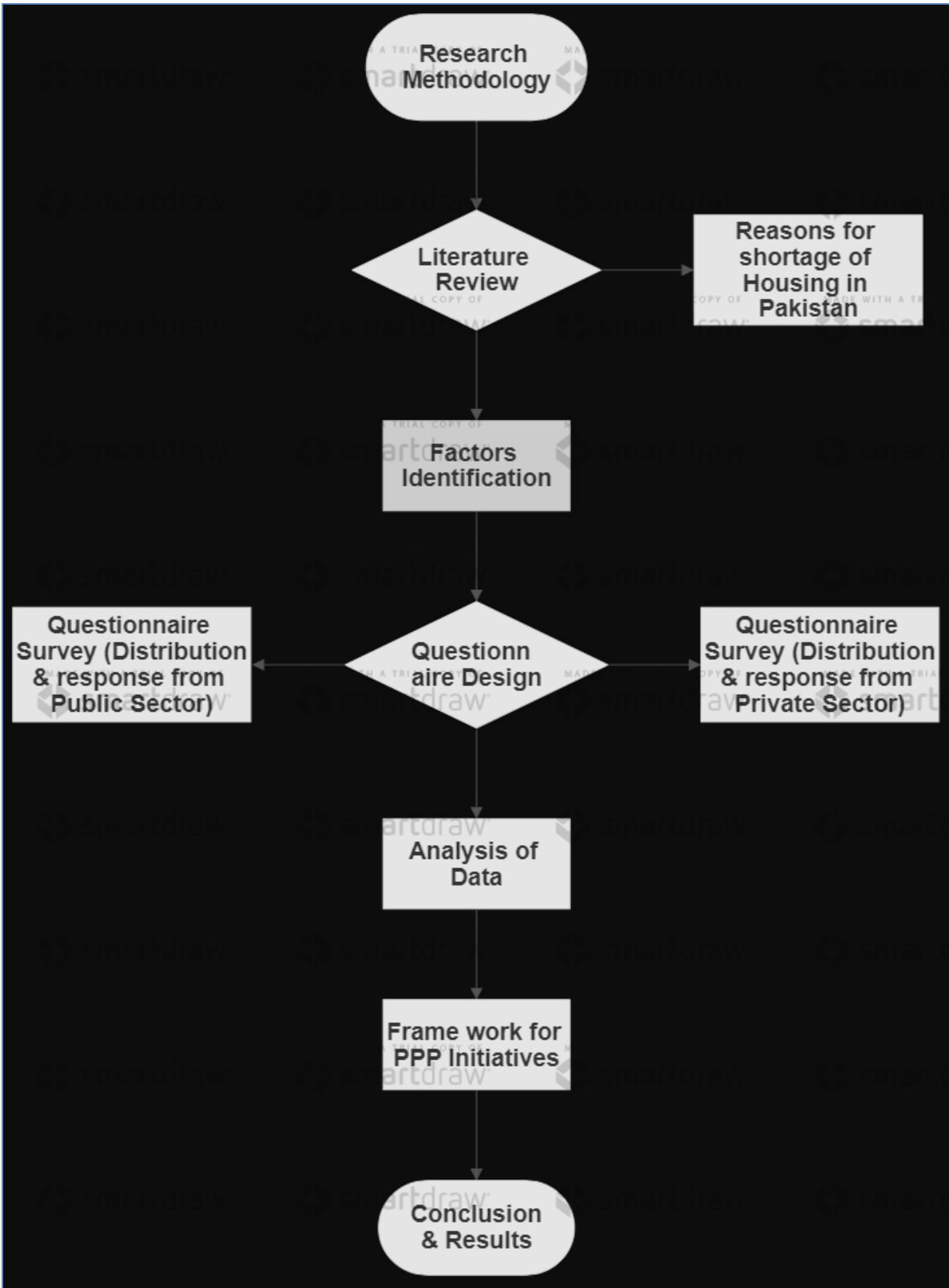
Drew Ades et al., (2016) pointed out that new methods are needed to ensure affordable housing for all income levels because of unavailability of rental affordability is affecting families across all income spectra. REIT for social purpose i.e., Housing Partnership Equity Trust (HPET), offers private market an

option for preserving affordable housing. This structure allows preservation of affordability at REIT owned properties. HPET is investment platform competing directly for profit and market rate buyers. Once the property has been acquired by Housing Partnership Equity Trust, it ensures rentals fees are at affordable levels. The option of REIT funding for affordable housing within developing nations of Africa was studied by Olusegun Olaopin Olanrele et al., (2019). The study through qualitative method determined PPP approach in housing results unaffordable housing units which are beyond the reach of most of the citizens in many developing countries. It was pointed out that through participation of REIT in housing projects of social housing, wherein the inhabitants are subscribers of the REIT will generate a sense of ownership to the residents and reduce non affordability of housing units.

### **3. RESEARCH METHODOLOGY**

The research methodology included quantitative approach. The data was collected through quantitative method. The data collected through quantitative approach was used to develop the framework.

Figure 3.1 shows the detailed research methodology flow chart from the inception of the idea to the conclusion of the research.



*Figure 3.1 Flowchart*

### **3.1. DATA COLLECTION INSTRUMENT**

The selection of data collection instrument was a critical step. During the detailed literature survey, it was evident that PPP has evolved as major approach for resolving the issue of housing deficit around the globe. The major stakeholder in this study were personnel of public and private sectors that were directly dealing with housing industry. To get the better and authentic response from the stakeholders, questionnaire was considered as suitable instrument for data collection.

#### *3.1.1. Questionnaire Design*

The main objective of this research is to develop a framework for implementation of PPP for provision of low-cost housing. For developing framework there is a need to determine the roles and responsibilities of private and public sectors in Public and Private Partnership. And those roles and responsibilities need to be properly delineated. To achieve this purpose, certain factors were determined through literature survey. These factors were helpful for determining the roles of both government and private sectors. For each factor, there is level of acceptability of that factor. Both private and public sectors dealing with housing industry were required to apprise about acceptance of that factor in their perspective. Certain factors had more acceptability rate for private sector while others had more acceptance inclination towards public sector. Besides acceptance of each factor, certain constraints were also linked with the applicability of factors. For each factor, input on level of agreement for constraints was also required from both stakeholders. Consequently, each sector apprised about the constraint associated with each factor through level of agreement, that either in their point of view, specific factor is considered as constraint or not and to what extent. This shall ultimately help to determine the applicability of each factor from the prospective of both public and private sectors.

#### *3.1.2. Level Acceptability of Factors*

The different factors derived for the questionnaire had different acceptance rate within the major stakeholders i.e. public and private sectors. Certain factors were more attracted to one party but seems less acceptable to other party. So,

the level acceptance of each factor was obtained from the experts both public and private sectors who were dealing with housing industry in Pakistan. The level of acceptability of factors was measured on Likert-Scale (1 to 5) representing the rating of acceptability of factor, wherein, Scale: 1 = Unacceptable, 2 = Slightly Unacceptable, 3 = Neutral, 4 = Slightly Acceptable, 5 = Acceptable.

### *3.1.3. Constraints Associated with Factors*

Each factor, whose acceptance was determined by public and private sectors, had associated constraints with it. Certain factor seems more acceptable to a sector but the applicability of that was not that much practical, that created a need to identify that which factor are to be termed as constraints and to which extent. The constraints associated with each factor were determined from both public and private sectors through level of agreement. Respondents rated the constraints associated with each factor through Level of Agreement of factors as a constraint on Likert-Scale (1 to 5) representing the rating of agreement of factor as a constraint wherein; Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4=Agree, 5 =Strongly Agree.

## **3.2. SAMPLE SIZE**

The main targeted population for this study were the experts of public and private sectors that are directly dealing with housing industry. For public sector the targeted population was the managers of government that are directly involved in formulating and implementing the policy work for provision of affordable housing were main targeted population, while on the other side, in private sectors all those developers/constructors who also have investment options available with them both in the form of land and / or financial equity. As, the targeted population was too limited, so the approach was to get the inputs from maximum targeted population. Due to limited target population, a sample size of 30 was obtained (15 respondents from public/government sector and 15 from private sector) and in total 30 responses were recorded from the officials/management of both sectors.



### **3.3. COLLECTION OF DATA**

The management of public and private sectors of the housing industry was approached through different means. As far as public sector was concerned, the major data was collected from the government institutions i.e. the management of institutions under Ministry of Housing & Works and Housing Urban Development and FGEHA under federal and provincial government. While for private sector, the data was collected from private developers that have equity both in the shape of land and / or finances and were part of the housing industry in the capacity of developer/investor. From those respondents, the filled questionnaire responses were collected. Afterwards, these responses were used for data analysis.

### **3.4. ANALYSIS OF COLLECTED DATA**

The major aspect of analysis of collected data was the rating of the factors based on responses, to determine the importance of each factor either it is acceptability of factor or level of agreement with respect to constraint of factor. So, for that purpose the technique of Relative Importance Index (RII) was used:

The Relative Importance Index (R.I.I) was calculated by:

- $RII = \frac{w}{A*N}$
- W: Weightage given to each factor by the respondent
- A: the highest weight in the research
- N: Total number of respondents

Based upon the ranking of the factors, the framework for models was formulated to clearly mark the roles and responsibility of each sector in case of PPP. Through rating, it was possible to outline that what shall be duty of each party.

## 4. DATA, ANALYSIS, INTERPRETATION AND RESULTS

The data collected through questionnaire was analysed to formulate the framework for policy of PPP. The different relative importance rating of factors helped to determine the practicality of the factors. The framework models were the desired results.

### 4.1. DATA ANALYSIS

At initial stage, the data analysis was to determine the RII of the factors, so that the same can be considered for devising a framework. The collected data had different responses from both stakeholders, so need to be analysed from both prospective. So, at the first stage, the collected data was evaluated and categorized in the following pattern.

#### *4.1.1. Level of Acceptability of Factors by Public Sector*

RII was determined for level of acceptability of factors for the data collected from public sector. The factors were ranked based on relative importance. Table 4.1 depicts the ranking of the factors based on RII and shows that the major acceptable factors by the public sector were proper tendering process, right of way to the project site, implementation of PPP skills and knowledge and refining organizational culture of government sectors etc. with RII of 0.99, 0.98, 0.97 and 0.96 respectively.

*Table 4.1 RII for Level of Acceptability of Factor by Public Sector*

Sr. No	Factors	SUM	Average	RII	Rank
1	Proper tendering process with clear TORs	99	4.95	0.99	1
2	Proper Right of Way (ROW) to project site	98	4.9	0.98	2
3	Implementation of Private Partnership skills and knowledge	97	4.85	0.97	3
4	Refining organizational culture of Government Sectors	96	4.8	0.96	4
5	Providing affordable and decent abode/shelter to the Low-Income Segment of society	95	4.75	0.95	5

6	Government Institution reforms in respect of Housing Policies	95	4.75	0.95	5
7	Refine the Partnership terms	95	4.75	0.95	5
8	Formation of the Joint Venture Regulatory framework	94	4.7	0.94	6
9	Reduce the burden of provision of housing from the Government and shift to Private Sectors	93	4.65	0.93	7
10	Minimize the problem of housing shortage through Joint Venture of Government and Private Sectors	93	4.65	0.93	7
11	Facilitating and increasing the Housing Finance and Land Assembly through Joint Venture	93	4.65	0.93	7
12	Political support and stability	93	4.65	0.93	7
13	Fast-track approvals of projects by Government Sector	93	4.65	0.93	7
14	Subsidize housing through Land Value Capture	93	4.65	0.93	7
15	Housing finance through Mortgages	92	4.6	0.92	8
16	Designing and development the housing scheme by Private Partner	91	4.55	0.91	9
17	Allocation of Housing units to Low-income Groups	91	4.55	0.91	9
18	Development of New Cities and Towns	90	4.5	0.9	10
19	Financing of project in shape of Equity by Private Partner	90	4.5	0.9	10
20	Ensure the Project Viability (demand for and the debt paying ability of the project - Right project identification along with technical project feasibility)	90	4.5	0.9	10
21	Use of environmentally friendly and efficient construction material	90	4.5	0.9	10
22	Completion within specified Time Period	90	4.5	0.9	10
23	Proper established framework to direct, control, monitor and manage the scheme to success	89	4.45	0.89	11
24	Frequent and open communication among project stakeholders	89	4.45	0.89	11
25	Smart infrastructure and services having less capital and operating cost	89	4.45	0.89	11
26	Private Land at subsidized cost	88	4.4	0.88	12
27	Implementation of project management	88	4.4	0.88	12
28	Availability of Land at prime location	87	4.35	0.87	13
29	State Land at subsidized cost	80	4	0.8	14
30	Operation and maintenance of Housing Scheme by Private Party	80	4	0.8	14
31	Guaranteeing the availability of components of housing supply by Government	79	3.95	0.79	15

32	Share of Government in Private Housing Schemes at Subsidized cost against Facilitation	78	3.9	0.78	16
33	Updating the Policy of Governmental presence in Housing Projects	77	3.85	0.77	17
34	Accommodating the Private sector as Partner	76	3.8	0.76	18
35	Financial assistance to Low-income class through cross subsidy	64	3.2	0.64	19
36	Provision of trunk infrastructure by Government	63	3.15	0.63	20
37	Sovereign Guarantees	33	1.65	0.33	21
38	Market price fluctuations	31	1.55	0.31	22

#### *4.1.2. Level of Acceptability of Factors by Private Sector*

The RII was determined for level of acceptability of factor for the data collected from private sector. The factors were ranked based on relative importance. Table 4.2 describes the ranking of the factors based on RII and shows that the major acceptable factors by the private sector were proper housing finances through mortgages, government institution reforms, availability of land at prime location, operation, and maintenance of housing scheme by private party, providing affordable and decent abode/shelter to the low-income segment of society and state land at subsidized cost etc. with RII of 0.97, 0.96, 0.95, 0.95, 0.94 and 0.94 respectively.

***Table 4.2. RII for Level of Acceptability of Factors by Private Sector***

<b>Sr. No</b>	<b>Factors</b>	<b>Sum</b>	<b>Average</b>	<b>RII</b>	<b>Rank</b>
1	Housing finance through Mortgages	97	4.85	0.97	1
2	Government Institution reforms in respect of Housing Policies	96	4.8	0.96	2
3	Availability of Land at prime location	95	4.75	0.95	3
4	Operation and maintenance of Housing Scheme by Private Party	95	4.75	0.95	3
5	Providing affordable and decent abode/shelter to the Low-Income Segment of society	94	4.7	0.94	4

6	State Land at subsidized cost	94	4.7	0.94	4
7	Proper Right of Way (ROW) to project site	94	4.7	0.94	4
8	Proper established framework to direct, control, monitor and manage the scheme to success	94	4.7	0.94	4
9	Frequent and open communication among project stakeholders	94	4.7	0.94	4
10	Guaranteeing the availability of components of housing supply by Government	94	4.7	0.94	4
11	Formation of the Joint Venture Regulatory framework	93	4.65	0.93	5
12	Political support and stability	93	4.65	0.93	5
13	Proper tendering process with clear TORs	93	4.65	0.93	5
14	Implementation of project management	93	4.65	0.93	5
15	Designing and development the housing scheme by Private Partner	93	4.65	0.93	5
16	Use of environmentally friendly and efficient construction material	93	4.65	0.93	5
17	Smart infrastructure and services having less capital and operating cost	93	4.65	0.93	5
18	Reduce the burden of provision of housing from the Government and shift to Private Sectors	92	4.6	0.92	6
19	Refining organizational culture of Government Sectors	92	4.6	0.92	6
20	Fast-track approvals of projects by Government Sector	92	4.6	0.92	6
21	Sovereign Guarantees	92	4.6	0.92	6
22	Provision of trunk infrastructure by Government	92	4.6	0.92	6
23	Completion within specified Time Period	92	4.6	0.92	6
24	Minimize the problem of housing shortage through Joint Venture of Government and Private Sectors	91	4.55	0.91	7
25	Accommodating the Private sector as Partner	91	4.55	0.91	7
26	Refine the Partnership terms	91	4.55	0.91	7
27	Ensure the Project Viability (demand for and the debt paying ability of the project - Right project identification along with technical project feasibility)	91	4.55	0.91	7
28	Facilitating and increasing the Housing Finance and Land Assembly through Joint Venture	90	4.5	0.9	8
29	Development of New Cities and Towns	90	4.5	0.9	8
30	Updating the Policy of Governmental presence in Housing Projects	89	4.45	0.89	9
31	Share of Government in Private Housing Schemes at Subsidized cost against Facilitation	89	4.45	0.89	9
32	Implementation of Private Partnership skills and knowledge	88	4.4	0.88	10
33	Financing of project in shape of Equity by Private Partner	78	3.9	0.78	11

34	Allocation of Housing units to Low-income Groups	78	3.9	0.78	11
35	Financial assistance to Low-income class through cross subsidy	74	3.7	0.74	12
36	Private Land at subsidized cost	60	3	0.6	13
37	Subsidize housing through Land Value Capture	30	1.5	0.3	14
38	Market price fluctuations	22	1.1	0.22	15

#### 4.1.3. Factors Considered Constraints by Public Sector

Each factor might contain certain level of constraints associated with its applicability. To determine the level of constraints, RII was determined for level of agreement of constraint of factor from the response of the public sector. Table 4.3 narrates the ranking of the factors based on RII and shows that the constraints associated with factors were ranked based on relative importance. The major factor having constraints on the applicability by the public sector were political support and stability, sovereign guarantees, guaranteeing the availability of components of housing supply by government, market price fluctuations etc. with RII of 0.97, 0.95, 0.94 and 0.94 respectively.

**Table 4.3. RII for Level of Agreement with Constraints of Factors by Public Sector**

Sr. No	Factors	Sum	Average	RII	Rank
1	Political support and stability	97	4.85	0.97	1
2	Sovereign Guarantees	95	4.75	0.95	2
3	Guaranteeing the availability of components of housing supply by Government	94	4.7	0.94	3
4	Market price fluctuations	94	4.7	0.94	3
5	Financing of project in shape of Equity by Private Partner	82	4.1	0.82	4
6	Share of Government in Private Housing Schemes at Subsidized cost against Facilitation	79	3.95	0.79	5
7	Availability of Land at prime location	79	3.95	0.79	5
8	Reduce the burden of provision of housing from the Government and shift to Private Sectors	78	3.9	0.78	6
9	Refining organizational culture of Government Sectors	77	3.85	0.77	7

10	Financial assistance to Low-income class through cross subsidy	76	3.8	0.76	8
11	Provision of trunk infrastructure by Government	74	3.7	0.74	9
12	Subsidize housing through Land Value Capture	74	3.7	0.74	9
13	Facilitating and increasing the Housing Finance and Land Assembly through Joint Venture	66	3.3	0.66	10
14	Accommodating the Private sector as Partner	65	3.25	0.65	11
15	Refine the Partnership terms	65	3.25	0.65	11
16	Private Land at subsidized cost	63	3.15	0.63	12
17	State Land at subsidized cost	62	3.1	0.62	13
18	Ensure the Project Viability (demand for and the debt paying ability of the project - Right project identification along with technical project feasibility)	60	3	0.6	14
19	Designing and development the housing scheme by Private Partner	60	3	0.6	14
20	Fast-track approvals of projects by Government Sector	59	2.95	0.59	15
21	Housing finance through Mortgages	59	2.95	0.59	15
22	Operation and maintenance of Housing Scheme by Private Party	59	2.95	0.59	15
23	Implementation of Private Partnership skills and knowledge	58	2.9	0.58	16
24	Proper Right of Way (ROW) to project site	58	2.9	0.58	16
25	Use of environmentally friendly and efficient construction material	56	2.8	0.56	17
26	Smart infrastructure and services having less capital and operating cost	56	2.8	0.56	17
27	Government Institution reforms in respect of Housing Policies	44	2.2	0.44	18
28	Development of New Cities and Towns	42	2.1	0.42	19
29	Minimize the problem of housing shortage through Joint Venture of Government and Private Sectors	41	2.05	0.41	20

30	Proper tendering process with clear TORs	41	2.05	0.41	21
31	Formation of the Joint Venture Regulatory framework	40	2	0.4	22
32	Updating the Policy of Governmental presence in Housing Projects	40	2	0.4	22
33	Proper established framework to direct, control, monitor and manage the scheme to success	40	2	0.4	22
34	Completion within specified Time Period	39	1.95	0.39	23
35	Frequent and open communication among project stakeholders	27	1.35	0.27	24
36	Allocation of Housing units to Low-income Groups	26	1.3	0.26	25
37	Providing affordable and decent abode/shelter to the Low-Income Segment of society	25	1.25	0.25	26
38	Implementation of project management	24	1.2	0.24	27

#### *4.1.4. Factors Considered Constraints by Private Sector*

Each factor might contain certain level of constraints associated with its applicability. To determine the level of constraints, RII was determined for level of agreement of constraint of factor from the response of the private sector. The constraints associated with factors were ranked based on relative importance. Table 4.4 states the ranking of the factors based on RII and shows that the major factors having constraints on the applicability by the private sector were sovereign guarantees, provision of trunk infrastructure by government, market price fluctuations and subsidize housing through land value capture etc. with RII of 0.97, 0.92, 0.92 and 0.89 respectively.



**Table 4.4. RII for Level of Agreement with Constraints of Factors by Private Sector**

<b>Sr. No</b>	<b>Factors</b>	<b>SUM</b>	<b>AVG</b>	<b>RII</b>	<b>Rank</b>
1	Sovereign Guarantees	97	4.85	0.97	1
2	Provision of trunk infrastructure by Government	92	4.6	0.92	2
3	Market price fluctuations	92	4.6	0.92	2
4	Subsidize housing through Land Value Capture	89	4.45	0.89	3
5	Housing finance through Mortgages	83	4.15	0.83	4
6	Political support and stability	81	4.05	0.81	5
7	Allocation of Housing units to Low-income Groups	81	4.05	0.81	5
8	Availability of Land at prime location	78	3.9	0.78	6
9	Accommodating the Private sector as Partner	76	3.8	0.76	7
10	Proper Right of Way (ROW) to project site	75	3.75	0.75	8
11	Private Land at subsidized cost	74	3.7	0.74	9
12	Guaranteeing the availability of components of housing supply by Government	73	3.65	0.73	10
13	Smart infrastructure and services having less capital and operating cost	73	3.65	0.73	10
14	Reduce the burden of provision of housing from the Government and shift to Private Sectors	64	3.2	0.64	11
15	State Land at subsidized cost	61	3.05	0.61	12
16	Use of environmentally friendly and efficient construction material	61	3.05	0.61	12
17	Financial assistance to Low-income class through cross subsidy	60	3	0.6	13
18	Development of New Cities and Towns	57	2.85	0.57	14
19	Implementation of project management	45	2.25	0.45	15
20	Minimize the problem of housing shortage through Joint Venture of Government and Private Sectors	37	1.85	0.37	16
21	Updating the Policy of Governmental presence in Housing Projects	36	1.8	0.36	17

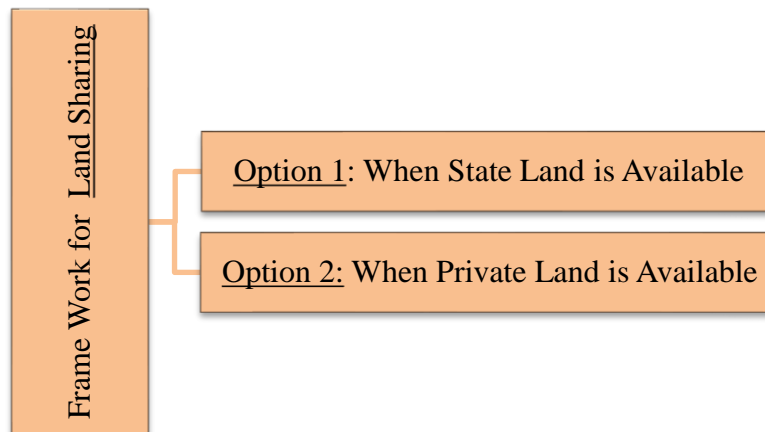
22	Implementation of Private Partnership skills and knowledge	36	1.8	0.36	17
23	Financing of project in shape of Equity by Private Partner	36	1.8	0.36	17
24	Fast-track approvals of projects by Government Sector	36	1.8	0.36	17
25	Completion within specified Time Period	36	1.8	0.36	17
26	Refining organizational culture of Government Sectors	35	1.75	0.35	18
27	Government Institution reforms in respect of Housing Policies	34	1.7	0.34	19
28	Proper tendering process with clear TORs	34	1.7	0.34	19
29	Refine the Partnership terms	33	1.65	0.33	20
30	Facilitating and increasing the Housing Finance and Land Assembly through Joint Venture	33	1.65	0.33	20
31	Designing and development the housing scheme by Private Partner	33	1.65	0.33	20
32	Frequent and open communication among project stakeholders	29	1.45	0.29	21
33	Ensure the Project Viability (demand for and the debt paying ability of the project - Right project identification along with technical project feasibility)	26	1.3	0.26	22
34	Proper established framework to direct, control, monitor and manage the scheme to success	26	1.3	0.26	22
35	Operation and maintenance of Housing Scheme by Private Party	25	1.25	0.25	23
36	Providing affordable and decent abode/shelter to the Low-Income Segment of society	24	1.2	0.24	24
37	Formation of the Joint Venture Regulatory framework	24	1.2	0.24	24
38	Share of Government in Private Housing Schemes at Subsidized cost against Facilitation	22	1.1	0.22	25

## **4.2. FRAMEWORK FOR PUBLIC PRIVATE PARTNERSHIP MODEL**

Data collected through questionnaire, for determining the roles and responsibilities of public and private partners, helped to bifurcate the framework for public and private partnership initiatives for low-cost housing in Pakistan.

The major factor for development of housing units is the availability of land (Figure 4.5). So, the framework was distributed as follows:

- i) Option 1: Land Sharing Model: When state land is available for construction of housing units
- ii) Option 2: Land Sharing Model: When private land is available for construction of housing units



**Figure 4.5. Classification of Framework models of PPP**

#### *4.2.1. Option 1: Land Sharing Model: When State Land is Available for Construction of Housing Units*

In this, the state land is available for development of housing units. The responsibility of the government is to provide the land, along with proper right of way to the site. It is also the responsibility of government to provide trunk infrastructure to site. Furthermore, fast track approvals for the project under PPP shall be provided by government. But the responsibility to finance the project lies with private sector either in its independent capacity or through amalgamation with REIT Model.

A special purpose vehicle will be formed for specific project. The escrow accounts shall be used for financial control. The tendering process as notified by relevant procurement regulatory authority shall be used for selection of private party. Both sectors shall work as partners. The operation and maintenance of the housing scheme shall rest with private party who may collect community management fee from the prospective allottees.

Prospective allottees of the government are low-income segment of the society. While the prospective allottees of the private sector are public other than low-income segment.

#### *4.2.1.1. Financial Investment by Private Sector Only*

All investment for development of the site shall be the responsibility of the private sector. The share of the government for low-income housing shall be determined based on the feasibility of the project, which shall be available for government at subsidized cost by private party. Accordingly, the share of private party in housing units shall be determined based on the specific feasibility of the project which shall be sold in the market for profit generation of private party. However, the commercial area of the scheme shall be used for cross subsidy of the government quota by private party.

#### *4.2.1.2 Financial Investment through Private Sector and REIT Amalgamation*

In this case, the private party partially invest in the project. The project feasibility is prepared. The specific project is launched in stock exchange and shares of the project are announced. The investment from shares is used as partial financing along with share of equity from the private party. The investors / shareholders will be paid back by the revenue earnings from residential and commercial area sales. The dividends will be disbursed to the shareholders.

#### *4.2.2. Option 2: Land Sharing Model: When Private Land is Available for Construction of Housing Units*

In this, the private land is available for development of housing units. The private party will offer the land to government sector for development of housing units along with proper access to the site. The government, after verification of the land, shall advertise the project for determining the response of booking of housing units from low-income segment public. The share of government and private sectors shall be determined based on the feasibility of the project. The targeted group of the government for provision of housing units are low-income segment. If enough units of the governments share are booked at initial stage and the project will be launched. The cost of the share of government including the land and development cost shall be paid through the receipts of the down payments and instalments received from the allottees. All

the receipt of both parties shall be collected in the project collection account that shall be used for payment of construction work and land cost. It is also the responsibility of government to provide trunk infrastructure and fast track approvals for the project under PPP; however, the cost of which shall be recovered through prospective allottees of the scheme.

A Special Purpose Vehicle (SPV) shall be formed for specific project. The escrow accounts shall be used for financial control. Both sectors will work as partners. The option of mortgage shall be available for allottees. The operation and maintenance of the housing scheme shall rest with private party who may collect community management fee from the prospective allottees.

Prospective allottees of the government are low-income segment of the society while, the prospective allottees of the private sector are public other than low-income segment. The share of private party in housing units shall be sold in the market for profit generation of private party. However, the commercial area shall be used for cross subsidy of the government quota.

In this case, the private party partially invest in the project, the specific project is launched in stock exchange as per REIT model, and shares of the project are announced. The investment from shares is used as partial financing along with share of equity from the private party. The investors / shareholders will be paid back by the revenue collected from the sale of residential and commercial area. The dividends will be disbursed to the shareholders.

## **5. CONCLUSION AND RECOMMENDATIONS**

The research was focused to achieve the set objectives. The analysis of the data helped to develop the outcome i.e., the framework for PPP initiatives for low-cost housing in Pakistan. The results obtained through research study can be concluded as follows:

- The research helped to find out the reasons for shortage of the affordable housing in Pakistan that were mainly inappropriate financing techniques, vague implementation framework of byelaws, limited financing opportunities, population explosion, inflation, rural-urban migration, housing standards, per capita income of a household, monopoly of real estate

tycoons, excessive taxation on real estate, unemployment, and flawed system of urban planning, management, and approvals etc.

- Through research, it was found that through involvement of private sector with public sector, affordable housing can be achieved. But for that purpose, the framework needs to formulate that refine the partnership terms and delineate the duties of each party. Framework of PPP initiatives was developed by adding an option of REIT. In this option, the investment of the project can be through private sector in its independent capacity or through amalgamation of REIT. Two options were developed, which were segregated based on the availability of the land for housing scheme, either by public or private sector.
- For Option-1, it was determined that when the state land is available for construction of housing scheme then the major responsibilities of public sector are to provide the land, along with proper right of way to the site. Furthermore, it is the responsibility of government to provide trunk infrastructure to the project site, fast track approvals for the project under PPP, to conduct a tendering process for selection of private party, to allot the housing units to low-income segment.
- When the state land is available for construction of housing scheme, the private sector is responsible to finance the development cost of the project either in its independent capacity or through amalgamation with REIT Model, to allot the housing units to its prospective allottees that will be public other than low-income segment of society and to operate and maintain the housing scheme.
- For Option-2, it was determined that in case the private party is offering the land for housing scheme, the public sector shall be responsible to determine the feasibility of the project, launch the project to determine the response of low-income public allottees, for fast-track approval of the project, to provide trunk infrastructure to the site, to prepare the schedule of the payments for its allottees, disburse the collected amount to private party.

- When private land is being used for construction of housing scheme, the private sector is responsible to provide encumbered free land along with proper right of way, to construct the housing units on market scheduled rates, to provide the subsidized housing units for allottees of government, and to operate and maintain the housing scheme etc.
- Based on roles and responsibilities, the framework of public private partnership was formulated that in which option of availability of state and private land was considered. For financing of the project, the option of REIT was also considered in amalgamation of equity / financing of the private sector. The concept of special purpose vehicle along with escrow project collection account was considered necessary for better financial control. The share of both parties in project was to be determined based on the feasibility of the project. The revenue collected from the residential share of private sector and commercial area was considered for cross subsidy of the quota of public sector, and for profit of the private sector.

Although this research formulated the detailed framework for implementation of public and private partnerships for low-cost housing in Pakistan. It is recommended that government shall implement these models through refining the Policy of PPP in terms of affordable housing. However, the future study can focus on formulating the factors that are needed for successful feasibility of the project. Those factors can strengthen the success rate for implementing these framework models in PPP.

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