



## INNOVATIVE MODELS FOR AFFORDABLE HOUSING

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### ABSTRACT

Housing affordability has remained the illuminating agenda of every government, but the factual targeted demand was never addressed due to number of challenges and constraints. Often, the development of such project worked exclusively, rather not integrating the other dimensions. In light to cater the gap, this paper exhibits the path that can lay the foundations to achieve affordable housing in a sustainable way by integrating the finance, design standards and pricing. While the further light has been put upon the fundamental principles and their implications to accomplish affordable housing by adopting successful simplified and integrated design models for housing projects in Pakistan. Whereas, the affordability must be combined with the cost recovery for sustainable and replicable housing projects in case of non-existence of development grant and least / zero interest loans. The multiple variables should be kept in mind to attain the successful housing projects such as realistic demand and supply, developer and housing finance options, construction marketability, effective and efficient planning and development standards, and demanding legislative and institutional framework etc. However, this paper briefly exhibits the innovative models for affordable housing, being implemented globally, to be adopted in

Pakistan to address the housing challenges. Through investigating the numerous alternatives models by using different planning and development standards along with the financing options, this paper also describes the way forward to accomplish the affordable housing projects.

## 1. INTRODUCTION



Housing affordability refers to as the individual's ability to buy or rent a housing according to their demand and need. As affordability is a relative concept that is linked with the multiple indicators such as quality, pricing, location and other associated costs and benefits etc., that's why there is no difference and solid definition of housing affordability.

However, the researchers and professionals considered housing as affordable only if it consumes 20 to 40 percent of monthly household gross income, either as rent, mortgage or maintenance cost etc. whereas the minimum space can vary from 250 to 500 square feet, based on the requirement, needs and standards. Housing has been categorized in to broad categories; quantity and quality. Housing quantity refers to the number of housing units, future demand and current housing backlog etc., whereas the housing quality depend upon the livability conditions and circumstances such as the construction material of roof, floors and walls, proper ventilations, access to quality drinking water and other utilities services etc.

But unfortunately, the housing supply has never met the demand in term of quality and quantity. Nevertheless, the deficient housing supply has not reduced the migration of people from rural to urban areas, whereas it simply accommodates them in informal settlements such as slums and katchi abadies. While, more than 900 million inhabitants live in the situation of inadequate water and sanitation facilities, lacked utilities and amenities services etc., it is projected that by 2025, the figure will reach to 1.6 billion people who will not have access to sustainable, adequate, secure and affordable housing. Besides this, a comprehensive study conducted by the World Resource Institute analyzed the poor planning and implementation of urban public housing and land use policies and their impacts on the slums and urban crisis.

➤ **Universal Declaration of Human Rights states**

193 countries of the world agreed on the United Nation's Sustainable Development Goals (SDGs) to achieve the 169 targets in order to attain the sustainable development by 2030. While the goal 11.1 declare that everyone has the right to get a secure, safe, adequate and affordable housing including other utilities and amenities services as well.

*Figure 1: Affordable Shelter touches upon many of the Sustainable Development Goals (SDG)*



But to achieve the target to supply inclusive affordable housing is not an easy task with the rapid growth rate and less available resources. There is bountiful share of population that lives in substandard housing who lacked the basic services. The share of this population is more 330 million in the world, while this portion will increase by 30 percent and will reach to 440 million by 2025. Although the percentage portion of this population is being declined over the past few decades but the absolute quantity is on escalating rate that reached at 880 million in 2014 from 700 million in 1990. It's also expected that this number will further expand due to disorganized policy making and their inefficient implementation.

The housing shortage In Pakistan is at the point of crisis. Despite the best efforts of socially driven business developers there is still somewhere in the region of nine million houses that need to be built. That figure, alarmingly, is set to top 20 million in residential units by 2025. Something needs to be done and right now. The rental market in both Karachi and Lahore has spiraled out of control with most families we interviewed stating that they spend more than half

their income on housing. Government tax credits are difficult to obtain and often only apply to mega projects that are difficult to finance. The paper discusses few of the approaches which could be adopted in Pakistan to overcome housing issue.

### **1.1 A Current Challenge**

Until the last century, housing was not really a problem or at least not a social or societal problem. Only now has housing become a major concern as the modern mode of production evolved: separating home and work, worker and work place. Land shifted from the community to the individual and from place to product. Materials shifted from being locally (often freely) available to manufactured (often costly) products. Infrastructure shifted from public support to private enterprise(Fair, R. C.,2000).

Besides all the advancement in technologies and social structure, the challenges of affordable housing are yet to address. Presently, the Pakistan is facing acute shortage of housing backlog which is estimated as 10 million and further growing at its rapid pace with 300,000 units annually (assessed from census 1998 and National Housing Policy 2001). It's assessed that approximately 30 to 40 percent to the housing demand is meet by the mainstream developers whose focus is the upper end market (elite class), while the remaining portion is being accommodated by public housing or informal and substandard housing. (Can.A.,2015). To accommodate the low-income people in quality housing, the government has announced a number of projects but their poor implementation leads to house the upper middleand high-income group.

The provision of secure and affordable housing to low income segment of the society in Pakistan is a challenging task because the Pakistan has highest urbanizing rate in South Asia while have a deficiency of 3 million housing units in the category of low-income people with the addition of 150,000 annually. Smith, L. B., Rosen, K. T., & Fallis, G. (1988).While the population growth rate of urban settlements in quite higher than the average growth rate, and it's expected that two-third population will live in urban centers by 2030 (Lee, L. F., and Trost, R. P.,2015).

The World Bank estimated that two-third portion of the housing backlog in Pakistan is due to the increasing demand from low income segment, which earns less than Rs. 12,000 per month, which hasn't been address in its true sense. While to achieve the sustainable housing, Pakistan

has yet to formulate the market-based policy intervention and reforms that can effectively address the factual housing need.

## 2. Objective

The objective of the paper is to highlight the housing models into mainstream thinking, planning and developing cities.

## 3. MODELS FOR AFFORDABLE HOUSING

### 3.1 Cooperative Housing

#### Characteristics

A housing cooperative is formed when people join together to own the buildings in which they live. Inhabitants structure an organization in which investors are drawn solely from those possessing the lodging. Inhabitants purchase offers or enrolls in the cooperation which qualifies them for an "exclusive rent" or the privilege to involve a particular unit. The tenants of a center's lodging are the proprietors of offer in a similar enterprise from which they rent their homes. The persons possess the structure, land, any basic zones, holds the deed, the home loan, and covers all city government expenses and charges on the land. Investors pay a fixed month to month sum called a support or conveying charge that covers working costs and the structures contract. They don't hold title to their individual homes; however, they do claim partakes in the organization that possesses their home. They are additionally casting a ballot individual from that equivalent partnership, with extreme authority over its advantages, its activities, and its requirement of any confinements on the utilization of individual condos and the resale of individual offers. Every part has a solitary vote in the co-operations administration which contrasts from different companies where cast a ballot are proportionate to the measure of venture constrained by the investors. The inhabitant is at the same time an investor, a part, and a rent holder.



## **Ownership Structure**

Cooperative members do not have a direct interest in the real property itself but instead have a committed interest in shares of stock through the corporation that owns the property. Members pay monthly maintenance charges that include their portion of the cooperative's management and operating costs. These costs include real estate taxes, insurance, principle and interest of the blanket mortgage loan that the cooperative corporation obtained to pay for acquisition of the property(Horlitz, S.,2012).

## **Example Case study of US**

Affordable housing cooperatives in the United States helps us understand the general history of American affordable housing policy. The affordable cooperative movement has evolved from ethnic and union groups which developed self-help cooperatives in the 1920s, through the federal funding of low-income cooperatives in the 1960s and 70s, to local nonprofit organizations using ad hoc packages of funds to organize cooperatives during the 1980s and 90s.

### **3.2 Community Land Trust**

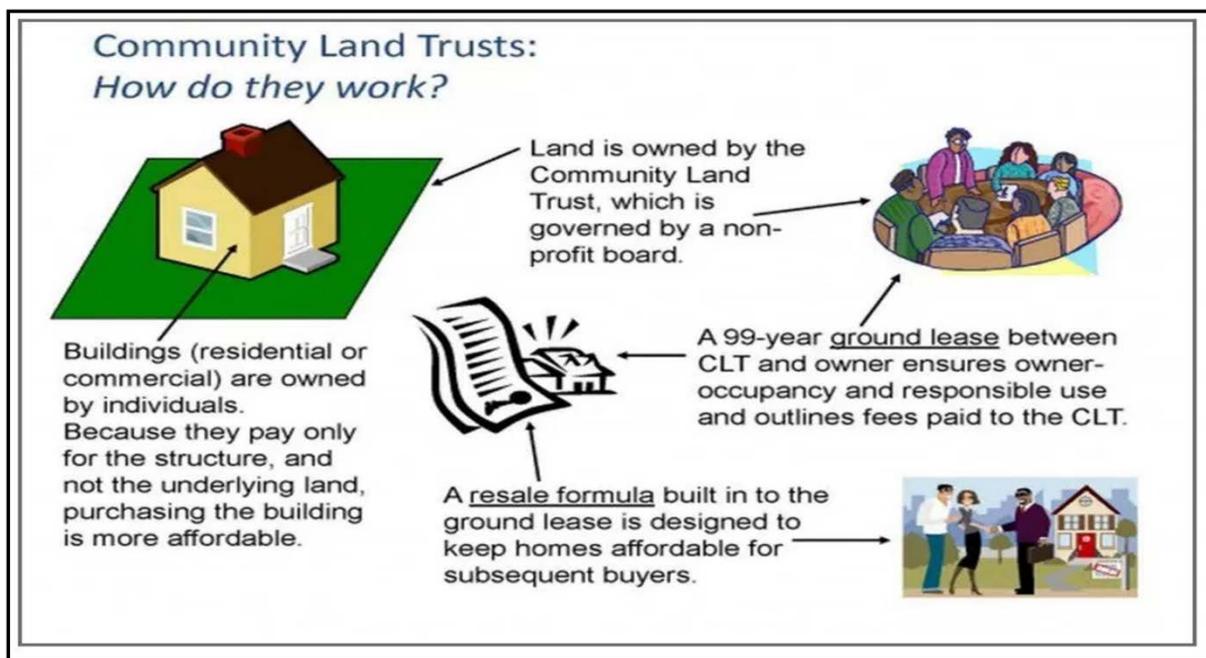
#### **Characteristics**

Community Land Trust (CLT) is an organization that provide plethora of benefits by making the poor people able to access the affordable and secure housing who are unable to afford in the private market. While the CLT work as community-based organization with no intentions for profit making. But on the other hand, the primary focus of the private sector is to make profits rather providing social service to the market. CLT make the housing affordable for the poor people by purchasing the land within the particular areas to permanently own it while they sell the structure of house on the land with minimum profit options. A lease agreement with specific period of ownership is being done between the CLT and home owner. Whereas,agreement also specify that if the home owner want to resell the house, he should prefer to sell it to land trust or to low-moderate income family. CLT also insure the occupancy of the vacant parcel of land within the territory for the effective utilization of land. With of these measures, CLT helps to create the housing reasonable for poor folks by creating the communities ready to gain the management over the land and by reducing the traveler possession.

## Ownership Structure

Non-profit Community Land Trust has been established under the traditional Land Trusts with the aim to make the housing affordable to low income people. The CLT is able to purchase the tract of land with built houses on it. While during selling the houses to the potential buyer, CLT only sell the structure over the land with long-term or short-term lease and keep the ownership of land with it. With the generated profit, CLT able to obtain additional land and so may be able to build house on it to extend the house choices for poor people, whereas the normal CLT purchase the land with built house thereon. With all these measures, CLT help needy people to own a house on affordable rates, without purchasing the land that cost too much (Crabtree, L., Phibbs, P., Milligan, V., and Blunden, H., 2012).

Figure 2: How CLT works?



Source: *Community Land Trusts: An Overlooked Model for L.A. Housing Affordability*

## Advantages

By owning the land permanently, the CLT help the poor to buy house at affordable rates without paying the high cost of land. CLTs also helps the communities to have a control over the housing market values. It also works to restore the communities that undergoes disinvestment or needed the gentrification to achieve the substandard housing. CLTs can build community control



etc. While these agreements are sometimes assumed to be self-enforcing, experience suggests an entity with an interest in maintaining ongoing affordability actively monitors resale.

### **Case Study: Homes for Good Program, Springfield, Massachusetts**

Massachusetts Nonprofit Housing Association (MNPHA) initiated a program, named as Homes of Good, to make the housing affordable for penurious segment of the society in which few association and their member, having contract with the Massachusetts Department of Housing and Community Development, monitor the sales of properties that have been developed by using commonwealth resources. The main objective for initiating this program to keep the housing market affordable and available for low to moderate income group. Whereas, each household has an agreement which has to be applied during the sale of property to maintain the affordability at same level.

### **3.4 Inclusionary Zoning**

Generally, inclusionary zoning is a land use regulation which involves a requirement or an incentive for developers to include a modest percentage, 15 to 20 percent, of affordable units within newly created developments. Inclusionary housing policies may be mandatory or voluntary, and either require or offer incentives for developers of market-rate projects to set aside a modest percentage of units for low- and moderate-income households. The developer can receive non-monetary compensation in the form of density bonuses, zoning variances, or expedited permits, which can all reduce the cost of construction. Well-designed inclusionary zoning policies can benefit the community, working families and developers alike. It creates diverse, mixed income neighborhoods and disperses affordable homes throughout the community.

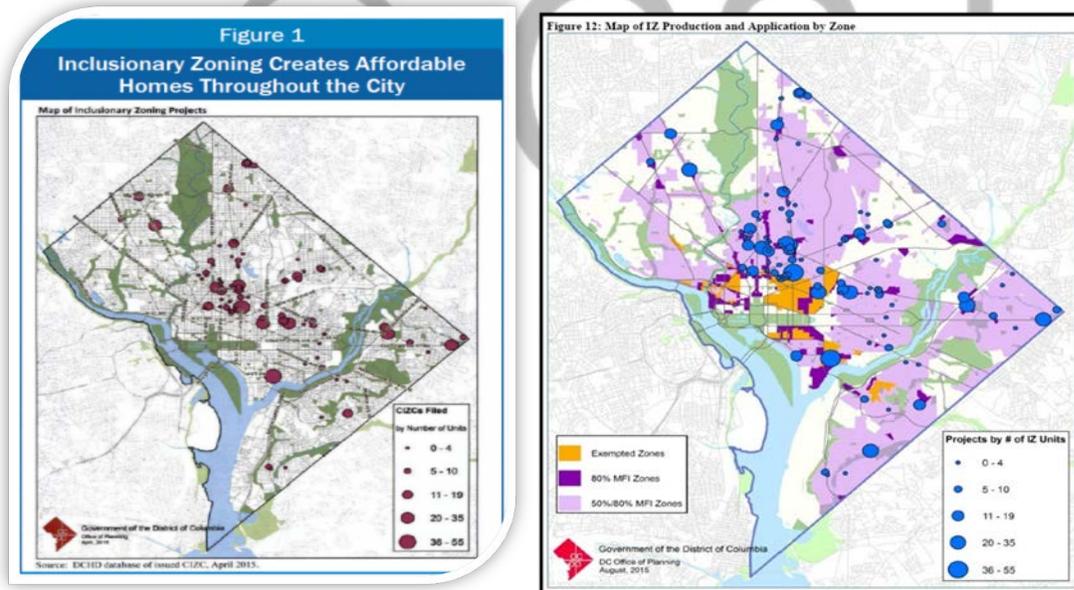
The community and families benefit through the production of a significant number of affordable homes. Developers and property owners benefit through incentives that allow them to build a higher density than otherwise permitted. Some inclusionary zoning policies provide other incentives such as the opportunity to access public subsidies for the development of affordable homes. By ensuring that a portion of newly created homes are affordable to working families, inclusionary policies allow workers to access opportunity and amenity-rich neighborhoods and avoid long commutes from areas with lower housing costs.

## Advantages

Making an assorted, mixed income, coordinated network is critical and very gainful for balanced neighborhoods. Lower income neighborhoods are commonly disengaged from access to bearable compensation occupations, quality training, satisfactory wellbeing administrations, and insurance from crimes. Blended pay networks expand access to all around financed schools, solid metropolitan administrations and developing employment focuses. Approaching private engineers to share duty regarding making moderate lodging is both fitting and vital. A solid network requires a various work pool including experts, administration part representatives, and local officials. Inclusionary zoning guarantees that these people can live in the network where they work.

## Examples

Figure 3: Inclusionary zoning in Columbia



Source: *Inclusionary Zoning* by Benjamin Schneider, July 18, 2018

### 3.5 Employer Assisted Housing

Employer-assisted housing refers to any housing program rental or homeownership that is financed or in some way assisted by an employer. There are a variety of housing benefits that employers can offer to help their workforce afford homes. EAH is a flexible tool that can be

tailored to work in different community contexts and to support various equitable development goals. It can meet the employee housing needs and the company's budget. EAH programs help employees to purchase homes often near their workplace. It can be referred to as a “double bottom line” strategy because it helps working families secure affordable housing near their workplaces oftentimes helping them purchase their first home, a powerful step toward building equity and financial assets while helping employers find and keep qualified workers. It can be a powerful tool for employers that are struggling with recruitment and retention. EAH programs are generally oriented towards households with incomes between 80 and 120 percent of the area median income<sup>1</sup>. Employer programs are available to serve the community in various ways such as rental assistance, homeownership education, and counseling services. The overall function is for employers and employees to join together in building strong partnerships and healthy communities.

### **Advantages**

It will extend reasonableness in solid neighborhoods wherever openings for work are plentiful for low-and moderate-salary specialists nonetheless there's a deficiency of lodging selections for them. EAH will advance provincial development by enhancing different occupations, lodging, and transportation in manners that improve the planet, construct solid and cheap neighborhoods, and improve the capability of bosses to contend within the worldwide commercial center. At local, state, and even government level, EAH is a key exertion to advance increasingly minimal, practical, and evenhanded development designs. EAH gives homeownership and resource building openings. There are lower lodging and transportation loads when laborers can live close to the working environment. This pay can be spared and spent on different needs and saving time that would have been spent driving.

### **3.6 Land pooling/Readjustment**

Land pooling/readjustment (LP/R) is a technique for managing the planned development of urban-fringe lands, whereby a government agency consolidates a selected group of land parcels and then designs, services and subdivides them into a layout of streets, open spaces and serviced building plots, with the sale of some of the plots for cost recovery and the distribution of the

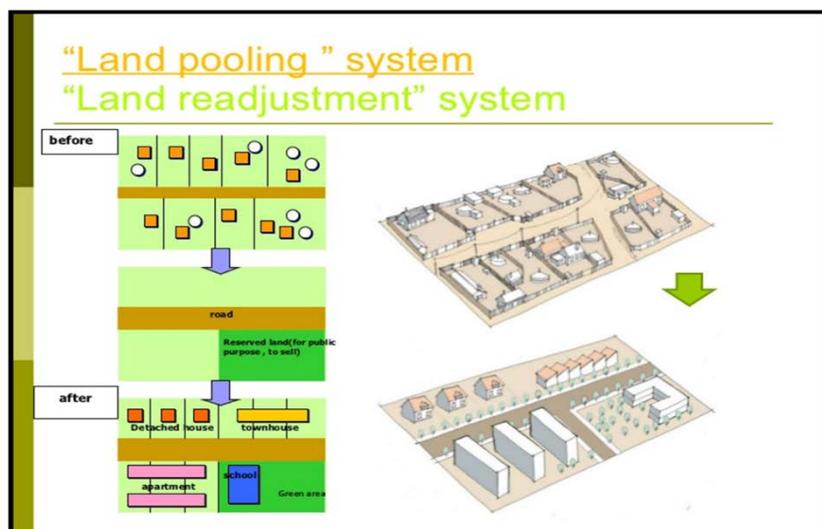
<sup>1</sup>Median income is the amount that divides the income distribution into two equal groups, half having income above that amount, and half having income below that amount.

remaining plots back to the landowners to develop or to sell for development. The concept of land pooling can be explained with the help of two key words, unification and partnership. Unification indicates the consolidation of separate land parcels, the unified design, infrastructure provision and subdivision of these parcels and a unified preparation and implementation of the scheme under a single management. The word partnership indicates the partnership between government, private and community for urban land development.

### Objective of the Land Pooling

1. To provide maximum number of developed plots and to conserve agricultural land, cultural heritage and environment.
2. Maximum participation of local people in the process of urban planning making them aware of the importance of planned urban development.
3. To control the rapid unplanned urban growth and its impact on environment and to emphasize the importance of the concept of planning in modern urbanization.
4. To provide employment opportunity to local people.
5. To set an example that unified development efforts are successful only through active participation of the local people.
6. To set an example of a planned urban residential area with all necessary infrastructure and clean environment.

Figure 4: Land pooling technique



## **Examples**

Widely used in Japan, Germany, South Korea and Taiwan, LP/R is being adopted in Indonesia, Nepal and Malaysia.

### **3.7 Guided land development**

Guided land development uses the provision of infrastructure as a mechanism to guide urban development. It is done in partnership with landowners who pay for the cost of servicing their land through donation of land for public infrastructure and payment of a betterment levy. Guided land development uses the provision of infrastructure as a mechanism to guide urban development. Settled in partnership with landowners who pay for the cost of servicing their land. It uses a combination of traditional government role of providing infrastructure and the enforcement of land subdivision regulations.

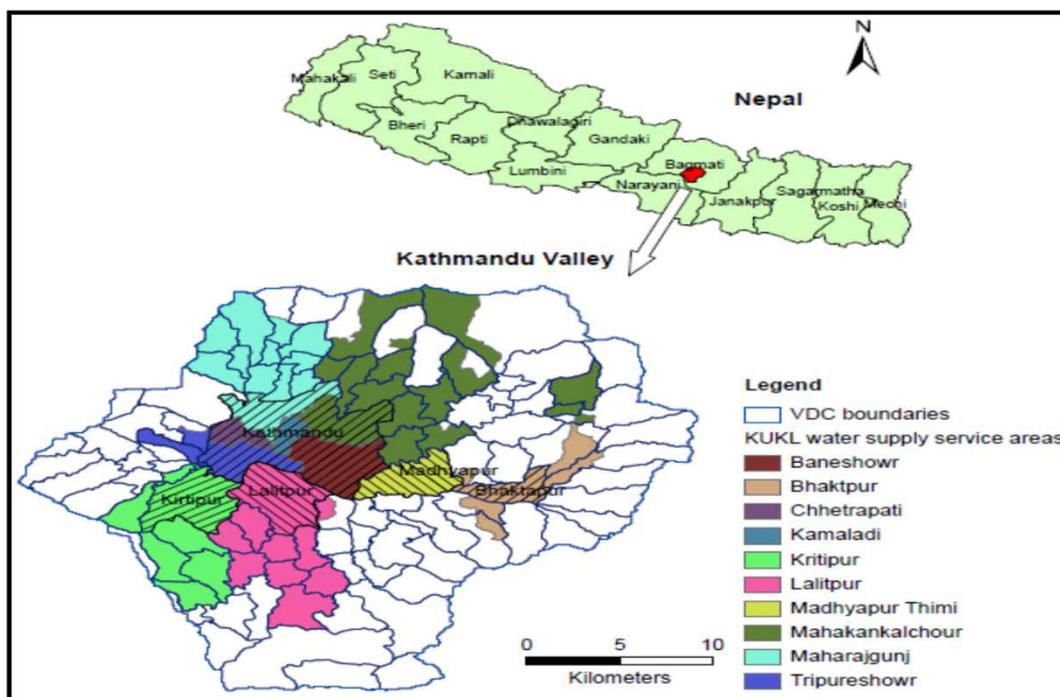
### **Advantage**

The key advantage of the approach is that it is less costly than outright land acquisition and more equitable than land banking and land pooling. The advantage that guided land development has over land pooling/land readjustment is that the government does not need to decide on the amount of land to be returned to the landowners at the end of the project.

### **Case study Nepal: Kathmandu Valley Water Supply Improvement Project**

In Kathmandu valley insufficient arrangement of foundation and administrations has offered ascend to ghetto zones, random development, and frail between linkage among urban and rustic territories. All these circumstances prompted quick corruption of urban condition causing genuine medical issues and the nature of urban life has crumbled. This falling apart natural condition have represented a genuine test to the travel industry advancement at last to the economy of the nation. Pay dissemination design has turned out to be increasingly skewed amid the most recent decade. Pay appropriation design have demonstrated that dissimilarity in salary has impressively enlarged. There is monetary stagnation. The inconsistencies have expanded in urban zones even more. The objective of urban advancement is to make better living and workplace for all including the urban poor through the arrangement of foundation administrations, lodging and occupations.

Figure 5: Location of the Kathmandu Valley. Five metropolitan areas are shown with hatches

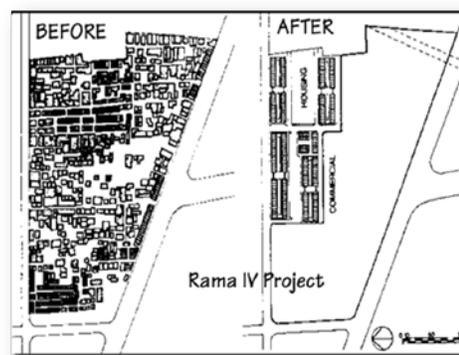


Source: by Parmeshwar Udmale, Hiroshi Ishidaira, Bhesh Raj Thapa and Narendra Man Shakya, (11 May 2016)

### 3.8 Land sharing

Land sharing is an instrument of squatter settlements/slums improvement and secure tenure provision in urban areas. The technique involves partitioning a piece of land so that it can accommodate land occupants on one portion of the site and land owners or commercial development on the other portion. Win-win situation for both residents and owners.

Figure 6: Land Sharing explain by example



### Characteristics

#### ➤ Densification

The occupants will be rehoused on a smaller area as the land will partly be developed by the land owner;

➤ **Reconstruction**

Densification typically implies that new buildings will replace older structures. It is often necessary to build row-houses or walk-up apartments to allow higher densities;

➤ **Participation**

The transformation of the plots will require a comprehensive negotiation process whereby the community will discuss the allocation of plots and the construction modalities with the landowner, often with the help of a mediator. It is necessary to include all dwellers in the project and to be able to reach agreements within the community;

➤ **Cross-subsidy**

External subsidies should be avoided as much as possible. The commercial development should generate a sufficient surplus to cover a deficit resulting from the community's inability to pay for much of the cost of land, infrastructure and possibly housing.

**Advantages**

Both the landowner and the squatter's benefit from land sharing. Squatters get to stay on the land legally while the land owner can sell or develop a portion of the land and avoid long legal battles.

**4. APPROACHES THAT CAN NARROW THE HOUSING-AFFORDABILITY GAP BY 20 TO 50 PERCENT.**

**Affordability gap**

*The difference between the cost of an acceptable standard housing unit (which varies by location) and what households can afford for housing using no more than 30% of their income.*

**4.1 Unlocking land supply**

Since land is usually the largest real-estate expense, securing it at appropriate locations can be the most effective way to reduce costs. In even the largest global cities, many parcels of land remain unoccupied or underused. Some of them may belong to government and could be released for development or sold to buy land for affordable housing.

#### 4.2 Reducing construction costs

While fabricating different ventures have brought profitability relentlessly up in the previous couple of decades, in development it has stayed level or gone down in numerous nations. In like manner, in numerous spots private lodging is still worked similarly it was 50 years earlier.

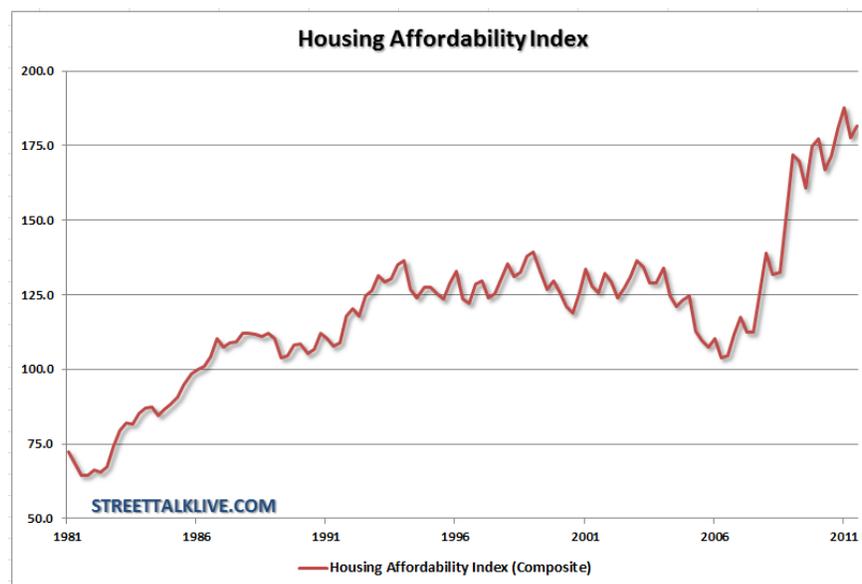
#### 4.3 Improved operations and maintenance

20 to 30 percent of the cost of housing is operations and maintenance. Energy-efficiency retrofits, such as insulation and new windows, can cut these costs. Maintenance expenses can be reduced by helping owners find qualified suppliers (through registration and licensing) and by consolidated purchasing. For example, buying consortia in the United Kingdom have saved 15 to 30 percent on some maintenance items for social housing.

#### 4.4 Lowering financing costs for buyers and developers

Improvements in underwriting would help banks safely make more housing loans to lower-income borrowers. Contractual savings programs can help such buyers accumulate down payments and therefore finance purchases with smaller and less risky loans. Such programs can also provide capital for low-interest mortgages to savers. Governments could help cut the financing costs of developers by making affordable housing projects less risky for instance, by guaranteeing buyers or tenants for finished units.

Figure 8: Affordability Index



Source: by Lance Robert (Jan 21, 2012)

## 5. A WAY FORWARD

A multi-faceted approach proceeds for release the lodging space is needed to satisfy the colossal need from low-pay gatherings. The legislature should make land accessible for minimal effort lodging. Such strategy changes should empower a noteworthy development in the creation of reasonable lodging, lessen the development of illicit settlements and advance collateralization of lodging units to goad business enterprise. There are numerous specialists on lodging working in NGOs, the private division and the administration. A ton can be accomplished if these foundations can work together to achieve their normal goal of making lodging moderate for all salary gatherings.

## 6. CONCLUSIONS

1. Facing severe pressures in urban and rural housing, Pakistan should formulate a sustainable cheap and market-based housing policy that can efficiently provide reasonable housing to its
2. Affordable housing provided by the state should reduce the creation of informal settlements on prime real estate in urban areas.
3. Planning commission, NGOs, private and government sector both should collaborate in achieving a common objective of making housing affordable for all income groups.

## 7. RECOMMENDATIONS

### 1. Research & Development

The development of low-cost prefabricated housing for the poor. Pre-fab models can be further evolved to suit the various geo-climatic zones of the country and also integrate disaster resistant and



Figure 9 Pre-fab house model (goggle image)

environment friendly technologies. Prefabricated house is made of light steel as steel structure and sandwich panels for wall and roof. Dry installation, no building garbage is produced; Environment protective materials adopted, repeated use and are of low cost.

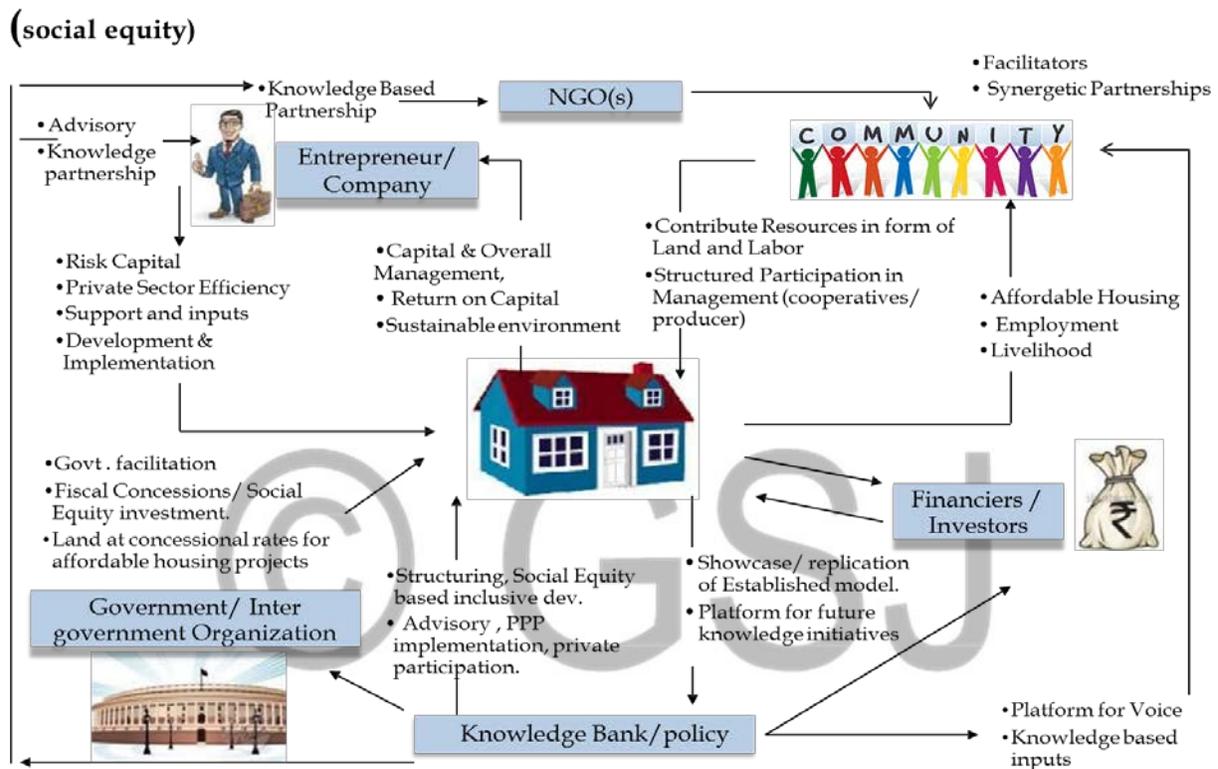


Figure 10: by Researchers' 2020

## 8. References

- Milligan, V., Phibbs, P., Fagan, K. and Gurrán, N., 2004. A practical framework for expanding affordable housing services in Australia: learning from experience.
- Crowley, S., 2003. The affordable housing crisis: Residential mobility of poor families and school mobility of poor children. *Journal of Negro Education*, pp.22-38.
- Dowall, D.E. and Ellis, P.D., 2009. Urban land and housing markets in the Punjab, Pakistan. *Urban Studies*, 46(11), pp.2277-2300.

Carling, P.J., 1993. Housing and supports for persons with mental illness: Emerging approaches to research and practice. *Psychiatric Services*, 44(5), pp.439-449.

Milligan, V., Phibbs, P., Fagan, K., & Gurrán, N. (2004). A practical framework for expanding affordable housing services in Australia: learning from experience.

Christophers, B. (2014). Wild dragons in the city: urban political economy, affordable housing development and the performative world-making of economic models. *International Journal of Urban and Regional Research*, 38(1), 79-97.

Johnson, M. P. (2006). Decision models for affordable housing and sustainable community development. Carnegie Mellon University, 5000, 15213-3890.

Gurrán, N., & Whitehead, C. (2011). Planning and affordable housing in Australia and the UK: a comparative perspective. *Housing studies*, 26(7-8), 1193-1214.

McCracken, M., & Watson, G. (2004). Women Need Safe, Stable, Affordable Housing: A study of social housing, private rental housing and co-op housing in Winnipeg. Prairie Women's Health Centre of Excellence.

Milligan, V., Phibbs, P., Fagan, K., & Gurrán, N. (2004). A practical framework for expanding affordable housing services in Australia: Learning from experience.

Johnson, M. P., & Heinz, H. (2006). Decision models for affordable housing and sustainable community development. Carnegie Mellon University, 5000, 15213-3890.