A FRAMEWORK FOR AFFORDABLE HOUSING IN RURAL PAKISTAN.

Author

CHAUDRY ATTIQ AHMAD

Registration Number

00000277710

Supervisor

DR. ABDUL WAHEED

DEPARTMENT OF URBAN AND REGIONAL PLANNING

SCHOOL OF CIVIL AND ENVIRONMENTAL ENGINEERING

NATIONAL UNIVERSITY OF SCIENCES AND TECHNOLOGY

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Author

Chaudry Attiq Ahmad

Registration Number

00000277710

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Thesis Supervisor:

Dr. Abdul Waheed

Thesis Supervisor's Signature: _____

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THESIS ACCEPTANCE CERTIFICATE

Certified that final copy of the thesis titled “A Framework for Affordable Housing in the Rural Areas of Pakistan.” written by Mr. ChaudryAttiq Ahmad (Registration No. 00000277710), of Urban and Regional Planning (NIT-SCEE) has been vetted by the undersigned, found complete in all respects as per NUST Statutes/Regulations, is free of Plagiarism, errors, and mistakes and is accepted as partial fulfilment for the award of MS degree. It is further certified that necessary amendments as pointed out by GEC members of the scholar have also been incorporated in the said thesis.

Signature: _____

Name of Supervisor: Dr. Abdul Waheed

Date: _____

Signature (HOD): _____

Date: _____

Signature (Dean/HOD): _____

Date: _____

DEDICATION

This research work is dedicated to my beloved parents, who realized the importance of education and made me capable of reaching this level. At the same time, it is dedicated to my dearest brothers and sisters, who supported and guided me in every field of life. It is their love and support that enabled me not only to complete this task but also to walk every step of life with confidence and commitment.

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Chaudry Attiq Ahmad

ABSTRACT

Pakistan is fundamentally an agricultural state so, rural localities are important at national level development. Most of the population is living in the rural area of the country and have the agricultural source of income. Agriculture is 25 % of national Gross Domestic Product and so long as 70 percent of total worth of disseminates. This importance shows that rural development is much necessary in the sustainable way. Rural development should be comprises all segments of development specially housing issue which has been compromised in the previous development projects. There is a major challenge for the governments in the developing countries to provide affordable housing. Population growth is a key factor behind the growing demand of affordable housing. Pakistan having 191.7 million population is facing acute housing shortage of about 10 million units with annual demand of 0.7 million units with growing housing supply-demand gap. The housing deficit for low income households is about 4.5 million units, with annual addition of 150000 units. Most of the housing projects developed by private developers meant for higher profits and targets higher & higher middle income groups.

Rural localities of our country have a stress due to a constant ignorance by the both policy makers and researchers. Farm sector has not enough technological advancement to produce a high level product. Off-farm sector, also have not enough scope of enhancing their income level. Basic and social infrastructure are not upto the mark through which people get benefits in the longer run. The need assessment depicts that every rural segment has different nature of problems and their solution. There would be most suitable policy to support the homeless people in the different

ways such as those who have land but do not have enough income to build house so, their requirement is financial. On the other hand, those who have not ownership of land but their income sources are permanent they have need of cheap land where they can be able to build own house. In the third type, there are those people who have not both of above facilities so, there is need to develop such a mechanism through which their income could be insure and subsidized home should be access to them.

This issue of affordable rural housing has been totally ignored by government at both federal and provincial level. It has got importance in 2018 when government took initiative of 5 lac houses through Naya Pakistan Housing and Development Authority. Moreover, lack of data availability, lack of past research studies, and unwillingness of political leaders to participate and cooperate in the planning and execution of affordable housing provision are the main hurdles to achieve and measuring the affordable rural housing. The literature based identified grey areas and survey based barriers were integrated with the local conditions based parameters to form a new effective policy guideline framework. These parameters were used to measure the affordable housing in the other rural areas of Pakistan.

Key Words: affordable rural housing, rural development, barriers of affordable housing, housing needs, housing backlog, low income housing,

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CHAPTER 1

INTRODUCTION

Pakistan is mainly a farming land. Its countryside areas and the populace keep on to be the backbone of market. Agriculture is the major sector in the economy of Pakistan and contributing 25 percent of the Gross domestic product and provide 70 percent of the whole value of exports. This zone at present employs 17 million human resources, which are 44 percent labor force of the country. Nearly, 63.5 percent of residents reside in rural areas of Pakistan. The agriculture is the main source of their income and other enterprises are also dependent upon the agriculture directly or indirectly. Numerous of the rural low-income people lived in areas where arable land is inadequate, agriculture prospective are low down; drought and ecological dilapidation are ordinary properties. Furthermore access to fundamental human requirements i.e. essential human rights like drinkable water and sanitation, education and healthcare are far-off accessible in rural areas. The issues of undernourishment, low expectancy of life and high newborn death are more common in rural areas. This sector of agriculture cannot lonely make the rural development sustainable. There is need of development all segment like social infrastructure and poverty alleviation programs. No doubt that agriculture is the backbone of rural development even it is also backbone of national economy. It is important to value them as contributor to the service, executive of rural sites and environmental feature in shielding and improving the ecological unit and setting societal and civilizing order and above all trader of safe high class foodstuffs to customers. Successful rural community improvement have need of an incorporated and wide-ranging approach. We have to build, rationally, efforts to categorize economic opportunities, environmental constraints and

communal hopes. Sustainable rural development stresses a unbiased and a holistic approach in devising an practicable rural segment plan. There is a shortage of decent affordable housing all over the world even developed countries are also dealing with such a problem of affordable rural housing. It is helpful to differentiate low- cost housing and low income housing. The first is housing built at low-cost, while the second is housing not necessarily built at low-cost because the housing should be affordable for low income group of society. Rural Population of Pakistan is 63.6 percent of total population of the Country (World Bank 2016). Due to high percentage of rural population of Pakistan there is also need to analysis the housing demand and supply. On the other hand it also important the socio economic conditions which is directly associated with affordability of people. Here we tried to explore the condition and availability of affordable housing in rural areas of Pakistan on the basis of data that we will collect from censes, five year plans and surveys of case studies.

Unfortunately, the housing policies up to now are totally directed toward urban housing which has almost different aspects from rural housing. So there is need to evaluate the dynamics of rural areas which are influencing factors of housing demand. All over the Pakistan the shortfall of housing units is **10** million, and there is demand of **270,000** per years housing units.

1.1 PROBLEM STATEMENT

Beside with food and clothing, housing is also a fundamental need of human for their survival. Appropriate housing is an important constituent on the whole development and progress of an entity with he can take pleasure in both psychological and material health and breathe in affirm of protection, harmony and self-esteem. Housing is such a important component on which rest of all other fundamental needs have dependence for the standard living style. A variety of intercontinental declarations, covenants and Pakistan's own officially permitted explanations have point and again emphasized the necessity of housing as a human right. On the other hand, distant from its recognition, the issues of the housing segment in Pakistan, over the year both of these housing shortage and unavailability of basic facilities, has deepen. Rural housing sector had been given less attention and lower priority as compare to the housing in the urban areas and this It is the rural sector that has faced the major brunt of this crisis. Rural housing has been assigned a lower priority in comparison to urban housing and this difference made this issue more and more severe for the farmer and other people.

It tries to review decisively the authorized approach throughout Five Year Plans, different housing policies and programs. It also covered the institutions of rural housing to determine what went wide of the mark. Due to the biasness toward the urban housing there is an argument for separate housing policy of rural areas of Pakistan. It also demands some important components of this policy that possibly will go a long way to lessen the crisis of rural housing.

Village areas of Pakistan in common are in vast distress today due to constant lack of interest and ignore by the policy makers of government and scholars. Farm segment, off-farm part, essential infrastructure like roads, electrical energy, water, irrigation services, expansion of agro-processing industries etc. have been left lurching for

prioritization. Due to lack fund in the early era of planning, policy makers were forced to adopt the overarching philosophy of the growth pole theory, with the expectation, that the advantage of the urban-centric development will get into the rural surroundings progressively. Unluckily, that didn't turn out. There is ignorance of physical infrastructure even social infrastructure has been neglected too which made the living conditions of rural areas more and more badly.

This common neglect of rural areas also affects the rural housing sector. The living conditions and availability of related facilities in rural areas lag far behind urban areas. Despite these facts, rural housing has been ignored and neglected under urban biased policies and programs. If we study and analyze the indicators of housing conditions and amenities of rural households, the negative effects of this neglect are very clear. Whether it is the factor of congestion, type of housing construction, access to electricity, access to clean drinking water and sanitation facilities, rural households lag far behind their urban counterparts. Due to poverty and lack of access to any formal sources of finance, the rural poor are unable to build safe, sustainable and inhabitable housing.

1.2 RESEARCH OBJECTIVES

The primary goal of this research study is to assess the previous condition of affordable rural housing in Pakistan. The primary goal will lead to find the current scenario of housing in the rural areas of Pakistan. The purpose of this research is also to highlight the issue of affordable rural housing which had been ignored in the past due to various reasons.

OBECTIVES:

1) To examine rural housing development programmes of Pakistan
2) To assess housing needs of rural community
3) To identify barriers pertaining affordable rural housing
4) To develop a framework for affordable rural housing

1.3 SCOPE OF STUDY

Pakistan is agricultural county so it is most important for the sustainable way of development to improve the rural areas of country. There had been many projects done on the rural development with various factors like social, cultural, education and health etc. but the housing side is still poor due to unavailability of affordable rural housing. So, this study will help to encourage the research work to this side of rural development which will lead to make policies and solution regarding this critical issue. This study will provide the guidelines for the policy makers, institutions and governments in the field of affordable rural housing.

This study will serve the purpose of evaluation of rural households needs regarding various indicators and especially low-income housing. It will provide the analysis of previous programmes of rural development in different eras with different approaches. This research will cover the various aspects of need assessment through which it will guide the policy about provision of affordable rural housing and overcome this backlog of housing units.

1.4 RESEARCH GAP

There are many programmes for the sake of rural development in which most of them are targeted to improve the agricultural production to run the economy of country. Due to agricultural country governments have more focus to enhance the growth of agriculture so, due to this major factor there are many projects of rural infrastructure and social development. It has been seen that housing sector perform very poor throughout the country and in the rural area its condition is very bad because of lack of interest and planning. Pakistan has still 63.6 percent of rural population which depict the importance of demands of rural areas. Our urban areas are also facing a serious problem of housing shortage and governments are not able to counter this so, rural level issue with respect to their living style is easy to manage and it will also help in the housing problem of urban area.

The housing backlog in the whole country is of 10 million units and it is continuously increasing 270,000 annually. There has been number of projects regarding affordable housing but rural housing is not getting required importance. It has many observed that provinces also need to deal with this issue more seriously after 18th amendment of constitution of Pakistan. KPK and Baluchistan have rural population 81.2 percent and 72.5 percent respectively which means there is need of more serious effort for the provision of affordable rural housing.

CHAPTRE 2

LITERATURE REVIEW

2.1 HOUSING FOR RURAL POORS

The rural poor are, in many ways, invisible.

Rural housing policies are different from urban ones due to topographical concerns (Halseth and Rosenberg, 1995; Lewis, 1979). There are certain rural housing difficulties that are unique to these places, just like there are in other kinds of communities. Due to these particular circumstances, "place-based" techniques are used to highlight the necessity of developing relevant solutions to local troubles in order to address the increasing variety of housing desires in rural community.

It is challenging to compare housing research done in different nations or by unlike writers in the identical region or country because diverse definitions of rural communities have been employed (Halseth and Halseth, 2004, Lewis, 1979). Similar to this, the absence of a standard definition might result in inconsistent research results. The initial generally used description of "rural" comes from Statistics Canada and refers to group of people outer of an urban area. As a consequence, Statistics Canada considers any neighborhood that is not classified as a census metropolitan area, census agglomeration, or minor urban area to be rural, even if this could include suburban communities close to significant urban areas. The Organization for Economic Co-operation and Development's second concept has been applied to Canadian rural housing studies (OECD). Measures of population density are also used by the OECD definition to differentiate among town and countryside areas. The OECD defines "countryside community" as places with fewer than 150 people per

square kilometer and no more than 10,000 inhabitants (du Plessis et al., 2001; OECD, 1994).

2.2 Affordable housing

The issue of housing affordability can be delicate in some places. Admitting that there is a "affordability problem" could be interpreted as acknowledging the need for more housing in a town. Where such housing is not desired, locals may prefer to discuss the various means of ensuring that people receive the housing they require rather than using the word "affordability," which could be interpreted as approving undesired growth. In order to assess whether households can satisfy their fundamental housing needs within the current housing market with their available income, home affordability has become a common metric.

2.3 Definitions Affordable Housing

The definition of housing affordability used in this essay is taken from the 2005 Provincial Policy Statement. For both owner-occupied and rental housing, housing affordability is defined as:

2.3.1 In the case of ownership housing,

Housing where the purchase price translates in yearly housing costs for low and moderate income households which do not go over 30 percent of the gross yearly family earnings, housing for which the purchase price is at least 10% below the average purchase price of a resale unit in the regional market area.

2.3.2 In the case of rental housing,

a. A rental unit for low- and moderate-income households when the rent does not amount to greater from 30 percent of the gross yearly family revenue.

b. A property where the rent is equal to or less than the regional market area's average rent for a unit

2.4 AFFORDABLE RURAL HOUSING AT INTERNATIONAL LEVEL

2.4.1 CASE STUDY OF ORTARIO, CANADA

The purpose and objective of this project was to find the answer about two necessary below questions.

1. What are the main barriers to obtaining affordable housing in rural Ontario areas, such as a shortage of available rental units, sluggish building progress, or a dearth of local construction firms?

2. How housing affordability in rural towns of Ontario be improved through the introduction of policy reforms or initiatives at the local, provincial, and federal levels?

They don't plead about reform. They did not gather in city centers. They seldom ever wait in lines at shelters for the homeless because, almost without exception, none exist. They don't frequently visit the nearby employment insurance office because it is no longer so close by. They rarely voice complaints about their situation since in rural Canada, it is simply not how things are done. Agriculture and Forestry Standing Senate Committee, 2006.

All levels of government must set affordable housing priorities in order to make sure that their initiatives complement one another and address the problem. Furthermore, in order to recognize variances amongst communities, housing regulations and policy directives must be adaptable. The possibility to meet the housing requirements of low-income rural populations is significant given the current investments in affordable housing.

2.4.2 CASE OF RURAL ENGLAND

Villages as a Target: The Case for a Targeting Strategy An innovative rural housing programme that focuses on the housing programs and their provision constraints which keep on to fuel rural gentrification is now strongly justified in light of this long-standing inability to address the demands of villages and hamlets. Numerous options could be pursued, some of which have previously been considered. At the same time, they should be subject to the same regulations as urban areas. The Homes and Communities Agency should view them more favorably, which could increase investment in rural areas. Such strategies will, however, be most effective in market towns because this strategic programme is primarily intended for larger centers. It is also a well-known programme that, in the 1960s and 1970s, was used in conjunction with the "key settlement" policy. Today, the Market Towns Initiative of the government resonates with this programme. However, it does not immediately address the requirements of the "difficult-to-reach" communities, where high external demand and planning restrictions may force lower-income households to move. There wasn't much in the ARHC report for villages, and certainly nothing new, other than revisiting the "problem of second homes" (which usually concentrate in more remote villages; Gallent et al., 2002) and expressing support for the exceptions policy. This shouldn't be shocking. In many of these villages, the adage "no land, no solution" holds true. It is also true that gentrification in the late 20th century has produced neighborhoods where the replacement population has little desire or need for affordable housing. However, there are a lot of other places where there is land, vacant property, and a desire and need for cheap housing. The affordability indices, which were previously given, present a strong argument for action: median wage earners are increasingly being excluded from rural markets, and the absence of

affordable housing has emerged as the main force driving social change in "country England." Therefore, these settlements are the ones that need a programme of customized and focused assistance.

Conclusive findings of this study on English communities include the following significant findings:

- The regular allotment of extra land for housing within and next to villages is being seriously considered.

- The creation of a "second focus" in rural housing policy, focusing on the unique difficulties of remote communities rather than the broader issues facing rural areas. The Homes and Communities Agency may continue this focus, and given the broad mandate of the new organization (on "regenerating" communities).

-

About 12,000 of the new, affordable dwellings that were delivered in England in 2004–2005 were situated there. These statistics from the Department of the Environment, Food, and Rural Affairs take stock acquisitions into account. These "rural areas" are, however, comprised of "major rural" areas, where just 26% of the population resides in rural settlements, "Rural-50" areas, which can be semi-urbanized, and "Rural-80" areas, which are primarily rural but not totally.

It still serves as the stated purpose of addressing the problem of affordability in remote villages. It entails issuing "off-plan" permits, frequently on agricultural property outside of a village's "development boundary." Once more, this land is not typically used for residential purposes. The effectiveness of the strategy depends on the ability to persuade landowners to sell their property for a sum that is closer to its

agricultural value than its full development worth. Owners will hold onto all land in the hopes that it would someday be designated for market housing, according to research, if the planning authority's development strategy is ambiguous or its intentions for a specific site are unknown (Gallent& Bell, 2000). The strategy was once thought of as eccentric and at odds with plan-led initiatives. PPS3, however, has said that a "rural exception". However, PPS3 has said that one method of "allocating and releasing sites purely for affordable housing" is through the use of a "rural exception site policy" (DCLG, 2006a, para. 30). Because they are subject to restraint laws, small sites that wouldn't typically be used for housing are dealt with differently under the exceptions approach than under the general approach. Despite these variations, all strategies result in a land subsidy that is used to help pay for some of the 'local need' housing.

2.4.3 Affordable Housing in 'Village England'

All levels of government must set affordable housing priorities in order to make sure that their initiatives complement one another and address the problem. Furthermore, in order to recognize variances amongst communities, housing regulations and policy directives must be adaptable. To promote the construction of affordable housing in rural regions, local governments must be given the authority to employ a variety of instruments. So that rural towns can provide incentives for the creation of a portion of the allocations intended for market towns are instead allocated to villages and used to build homes for local need, the plan (which would increase the amount of land set aside for housing) might be ineffectual and inappropriate.

2.4.3.1 PLANNING AND AFFORDABLE HOUSING

The third Conservative government began considering strategies for switching to more diverse and creative methods of generating affordable homes in the late 1980s. According to a revised version of planning policy guidelines on housing proposed in 1989 (Gallent, 2000).Additionally, it was argued that the demand for affordable housing in a community ought to be a significant planning factor. It had an impact on the 1987 Housing White Paper (HM Government) and the 1988 Housing Act that followed. Gain from planning could serve as a source of funding for low-cost housing.

The second planning and affordable housing strategy allows for special planning permissions to be granted for housing on property that would not typically be made available for this use. It still serves the purpose of providing an answer to the problem of affordability in rural communities. Once more, homes would not typically be built on this property. The landowner, a registered social landlord, a developer, and the local planning authority can move forward.

Housing for local needy households at a price they can afford, being transferred to a licensed social landlord, being rented to Nick Gallent's 270 needy households. The effectiveness of strategy depends on whether landowner be able to be persuaded to sell their property for a sum that is closer to its agricultural value than its full development worth. According to research, landowners will hold onto all of their property in the hopes that it would one day be designated for market-rate housing when a planning authority's development strategy or intentions for a specific site are unclear (Gal lent& Bell, 2000).The strategy was once thought of as eccentric and at odds with plan-led initiatives. However, PPS3 has said that one method of allocating and releasing lands exclusively for affordable housing is through the use of a "rural

exemption site policy" (DCLG, 2006a, para. 30). Despite these variations, both strategies produce a land subsidy that is utilized to help pay for some of the "local need" for affordable housing.

2.4.4 HOUSING CONFERENCE IN UK (2012) by RSN

The rural services network at the University of Gloucestershire organized this meeting. Mr. Jo Lavis served as the conference's foremost expert on rural housing.

First, we must avoid repeating the errors of the past by going back to the bad old days of Key Settlement Planning, in which all development takes place in neighborhood service hubs while villages wither. The purpose and connections between rural villages are more complicated. While some operate in clusters and others as hubs, both can result in sustainable development.

The best course of action is for development to be responsive to local conditions in terms of scale, type, and tenure. Second, go to regional and local builders instead of the big guys who aren't interested in tiny sites because they offer additional sustainability benefits like keeping money local, cutting down on travel time to the site, and creating jobs close by lastly, viability is crucial. Cross-subsidization will be effective in some areas, but grant help will still make a difference in whether there are any new, affordable homes built at all. In order to take advantage of all chances, Lavis recommended local authorities to adopt "strategic opportunism" and restructure their interactions with housing associations and communities.

Fourth, Lavis urged councilors to take a more proactive role in decision-making by being knowledgeable and helpful.

Lavis concluded by pleading with decision-makers to keep "rural affordable housing on the political radar". In order to get cheap homes built, the role of rural housing enablers was also emphasized, where they are used to build bridges between communities, housing associations, planners, and others. Tracey Besant and Lavis specifically highlighted Faith in Affordable Housing—the utilization of church property and resources to build affordable housing. When it comes to converting church structures, schools, Glebe land, and community arenas into affordable housing, Tracey serves as a specialist enabler.

2.4.5 CASE STUDY OF KARALA, INDIA

The dire need for increasing housing supply is being urged by the current and deteriorating global housing situation, which has risen to the forefront of policy discussion. The causes and characteristics of these issues vary from one nation to the next depending on the local social, economic, and political environments. Kerala has a very diverse housing market than other regions of India. According to official projections, everyone in Kerala will possess a home by the year 2006 if the current pace in house construction continues. But a closer look at Kerala's present housing situation reveals another angle to this general picture.

Despite many beneficial developments, there are still obvious slum-like regions in human settlements in rural sections of the state, and many residents lack access to basic services like drinking water and sanitary facilities. The multifaceted problem of housing, which has its roots primarily in poverty, is made worse by a lack of resources, weak institutional capabilities, and an unsupportive legal and financial system. It is understood that the provision of suitable shelter for all people and the growth of human settlements cannot be separated from a nation's overall social and

economic progress. Without viable and environmentally favorable technical advancements, sustainable-affordable housing cannot be realized.

The current state of the doctoral study on sustainable, affordable housing for rural Kerala is reviewed in this document, along with the study's preliminary findings. The following results will be discussed in this presentation.

•The conceptual framework (CF) suggested for examining the parallels and divergences in the housing issue for developing nations

•Review of the Economically Weaker Section (EWS) in Kerala's current housing scenario is conducted in order to comprehend the issue from a sustainability perspective and to examine the success and failure elements of public housing intervention.

•Recommendations for environmentally friendly technical options for low-cost homes. The review of the current building process in Kerala suggested the following criteria for choosing environmentally friendly technical solutions for cheap homes. I Socio-cultural Factors - The fundamental requirements for socio-cultural sustainability can be regarded as acceptance, awareness, and viability of technical solutions. Decentralized production is important because it promotes self-help or mutual aid and increases the viability of sustainable constructions. This is demonstrated by the rising popularity of some CEEF technology alternatives (such as hollow or solid concrete blocks and pre-cast door and window frames). The following requirements should be included in the new options to support sustainable, affordable housing in Kerala.

It ought to encourage local resource utilization and decentralized production.

In a reasonable amount of time, alternative technology solutions should be able to demonstrate their superiority to the status quo.

Economic considerations - Technological solutions that require the least amount of infrastructure, basic materials, and unskilled labor can make sustainable buildings more affordable. Consequently, the requirements for accessible technology in Kerala can be divided into the following categories:

Using products that are readily available locally

Technologies with minimal requirements for resources, infrastructure, and expertise

Needs for unskilled labor

Less time-consuming

Technology requirements: The majority of the technological alternatives that were used in Kerala at the time were technologically sound, and their lack of sustainability was primarily attributable to other issues. The review concurs that there is a need for novel technological solutions based on renewable resources, as well as for the promotion of such innovations.

Environmental considerations - Like technological issues, environmental considerations call for more global standards than regional ones. The examination of the current building process in Kerala indicates to the need for more locally created ecologically friendly alternatives in the building process, including the use of recycled and renewable materials and less energy-intensive technologies.

From the point of view of the user, sustainable affordable home is one that is "affordable" and "accessible" to them to "satisfy their housing demands." In order to make sustainable housing accessible and cheap to the poor, it is important to have

effective policies, according to the study of Kerala's public housing programmes. It is also inevitable that newer, more environmentally friendly technology advancements will spread, which helps to increase the supply of inexpensive housing. The continuing work in this research involves developing region-specific strategies based on the analysis's findings in order to achieve the goal of housing-driven sector development as a whole.

2.5 Affordable rural housing and rural development in Pakistan

As Pakistan is an agricultural country so, defensible rural improvement demands a composed and a all-inclusive approach in developing an actionable countryside section strategy. In this research there is focused on specific factor of rural development which is housing. All other factors have been observed in the different rural development projects like roads, water supply, sanitation, agricultural aspects and other social components but housing component was not considered as serious.

There are several rural development programs have been launched by public and private sectors. These programs were targeted to the development of rural area of Pakistan because our economy is predominantly dependent upon the agricultural sector. For this purpose the government of Pakistan have been tried to improve the development level of rural segments with the help of assessment reports and rural development projects at different levels of administrative units.

The surviving literature has explored the stuff of deficit of the housing area in under developed states and shown several magnitudes of long-lasting tasks inside the reasonable housing conveyance. Prior research of housing procedure development in the third world countries had identified that the program of affordable housing and

rural development did not get required attention from local and national level of governments until 1960 (Harris & Arku, 2007).

More than 10 million housing units are currently backlogged in the nation, and the affordable housing that is already accessible has substandard living conditions and bad infrastructure (Jabeena, Sheng, &Aamir, 2015). The acute need for strong housing policy to properly control the demand for and supply of high-quality dwellings in both the public and private sectors is demonstrated by the housing shortage. (Chohan et al., 2015).

Due to Pakistan's underwhelming housing market, the public has begun to believe that the state government's efforts to provide cheap homes were made more for show than to actually help low-income groups better their standard of living. Since deserving households were not accurately targeted in these projects, the poor cannot afford these programmes. Additionally, because of the delay between the allocation and the actual construction of affordable housing units, families with little to no savings who urgently need a place to live are not included. (Siddiqui, 2015).

There is now a shortage of more than 10 million housing units in the country, and the cheap housing that is already available has poor living conditions and outdated infrastructure (Jabeena, Sheng, &Aamir, 2015).

2.5.1 FIVE YEAR PLANS OF DEVELOPMENT

- **First Five-Year Plans (1960–1965)**

Former Prime Minister Liaquat Ali Khan initially started this programme, in 1948 and it was approved in 1950 for the term 1950-1955. It became ended due the monsoon floods and shortage of food and medicine in the country. There was a start

of state due to which economy was not much capable to run this programme and bear load of other issues. It was restore in 1965 with the focus area of agricultural development and 27 million rupees had been spent for the purpose to manage and enhance the agriculture in the country.

- **Second Five-Year Plans (1960–1965)**

Despite the failure of the initial five-year plans, President Ayub Khan's military government revived and reaffirmed the programmes. The second five-year plans had one overarching goal: "to push the country as far as possible, within the next five years, down the road of these long-term objectives." They placed the most emphasis on heavy industrial expansion, improvement in literature, and scientific advancement. Additionally, advancements in communications, transportation, and railroads were made. The second five-year plans focused more on agricultural and private sector industrial development, with the goal of boosting national income by 20%. With the industrialization of the nation, the unemployment problem was addressed, and most important industrial development took place in West Pakistan while very little occurred in East Pakistan.

- **Third Five-Year Plans (1965–1970)**

Foreign aid fell down after the 1965 Indo-Pak War over the Kashmir problem, and Pakistan was compelled to comply with economic restraints. The third five-year plan, which was created in the same manner as its recent predecessor, only generated modest growth. By 1970, the nation had become increasingly urbanized, with 10% fewer people living in rural areas than in 1950. The third five-year plans supported private sector investment initiatives and tended to boost directly beneficial investments for the steady growth of the financial sector. The third five-year plan prioritized improving the capacity of the private sector to operate in the nation while

focusing on GNP growth, which climbed by 122%. The first three five-year programmes were successfully completed with it.

- **.Fourth Five-Year Plans (1970–1975)**

After the fall of Dhaka East-Pakistan, the fourth five-year plans were out of control. The Zulfiqar Ali Bhutto administration mostly ignored the fourth five-year planned cycle. Only annual plans were created and generally disregarded during Bhutto's rule. The nationalist programmes, which included a high degree of government ownership management on private businesses, took the place of the fourth five-year plan. In order to make Pakistan a significant "scientific superpower" in the globe, the fourth five-year plans' only scientific components were approved.

- **Fifth Five-Year Plans (1978–1983)**

Planning has received increased attention from the Zia government. The Fifth Five-Year Plan (1978–1983) made an effort to improve the economy and the lowest income group of the population's standard of living. The Soviet invasion of Afghanistan in December 1979, which resulted in an influx of refugees into Pakistan, as well as the sharp rise in global oil prices in 1979–1980 diverted funds away from the planned investments, but the plan failed to spur significant private industrial investment or raise spending on rural infrastructure development.

- **Sixth Five-Year Plan (1983–88)**

The introduction of the sixth five-year plans marked a significant turn toward the private sector. With low investment and savings rates, low agricultural productivity, a dependency on imported energy, and low spending on health and education, it was intended to address some of the biggest economic problems. During the plan period,

the economy grew at the desired average rate of 6.5% and would have exceeded the goal except for the perilous droughts in 1986 and 1987.

- **Seventh Five-Year Plan (1988–93)**

The Benazir government will unveil the Seven Year Plan. 350 billion rupees were allocated for public sector spending overall in the seventh plans. 36.5 percent of this total was allocated for the production of energy, 18% for travel and communications, 9% for water, 8% for housing and physical infrastructure, 7% for education, 5% for industry and minerals, 4% for health, and 11% for other sectors. In comparison to earlier, the plan placed a lot more focus on private investment across the board. Additionally, it was designed for public-sector businesses to use borrowing and profits to fund the majority of their own investment plans.

- **Eighth Five Year Plan (1994–98)**

In late 1992, this group which included prominent businessmen, chamber of commerce presidents, and top government officials submitted its report. The eighth plan, however, was not yet publicized at the start of 1994, mostly as a result of the frequent changes in administration that occurred in 1993 and prompted ministers to priorities pressing immediate concerns. Instead, an annual plan served as the framework for economic policy for FY 1994.

The Pakistani government has always taken the initiative to create urban plans and has included housing and settlements as a separate industry in all of its Five-Year Plans (Qadeer, 1996). Under the sector's present name, Physical Planning and Housing (PP&H), the federal government, with guidance from the Planning

Commission, is a prominent player in establishing urban policy through Five-Year Plans.

2.5.2 INTEGRATED RURAL DEVELOPMENT PROGRAMME (IRDP)

The Integrated Rural Development Programme (IRDP) is praised as a ground-breaking strategy. The United Nations has emerged as a key player in the IRDP, and its member organizations have actively promoted similar initiatives throughout the developing countries [United Nations, 1971]. It has a few cutting-edge characteristics derived from the programmes of the preceding initiatives for rural development. In Pakistan, the IRDP was formally introduced in July 1972. Pakistan's IRDP appears to have been shaped by two distinct influences. The indigenous impacts are the main ones. The value of a multi-sectorial and inclusive strategy was underscored by lessons learned from the V-AID and Rural Work Programmes. Shadab project has demonstrated that agricultural growth can be higher by intense and coordinated application of fertilizer, seed, credit and advice.

The attempts to rebuild rural society come first, with a focus on social reforms and regular education. Such programmes are predicated on the idea that rigid social structures, cultural norms, and widespread illiteracy are to blame for rural backwardness.

The second category of programmes essentially consists of agricultural extension initiatives that contend that a lack of knowledge of contemporary agricultural methods is the root cause of low production and, as a result, rural poverty.

The third group of programmes makes the assumption that rural regions' physical and social infrastructure must first be developed before they can be transformed. Of course, there haven't often been shows that were exclusively of one kind. In actuality,

some degree of programme hybridity is the norm. However, one of the aforementioned kinds has been the primary emphasis of the previous rural development programmes. Most of such programmes had a single goal and were unisectoral. The Integrated Rural Development Approach approaches rural living holistically and methodically.

Chart I

Objectives of the IRDP

*Ultimate**	*Instrumental*
(A) Increasing economic growth and food production.	A1. Introduction of modern agricultural methods among small and medium farmers.
	A2. Credit, banking, transportation, marketing, storage facilities for small farmers.
	A3. Provision of farm planning and management services.
(B) Attaining satisfactory level of living.	B1. Provision of service infrastructure to deliver social and economic inputs.
	B2. Improvement of basic physical and social infrastructure.
(C) Reduction of migration from rural to urban area.	C1. Creation of labour intensive off-farm job opportunity.
	C2. Spreading urban amenities into countryside.
(D) Creation of viable local institutions and group dynamics.	D1. Popular participation in rural development.
	D2. Encouragement of local leadership.
	D3. Provision for co-operative farming.

Deduced from Sadiq Malik: "Genesis of Rural Development in Pakistan". *ibid* p. 8.
*Ultimate objectives might also be called national goals, whereas instrumental objectives may be equated with the programme purposes or outputs.

2.5.3 Punjab Rural Support Programme (PRSP)

The Khushal Pakistan Programme (KPP) was introduced by the Pakistani government to combat poverty in 2001–2002. In eight of its operational districts, PRSP has been tasked with carrying out the physical infrastructure projects. Since April 2001, the communities have been actively involved in the identification and implementation of the programmes. The Department of Planning and Development, Punjab Government, supported it.

In order to combat poverty, the Pakistani government introduced the KPP in 2001–2002. PRSP was in charge of putting the physical infrastructure plans into action in the eight operational districts. Since April 2001, several programmes have already been launched thanks to the active participation of the public.

2.5.4 Integrated Rural Development Program for Poverty Alleviation in Southern Punjab (IRDP) and (PASP)

This project, which cost a total of 591.867 million rupees, was started in 2006 in 124 UCs in the districts of Rajanpur, D.G. Khan, Layyah, and Muzaffargarh. By supporting both on- and off-farm income production activities, the main goal of this project was to raise individual incomes and raise community standards of living.

We have observed that the housing component of rural development projects has been completely absent from the outset. As a result, the Pakistani government released a detailed housing policy in 2001, giving rural housing an opportunity to be paid attention to at the administrative level.

2.5.5 Sindh Rural Development Program (SRDP) 2002-2008

A low-cost housing programme is one of the elements of the Peoples Poverty Reduction Program (PPRP) of the government of Sindh. Delivering a trustworthy minimal standard of living to the beneficiaries while maintaining their dignity and sense of self-ownership is the main goal of this module. The involvement of women as the face of the household and the collective of the community is a key component. Community organizations founded by women are the ones who propose new dwellings.

Along with people who live under the open sky, the beneficiary families include people whose homes have been damaged, destroyed, or are otherwise unfit for habitation. A poverty rating of 0-23, a current CNIC, and either plot ownership or government plot ownership are necessary. The prototype design and specifications must be adhered to during construction.

When a community has selected a plan, it surveys it in conjunction with and with the input of the various community organizations (COs) and village organizations (VOs). Following the formal agreement of the terms of the partnership in the CO/VO meeting, where the duties of the CO/VO/beneficiary and Sindh Rural Support Organization (SRSO) are outlined, comes the approval of the plan.

Within the time frame outlined in the collaboration agreements, the beneficiary puts the plan into action. The SRSO, whose engineer and community jointly oversee the system, provides technical regulation. The development of low-cost homes, cottages, and ancillary facilities must adhere to the Arif Hasan-approved prototypes in terms of both design and structure.

The house's total price is 165 000, with up to 10,000 in additional costs for the following three alternatives. One is a hand pump for drinking water, while the other is a solar system or a toilet. The payment is made in four instalments: a Rs 50,000 advance, a 50,000 second instalment with cement and sand at the plinth level, and a 50,000 third instalment at the roof stage.

At the conclusion, the fourth payment of Rs 15,000 is due. The beneficiary must then finish plastering the interior and exterior of the rooms, as well as installing the doors and windows. She also needs to submit a certificate of completion. The prevalence of these modest two-room homes is now noticeable throughout villages. The district of Khairpur would get 2,310 dwelling units built, according to the plan. 568 of the 1,503 starting units have been finished. With just Rs 122.33 million in distribution, all this was possible.

95 percent of the housing units have been started and up to 73 percent have been completed in Umerkot, a remote and less developed area. 9,623 dwelling units are the total aim for the PPRP, of which 74.4 percent have been activated and 41.1 percent are complete. Allied has 2,684 facilities. By July of current year, a total of Rs 641.44 million had been paid. Only six out of the country's 27 districts are home to projects in this category. The show also includes coverage of Mirpurkhas, Thatta, Badin, and Sanghar in addition to Khairpur and Umerkot. With a target plan of 10,000 dwelling units at a cost of Rs 1.25 billion, Sukkur and Ghotki have just been added.

2.5.6 Aashiana Housing Project (AHP) 2010

In the final quarter of 2010, Mr. Shahbaz Sharif, the former chief minister of Punjab, announced the Ashiana Housing Project, reportedly for Lahore's low-income and marginalised populations. However, the location, terms, and motivations surrounding the plan are still unknown, which has raised concerns regarding the project's funding. The Punjab Land Development Company (PLDC) and the Bank of Punjab (BOP) have launched the Aashiana Housing Scheme project, which would provide successful applicants a financing option. On October 12, 2011, Bank of Punjab and Punjab Land Development Company signed a memorandum of understanding (MOU) to provide loans to AHP allotters.

The plan calls for the construction of more than 6,000 housing units at the Soo-e-Asil site on 3 and 5 marla plots. The cost of 3 marla homes is Rs. 840,000, while the cost of 5 marla homes is Rs. 1,190,000. These housing units have monthly payments of Rs. 4,500 and Rs. 7,500, respectively. Only those with monthly incomes under Rs. 20,000 are permitted to apply. 25% of the total will be paid in advance, with the remaining amount being deposited over ten years in manageable instalments. If you pay in full up ahead, you'll receive a 5% discount 9. The prospective buyers must complete and return a form issued by PLDC along with a processing fee.

2.5.7 Naya Pakistan Housing Program

In order to address the issue of affordable housing, the previous national government, headed by Prime Minister Imran Khan, established the Naya Pakistan Housing Program (NPHP), which aims to develop 5 million low-income housing units during its tenure in office (The News, 2018). Housing task forces have been established at the federal and provincial levels to support public institutions and the enthusiastic operation of NPHP. NPHP commenced its initial phase in the tiny Punjabi cities of Renala Khurd, Chistian, and Lodhran by declaring a development plan for cheap dwellings within 1.5 years of construction, under the leadership of a provincial government agency, the Punjab Housing & Town Planning Agency (PHATA; Zameennews, 2019).

The private sector, however, is less optimistic about the NPHP because developers believe that without the active participation of market participants, it would meet the same fate as other government programmes over the past few decades (such as the Ashiana Housing project) (Jeewa, 2018). Such engagement gaps between public agencies and private developers hinder the collaboration and coordination of numerous stakeholders (including architects, planners, nongovernmental organizations, banks, community associations, builders, contractors, and building material suppliers) involved in the housing development process. In other words, this bigger problem is causing micro-conflicts, which makes it harder to provide cheap housing effectively. Government had announced the delivery of five million housing units with a focus on the financially underserved and middle-income communities. The Naya Pakistan Housing and Development Authority (NPHDA) talks about two low-cost housing models.

Model 1 will develop houses on public property, 70% of which will be affordable housing. Its financial structure entails a builder equity stake of 30%, beneficiary equity of 10%, and bank equity of 60% at discounted rates.

Model 2 is a pure private sector model with assistance from the government in exchange for a 40% share in low-cost housing. What is low cost is not well defined. For instance, the Punjab Housing and Town Planning Agency in Rawalpindi charges Rs 336,000 for a 3-marla site. Of course, construction will be more expensive.

2.5.8 Housing policy 2001

The Pakistani government delayed the release of its 2001-planned housing policy by over 55 years. The size of the housing shortage is expanding rapidly in tandem with population expansion. The country has 19.3 million housing entities in total, 32.3% of which are located in urban areas, and 67.7% of which are classified as rural housing, according to the results of the 1998 census. A backlog of 4.3 million housing units existed, but it has since grown to 10 million units. The country requires an annual increase of 300,000 housing units, but because fewer homes are being built, the housing shortage is growing by 270,000 per year.

Objectives of housing policy 2001

- To empower the people to become access to quality housing inside their means.
- To do housing cheap for inhabitants with the help of direct and dynamic contribution of government in the conveyance system of housing at lower to upper level of the country.
- To improve and strengthening the administrative setup for the creation of housing ownership and also enable to provide infrastructure in the rural area according the

basic requirements. This would improve the living condition of household all over the country.

- To inspire the private sector to invest in the affordable housing projects..
- To extent awareness about the importance of effective planning and use of modern technology and resources in construction.
- To improve the system of land record through computerizing.

Challenges

The cheapest housing unit ever constructed by any developer was out of reach for the low-income segment.

Impossible to generate and receive income.

The difference between supply and demand curves is always expanding.

The housing projects demanded community involvement and supplied units, but they were costly and went against what the people needed.

Due to the high maintenance requirements and added expenditures of dwelling, the owners sell their properties to meet their needs.

The need to do

In contrast to predictions, Pakistan's housing strategy of 2001 failed to address the nation's housing issues, which led to increased homelessness and a backlog in housing. Even after the failure of the aforementioned policy, neither the government nor the housing ministry have created any new regulations for the housing industry. In order to lessen the ongoing housing load, Pakistan's housing policy needs to be reviewed urgently.

CHAPTER 3

METHODOLOGY

This chapter covers all the methods and materials used in this study. It describes the research design, data collection method, and types, sample size, research methodology briefly to conduct the research, and different data analysis techniques used in this research to achieve the objectives of this research. Statistical Package for the Social Sciences (SPSS), was used to evaluate the questionnaires attained from the respondents while surveying study areas.

3.1 RESEARCH DESIGN

This research method used for this research was hybrid as both the descriptive and exploratory methods were used to gather study and analyze the data. Exploratory research was done to gather all the existing, nationally and internationally, urban governance measuring frameworks, their categories, their indicators, and their relevance and non-relevance to the conditions of Pakistan.

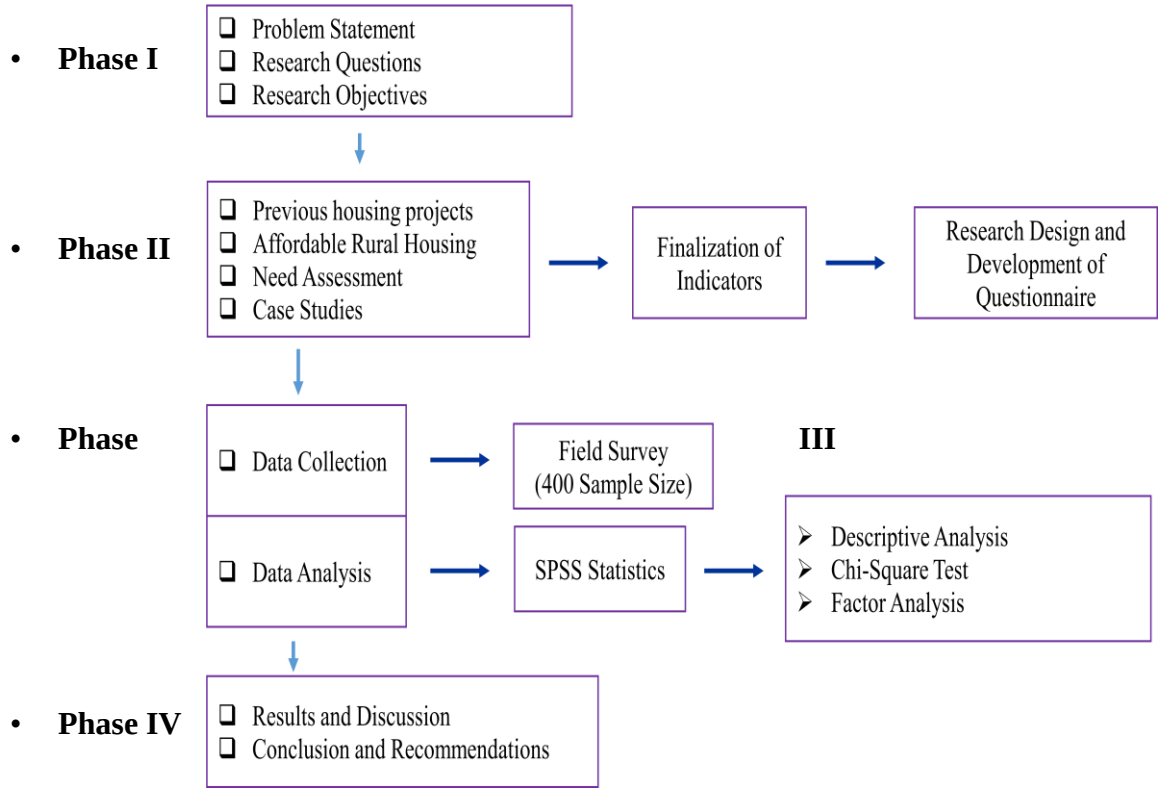
3.2 RESEARCH DESIGN

In this study four villages have been selected for survey through them data has been collected by asking the questions from questionnaire. This data has been saved in the written form on the paper of questionnaire and then putted into software of SPSS. The study areas of this research are following

1. Karore village lathrar road Rawalpindi
2. Saroha Rajgan village of kallar syeddan
3. Garibwal village of Pindi gheb
4. Digwar village of tehsil kahuta AJK

3.4 FLOW CHART FOR METHODOLOGY

The entire research methodology is explained in the flow chart given in the figure below,



3.6 SAMPLE SIZE

We have used the Yamane's formula to measure the sample size of the survey. The confidence level is 95 % whereas the precision value is 0.05 and we found the sample size of 384 with total population of 9320 in all four case studies.

Yamane's formula

$$n = \frac{N}{1+Ne^2}$$

- Required Sample Size = 384
- Total Filled Questionnaires = 400
- Missing Values = 0
- Total population = 9320
- E = level of precision

3.5.1 PRIMARY DATA

The questionnaires filled in the field during survey in the four case studies of research.

- The need assessment survey
- Potential assessment survey
- Affordability perspective survey
- Existing conditions assessment survey
- Barriers weight age survey

3.5.2 SECONDARY DATA

Secondary data was the backbone of this research. Previously existing programs of affordable rural housing to measure the provision of housing to rural communities and their indicators to measure status were found through online research with various sources like published reports, research articles, policy papers, official reports, and publications. The data was searched online from different scientific and official websites. Research articles related to rural housing and affordability were downloaded from science direct and web of science from 1990 to 2020. Our main focus was on the provision of affordable rural housing, therefore, we gathered the indicators relevant to the affordable rural housing.

CHAPTER 4

DATA ANALYSIS AND RESULTS

This chapter is discussing the data analysis by different approaches and the outcomes based on the survey questionnaire data and in-depth literature review. Different analyses were performed like factor analysis, cross tab analysis, descriptive frequencies, and percentages on the collected data to find out a vibrant conclusion. In the first phase, is has been analysis that what are the previous programmes of rural development in the Pakistan and what has been planned or given to factor of rural affordable rural housing. The assessment revealed that there are number of project regarding rural development in Pakistan but main focus was on agriculture production because of its prominent role in GDP. In the second level, need assessment has been done with the help of survey in which questionnaire filled from the locals. After that data collection analysis has been done which will be explaining in detail in the chapter below. In the third step, the barriers about the provision of affordable rural housing have been analyzed with mix approach of primary and secondary sources of data. There has been used the factor analysis for this purpose to get a valid result which can be used by policy makers and governmental authorities for the sake of planning regarding solution of this serious problem. There are different charts and tables have been prepared to clarify the picture of affordable rural housing in the Pakistan.

4.1 Evaluation of past housing programs and policies for affordable rural housing

In this analysis there have been observed the objectives and targets of programs. After that the issues have been explored due to which these programs remained not such successful. There are some programs of rural development to improve the agricultural

production and other are related to social infrastructure. Affordable rural housing did not get importance in the early era of planning.

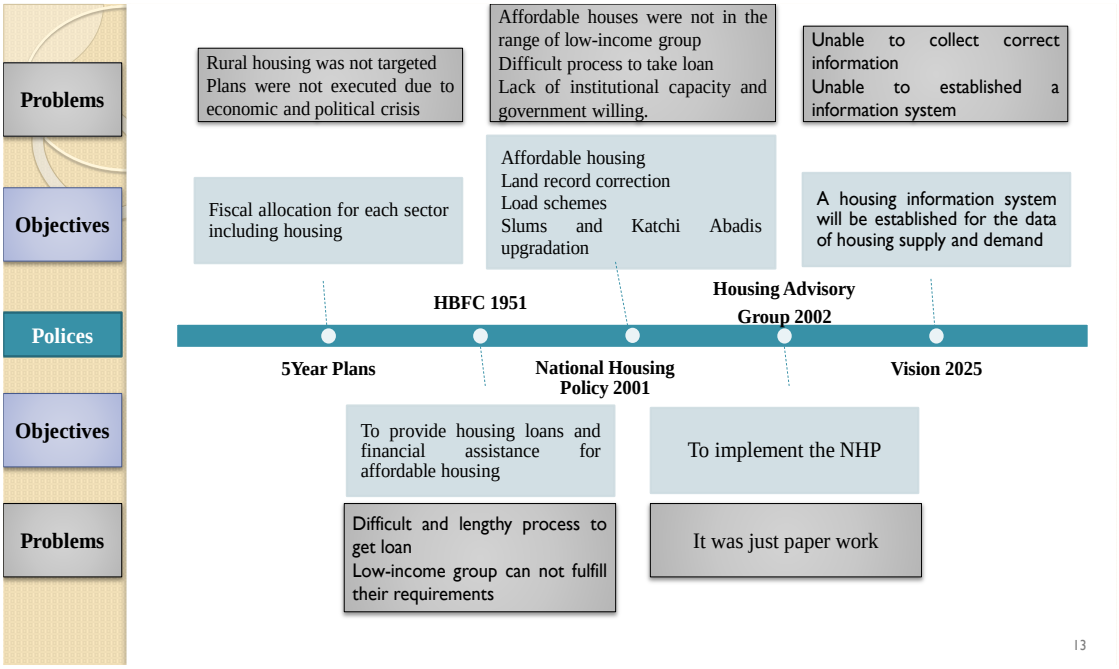


Figure 1: Past housing policies and their problems

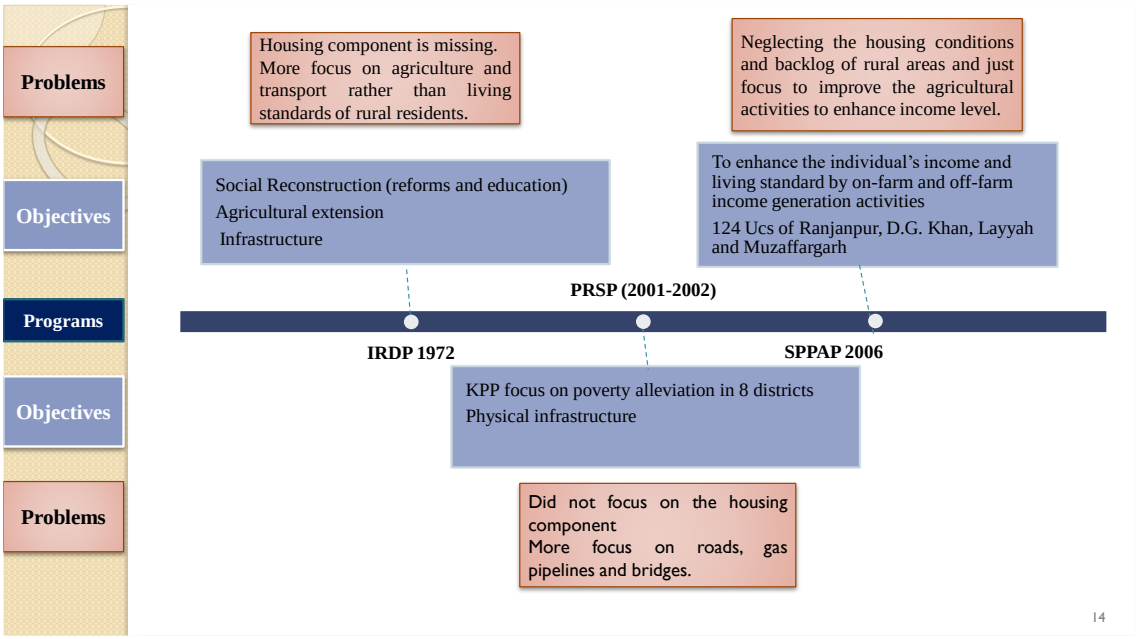


Figure 2: Past housing programs and their problems

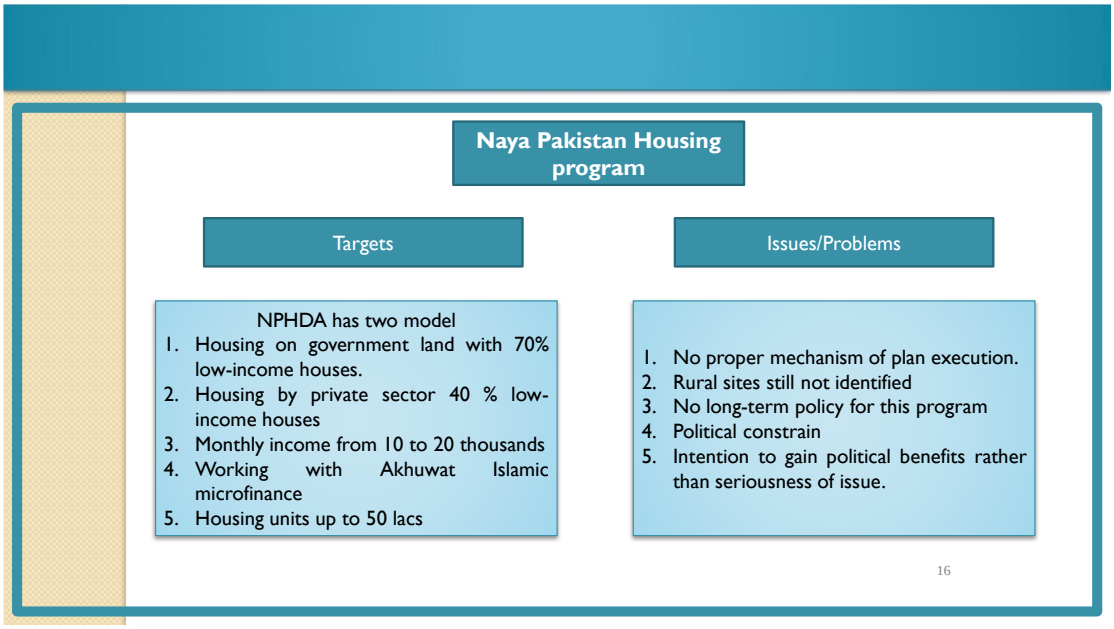


Figure 3: Recent housing program

4.2 EVALUATING THE NEEDS OF LOCALS REGARDING HOUSING

4.2.1 Socio-Demographic Characteristics of Rural Area

For this purpose we will see the socio-demographic profile of the data which is representing the views or experiences of people. This profile is consisting on four case studies which are 4 different villages. There are 400 number of respondents through them these quires has been asked.

In the table 1 is has been observed that there are 82 percent people have house ownership while 18 percent have rented houses. But in the rural areas it also has seen that two factors are influencing this ratio of data. One is type of house in which 31.5 percent people have semi pakka house and 6 percent have kacha house which means they have need of new house but unable to build a new. The second factor is the need fulfillment of current availed house in which 59 percent people said they have need of new house and 41 percent have enough capacity with respect to their housing need. There is 63.5 percent people living as joint family who have need of further house but

due to financial issues cannot afford. There are about 40 percent people who lived there less than 20 years, 30 percent are living from 20 to 40 years and 26 percent living from 40 to 60 years while only 4 percent are those who live more than 60 percent. The house size of about 22 percent people is less than 4 marla and about 4 percent have greater than 8 marla house. More importantly about 75 percent people have 4 to 8 marla house. The mean value of house size is 5.54 and its p value is 0.000. There are about 64 percent have up to 3 number of bedrooms while only 36 percent have greater than 3 bedrooms. It has been observed after analysis of cost factor of a unit house which starts from 8 lac and maximum cost is 50 lac of large and pakka house. The interesting scenario is about the mean value of this price is which is approximately 18 lac. This mean value gives hope to provide affordable rural housing through any program of government. It has also been noticed that maximum area has land value in between of 40,000 to 120,000 per marla in which 43 percent has land price in between of 40000 to 80000 while from 80,000 to 120,000 price range has 45 percent of total.

Table 1 Rural Housing Data

N = 400	***Categories***	***Total %***	***VLG-1***	***VLG-2***	***VLG-3***	***VLG-4***	***Sig. value***
Ownership status	Owned	82	74	83	90	81	Sig. value=0.032
	Rented	18	26	17	10	19	
Time lived	< 20 years	39.75	89	36	9	25	Std. Dev. 17.90 Min value=1 Max value=65 Mean=30.16 Sig. value=0.000
	20-40	30	11	34	48	27	
	40-60	26.25	0	30	37	38	
	> 60 years	4	0	0	6	10	
House size	Less than 4	21.75	21	26	25	15	Std. Dev. 1.54 Min value=3 Max value=12 Mean=5.54 Sig. value=0.146
	4 to 8	74.5	74	70	75	79	
	>8	3.75	5	4	0	6	
No of bedrooms	Up to 3	64.25	82	68	54	53	Std. Dev. 0.839 Min value=2 Max value=6 Mean=3.27 Sig. value=0.000
	3 to 6	35.75	18	32	46	47	
Type of House	Pakka	62.5	67	78	57	48	Sig. value=0.000
	Kacha	6	1	0	13	10	
	Semi Pakka	31.5	32	22	30	42	
Current Estimated price of House	Upto 12 lac	33.75	10	6	63	56	Std. Dev. 785252.50 Min value=800000 Max value=5000000 Mean=1790250 Sig. value=0.000
	12 to 24	45.5	66	35	37	44	
	24 to 36	16.5	24	42	0	0	
	36 to 48	3.75	0	15	0	0	
	> 48	0.5	0	2	0	0	
Current Estimated price of Land per Marla	< 40 k	7.5	0	0	15	15	Std. Dev. 32437 Min value=35000 Max value=130000 Mean=79340 Sig. value=0.000
	40 to 80	42.5	0	0	85	85	
	80 to 120	44.75	95	84	0	0	
	>120 k	5.25	5	16	0	0	
Is this house fulfill your needs	YES	41	46	50	34	34	Sig. value=0.038
	NO	59	54	50	66	66	

In the below graph of ownership status it has been observed that there is 82 percentage of people who has own housing units. In the VLG-1 of Karore rental housing units is more as compare to other case studies. It has 25 percent of those people who do not have their own houses so, they have urgent need of housing at any cost. In the village 3 of Garibwal Pindigeb ownership percentage is nearly 90 which is potential and there is need to improve the income level of rental residents to build their own housing units. In the village 2 and 4 (Soraha Rajgan, kallar syeddan and Digwar haveli AJK) more ownership rate is potential to overcome the low rental rate with a small projects of affordable housing, which can be assist by local community, government or any NGO. Overall, in the rural areas of case studies the ownership rate of housing units in quite a high percentage which is potential of these areas due to their social and cultural structure of living. The significance value of this data is 0.032, which means there is high significance of data about this question asked in the research study.

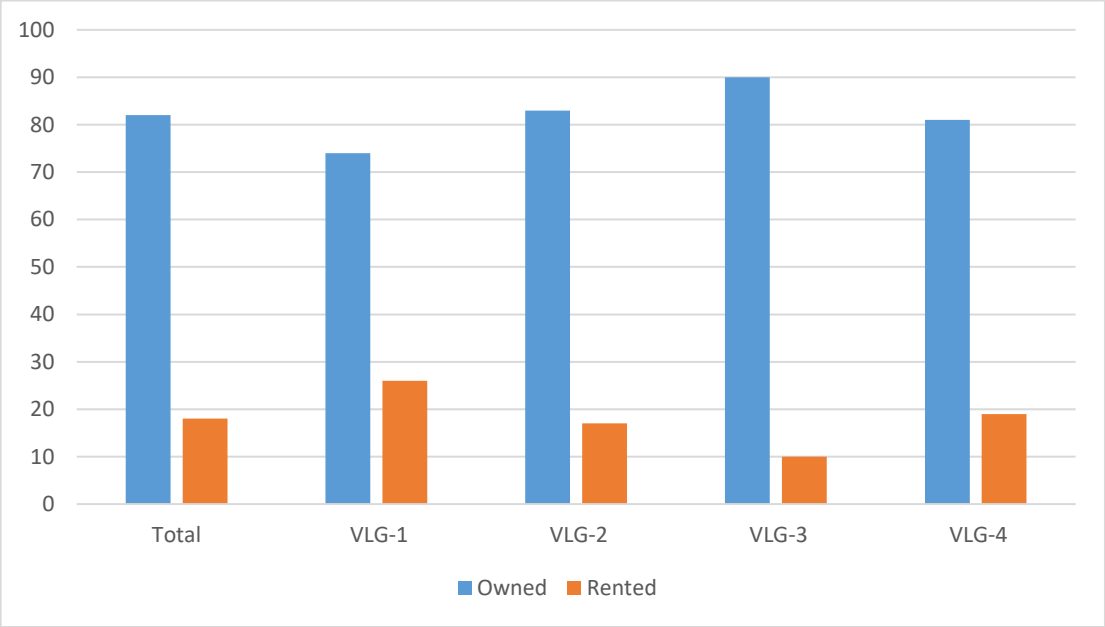


Figure 4 House Ownership Status

In the graph of time lived we analyzed the data of residents who lived here from different time periods. In the village 1 nearly 90 percent of people are living less than 20 years which means this village has potential of earning and building their own houses due to opportunities of earning. In the village 2 population has mixed percentage of time lived such as 35 % are those who is living here in the category of less than 20 years, 32 % in the category of 20 to 40 years, 30 % are living from 40 to 60 years and no one is living here more than 60 years. In the village 3 only 8 percent lived here less than 20 years. Nearly 50 % populace in living here from 20 to 40 years and 36 % are those who are living here from 40 to 60 years whereas small percentage of people are those who are living here from more than 60 years. In the village 4 there is nearly equal percentage of people of different category of lived time except more than 60 years which percentage is just 10.

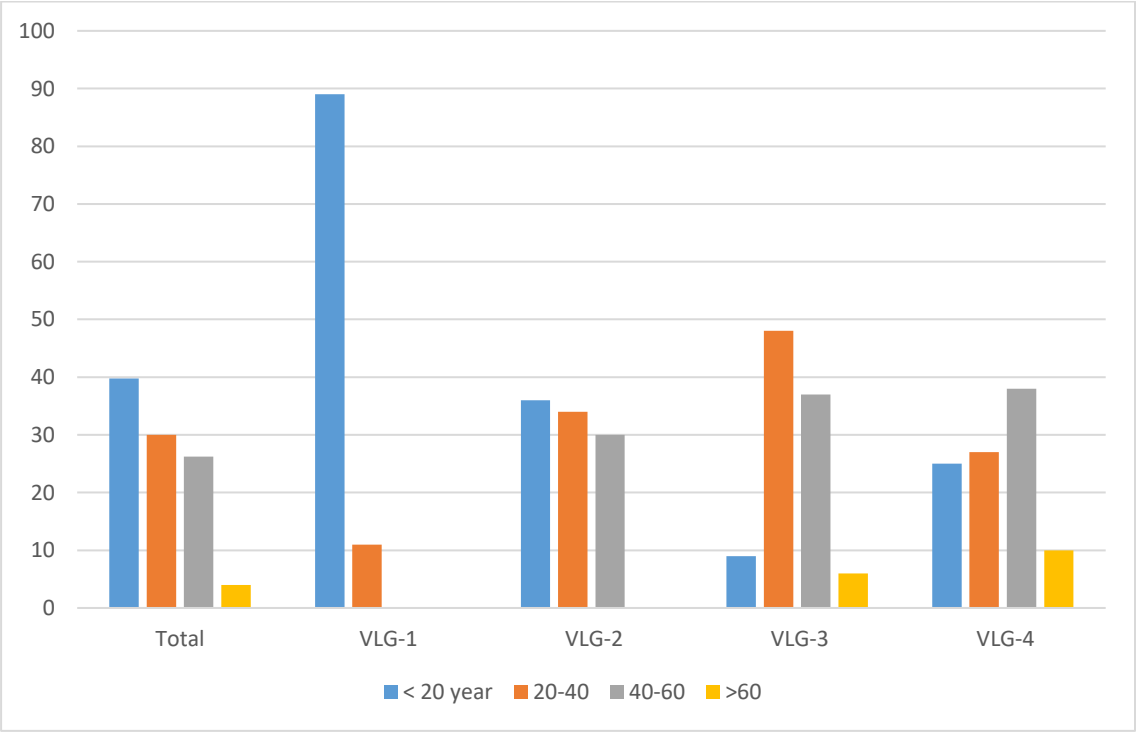


Figure 5: How long you have been living here

In the graph of house size we have concluded that a high percentage of residents have 4 to 8 marla size of house. In the village 1 22 % people have less than 4 marla house and just 4 % have greater than 8 marla house. In the village 2 nearly 25 percent of people have less than 4 marla houses and 70 percent have 4 to 8 marla size of houses. In the village 3, 25 percent of housing unit are less than 4 marls and 75 percent are 4 to 8 marla whereas there is no house which has more than 8 marla size. In the village 4, nearly 80 % have 4 to 8 marla house size and other percentages are negligible. It has the mean value of 5.54 which means there is majority of housing units have this size. This data leads us toward the housing capacity of these housing units either it's enough for residents or not. The comparison of these two variable is below with the graph of need fulfillment in the house. In this graph we have seen that 20 percent have less than 4 marla housing units, on the other hand we have observed that 18 percent of residents are on rent. This is the link between house size and ownership rate, which can increase with the larger size of housing units.

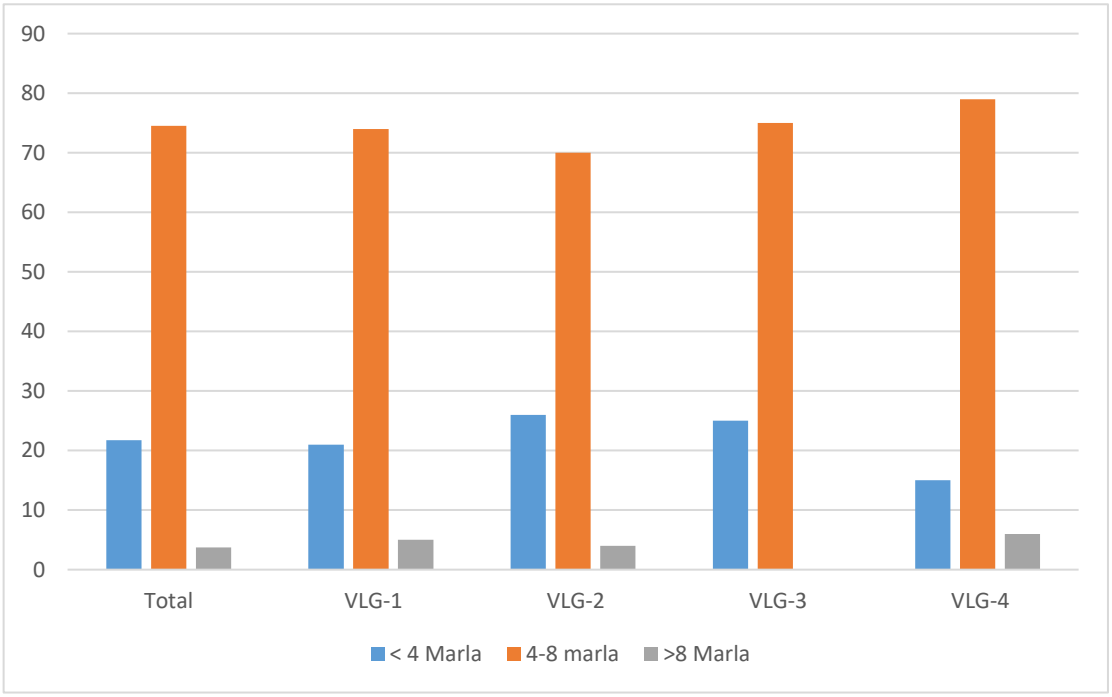


Figure 6 Size of House

In the graph of type of house we have 0.000 significance value which shows the importance of this variable of the research study. In the village 1 high percentage is of pakka houses, small percentage is of kacha houses and medium percentage of semi pakka houses. This means in the village 1 there is potential of pakka housing units and more people want pakka housing type rather than other types of housing. In the village 2 nearly 80 percent has pakka house type and 20 percent has semi pakka house type whereas no one has kacha house type which is a great potential and direction about the living style of people. In the village 3 and 4 types of housing units are different than first two cases. In the village 3 55 percent of houses are pakka and 30 percent have semi pakka whereas nearly, 15 percent have kacha housing units which means more need of new house. In the village 4 percentage of pakka houses is nearly 45 and semi pakka housing type is more than 40 percent whereas kacha housing percentage is about 10. Village 3 and 4 has different trend of living as compare to village 1 and 2 so, there is need of different solution for the affordable housing in the respecting case studies.

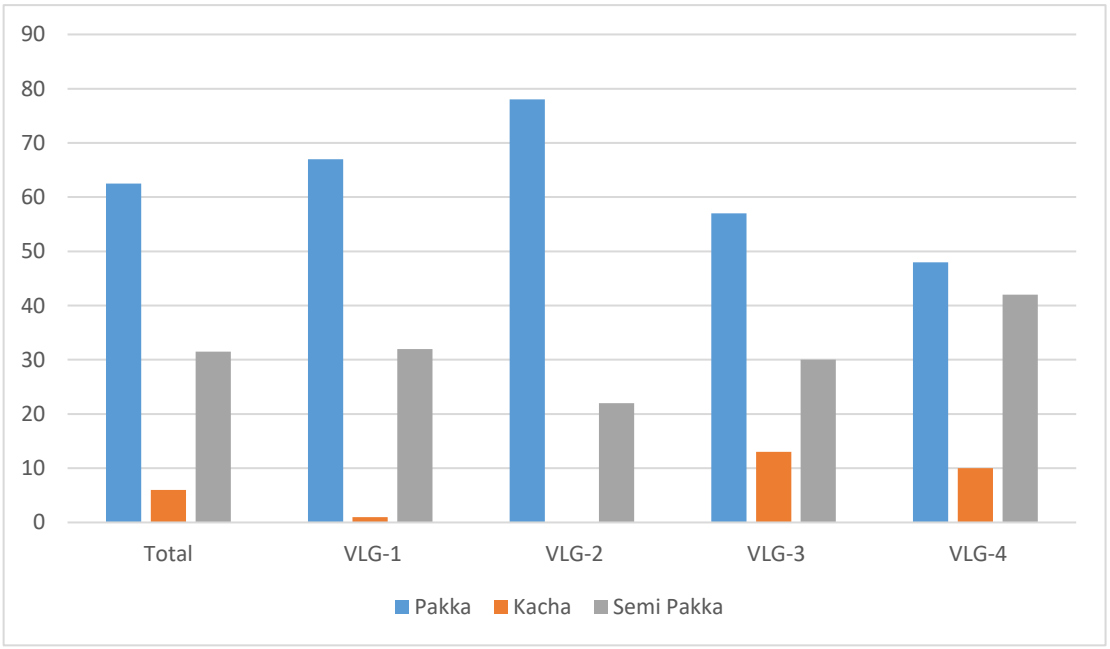


Figure 7 Type of House

As the high percentage of house size is 4 to 8 marla but high percentage of housing units have less than 3 bedrooms because most of the people have livestock in their house which occupy the significant area from this house size. In the village 1, nearly 80 percent have less than 3 bedrooms whereas just 20 percent have 3 to 6 bedrooms. In the village 2, nearly 70 percent have less than 3 bedrooms and 30 percent have 3 to 6 numbers of bedrooms. In the village 3, this percentage of less than 3 and 3 to 6 bedrooms is nearly equal. In the village 4, there is nearly percentage of both categories. In the overall, scenarios there is nearly 65 percent of people have such houses which have less than 3 number of bedrooms whereas the 35 percent have 3 to 6 numbers of bedrooms that is potential of these rural areas.

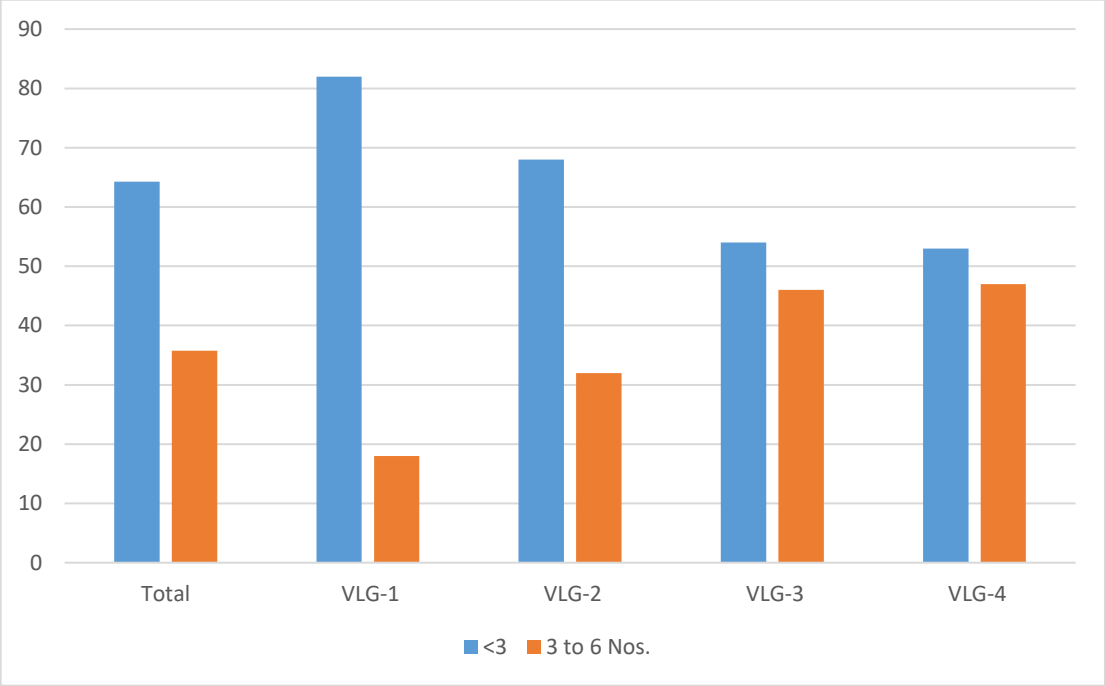


Figure 8 No. of Bedrooms

In the below graph of need fulfillment in the existing house there is high percentage of those who have not enough capacity in their house with respect to their needs. In the village 1, there is nearly 55 percent of people who do not have enough house capacity to their requirement with respect of household size and livestock. In the village 2, there is equal percentage of both categories. In the village 3 and 4, very high percentage of those who have not enough capacity of their housing units so, they have need of more housing or capacity in the existing housing units. In the overall, scenario the need of village 3 and 4 is more than village 1 and 2 comparatively. As there is low percentage of pakka house type in these two villages of 3 and 4 so, there is more stressed by data analysis that in these case studies need of houses is more as compare to other sites of this research.

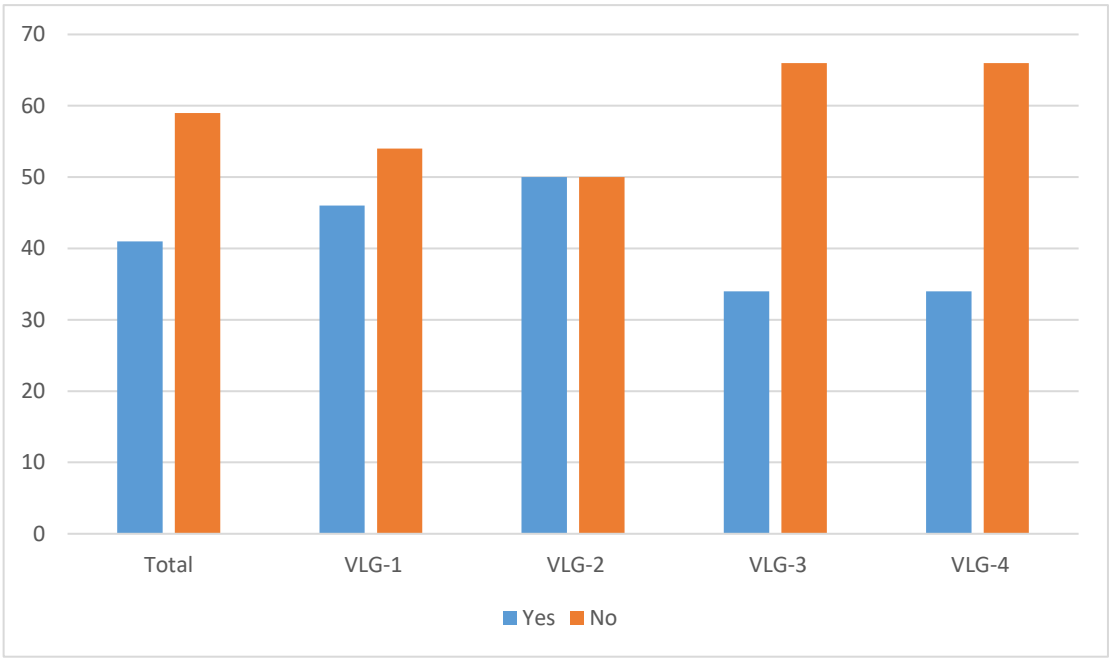


Figure 9 House capacity is enough or not

In this type of data of above graph it has been came out that there is high percentage of 12 to 24 lakhs price of per unit house. In the village 1, second range of price has high value of 65 percent and 22 percent in the category of 24 to 36 lakhs whereas only 10 percent have less than 12 lakhs price. There is no housing unit with the price of more than 36 lakhs. In the village 2, there is distribution of housing prices in all categories such as 5 percent less than 12 lakhs, 35 percent with 12 to 24 lakhs, 42 percent with 24 to 36 lakhs, 15 percent of 36 to 48 lakhs, and slight percentage of those housing units whose price is more than 48 lakhs. In the village 3 and 4, the scenarios are totally different from other two case studies because these have high percentage of first two categories such as 62 and 55 percent of less than 12 lakhs respectively. There is also 38 and 42 percent of second category in the village 3 and 4, respectively. In the overall, the conditions of village 3 and 4 is easier to deal due to low cost of housing trends and types.

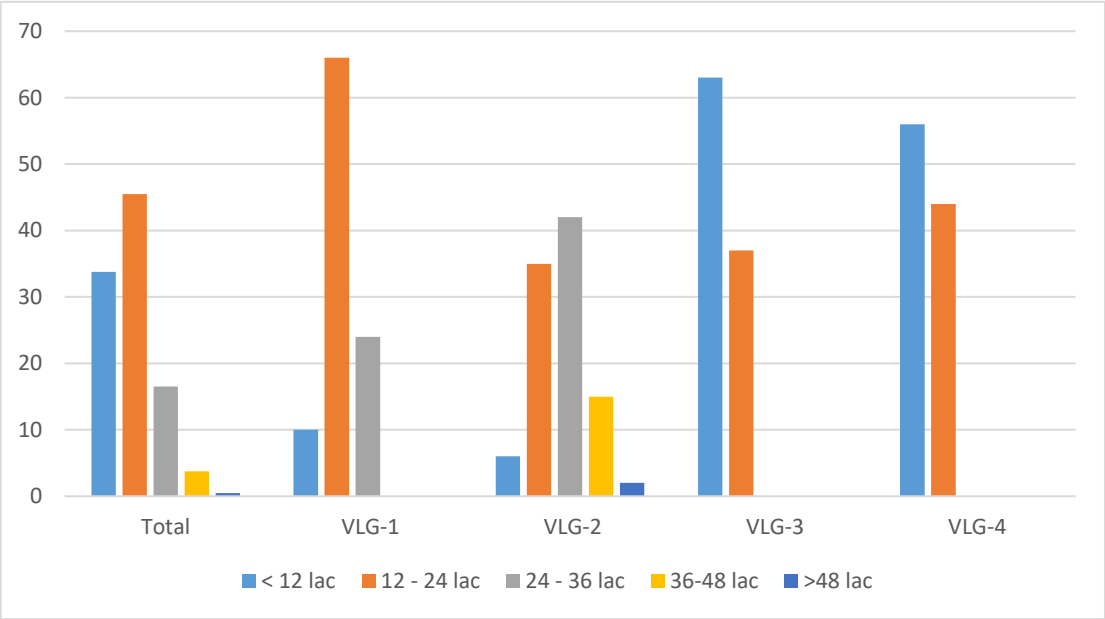


Figure 10 Estimated price of House

In this type of data of above graph it has been came out that there is high percentage second and third categories such as 40 and 45 percent respectively. In the village 1 and 2, there is high percentage of 80 to 120 thousands of land price per marla for housing construction whereas the other categories in both these village are very low in percentages. In the village 3 and 4, there is clearly high percentage of second category of 40 to 80 thousands. This means there is low cost of land in the villages 3 and 4, which would be more helpful in the provision of affordable rural housing. In the village 1 and 2 there is need to work on both of these factor like houses and land price to make the housing affordable for the locals.

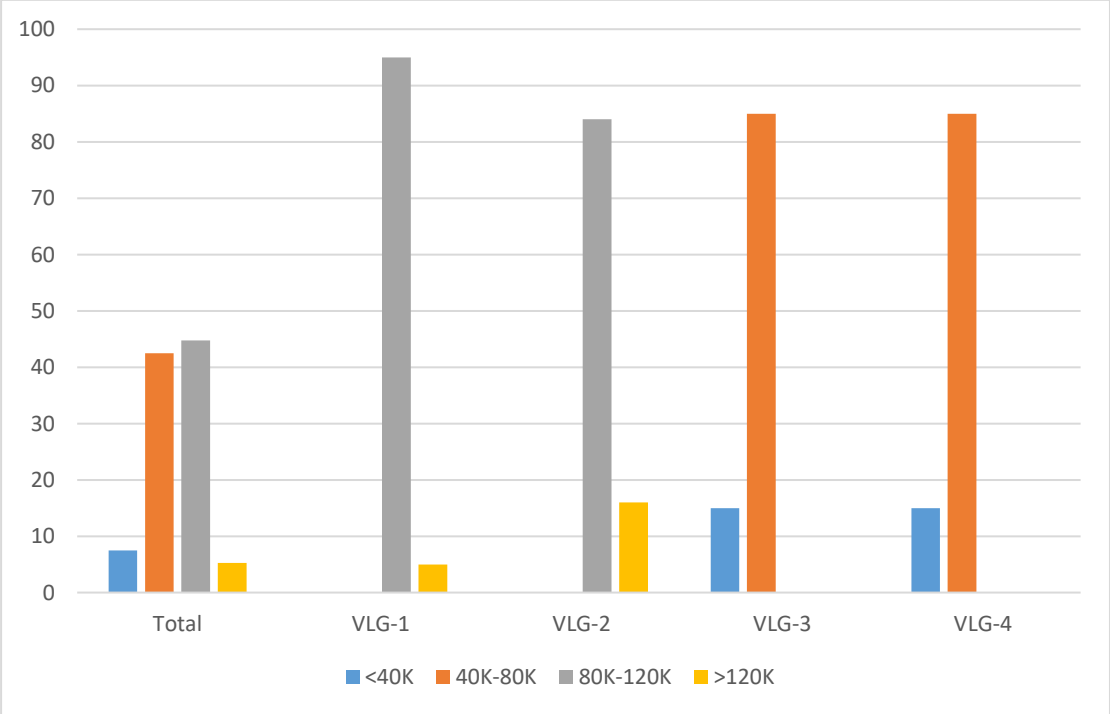


Figure 11 Estimated Price of Land/marla

4.2.2 Accessibility from urban to rural areas

There is different conditions for these four villages in which village 1 and 2 are more away from urban area while village 3 and 4 are comparatively near to urban area in the range of 8 to 16 km. Village 1 has distance range of 16 to 24 km with 68 percent whereas village 3 is 84 percent away from urban area from greater than 24 km. The mean value of distance is 17.55.

In the nest query it has been mentioned that village 3 in most close to main road and village 2 is most away from main road. The mean value is 11.28 whereas minimum value is 0 km and maximum is 28 km. From the market a heavy percentage of 73 lived in the range of 8 to 16 km. The significant value of these quires is most appropriate like 0.000.

The mean of the distant from urban area is 17.55 km which means the overall this the distance of all case studies from rural to urban areas. The significance value of this type of data is 0.000 which is also highlighting the importance of this data in this research of affordable rural housing.

The mean of the distant from main road area is 11.28 km which means the overall this the distance of all case studies from rural to main road. The significance value of this type of data is 0.000 which is also highlighting the importance of this data in this research of affordable rural housing.

The mean of the distant from Market area is 14.70 km which means the overall this the distance of all case studies from rural to market. The significance value of this type of data is 0.000 which is also highlighting the importance of this data in this research of affordable rural housing.

Table 2: Accessibility to urban functions

N=400	Categories	Total %	VLG-1	VLG-2	VLG-3	VLG-4	Description
How much away from urban area	**8 -16 km**	50	0	0	100	100	Std. Dev. 6.808 Min value=10 Max value=31 Mean=17.55 Sig. value=0.000
	16-24 km	21.25	68	17	0	0	
	>24 km	28.75	32	83	0	0	
How much away from main road	**Up to 8 km**	38.5	24	0	100	30	Std. Dev. 9.408 Min value=0 Max value=28 Mean=11.28 Sig. value=0.000
	8 -16 km	36.5	76	0	0	70	
	16-24 km	1.25	0	5	0	0	
	>24 km	23.75	0	95	0	0	
How much away form Market	**Up to 8 km**	1.75	5	0	2	0	Std. Dev. 6.349 Min value=8 Max value=28 Mean=14.70 Sig. value=0.000
	8 -16 km	73.25	95	0	98	100	
	16-24 km	3.25	0	13	0	0	
	>24 km	21.75	0	87	0	0	

In the below bar chart, it has been analyzed that in the village 1 more percentage of people is living in the range of 16 to 24 km away from the urban area which is 65 % and 35 percent is away from more than 24 km. In the village 2 the 80 percent of people are living away from more than 24 km. In the village 3 and 4, the people are living in the range of 8 to 16 km which means these two villages are near to the urban area as compare to the other two case studies of this research. The overall scenario, of this analysis is 45 percent are in the range of 8 to 16 km, 20 % are in the range of 16 to 24 km and 25 percent are living from greater than 24 km away from urban areas. The mean value of this data is 17.55 and the significant value is 0.000 which has validated this research.

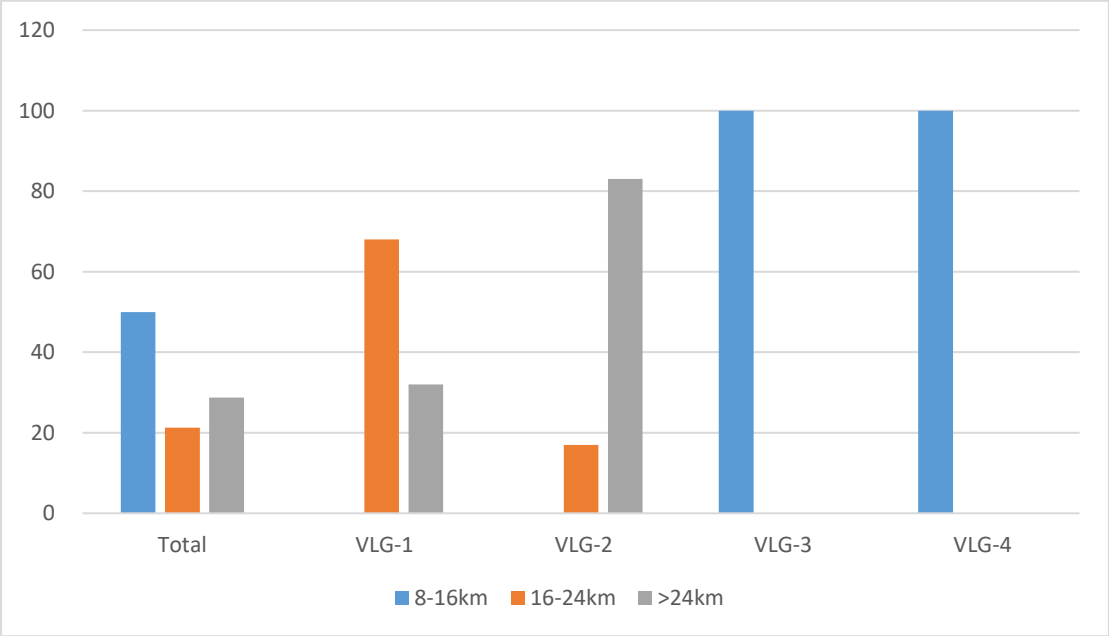


Figure 12 Distance from urban area

This below graph is about the distance of four different villages from their respective main roads and the total or overall scenario also has been showed. In the village 1, there is the high percentage of people who lived in the range of 8 to 16 km away from the main road which is Lathrar road whereas the other percentage is living within the 8 km from the lathrar road. In the village 2, the high percentage of people who are living from more than 24 km which is nearly 98. In the village 3, there is high percentage of those who lived less than 8 km from the main road. In the village 4, the scenario is different such as 65 percent are living in the range of 8 to 16 km away from main road whereas other percentage is living less than 8 km from the main road. In the overall analysis, the 38 % are under the range of 8 km, 36 % with the range of 8 to 16 km and 22 percent more than 24 km whereas a slight percentage of people are living with the range of 16 to 24 km.

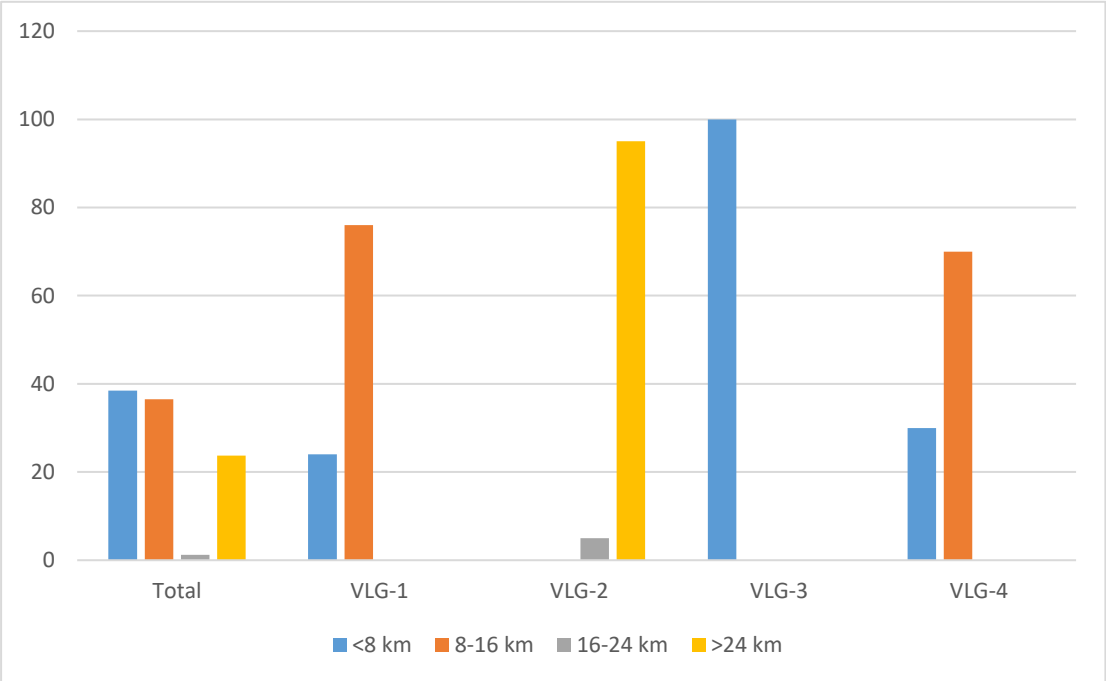


Figure 13 distance form main road

In the below graph of distance from residence to the main market where they have options of all type of shopping like on the occasion of events. In this analysis it has been shown that there are very significant distance range in the three villages except village 2. In the village 1, most people are away in the range of 8 to 16 km from the main market. In the village 2 the high percentage of greater than 24 km from home whereas 16 to 24 km away people range has 15 percent only. In the village 3, there is high percentage of 8 to16 km which is almost 100. In the village, 100 percent people living in the range of 8 to 16 km from the main market from where they done their shopping. In the overall, scenario the 8 to 16 km range has high percentage of 75 of people living from main market. This indicated that distance of few kilometers is not a problem for villagers to access the facilities of developed area but due to this people remain confused to build a house in the urban area where they have work place or rural area they have living area of family.

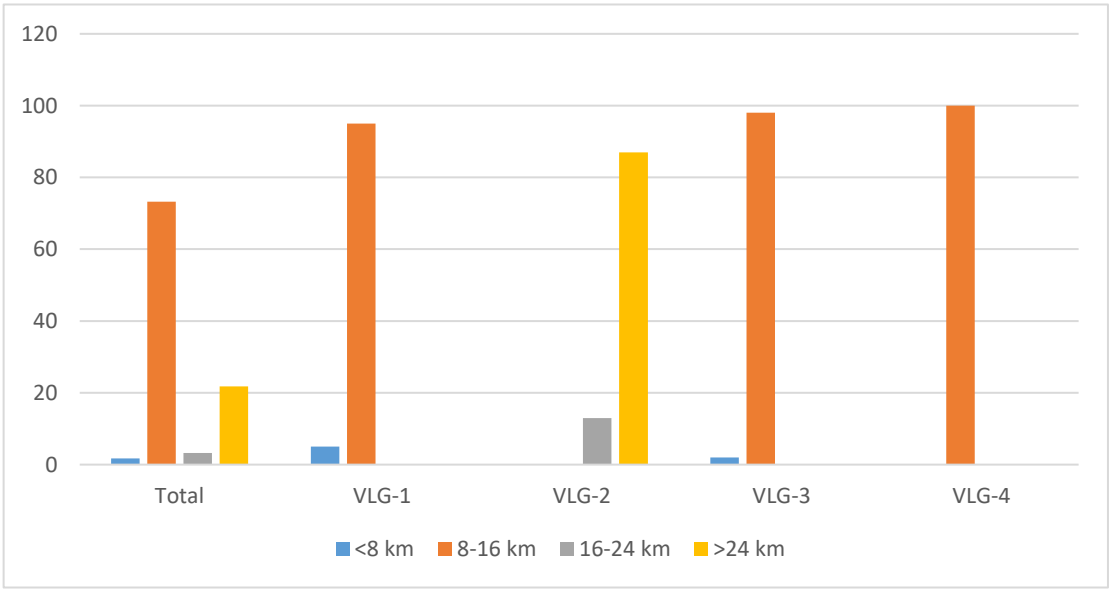


Figure 14: Distance from Market

4.2.3 Explanation of facilities

There has been evaluated some important facilities in the rural area of Pakistan which has been shown in the table 3. There is 67 percent population has access of road in which village 3 has least facility of road and village 2 has maximum facility of road. In the next question of track availability there are 84 percent who have but other do not. The alarming condition is about public transport because 73 percent do not have this facility. Village 1 is completely absence. Whereas private transport facility is available for 65 percent of the people. In the village 3 private transport facility is quite low of about 28 percent. Facility of hospital is alarming because overall 98.75 percent of population have no facility of hospital and only village 2 has 5 percent facility of hospital. The condition of gas facility is also bad because only 13.25 percent have this but 86.75 do not. The condition of water supply is also not good because only 16 percent have this. Facility of sewerage is just 33 percent and further have no this one. Facility of cattle shed is just 5 percent available. After visualization of this table it can be say that most of facilities are not available and those who are available they have much need of improvement.

Table 3: Facilities of the four case studies.

N=400	Categories	Total %	VLG-1	VLG-2	VLG-3	VLG-4	Description
Road Facility	**YES**	67	64	88	39	77	Sig.
	NO	33	36	12	61	23	value=0.000
Track Facility	**YES**	84	100	92	56	88	Sig.
	NO	16	0	8	44	12	value=0.000
Facility of Public Transport	**YES**	27.5	0	39	55	16	Sig.
	NO	72.5	100	61	45	84	value=0.000
Facility of Private Transport	**YES**	64.75	87	77	28	67	Sig.
	NO	35.25	13	23	72	33	value=0.000
Facility of Hospital	**YES**	1.25	0	5	0	0	Sig.
	NO	98.75	100	95	100	100	value=0.002
Facility of Gas	**YES**	13.25	0	53	0	0	Sig.
	NO	86.75	100	47	100	100	value=0.000
Facility of Water Supply	**YES**	15.5	0	62	0	0	Sig.
	NO	84.5	100	38	100	100	value=0.000
Facility of Sewerage	**YES**	32.75	69	41	0	21	Sig.
	NO	67.25	31	59	100	79	value=0.000
Facility of Cattle Sheds	**YES**	5	0	20	0	0	Sig.
	NO	95	100	80	100	100	value=0.000

4.2.4 Explanation of socio-economic profile

In this table we have accomplished the number of variables which we used in our research that are following,

a. Size of house in which they are living at current time of survey
b. Living status with respect to single or joint
c. What is your Profession of the people?
d. How many earning members in your house?
e. What are the major sources of earning in your house?
f. What is average monthly income of your family?
g. What is monthly expenditure of your family?

The significant value of house size is 0.146 whereas its mean value is 5.54 with minimum value as 3 and maximum as 12 marla. There is 63.5 percent of families who lived as joint family. Most people have profession of farmer as 45 percent whereas second most percentage of 19.25 is doing business. It have been seen in the all four village farmer percentage is more than other occupations. So same as occupation 45 percent have agricultural source of income. Overall 50.5 percent of families have been dependent upon only 1 person to earn and eat them and 45.5 percent have two number of earning members but only 4 percent have three earning members. Average monthly income has different range in which 15 thousand to 30 thousand have more percentage of income like 48.25 whereas only 11.25 percent have more than 45 thousand monthly income. The mean value of income is 32,377 rupees whereas mean value of monthly expenditure is 28,631 rupees.

Table 4: Socio-economic profile

N=400	Categories	Total %	VLG-1	VLG-2	VLG-3	VLG-4	Description
House Size	**< 4 marla**	21-Jan	21	26	25	15	Std. Dev. 1.549 Min value=3 Max value=12 Mean=5.54 Sig. value=0.146
	4-8 marla	74.5	74	70	75	79	
	> 8 marla	3.75	5	4	0	6	
Living as	**Nuclear family**	36.5	47	41	31	27	Std. Dev. 9.408 Min value=0 Max value=28 Mean=11.28 Sig. value=0.013
	Joint family	63.5	53	59	69	73	
Profession	**Government job**	18.75	8	12	36	19	Std. Dev. 6.349 Min value=8 Max value=28 Mean=14.70 Sig. value=0.000
	private job	17	21	17	7	23	
	Business	19.25	17	24	18	18	
	Farmer	45	54	47	39	40	
Number of Earning members in a family	**1-**	50.5	42	41	58	61	Std. Dev. 0.574 Min value=1 Max value=3 Mean=1.53 Sig. value=0.000
	2-	45.5	51	50	42	39	
	3-	4	7	9	0	0	
what are sources of household income	**agriculture**	45	54	47	39	40	Std. Dev. 6.808 Min value=10 Max value=31 Mean=17.55 Sig. value=0.008
	job/business	54	46	53	57	60	
	pension	1	0	0	4	0	
Avg. Income monthly	**< 15 k**	3.25	12	1	0	0	Std. Dev. 9787.5 Min value=15000 Max value=60000 Mean=32377 Sig. value=0.000
	15k - 30k	48.25	60	45	48	40	
	30k - 45k	37.25	18	48	47	36	
	45k - 60k	11.25	10	6	5	24	
Total Expenses monthly	**< 15 k**	8.75	34	1	0	0	Std. Dev. 8964.3 Min value=8500 Max value=50500 Mean=28631 Sig. value=0.000
	15k - 30k	53.5	40	58	60	56	
	30k - 45k	32.75	21	38	35	37	
	45k - 60k	5	5	3	5	7	

Explanation of Living Single or Joint Family

In this graph of living status as single or joint family the data analyzed has shown the result as high percentage of joint family of 62 and 38 percentage of single family. Its significance value is 0.013 which has indication of précised data gathered during survey in the case studies of four villages. In the village 1, the percentages of single and joint families is nearly equal where joint families are just 7 percent more than single. In the village 2, the joint family percentage is nearly 60 and single has 40 percent. In the village 3, the joint family ratio is increasing from the past two which is nearly 70 percent and single family percentage is 30. In the village 4, the joint family percentage is more increasing which is 72 percent and single family are 28 percent.

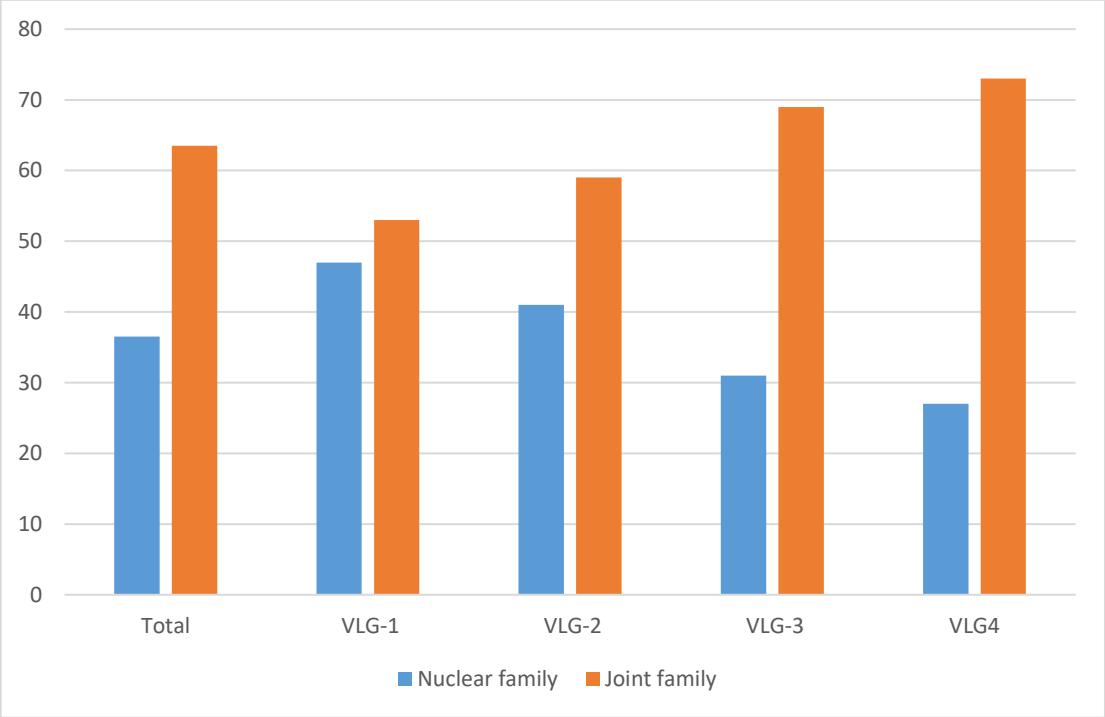


Figure 15 Living as joint or single family

Explanation of Size of House

In the village 1 22 % people have less than 4 marla house and just 4 % have greater than 8 marla house. In the village 2 nearly 25 percent of people have less than 4 marla houses and 70 percent have 4 to 8 marla size of houses. In the village 3, 25 percent of housing unit are less than 4 marlas and 75 percent are 4 to 8 marla whereas there is no house which has more than 8 marla size. In the village 4, nearly 80 % have 4 to 8 marla house size and other percentages are negligible. It has the mean value of 5.54 which means there is majority of housing units have this size. This data leads us toward the housing capacity of these housing units either it's enough for residents or not. The comparison of these two variable is below with the graph of need fulfillment in the house. In this graph we have seen that 20 percent have less than 4 marla housing units, on the other hand we have observed that 18 percent of residents are on rent. This is the link between house size and ownership rate, which can increase with the larger size of housing units.

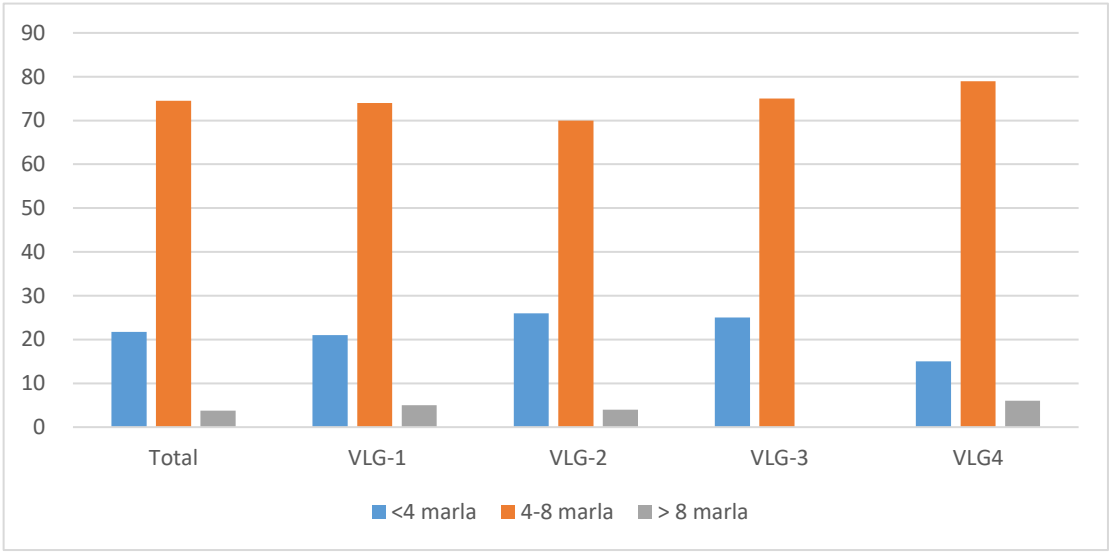


Figure 16: House Size

Explanation of Profession

In the below graph of profession, there are four options asked by four case studies to identify the pattern of profession and their requirements. In the village 1, more than 50 percent of people are doing farming, 20 percent are doing businesses, 16 percent are doing private job and only few percent is doing government job. In the village 2, 45 percent people have farming occupation, 22 percent are businessmen, 15 percent are doing private jobs and remaining are doing government jobs. In the village 3, 35 percent are doing government job and 38 percent are farmers. The business has 18 percentage and other are doing private jobs. In the village 4, the percentage of government job, private job and business are nearly same but farmers are 40 percent. In the overall analysis the farmers have 45 percent which is backbone of our country.

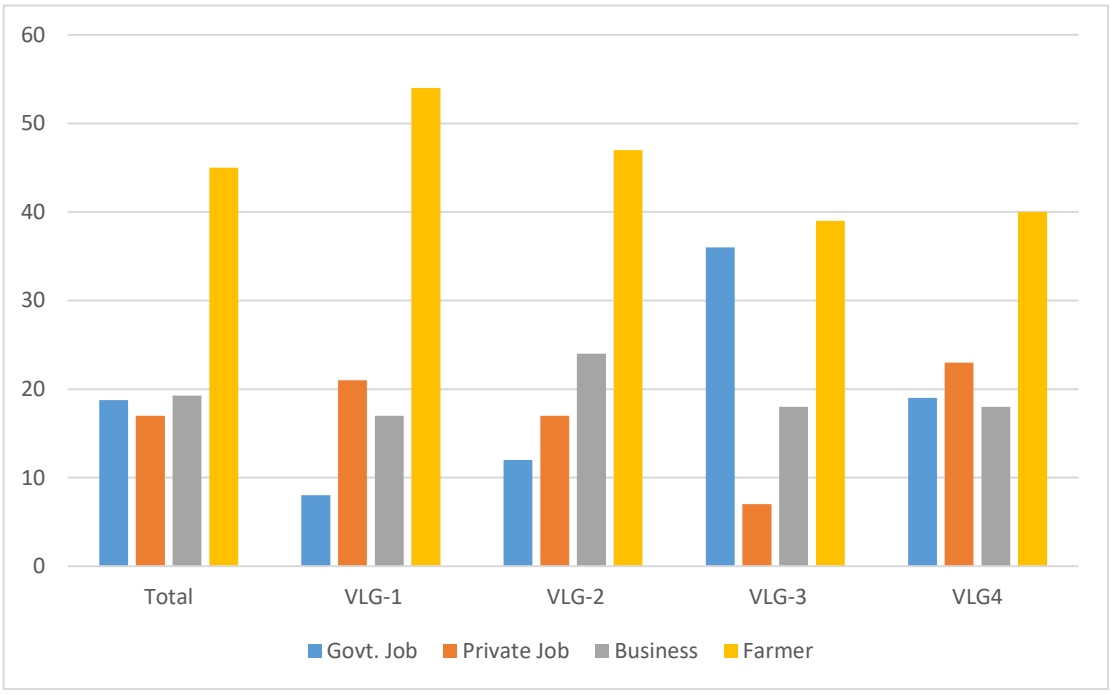


Figure 17: Profession

Explanation of Number of Earning Members in a Family

In this graph of number of earning member there is result shown 1 member as majority of the family. In the village 1, there is 42 percent of family who have only 1 earning members and 52 percent have 2 earning members whereas remaining have 3 earning members. In the village 2, the scenario is same like village 1. In the 3rd and 4th village of more percentage have 1 earning members and nearly 40 percent of family have 2 earning members. There is no percentage of family who has 3 earning members.

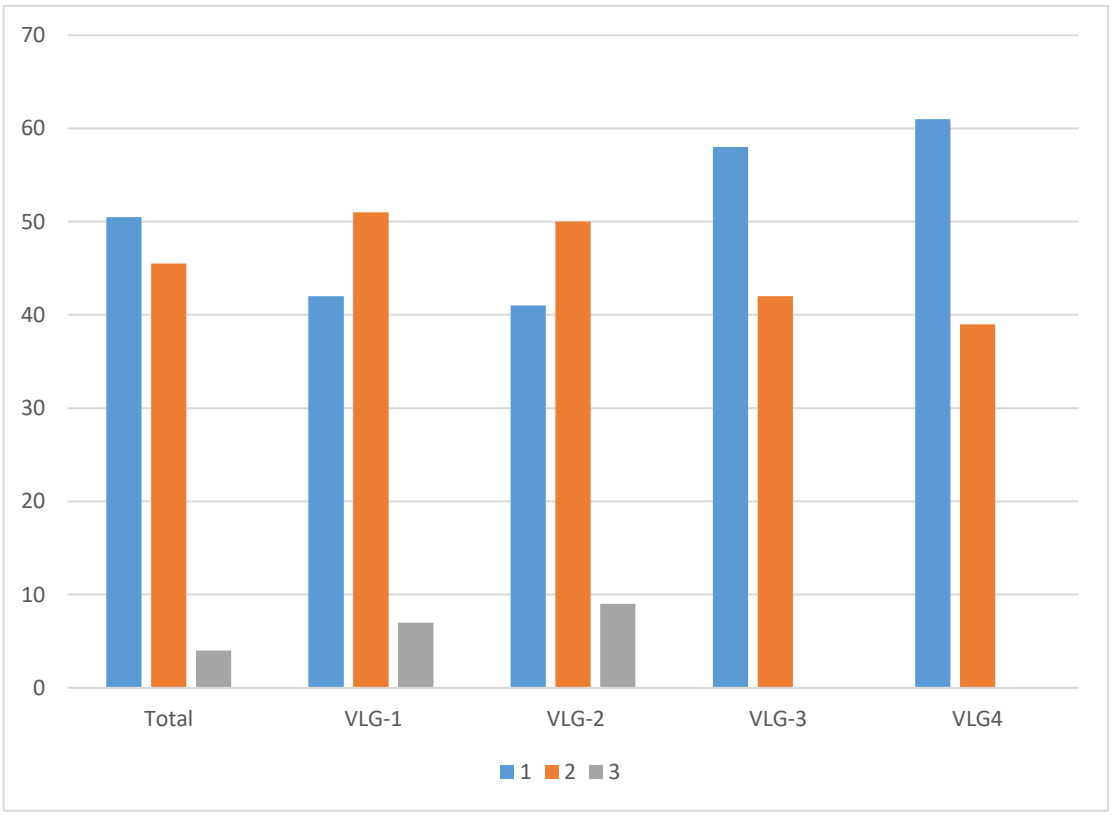


Figure 18: Earning member of each family

Explanation of Average Monthly Income

There is a analysis of average monthly income of the case studies in which village 1, the 60 percent of people have income range from 15 to 30 thousands whereas 18 percent have 30 to 45 thousands income range. In the village 2, second and third category of range has nearly equal percentage of earning. In the village 3, earning income range is same like village 2 have. In the village 4, the scenario is totally different where people earned more with 22 percent from the range of 45 to 60 thousands, 35 percent have income range 30 to 45 thousands and 40 percent have income range from 15 to 30 thousands. In the overall, situation the most income of people have range of 15 to 30 thousands. So they do not have enough income to save money for their house even for the basic needs.

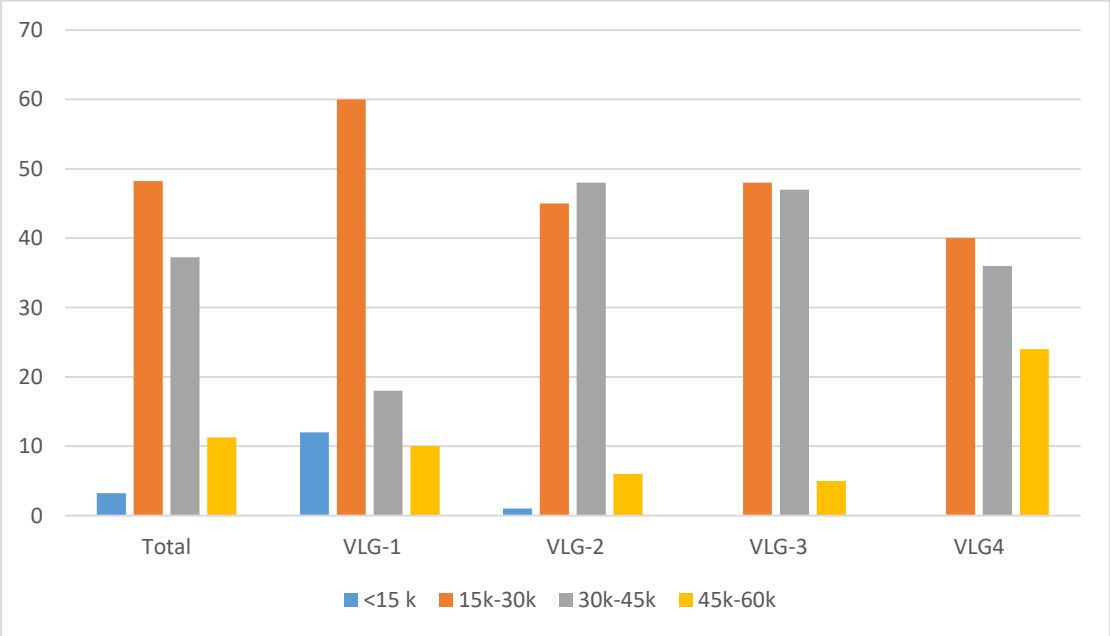


Figure 19: Average Monthly Income

Explanation of Average Monthly Expenses

In the below graph of monthly expenses there is a critical situation because mostly people have same expense as their income. The condition of village wise has potential to do better because of comparison we can understand such as in the village 1, income of more people is in the range of second category but expenses are not like that. They spend more in the range of first category which means they can built their house with the subsidized program by the government. In the village 2, conditions is not good because expenses are more than earning. In the village 3, condition is better and expenses are less than earning so they have potential to pay some amount for new house. In the village 4, the condition is quite good due to less expenses and more earning so, there is a huge potential to make a project of affordable housing in the related area.

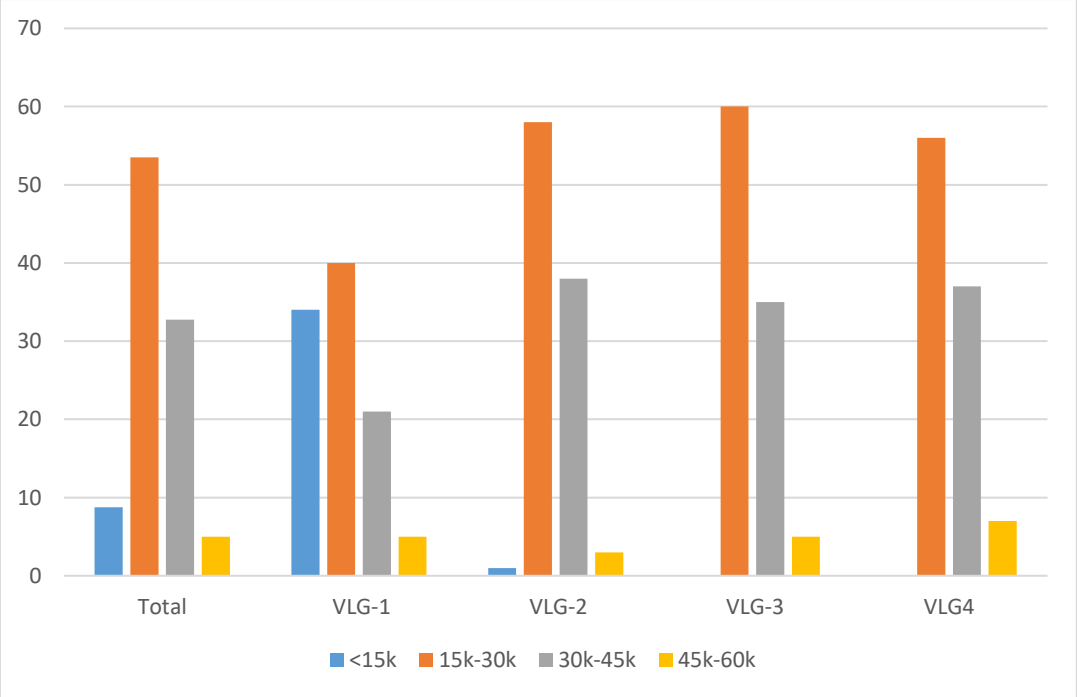


Figure 20: Average Monthly Expenses

4.2.5 Explaining the assets of people of rural area of Pakistan

This table is about the assets of the people which would be their potential and these are following which have been asked from the respondents during the survey.

a. Have they agricultural land?
b. Have they ownership of tractor or trolley?
c. Do they have property other than agriculture or house in which they are living?
d. Do they have car or vehicle?
e. Do they have bike for their use?

With such kind of information we came to analyzed that people have capacity to do their work more easily rather to pay rent of these facilities. These facilities build the potential of residuals of the rural area to earn income and do their own work with nominal cost. These assets can be used to get loan from any bank or NGO. These research questions have prominent significance value which means these are the relevant and importance in the study of affordable rural housing of the four case studies.

In this table there is 69 percent people who have the asset of agricultural land through which they are earning. Other side they have less number of assets in which 14 percent tractor/trolley, 11 percent property, 15 percent car and 64 percent have bike. Two things agricultural land bike have most of the people through which they are running their daily life activities.

Table 5: Assets detail profile

N=400	Categories	Total %	VLG-1	VLG-2	VLG-3	VLG-4	Description
Agricultural Land	**YES**	71	53	60	89	82	Sig. value=0.000
	NO	29	47	40	11	18	
Tractor/Trolley	**YES**	13.75	23	16	6	10	Sig. value=0.003
	NO	86.25	77	84	94	90	
Property	**YES**	11.25	15	8	11	11	Sig. value=0.479
	NO	88.75	85	92	89	89	
Car/Vehicle	**YES**	15	14	6	22	18	Sig. value=0.012
	NO	85	86	94	78	82	
Bike	**YES**	63.75	64	69	54	68	Sig. value=0.107
	NO	36.25	36	31	46	32	

Explanation of Agricultural Land Ownership

In the below graph it has been seen that 70 percent have agricultural land which is the reason of most people have occupation of farming as compare to other professions. This is the potential that people have own land so they need little help to build their own house and overcome the backlog of housing even affordability will also get

achieved. In the village 1, 52 percent people have agricultural land and 48 percent do not have agricultural land due to which village 1, has 25 percent of disowned houses so, there is a need to houses with other alternatives sources of income. In the village 2, 40 percent do not have agricultural land but 60 percent have the land as potential. In the village 3, nearly 90 percent have agricultural land due to which ownership of houses is 90 percent. In the village 4, agricultural land has nearly 80 percent and house ownership rate is also 80 percent so this potential is very helpful to overcome the housing backlog of 7 million in the rural area.

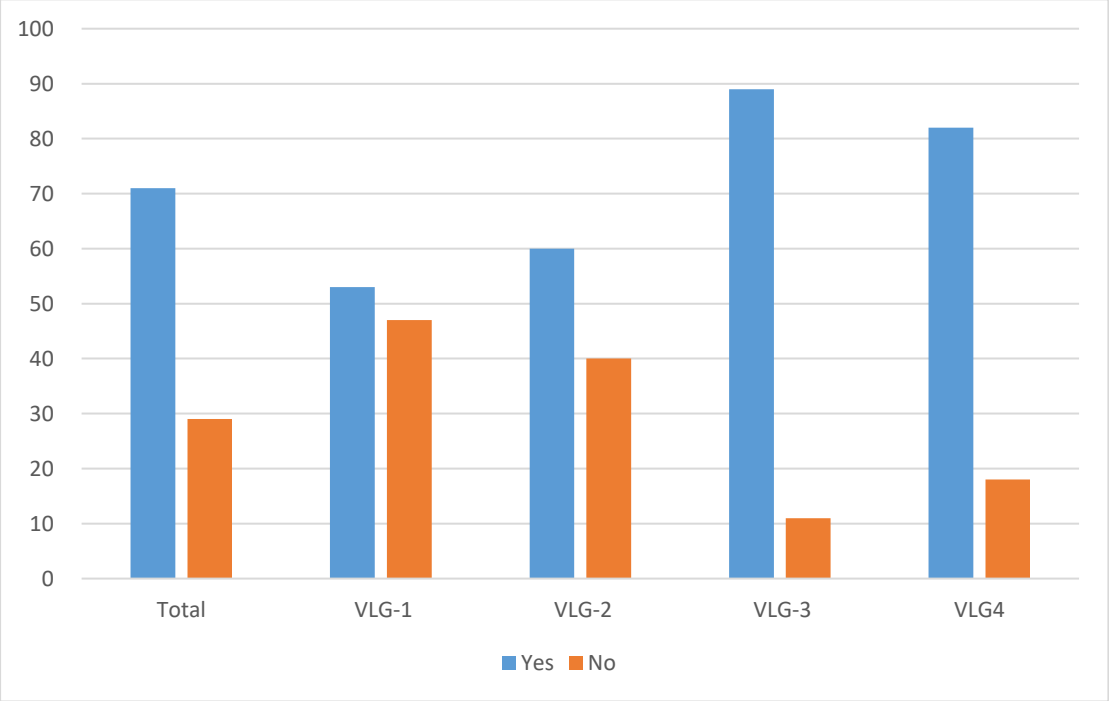


Figure 21: Do you have Agricultural land?

Explanation of Assets as Tractor/Trolley

In the below graph, the maximum percentage of 85 do not have tractor/trolley so they acquired this as per their needs. In the village 1, 22 percent have tractor or trolley

which is the potential of this case study. In the village of 2, there is 15 percent have tractor/trolley and in the village 3, there is least percentage of people having tractor/trolley. In the village 4, only 10 percent have tractor/trolley while 90 percent do not have these facilities.

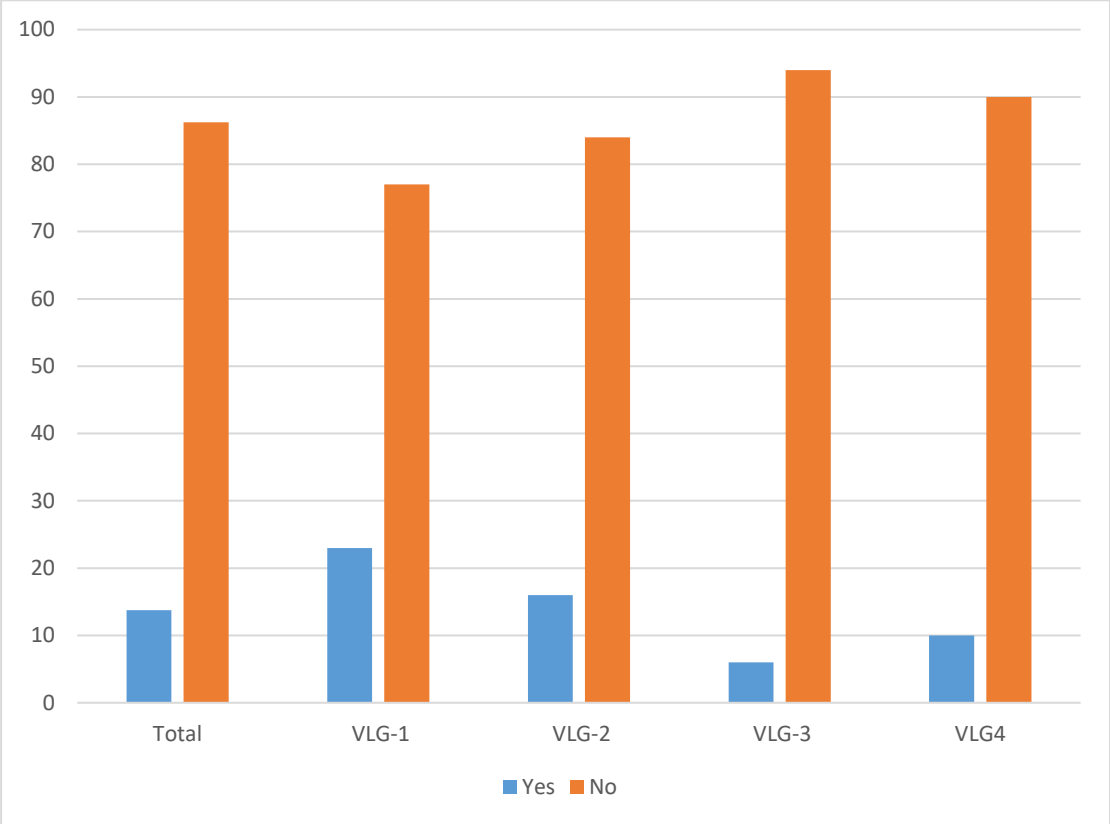


Figure 22: Have you Tractor/Trolley?

Explanation of Property as Assets

In the village 1, 15 percent have property and 85 percent do not have any property other than home and agricultural land. In the village 2, 8 percent have property and 92 percent do not have property. In the village 3, there is 11 percent of people who have this asset but 89 percent do not have this kind of asset. In the village 4, there is also same conditions or situation like village 3.

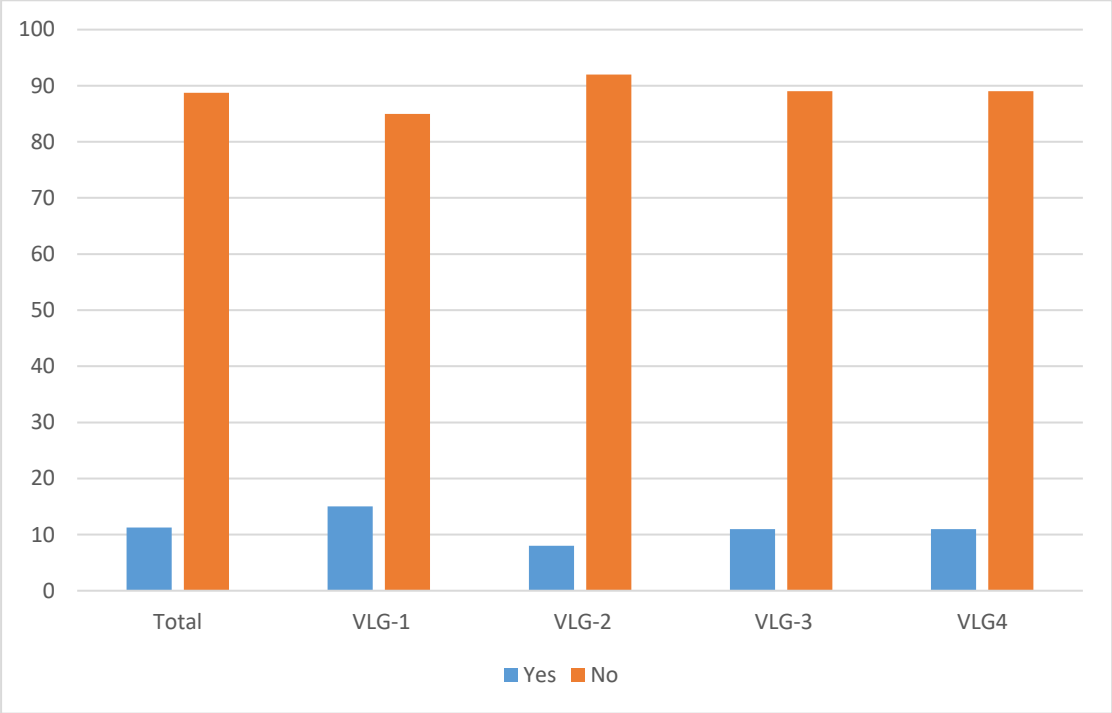


Figure 23: Do you have any property?

Explanation of Asset as Car or Vehicle

In the below table it has been shown the result of data related of ownership of car or vehicle. In the village 1, 85 percent do not have this facility or asset and 15 percent have this only. In the village 2, nearly 94 percent do not have this kind of asset but only 6 percent of residents have this facility of car. In the village 3, higher percentage as compare to other villages have car of 21 percent and 79 percent have not this type of asset. In the village 4, nearly 20 percent have this facility and nearly 80 percent do not have this facility of car or vehicle. In the overall, scenario 15 percent have this facility or asset whereas 85 percent do not have facility of car or vehicle for their personal or public use.

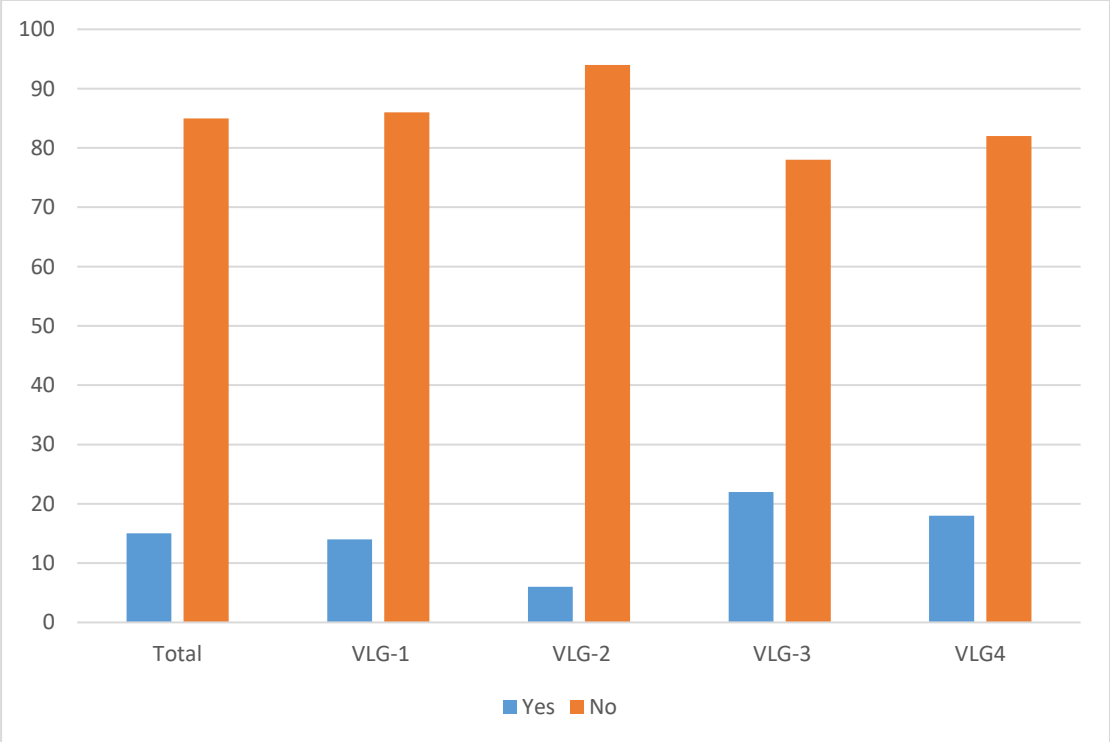


Figure 24: Have you car/vehicle?

Explanation of Asset as Bike

In the below table there is high percentage of ownership of bike. In the village 1, 62 percent have bike and 38 percent do not have. In the village 2, nearly 70 percent have bike whereas 30 percent do not have. In the village 3, both percentages of yes and no are nearly equal but yes is slightly more. In the village 4, scenario is same like village 1.

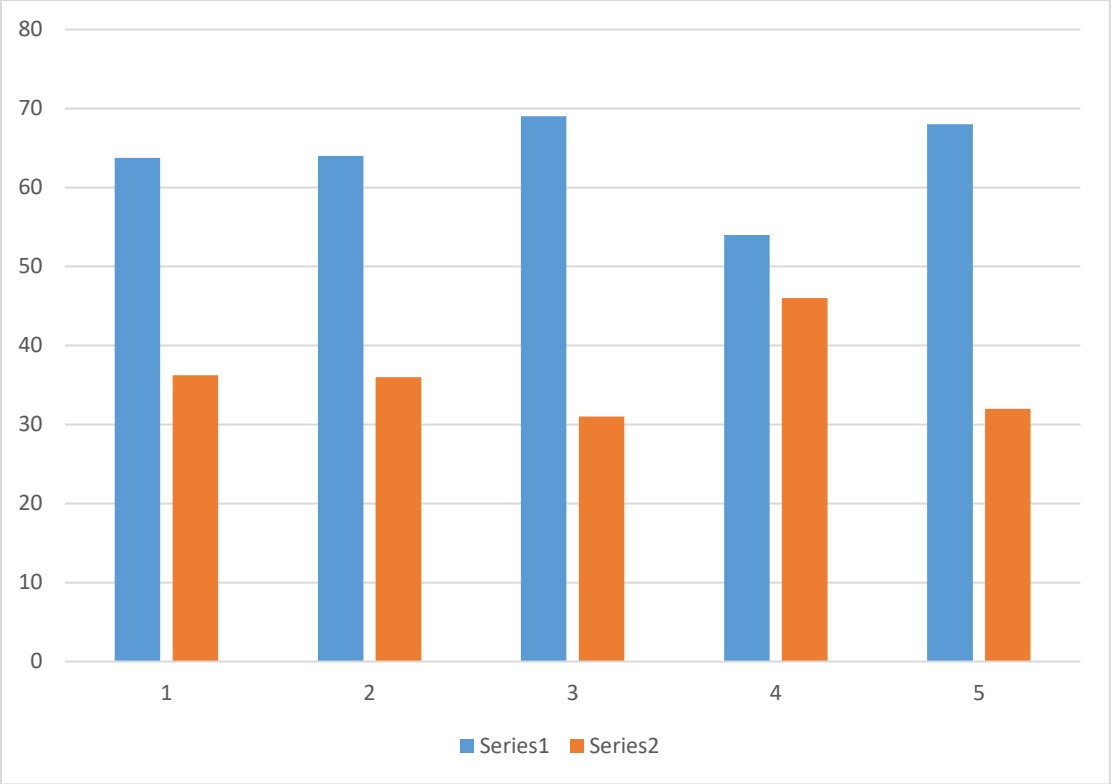


Figure 25: Have you motorbike?

4.2.6 Explanation of available loan facility

In the below table we have discussed about the available facility of loan in which we have covered the following aspects,

a. Have they taken the loan?
b. Is there any loan facility?
c. What and who are the loan facilitators?
d. What is the monthly installment of taken loan?

Table 6 have explained information about the loan taken and availability in the case studies in which 22 percent people approximately got loan from different source like NGOs and Banks etc. Maximum number of respondents knew about availability of loan in their area. People told about two loan facilitators in which banks have 47 percent and NGOs have 53 percent. There are 16 percent people from loan received who paid installment of 5 thousand to 10 thousand monthly.

Table 6: Information of Loan availability

N=400	Categories	Total %	VL G-1	VL G-2	VLG -3	VLG -4	Description
Have you taken loan	**YES**	11.5	13	16	27	30	Sig. value=0.000
	NO	78.5	87	84	73	70	
Is there any loan facility	**YES**	99.75	100	100	99	100	Sig. value=0.390
	NO	0.25	0	0	1	0	
Loan facilitators	**Banks**	46.75	22	55	51	59	Sig. value=0.000
	NGOs	53	78	45	48	41	
Monthly installment of loan N=65	**<5000**	0.25	0	1	0	0	Std. Dev. 1940
	5k-10k	15.75	7	0	26	30	Min value=4500
	>10000	0.25	0	0	1	0	Max value=12000 Mean=8361.54 Sig. value=0.000

Explanation of loan taken

In the below graph, there is the analysis of those who have taken the loan from different sources. In the village 1, just 12 percent have taken the loan while a high percentage did not get this facility. In the village 2, more people have taken loan as compare to village 1 with the percentage of 18. In the village 3, there are more people who got loan as compare to village 1 and 2 with the percentage of 29. In the village 4, about 30 percent people got this facility which is higher than all three villages of case study of the research.

In the overall scenario, 20 percent have taken this facility of loan. On the other hand there are 18 percent who do not have own home. But in the village 3 and 4 the loan taken ratio is more than village 1 and 2 due to higher income level.

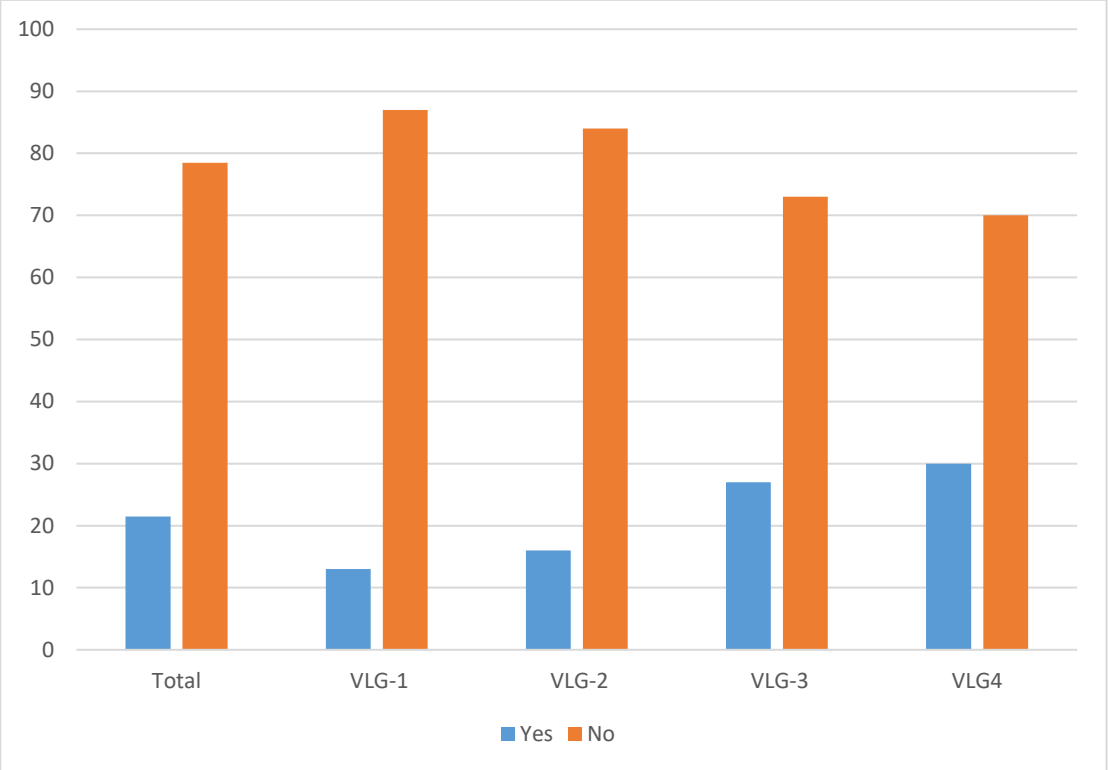


Figure 26: Have you taken the loan?

Explanation of Loan Facilitators

In the below bar graph, there are two main facilitators of loan for the residents of villages of Pakistan. In the village 1, nearly 80 percent of loan has been given by NGO like Akhuwat and remaining 20 percent has been given by Banks. In the village 2, Banks have slightly high percentage of loan cases with the percentage of 55 while NGO has 45 percent loan cases. In the village 3, both percentages are equal whereas in the village 4 banks have 60 percent ratio of loan facilitators. In the overall,

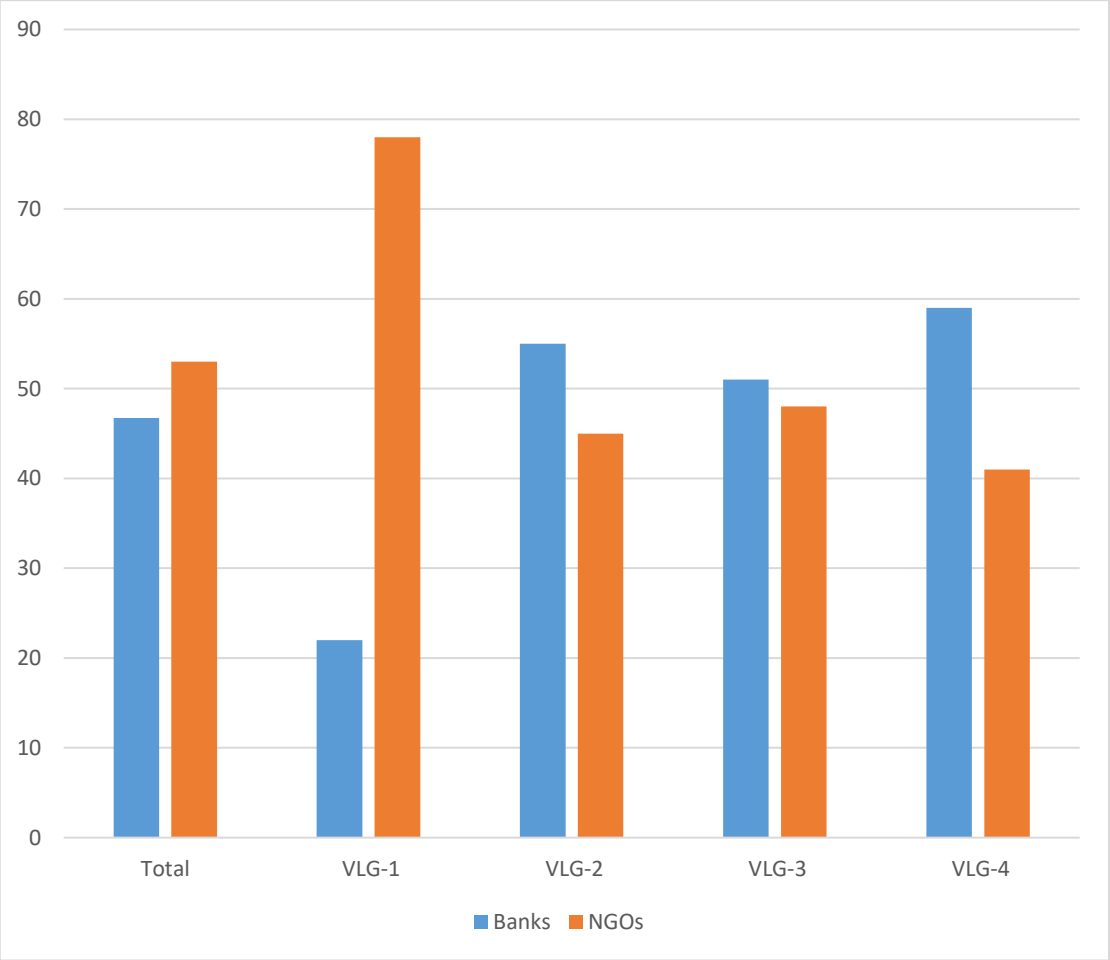


Figure 27: Which are loan facilitators?

Explanation of Monthly Installment

In the below graph, there is analysis of data of those who took loan and have return installment of loan. There are three categories of installment such as less than 5000, 5 to 10 thousands and greater than 10,000 rupees. In the village 1, just 7 percent have installment of 5 to 10 thousands. In the village 2, sight percentage of people have installment of less than 5 thousands. In the village 3, 26 percent people have installment of second category whereas nominal percentage of installment is greater than 10,000 rupees. In the village 4, 30 percent population have installment of second category of 5 to 10 thousands while other categories are not available.

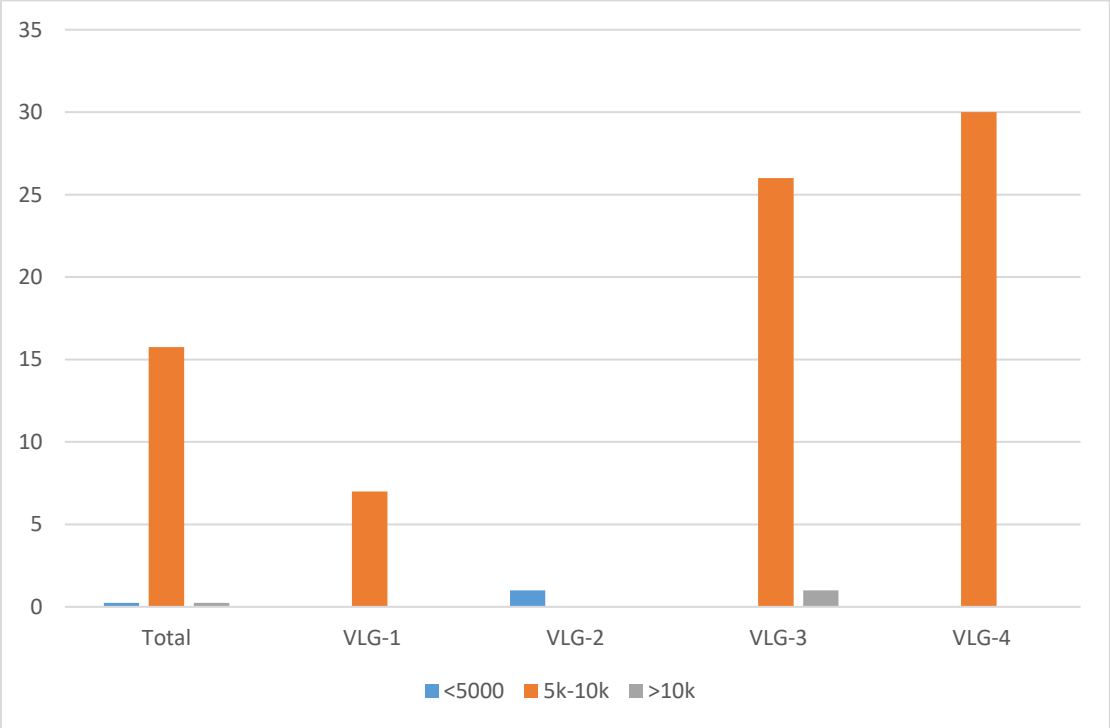


Figure 28: What is monthly installment of loan?

4.2.7 Explanation of livestock information

In the below table we have analysis the data in SPSS with the following variables about livestock,

a. Do they have livestock?
b. How many number of livestock do they have?
c. Do you have business of livestock?
d. Does your livestock is fulfilling their needs?
e. What is their monthly income from livestock?
f. What is the area under the use of their livestock?

There is about 72 percent of people who have livestock whereas 28 percent have no livestock. There are 63 percent who have 1 to 3 numbers of livestock and 9 percent have more than 3 livestock. The mean value of number of livestock is 1.96. There is 29 percent who do business from livestock only. A major percentage of 88 have adjacent farm area where as few percent of 11.25 percent have more than 1 km away. Livestock is not fulfilling 65 percent of people who have livestock. There is 38.5 percent who earned 1000 to 5000 rupees and 6 percent who earned more than 5 thousand. Mostly used area used by livestock from 1 to 5 marla is 68 percent as major section. The mean value is 1.17.

In the rural area there is a serious problem required to deal. Along the housing the needs of livestock management is also much important because this the prominent factor of rural housing.

Table 7: Livestock detail profile

N=400	Categories	Total %	VLG-1	VLG-2	VLG-3	VLG-4	Description
Do you have livestock	**YES**	72.25	56	68	83	81	Sig. value=0.000
	NO	27.75	44	32	16	19	
No of livestock	**0-**	27.75	44	32	16	19	Std. Dev. 1.432 Min value=0 Max value=15 Mean=1.96 Sig. value=0.000
	1--3	62.75	42	49	84	76	
	>3	9.5	14	19	0	5	
Livestock as business	**YES**	28.75	38	32	25	20	Sig. value=0.000
	NO	71.25	62	68	75	80	
Farm away from house	**Adjacent**	88	88	82	92	90	Sig. value=0.000
	1 km	11.25	9	18	8	10	
Does Livestock fulfil your needs	**YES**	35	14	16	50	60	Sig. value=0.000
	NO	65	86	84	50	40	
Monthly income from livestock	**0-**	55.75	57	67	45	54	Std. Dev. 1940 Min value=4500 Max value=12000 Mean=8361.54 Sig. value=0.000
	1000-5000	38.5	34	32	50	38	
	>5000	5.75	9	1	5	8	
Area used by Livestock	**0**	29.75	47	37	16	19	Std. Dev. 1.528 Min value=0 Max value=15 Mean=1.17 Sig. value=0.000
	1--5	67.75	43	63	84	81	
	5--10	2.25	9	0	0	0	
	>10	0.5	1	0	0	1	

Explanation of Livestock Ownership

In the below graph of livestock related there is more percentage of people who have livestock such as in the village 1, 55 percent have livestock and 45 have not. In the village 2, there is nearly 70 percent of people having livestock while 30 percent have not. In the village 3, there is 82 percent have livestock and just 18 percent have not. In the village 4, 80 percent have livestock while 20 percent have not. In the overall, scenario there is nearly 70 percent of respondents have livestock while 30 percent have not due to rental and lack of own land.

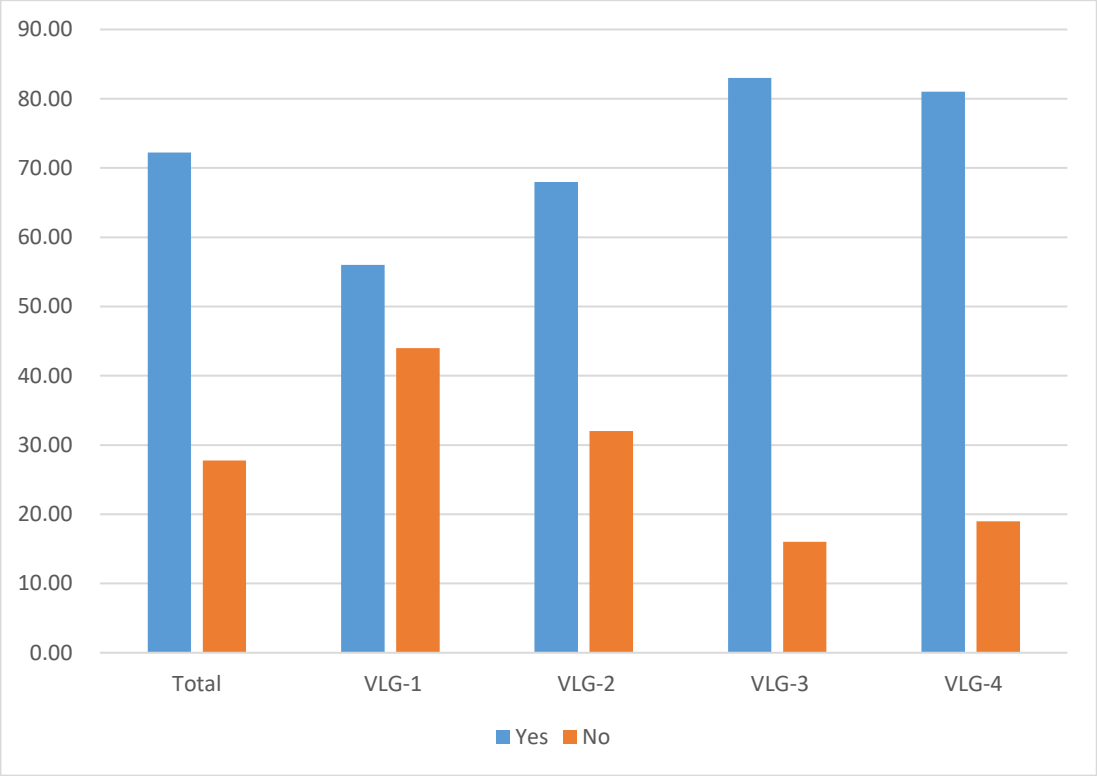


Figure 29: Do you have Livestock?

Explanation of Number of Livestock

There is a graph below with the analysis of data about number of livestock in four different case studies of rural areas. In the village 1, there is 42 percent who have not any livestock and 40 percent who have 1 to 3 number of livestock. About 18 percent have more than 3 number of livestock. In the village 2, there is 30 percent who do not have any livestock and nearly 50 percent have 1 to 3 number of livestock while just 20 percent have more than 3 number of livestock. In the village 3, the scenario is different such as only 15 percent have not any livestock whereas 85 percent have 1 to 3 number of livestock. In the village 4, there is nearly 20 percent who do not have livestock and 75 percent have 1 to 3 number of livestock while 5 percent have more than 3 number of livestock. In the overall, scenario there is 28 percent have no livestock and 62 percent have 1 to 3 number of livestock and 10 percent have more than 3 number of livestock.

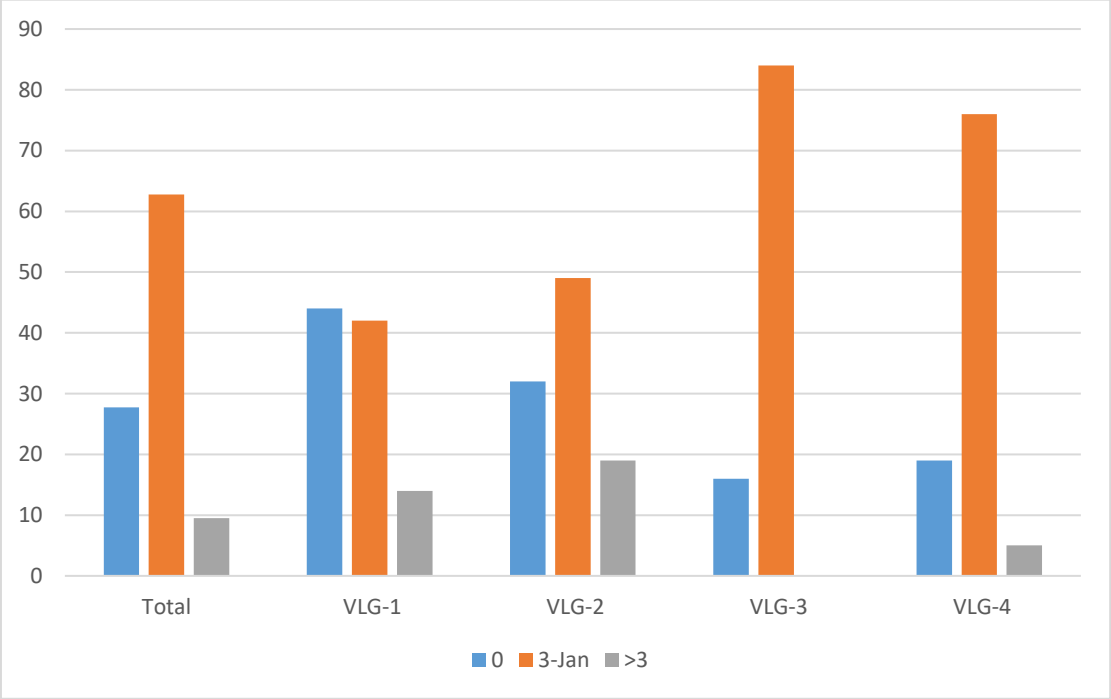


Figure 30: How many Livestock do you have?

Explanation of Livestock for Business

In the below graph of livestock as business there has been shown that nearly 70 and 30 percent of ratio who have livestock for their personal use and business respectively. In the village 1, this ratio is about 60 and 40 of yes and no respectively. In the village 2, there is ratio of approximately 70 and 30 of no and yes respectively. In the village 3, there is 22 percent who used livestock as business and 78 percent have not. In the village 4, this scenario is more less because just 20 percent have business usage and 80 percent have not this use. The trend of livestock as business is decreasing from village 1 to village 4 in the regular pattern.

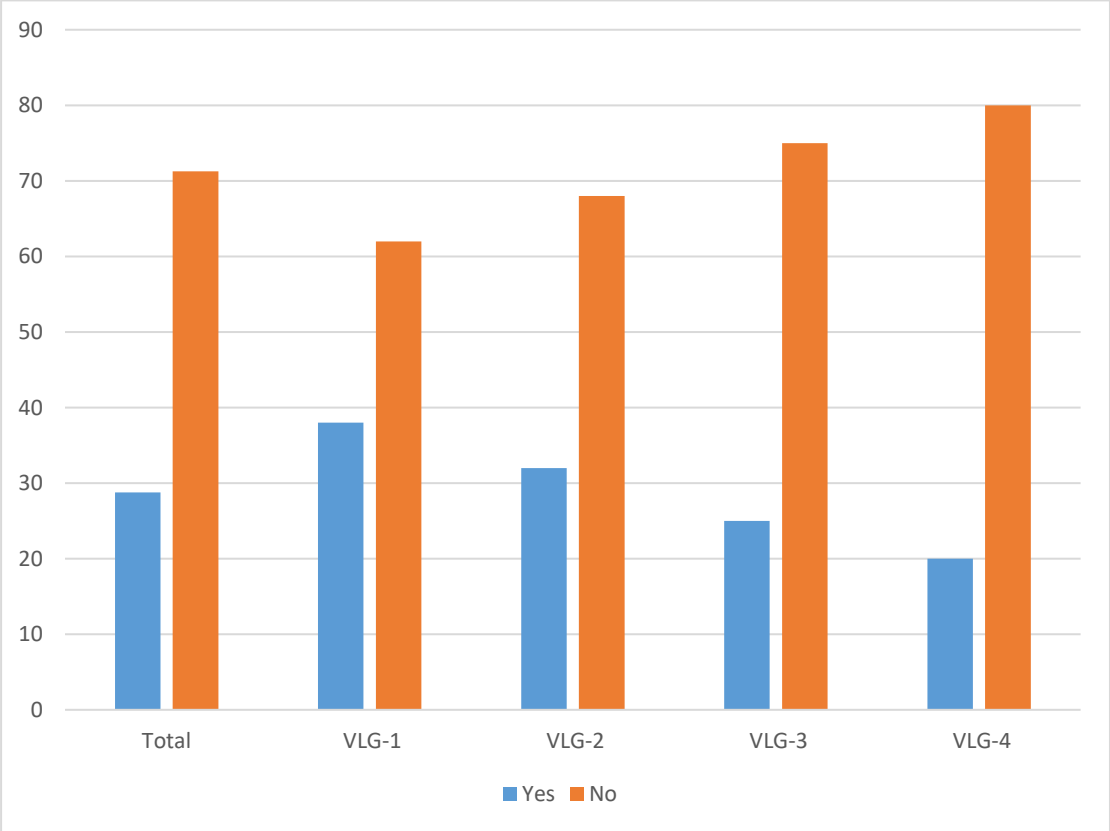


Figure 31: Do you have Livestock as Business?

Explanation of Farm Location Away From House

In this below graph, there is the data of distance from house to farm where livestock has been settled. In the village 1 and 3 the distance between house and farm has equal percentage of nearly less than 1 km whereas village 4, has the distance of 1 km of 10 percent. In the village 2, the percentage of 1 km away is 18. Most of the people have adjacent livestock area. In the overall, seen there is 88 percent have adjacent livestock area while just 12 percent have 1 km away from house. More percentage of people have less than 3 numbers of livestock so, they have priority to adjust the livestock in the side area of house where they lived. Most those people have away farm who do business of dairy and livestock.

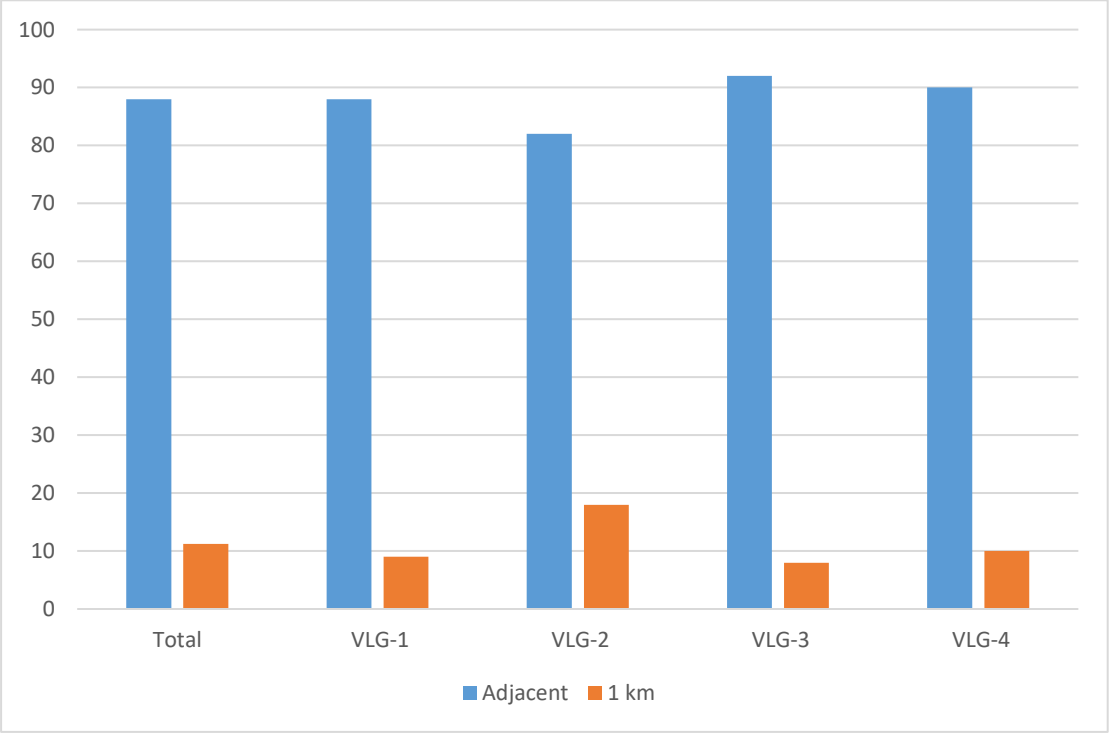


Figure 32: How much your farm is away from house?

4.2.8 Affordable housing information

In the below table we have summarized the data after SPSS analysis in which we have noted the data of following variable of affordable housing in the case studies,

a. Any previous project of affordable rural housing
b. Willing of residents to shift in a new house
c. Preference of resident about new house

There is no such project of affordable housing their four villages whereas 75 percent of people who want to shift in a new house because of low capacity of existing housing. In the rural areas there is major percentage of 42 who want to live in house with attached livestock area whereas 39 percent want a house that can fulfill their living requirement and only 19 percent who want flat as new one. Their significant value of all these quires is 0.000.

There are two physical projects of affordable housing such as People's Poverty Alleviation Program in which six district of Sindh were targeted and government with the collaboration of different institutes have done this project. The second is Ashiana Housing Program in which low income housing were developed in the side area of Lahore. These two projects are important base line for further such initiatives about affordable housing but rural housing should be target because there is 7.0 million housing units are short in the total backlog of 10.3 million.

The Naya Housing Program is the recent one in which government tried to tackle with the issue of housing backlog. This program has both rural and urban housing but the framework for the execution is missing.

Table 8: Information of Affordable housing

N=400	Categories	Total %	VLG-1	VLG-2	VLG-3	VLG-4	Description
Is there any project of affordable housing	**YES**	0	0	0	0	0	Sig. value=0.000
	NO	100	100	100	100	100	
Would you shift in new ARH	**YES**	75.25	85	84	60	72	Sig. value=0.000
	NO	24.25	15	14	40	28	
What type of house would you prefer as new house	**flat**	19.25	37	16	3	21	Sig. value=0.000
	house	38.75	39	31	55	30	
	house with LS	42	24	53	42	49	

Explanation of Any Previous Affordable Rural Housing Project

In the below graph there is a clear picture having the information of no any project of affordable rural housing in the nearby of case studies selected under research. So this data is very disappointing but had showed the need of this kind of affordable housing projects.

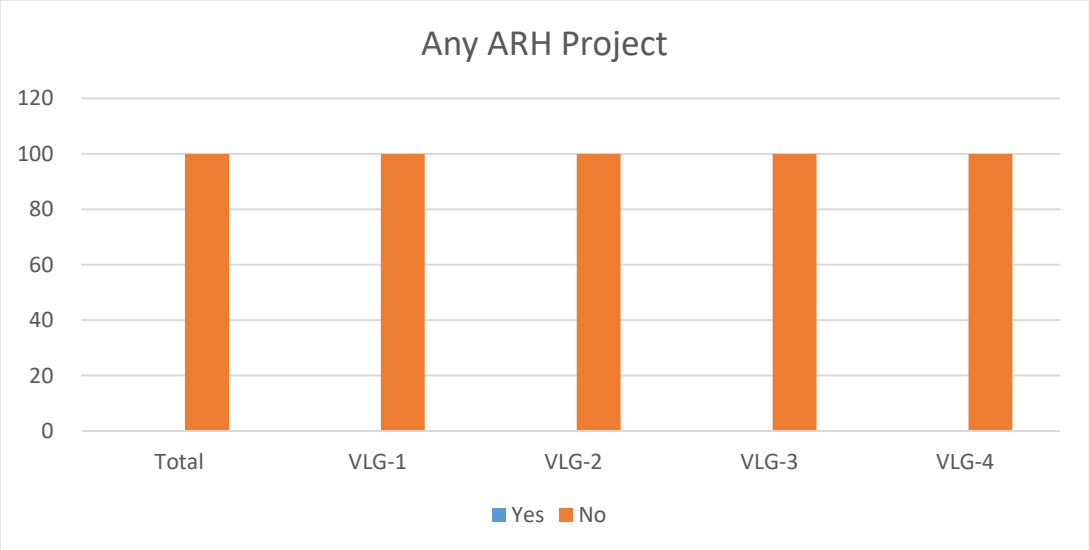


Figure 33: Is there any project of affordable housing?

Explanation of Willingness to Shift in a New House

In the below graph, there is the willing of residents of these four case studies which are Karore village at Lathrar road, Saroha rajgon village of Kallar syeddan, Garibwal village of Pindi gheb and Digwar village of tehsil and district Haveli AJK.

In the village 1, there is 85 percentage of people have willingness to shift in a new house to improve the living conditions and enjoy the facilities like cities while 15 percent still do not want to change or shift due to their social structure and free living style.

In the village 2, there is approximately same percentage of people like village 1 want to shift.

In the village 3, there is 60 percent who want to shift in the new house but 40 percent do not want to shift because of their agricultural land and livestock's.

In the village 4, there is different condition in which 70 percent want to shift but 30 percent don't want to shift.

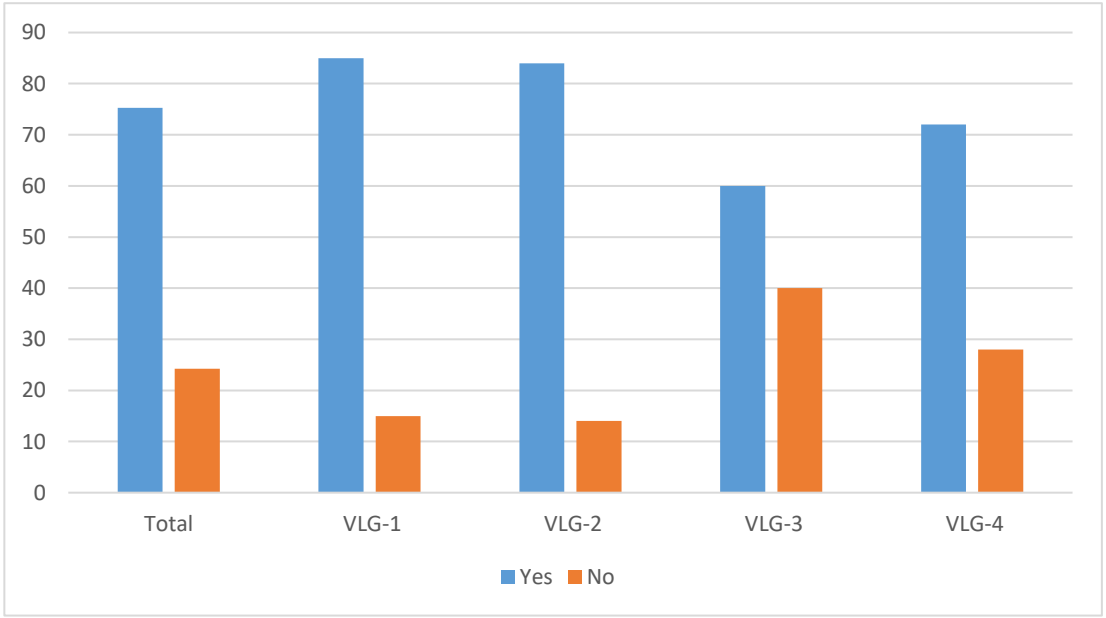


Figure 34: Would you like to shift in a new house?

Explanation of Type of House in Which People Want to Shift

In the below bar chart, there is detail picture of data having information about the house type in which people want to shift. Rural areas have different style of living due to social structure and functionalities. In the village 1, there is 38 percent of those people who want to shift in a flat because they have need of house as basic need. Nearly 40 percent want a house as new options which should be separate from other families whereas 22 percent want such a house in which there should be place for their livestock. In the village 2, there is low percentage of flats wanted which is just 15 and 30 percent of a separate house while 52 percent wanted a house with livestock facility. In the village 3, there is more percentage of people who wanted a separate house while 40 percent wanted a house with livestock. In the village 4, there is likeness of village 2 in which 20 percent wanted flats, 30 percent a separate house while 50 percent a house with livestock. In the overall, scenario there is ratio of 20, 38 and 42 percent who wanted flats, separate house and house with livestock respectively.

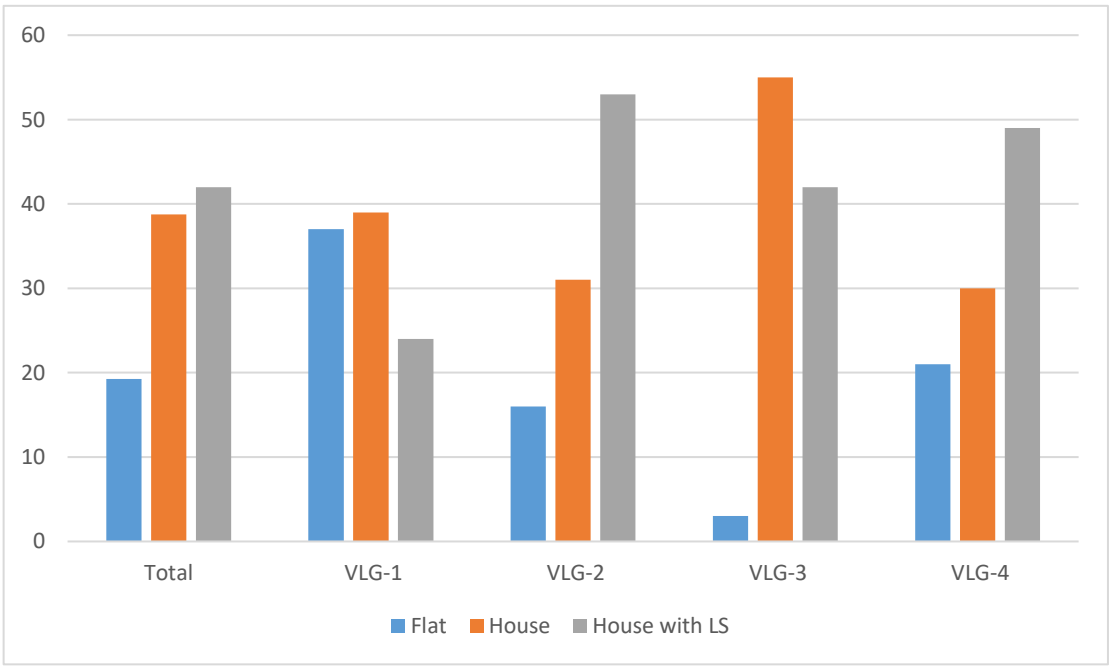


Figure 35: What type of house would you prefer?

4.3 Identification of Key Barriers to Promote Sustainable Housing in the rural areas of Pakistan

Before doing further research, it was necessary to confirm the validity and applicability of the sustainable rural housing obstacles. For this reason, professionals in the field were invited to validate and assess the thoroughness and applicability of the barriers based on their experiences. Despite the experts' views, there were no further hurdles added to the list overall because the barriers that were found and suggested already overlapped. The experts offered their assessments of each barrier's applicability and ranked each one using a number between "1: relevant barrier with least value" and "5: applicable barrier with most valued." To determine the proportion of application for each barrier, equation (1) was employed. XLSTAT 2019, and the results presented in Figure 5 were accomplished.

$$AI_i = ai/n,$$

Where AI is the applicability index of barrier i

a is the number of respondents who rated SBi as an applicable barrier; and n is the total number of participants (i.e., 400).

4.3.1 Factor formed by factor analysis

The 11 groups has been formed in the data which are in the below table with their factor number, names and components. The factor 1, of lack of awareness has four sun factors like joint family and discouragement of separate house, Migration because unable to produce earning opportunities in their areas and due to lack of education awareness is very low. In the factor 2, political constrains there is also four sub factor like lack of accessibility and political involvement in the decisions regarding rural development projects. Such as there are numbers of sub factors of other nine reaming factors of below table. These factors have been formed by the factor analysis using SPSS software.

In this study, 400 participants were contacted and interviewed to identify the key obstacles preventing the development of sustainable rural housing. The information depicts how participants responded. These responses were then examined and incorporated.

Table 9: Factors formed after analysis

Factor No.	Factor Name	Components of factor
Factor 1	Lack of Awareness	Lack of awareness Low wage jobs Joint family discourage separate house Migration
Factor 2	Political constraints	High Maintenance of existing house Lack of accessibility Rising cost of housing construction Political constrain
Factor 3	Lack of rural planning	Lack of regional planning Less profitable project for developers High cost of transportation
Factor 4	Poor infrastructure and services	Lack of infrastructure Jobs away from villages Lack of heavy transport service
Factor 5	Lack of fund and govt. will	High cost of building materials Lack of funding incentives Inefficiencies in government operation
Factor 6	Lack of opportunities	Lack of govt. incentives Lack of opportunities for earning Lack of more high Tech. jobs
Factor 7	Inappropriate System	Gap b/w education and job Poor land record system Move to urban area for job Lack of govt. dept. concerns
Factor 8	Livestock management issues	More area require due to livestock
Factor 9	Extreme event like flood or earthquake etc	Extreme events like floods Lack of rural planning High cost of labor
Factor 10	Social and cultural constraints	Lack of skilled labor Social and cultural constrains
Factor 11	Economic constraints	Economic disparity rural to urban Poverty

4.3.2 Names of grouped barriers with index to the provision of sustainable affordable rural housing

In the below table there is Relative Importance Index which is showing the rank of barriers with most to least value. Those barriers which have higher value are more barriers in the provision of affordable housing of rural Pakistan. Political constrains have the most value of 0.9140, so it has first rank in the barriers which is a serious hurdle in the sustainable solution of affordable rural housing. Lack of awareness is the second number barrier which is needed to remove to get the affordable housing in the villages. On the other hand extreme events like floods have least RII value which can be deal with minimum efforts.

Table 10: Names of factors

Sustainable ARH Barriers	Index	RII	Rank
Lack of Awareness	SRH01	0.8995	2nd
Political constrains	SRH02	0.9140	1st
Lack of rural planning	SRH03	0.6560	7th
Poor infrastructure and services	SRH04	0.6540	8th
Lack of funds and government will	SRH05	0.7055	6th
Less opportunities	SRH06	0.7275	5th
Inappropriate system	SRH07	0.6280	9th
Livestock management issues	SRH08	0.5730	10th
Extreme events like floods	SRH09	0.4965	11th
Social and cultural constraints	SRH10	0.7355	4th
Economic constraints	SRH11	0.7645	3rd

Principal component analysis

Principal component analysis (PCA) has been used to reduce the size of the data and effective barriers, despite the fact that identification of the provision of sustainable housing barriers in the rural area of Pakistan has produced insightful results. The plurality of recognised barriers is a key challenge to accepting practical approaches to address implementation of sustainable rural housing practises. In scientific research, principal component analysis (PCA) is a common technique for reducing the number of variables to a manageable number and identifying the principle components that best capture the original data. In order to do this, PCA finds the variables that can be grouped together to create a new variable since they are related. Particularly when studying variables that are challenging to measure precisely, PCA is a useful technique.

One of the key benefits of using the PCA is that fewer variables are used, which makes it easier to establish a reasonable explanation for the correlations between the variables. After applying the PCA method to a collection of data, the identified principal components will serve as the primary variables. There are n components for every n variables. Not every component, though, will be significant or valuable enough to be kept. In other words, only those components that can adequately account for the variation in the data will be selected as major components. This is how PCA reduces the number of variables.. Similar studies with several variables have frequently employed this approach because doing so would make it simpler to research the crucial factors more successfully.

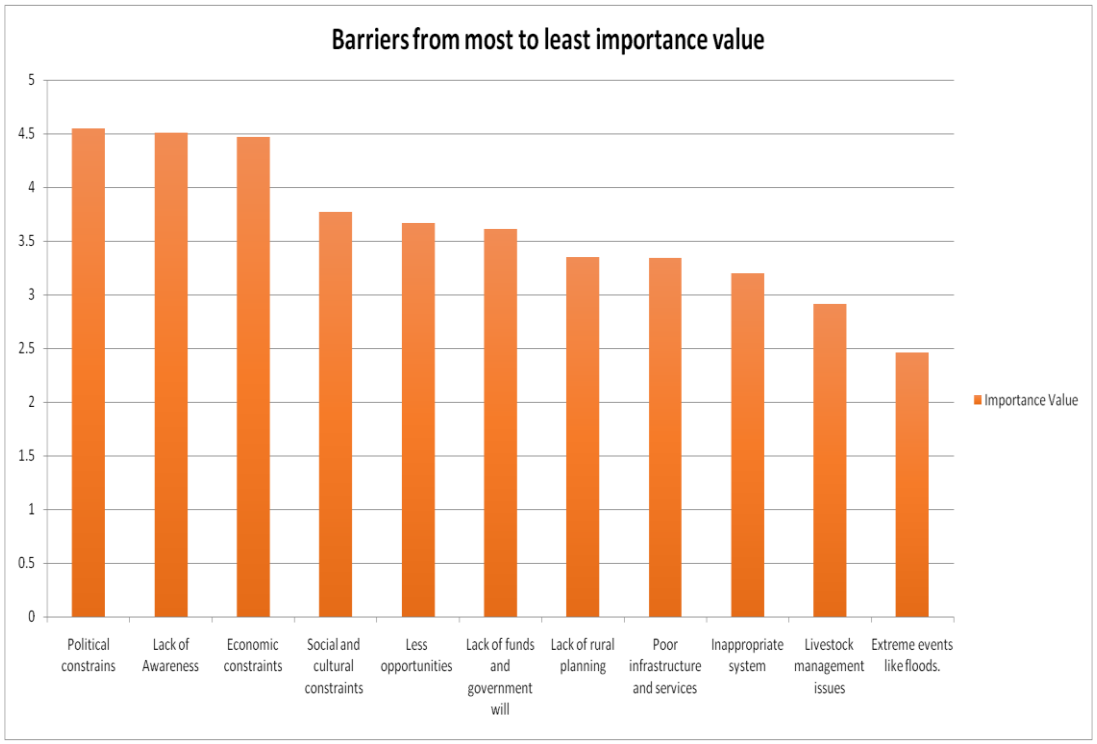
Table 11: RII and Ranking of Barriers

Sustainable RH Barriers	N	Minimum	Maximum	Mean	Std. Deviation	RII	Rank
SRH01	400	1	5	4.47	0.614	0.8995	**2nd**
SRH02	400	1	5	4.55	0.625	0.9140	**1st**
SRH03	400	1	5	3.35	0.803	0.6560	**7th**
SRH04	400	1	5	3.34	0.823	0.6540	**8th**
SRH05	400	1	5	3.61	1.156	0.7055	**6th**
SRH06	400	1	5	3.67	0.748	0.7275	**5th**
SRH07	400	1	5	3.20	0.900	0.6280	**9th**
SRH08	400	1	5	2.91	0.891	0.5730	**10th**
SRH09	400	1	5	2.46	0.748	0.4965	**11th**
SRH10	400	1	5	3.77	0.961	0.7355	**4th**
SRH11	400	1	5	4.51	0.623	0.7645	**3rd**

Based upon the respondent's data, SRH02 or "political constraint" has been identified as one of the most critical barriers in the provision of affordable rural housing. Whereas SRH09 OR "Extreme events like flood or earthquake etc. taken as the lowest critical barriers among all the barriers.

Explanation of rank bar chart

In the order of ranking given by factor analysis by relative importance index in which there are barriers from left to right with maximum to minimum importance index. Political constrain is the most valued barrier in the provision of affordable rural housing. Lack of awareness and economic constrain are the second and third important index respectively. Livestock management is a second least important issue of rural area housing and extreme events have lowest value of relative importance index.



4.4 A policy framework for affordable rural housing

In the framework we have identified the needs and barriers of affordable rural housing of Pakistan and we designed a this type of framework which is very simple and understanding for every field of people. There is need to define the different term like affordability with respect to Pakistani rural areas capacities. The development of rural areas and housing should be in the sustainable way. At last there is most prominent aspect of governance which can do this job in a good way. Governance has more potential and responsibilities to do such kind of programs.

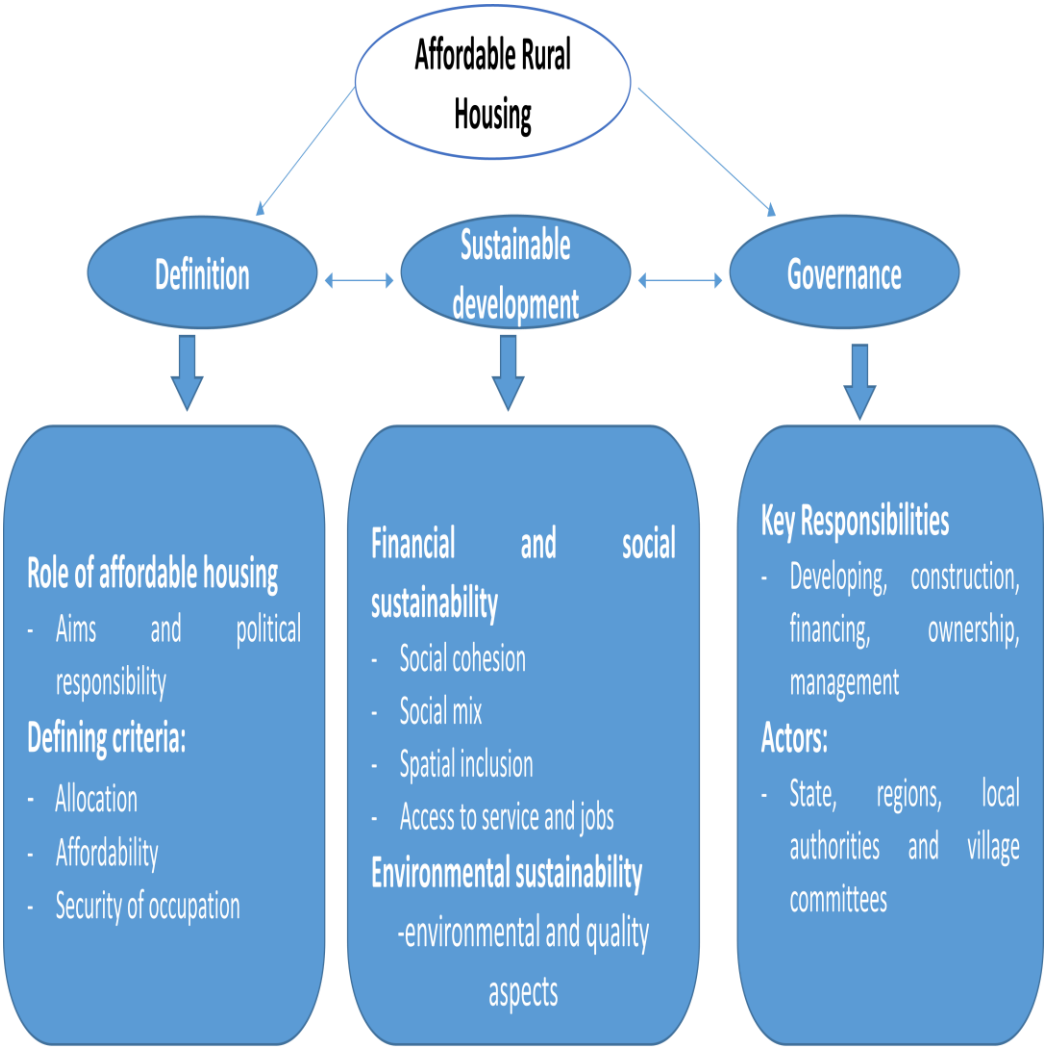


Figure 36: A policy framework of affordable rural housing in Pakistan

CHAPTER 5

Conclusion

This research mainly focused on the provision of affordable rural housing in Pakistan. First of all, existing conditions were identified with the help of literature review. It has been observed the living style and standards of rural areas. The literature review revealed the shortcoming in the provision of affordable rural housing where most of the housing project had been done for urban areas where government want to get publicity for the sake of political benefits. There were different approaches in the literature review which were dependent upon the location and needs of the respective areas. Most the techniques and designs which applied to the developing countries with various conditions than the under developed countries like Pakistan. Some of the framework and designs were used in the African countries has worse conditions than Pakistan. Every country has its dynamics and conditions, even every village has different conditions and scenarios. So all the rural areas have not same kind of housing solution.

The literature review identified some grey areas which were not included in the past studies like political interference, corruption, technological advancement, private sector involvement and public-private partnership practices, local perspectives, beliefs and sustainability. Therefore, we designed a new framework by merging the new and existing indicators related to local conditions of the case studies of Pakistan. The literature-based identified grey areas were integrated with the local conditions-based parameters and then parameter were used to measure the affordability of rural housing in Pakistan.

The results have covered the main objectives of this research which is related to housing needs and provision. In the first step it has been evaluated the previous projects of affordable rural housing in the country. There are many projects of rural development in the country to improve the agricultural production and infrastructure but housing component is missing. There was focused upon the agriculture side due to huge dependence on national GDP. In the different projects different problem were targeted in the rural areas but provision of affordable housing didn't get much importance. Although housing policy has been designed in 2001 but after that still there is no such project of rural housing. Many housing project has been launched in the urban areas due to over burden of population but not as per requirement. So Pakistan is still short of 10 million housing units and 270,000 are increasing units per year. This shows that there is a urgent need to plan and provision of affordable rural housing which will improve the living conditions of rural population and share the burden of housing backlog at national level.

In the second step, need assessment has been done through the surveys in the case studies which gave true picture of existing conditions and problems with respect to the locals of that areas. It has been found that there are number of problem for the locals which lead towards the shortage of housing like low income, less opportunities for business, lack of awareness and lack of government serious concern etc. According to the survey data, it has been seen that mostly families are living as joint and have dependence upon only few earning members due to this they are unable to make a separate housing unit and fulfil their respective needs. There is also lack of proper planning for the sake of this kind of issues which is also enhancing the backlog of housing unit. So it is important to deal the rural area as a whole rather than one or two issues. Rural development projects should be comprising the all aspect of

planning from agriculture to individual's home. Every village or rural area has different dimensions, physical conditions and resources which have major impact on the development of that area. In the surveyed data the conditions, needs and measurements for their solution are different from one to other with respect to their requirements.

In the third step, the barriers of the affordable housing in the rural areas of Pakistan have been discussed and analyzed on the perception of respondents in the survey. This perception vary from case to case and situation to situation due to different background and conditions. The rush to meet the massive need to build more facilities has intensified the inherited adverse impacts of the affordable rural housing. Therefore, the given initiatives have developed to fulfill sustainability needs. Despite previous efforts, the current scenario is alarming in the housing backlog especially in the rural areas of Pakistan. In order to foster these endeavors, this study aimed to explore the barriers due to which the sustainable housing solution would be practicable in the rural areas of Pakistan. There were number of barriers which have been asked from the participant in the survey and valued them. Principle Component Analysis has been performed on the data of survey and 11 components have been classified from number of barriers. In the components there are ranks of importance from one to eleventh and political constraint is the most important barrier in the provision of affordable rural housing whereas the least the important barrier is extreme events like floods or earthquake. So there are different barriers with the rank from 1 to 11 which have been discussed in the above chapter.

In this research, housing component of rural area of Pakistan has been studied and analyzed with the help of literature review and surveys in the four different case studies. Previous rural development projects and housing provision has been

analyzed. The gap of affordable rural housing has been noticed and this study has been analyzed the needs and proposed the solution to fulfill the housing requirement in the rural areas of Pakistan. This study, also identify the barriers in the provision of affordable rural housing and solution would be sustainable after dealing with barriers regarding this issue of housing backlog in rural Pakistan.

CHAPTER 6

Recommendations

Therefore, it is recommended that rural housing needed a sustainable way of programs and policies for the provision and affordability. There is need of urgent housing in the rural areas to manage the 7 million backlog of housing. It will also contribute to divide the burden of urbanization due to lack of housing units and social infrastructure. There is need to make the two types of plans one is short term on immediate basis and other is long term for the sustainability of plans. The short term plans will cover the urgent need of houseless people whereas long term plan will cover the joint families who have requirement of new house due to large household size. The most important factor is to active participation and role local government departments with other linkages department for the policy orientation and implementations of the existing and upcoming programs of affordable housing for the rural case studies of Pakistan

The growth of rural areas of Pakistan will help to boost the economic sector of country. The rural development programs required the inclusion of housing sector for low income group of people. Every village or rural area has its own dimension and capacities so their required solution respective to the available resources.

There is need of master planning and action plans to manage the areas according to standards of rural planning. Strong planning will be able to reduce the political barriers in the development of such programs. There should be participation of local communities with exports for the betterment of areas. Last but not least, there should be inclusive participation of all segments for the affordable rural housing.

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