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Key Note Address
By
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Vice-President
Pakistan Engineering Congress

PAKISTAN ENGINEERING CONGRESS

ANNUAL SYMPOSIUM ON 26TH DECEMBER 2019 ON THE TOPIC OF "NEW TRENDS IN LOW COST HOUSING"

KEY NOTE ADDRESS

by

Engr. Husnain Ahmad

Vice-President Pakistan Engineering Congress

The Honorable Chief Guest,

Mr. Jehanzeb Khan Deputy Chairman Planning Commission, Engr. Tariq Rashid Wattoo, President Pakistan Engineering Congress, delegates, members and professional colleagues.

Welcome to the today's proceedings!

The world population is increasing and rapidly becoming urbanized and according to the United Nations estimates, this shift towards urbanization is likely to continue and by 2030, around 60% of the world population will be living in urban areas. The goal 11-sustainable cities and communities of the Sustainable Development Goals (SDGs) 2030 specifically give attention to the issue of rapid urbanization as one of the key challenges of recent times.

The shortage of housing in urban areas is a dominant manifestation of rapid urbanization and in this context the first target to be achieved by 2030 under the SDG 11 calls for promoting access to adequate, safe and affordable housing for all. The national housing policies should be formulated by considering the needs of the homeless people as well. In Pakistan, no housing policy until now has targeted the homeless people for inclusion in the policy framework.

The vision of incumbent government is a step in a right direction by initiating NAYA Pakistan Housing program, however, the means and tools available in Pakistan's construction industry to deliver on this

program need to be assessed in the light of technical considerations and construction techniques applied in recent times to achieve a similar public housing objective.

Repetitive modular structures using specialized formwork techniques such as Tunnel Formwork System has ceased to remain a novelty in developed world, however its application and benefits have remained obscured in the developing world till recent times. Turkey, India & Malaysia have been using this special construction technique successfully to bridge its public housing demand and so can Pakistan which has an escalating back log of housing units.

The Executive Council of Pakistan Engineering Congress taking cognizance of the current housing needs and the paradigm shift of the Govt. housing policy towards supporting the low income Pakistanis through provision of low cost housing units, decided to hold this symposium to put on record the professional outlook on the project and preparing recommendations for consideration of the Government.

Recently it has become essential to integrate homelessness with the mobility behavior and changing patterns of human life. Such innovation in the field of social networking might help to remove the complexities in multi-locational arrangements. Footpath sleeping can be a manifestation of abject destitution and lack of any support for an individual's housing problems. However, it is often driven by economic need. To stop or mitigate the effects of migration to cities, the focus must be on rural and urban employment, in addition to the provision of truly affordable housing and realistically accessible housing finance.

Urban development in Pakistan is experiencing the rise of a development paradigm that minimizes the importance of a socially dynamic, community based urban environment. Cities like Lahore, Karachi and Islamabad are now full of profit driven housing models that are resulting in a fragmented urban environment of socio-spatial exclusion. Contemporary urban development projects such as large scale housing schemes are propelled by superficial impressions of modernity.

A new urban model that factors in both quality of life and salability is desperately needed to undo the damage being done by this current trend. This new model needs to take into account the local context and situations for a thriving community. The formulation of such community could be the only way for development of a neighborhood that resonates

with the local urban dynamism. Approach towards transmuting urban narratives that have regulated lives of residents for centuries gives an impulse to the idea of introducing a "New Trend" in Low Cost Housing.

Uncontrolled urbanization in Pakistan currently reduces significance of socially inclusive community based urbanization for a project driven development model that predict financial returns over livability. As cities in Pakistan sprawl outwards from their historic urban cores, city limits are not just encroaching on but devouring vital agriculture land while leaving some areas in city cores under-utilized or at-least unrealistically left open. If we have to make over cities of high livability values, it is vital that this pattern of uni-directional growth is checked and the state takes over to control living model rather leaving it to entrepreneurs / investors. Pakistan is one of the developing countries that are facing the challenges on the economic front, which ultimately affects the quality of living. Owning a house is sometimes merely a dream of lower and middle-income families. It is a significant challenge to provide cost effective housing suitable for low-income families.

Defining Low Cost Housing is important to devise the targeted policies directed at marketing financially more manageable. At world level, Low Cost Housing is defined in several ways. One of the most popular and accepted definition is "Affordable Housing" refers to any housing that meets some form of affordability criterion, which could be income level of the family, size of the dwelling unit or affordability in terms of size or ratio of house price to annual income.

Hitherto uncommon is an innovative construction methodology known as "3D concrete printing". Although initial cost of such construction method is high at the moment but various advantages of 3DCP over other conventional construction methods may attract the attention of public and private sector organizations planning to work on project launched by Government of Pakistan to build homes for poor families

Housing is known to be among the three most essential needs of man after food and clothing, it constitutes the third necessity of life. Low cost housing can be referred to subsidized housing facilities under government sponsored Economic Assistance Programme aimed towards minimizing housing costs and expenses for low to medium income earners. Forms of subsidy include direct housing subsidies, non-profit housing, public housing, rent supplements and some forms of co-operative and private sector housing. Affordable housing projects are

characterized by an increasing demand. The selection of building materials should also meet the needs of local conditions.

A small house of his own to live in is the cherished dream of everyone in our country, whether he is a daily laborer, a small farmer, a low paid employee in Government or other small businessman. More often his dream remains unfulfilled. This is mainly because of the high cost of house building or the craze for the so called "new fashions" in house building. Innovative designs can help to use space efficiently and effectively. The importance of design should not be underestimated.

In addition to the conventionally used materials there are various alternative technologies and materials developed by various research organizations, innovators and manufacturers. Six papers are to be presented in today's symposium. The papers cover the various aspects of the subject i.e. "New trends in low cost housing", and to me the efforts of the authors are commendable in covering the subject so diversely and so well.

Ladies and Gentlemen!

I am sure that the presentations by the worthy authors shall not only speak volumes of the hard work gone in making these research papers worthy of presentation at this august forum but shall help in contributing for policy formation / adaption of some concepts especially in presence of our distinguished Chief Guest, who by virtue of his current assignment happens to be very relevant with the days' subject.

Thank you all for bearing with me for so long.

Pakistan Paindabad

Engr. Husnain Ahmad

Vice-President Pakistan Engineering Congress

Paper No. 347

Public Housing in Pakistan : Reality VS. Possibility

Mr. Attiq Ahmed, Mr. Nabeel Imtiaz and Mr. Hayat Khan

PUBLIC HOUSING IN PAKISTAN: REALITY VS. POSSIBILITY

By

Mr. Attiq Ahmed, Mr. Nabeel Imtiaz and Mr. Hayat Khan

Abstract :

Urbanism in Pakistan currently reduces the significance of socially inclusive community based urbanism for a profit driven development model that prioritises financial returns over livability[1]. As cities in Pakistan sprawl outwards from their historic urban cores, city limits are not just encroaching on but absorbing vital agricultural land, compromising ecological assets and simultaneously leaving historic urban cores hollowed and available land in the city underutilized. If Pakistan is to make livable cities with high livability values, it is vital that this pattern of single sighted growth based on profit is limited and the State take charge of providing social housing for the public rather than delegating the responsibility to private sector land developers and property speculators. As Pakistan's population rises[2] and our cities and urban populations continue to swell – compromising both access to housing and livability – a fresh urban model that prioritises livability while also factoring in climate change and well functioning urban and land market is the need of the hour.

Reality :

With one of the highest housing shortfalls in South Asia[3], Pakistan is currently experiencing an annual housing deficit of 700,000 units per

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[1] Livability is defined as the sum of the factors that add up to a community's quality of life—including the built and natural environments, economic prosperity, social stability and equity, educational opportunity, and cultural, entertainment and recreation possibilities.
Definition from Partners for Livable Communities; http://livable.org/about-us/what-is-livability

[2] As per the Pakistan Census of 2017, the country's population stands at 207,774,520 showing an increase of 75,422,241 from the last census in 1998 or 57% in 19 years. Pakistan Bureau of Statistics website: http://www.pbs.gov.pk/sites/default/files/PAKISTAN%20TEHSIL%20WISE%20FOR%20WEB%20CENSUS_2017.pdf

Attiq Ahmed is an architect and urban designer, with experience in both architectural and urban design and architectural conservation. He is the principal architect at AEDL a Lahore based architectural design studio and founding director of the Office for Conservation and Community Outreach (OCCO) which is an urban design think tank dedicated to the socio-spatial analysis of Lahore and solutions to existing problems through appropriate design interventions. He is also associate professor of architecture at the National College of Arts (NCA) in Lahore.

year[4] half of which is in urban areas while the other half in rural areas. With rapid increases in urban population and despite growing urban footprints in almost every Pakistani city, the housing gap in the world's 5th most populous country continues to grow. By the World Bank's estimate the net current shortage of housing stands at 10-12 million[5]. In a report on Housing Finance in Pakistan, the World Bank estimates that the share of urban population living in slums stood at 46.6% in 2009[6] largely due to constraints on formal housing supply and the lack of housing finance with the housing shortage especially affecting poor households as well as low and moderate income households[7].

In Pakistan's largest city, Karachi, a growing number of people – not always poor –have no alternative but to live in illegal and substandard slum settlements[8] that now house 61% of the city's population (compared to 55% in the late-seventies[9]). Many settlements have structural deficiencies, lack access to basic infrastructure, as well as lacking land titles or permits. More than 40% of the population of Karachi, for instance, is not connected to the main water or sewerage network[10]. Karachi's reclamation of 15,000 hectares from the city's mangrove forests has damaged both flora and fauna and the city's territorial expansion has evicted more than 2,800 villages[11] who in turn come to the city for rehousing.

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[3] Urban Housing Crisis Deepens with Pakistan's Financial Woes, Ismail Dilawar. Bloomberg Businessweek. December 2018

[4] The World Bank, Pakistan Housing Finance Project. Project Information Document/ Integrated Safeguards Data Sheet (PID/ISDS). March 2017. http://documents.worldbank.org/curated/en/780531492786821578/pdf/114473-PIDISDS-P162095-Box402903B-PUBLIC-Disclosed-4-21-2017.pdf

[5] Ibid

[6] Ibid

[7] Ibid

[8] Karachi's population as per The World Population Review stands at 15,741,406 with nearly half the city's population living in slums. http://worldpopulationreview.com/world-cities/karachi-population/

[9] Pakistan: the causes and repercussions of the housing crisis. Arif Hasan with Hamza Arif. Working Paper, October 2018. International Institute for Environment and Development. London

[10] The World Bank, Pakistan Housing Finance Project. Project Information Document/ Integrated Safeguards Data Sheet (PID/ISDS). March 2017. http://documents.worldbank.org/curated/en/780531492786821578/pdf/114473-PIDISDS-P162095-Box402903B-PUBLIC-Disclosed-4-21-2017.pdf

[11] Pakistan: the causes and repercussions of the housing crisis. Arif Hasan with Hamza Arif. Working Paper, October 2018. International Institute for Environment and Development. London

In Lahore[12], the city's population has increased by 104% between 1990 and 2019 with an accompanying loss of both urban greens as well as surrounding agricultural land, greatly diminishing the quality of life in the metropolis through both ground water contamination and a sharp increase in air, noise and light pollution. In Islamabad where the city's population has grown by 105% between 1990 and 2019, most of the city's water supply is both physicochemically and bacteriologically contaminated due to over exploitation of groundwater resources, agricultural impact, and direct release of contaminants[13].

In Multan, a city famed for its mango orchards a report prepared by the Punjab Agriculture Department a few years ago estimated the net orchard land in Multan Tehsil at 44,000 acres approximately, at that time 48 new housing schemes used up 7,817 acres of land of which 2,043 acres[14] was from mango orchards now forever lost to property speculation[15]. In October 2017, a report prepared by the Multan Development Authority claimed that the number of legal and illegal housing societies in Multan had risen to 460[16]. The majority of land taken over for this housing need was agricultural while more orchard land has been earmarked for further housing schemes such as DHA. Featuring an education and health facilities, a golf course, a mega mall, a cricket academy, nursery etc DHA Multan alone is being built on 9,000acres[17] of formerly agricultural and orchard land. While all this development may seem progressive on the surface, the rapid transformation of agricultural and orchard land in Multan is causing a rupture that is disconnecting families from their ancestral trade and threatens the future of Pakistan's mango industry.

In a report on the housing crisis in Pakistan, planner and architect Arif Hasan writes, "Low rise low income urban settlements are rapidly and

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[12] In 2019, the population of Pakistan's second largest city Lahore as estimated by the World Population Review totals to 12,188,196 whereas in 1990 the city's population stood at 3.9 million inhabitants. http://worldpopulationreview.com/world-cities/lahore-population/

[13] Drinking Water Quality Status and Contamination in Pakistan. Masood Ahmad, Academic Editor. Biomed Research International, Volume 2017, Article ID 7908183. https://www.hindawi.com/journals/bmri/2017/7908183/

[14] 26% of the land used for developing new housing schemes in other words came from land formerly used for growing mangoes. Multan's Missing Mangoes. Shakeel Ahmed. Dawn. October 2017. https://www.dawn.com/news/1363322

[15] Ibid

[16] Multan's Missing Mangoes. Shakeel Ahmed. Dawn. October 2017. https://www.dawn.com/news/1363322

[17] Ibid

informally becoming high rise high density informal settlements, with all the physical, social, and environmental problems of unplanned densification. Meanwhile, speculative low density elite housing is encroaching on the ecological assets of the city[18]."

An estimate by the Urban Unit, projects that Punjab alone needs 2.3 million houses to cap its housing shortfall, but affordability renders households at the bottom 68% of the income distribution to afford only 1% of available housing stock, while households at the top 12% can afford 56% of available stock[19]. Since 2014, housing prices in the country have gone up by 134% while urban plots in the same period have risen in value by 151%[20]. The country's GDP however has not risen proportionally, and Pakistan's national average house price to income ratio of 1:11[21] is higher than in the United States, United Kingdom[22], India, and Egypt[23]. In Pakistan's cities the price to income ratio as of 2019 stands at 14.98 in Karachi, 16.68 in Lahore, and 11.28 in Islamabad[24] making the capital the most affordable city to buy a house in while Lahore remains a city better to rent a house in[25]. Not only does this high house price to income ratio keep potential buyers from owning homes, but low levels of property transactions also affect the revenue potential of realtors, and reduces profit margins for property developers.

Considered the most highly urbanized of South Asia's major economies, over the next 30 years, an estimate projects the number of people living in the country's towns and cities will increase to 155.7 million[26].

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[18] Pakistan: the causes and repercussions of the housing crisis. Arif Hasan with Hamza Arif. Working Paper, October 2018. International Institute for Environment and Development. London

[19] The Precarious Housing Situation in Pakistan. Hina Shaikh. Spearhead Research. March 2019 https://spearheadresearch.org/?p=37264

[20] Ibid

[21] House Price to Income Ratio in Pakistan https://www.ghar47.com/2018/05/10/house-price-to-income-ratio-in-pakistan/

[22] The Price to Income Ratio in the UK is 1:8 while it stands at 1:7 in the US.

[23] The Precarious Housing Situation in Pakistan. Hina Shaikh. Spearhead Research. March 2019 https://spearheadresearch.org/?p=37264

[24] Property Price Index 2019 Midyear. Numbeo Database. https://www.numbeo.com/property-investment/rankings.jsp

[25] A House Price to Rent ratio of 15 or below indicates that it is better to purchase a property than to rent one while a value of 16-20 indicates that it is better to rent than purchase.

[26] Leveraging Urbanization for Prosperity and Livability. The World Bank. 2015. https://www.worldbank.org/en/news/feature/2015/12/09/leveraging-urbanization-for-prosperity-and-livability

According to the Pakistan Population and Housing Census 2017, there are a total of 19,211,738 houses in the country[27] with 6,031,430 units in urban areas 82% of which are Pukka[28], 6.56% semi-pukka and a staggering 11.6% kacha[29]. The number of available housing units in the country remains far short of the number of units necessary to shelter an urban population of 75,510,639 people[30].

Between 1980 and 1998, the number of housing units in the country increased by 2.47 million units (70%) and the density per room decreased from 3.2 to 2.6 persons. Single room houses decreased from 43.58% to 30.38% and 2-4 room houses increased from 13.68% to 19.11%[31]. Showing an overall improvement in the quality of housing conditions in the country with variance between conditions in different provinces housing statistics in the country further show that two room houses remain the largest unit type to be built[32] but few developers cater to the demands of this potential market. Of the net housing demand in Pakistan, 62% is for lower income groups, 25% for lower middle income groups, and 10% for higher and upper middle income groups[33] the last segment generally being the favoured market for developers such as DHA, Bahria Town and other developers. The formal supply of housing units in urban areas per year stands at 150,000 units and unmet demand is facilitated via informal settlements built by occupying and subdividing government land and by the informal subdivision of agricultural land (ISAL) on the edges of existing urban settlements[34]. But as city limits stretch farther and commuting distances from urban centres grow larger, the demand for new low and lower middle

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[27] Pakistan Bureau of Statistics, Housing Units By Number Of Rooms And Type. Government of Pakistan. 2017 http://www.pbs.gov.pk/content/housing-units-number-rooms-and-type

[28] Of the total number of pukka housing units in the country only 45.35% are built using RCC or RBC construction. Pakistan Bureau of Statistics, Housing Units by Construction Material. Government of Pakistan. 2017 http://www.pbs.gov.pk/content/housing-units-construction-material

[29] Pakistan Bureau of Statistics, Housing Units By Number Of Rooms And Type. Government of Pakistan. 2017 http://www.pbs.gov.pk/content/housing-units-number-rooms-and-type

[30] Pakistan Population. 2019 Worldometer website. https://www.worldometers.info/world-population/pakistan-population/

[31] Pakistan: the causes and repercussions of the housing crisis. Arif Hasan with Hamza Arif. Working Paper, October 2018. International Institute for Environment and Development. London

[32] Pakistan Bureau of Statistics, Housing Units By Number Of Rooms And Type. Government of Pakistan. 2017 http://www.pbs.gov.pk/content/housing-units-number-rooms-and-type

[33] Pakistan: the causes and repercussions of the housing crisis. Arif Hasan with Hamza Arif. Working Paper, October 2018. International Institute for Environment and Development. London

[34] Ibid

income housing is being accommodated by the densification of existing low and lower middle income settlements[35].

Rural to urban migration is also taking place on an unprecedented scale because of the demise of village self-sufficiency. According to Arif Hasan, "At present, the State has no plans for dealing with the migrant influx. It is also not in a position to provide (migrants) with homes and their options of living in *katchi abadis* or ISALs in the absence of the availability of land near the ever expanding urban centers are becoming difficult due to an increase in cost, distances, and the inconvenience related to commuting. To respond to these problems low rise low income settlements near places of work or town centers are informally becoming high rise, with all the physical and social problems of unplanned densification. The units are also becoming increasingly smaller so as to become more affordable. Meanwhile, for the first time in Pakistan's urban areas (especially in Karachi and the larger cities) we are seeing people sleeping under bridges, roundabouts, pavements, and open-air 'hotels'[36]." This phenomenon not only remains unchecked by the State through city agencies and civic institutions, but also diminishes the overall livability value of Pakistan's urban habitats.

The gravity of the housing crisis in the country can be determined from the fact that conservative estimates put the housing backlog at 9-million units growing by 350,000 units annually because of unmet demand. Yet the State and political parties hardly address this escalating issue in a tangible way. Arif Hasan writes, "Before its last tenure the PPP promised to build 15,650 housing units. The number is so small that it would have made no difference to the housing crisis. However, none of these units were constructed. PML(N) did better. In their 2013 manifesto they promised to build 1,000 clusters of 500 houses each. This would have made some difference even if it would not have come any nearer to resolving the crisis. But again, not a single house was constructed. Imran Khan has out done both the PPP and the PML(N). He is promising to build 5 million houses. This will cost a minimum of 5 thousand billion Rupees which is one seventh of our GDP and will require more than 120,000 acres of land. We do not know how he will manage this but even if he succeeds in building 20 percent of what he is promising, it will be a great achievement. All political parties talk about building a certain number of housing units. However, housing is not about building units. It is a far more complex affair. First you need a sustainable financial arrangement with funds that revolve and multiply through the process of giving affordable house

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[35] Ibid

[36] Pakistan: the causes and repercussions of the housing crisis. Arif Hasan with Hamza Arif. Working Paper, October 2018. International Institute for Environment and Development. London

building loans. Affordability for low income groups can be achieved through direct subsidies or through cross subsidies from higher income housing.[37]"

Architect and planner Tasneem Siddiqui[38] in an article titled Houses versus Housing, writes that housing for low-income group is not only about providing brick and mortar but encompasses social engineering as well where design and implementation cannot be left to developers, builders and financiers[39]. An overview of State sponsored housing schemes from Prime Minister Junejo's Widows Housing Scheme to the 3 and 5 marla scheme to Nawaz Sharif's low cost flats and Shahbaz Sharif's still born Ashiana Housing Scheme reveals that the reasons for failure behind these schemes can be attributed to a failure to clearly identify user groups, a failure to consider their affordability level, and a lack of design compatibility with the targeted user's culture, sociology and economics. Another reason for the failure of such schemes is often the choice of location for the housing developments as jobs and social infrastructure must be easily reachable to homes. Many housing schemes built by previous governments lie empty simply because the location was wrong.

Since the 1960s the State has been constantly stepping back from its responsibility to provide social housing, leaving a wide margin open to private developers without any incentives such as subsidies in the form of reduced taxation or in construction materials for developers to provide housing for lower income groups. As a result an oversupply of housing for upper income groups exists in the market, as shown by a survey conducted in Lahore in 2012 where high income groups with wages of 250,000 or above had access to 56% of existing housing stock while lower income groups comprising 68% of Pakistan's urban population with wages ranging between 8,000 to 30,000 could only access 1% of existing urban housing stock[40]. The lack of state patronage for low cost housing has not only resulted in fierce property speculation and artificially inflated property values in city centres and the urban periphery. The lack of patronage has also created a parallel development network where, land mafias connive with local government councillors and the police to develop a system of land supply.

Katchi abadis mushroom on illegally captured vacant land where residents of the *abadis* end up paying money for the house and services. "Land grabbers become providers. After 10-15 years, the *abadi* has multiplied in numbers, and

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[37] Ibid

[38] Tasneem Siddiqui is a former politician and architect, who designed Khuda Ki Basti, a development scheme to provide shelter to the extreme urban poor, while dealing with the problem of speculation.

[39] Houses vs Housing, Tasneem Siddiqui. The News Pakistan. May 2019. https://www.thenews.com.pk/tns/detail/567720-houses-vs-housing

[40] Housing for the Low Income. Tasneem Siddiqui. Policy Brief Series: Pakistan's Urbanisation. Wilson Centre. 2014 http://fffp.org.pk/wp-content/uploads/2014/03/PakistanUrbanization.SiddiquiPolicyBrief.pdf

it is only then that the government realizes it has turned into a settlement and something must be done."[41] Despite local laws that provide a framework for the improvement and regularization of *katchi abadis*[42] city authorities generally prefer to rush in with bulldozers to clear the occupied land, which makes the *abadi* residents homeless and adds yet more housing pressure to an already precarious situation. According to planner Arif Hasan, the housing crisis is so huge that it cannot be resolved through conventional means. "What is required is to support the densification process by developing urban design plans for those areas where it is taking place and providing technical and design advice to the builders along with short term loan packages. It would also require containing speculation on land and built assets. For this a heavy non utilization fee on land and properties would have to be imposed. To conserve land an urban land ceiling act would also have to be enacted to limit land holdings per individual and a minimum density determined for all housing, including elite projects. In addition, laws giving the state the power to acquire land for low income housing at appropriate locations will be required.[43]"

Possibility:

Given this scenario where land is apparently not available in or near existing city centers, the majority of housing stock not affordable for the majority of urban dwellers in need of housing, where population pressures are making obsolete existing urban infrastructure and where housing for the 1% is irreversibly encroaching on agricultural land and ecological assets of existing cities, what is the way forward? What are the possibilities of capping the housing shortfall in ways that raise the basic standard of living for most in a sustainable way without damaging the environment while using land effectively?

Proposing a conceptual framework for future housing planner Arif Hasan recommends that a public limited construction company for social housing be formed in collaboration with city governments and an association of banks and leasing companies gives mortgage loans for social housing to lower and lower-middle income families. "The Board of Directors of the company should consist of the stakeholders (representatives of city government, leasing companies / banks) and reputable professionals and social workers in the housing field. The city government should provide land free of cost for development and/or negotiate land from the provincial and federal governments at low rates. Banks and leasing companies should provide long term mortgage loans to groups of

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[41] There is a Lack of Affordable Housing and Accommodation, Tasneem Siddiqui. Newsline Magazine. May 2009. https://newslinemagazine.com/magazine/there-is-a-lack-of-affordable-housing-and-accomodation-tasneem-siddiqui/

[42] Such as the Sindh Katchi Abadis Act 1987, and the Punjab Katchi Abadis Act, 1992.

[43] Houses or Housing? Arif Hasan. 2018 http://arifhasan.org/human-settlements/houses-or-housing

ten to twenty low and lower-middle income families for purchasing land and housing at affordable prices. Lending to groups rather than individuals makes speculation difficult and ensures better repayments. The construction company will build the houses. To reduce costs land will not be costed as part of the payments that are to be made. In addition, for low income families the houses will be finished externally but internal finishes and accessories will be the responsibility of the owners. This will reduce cost considerably. Terms and conditions will be developed to ensure that the target groups are the beneficiaries. Terms will also be developed to make speculation/resale of property difficult and unprofitable for a minimum of 15 years.[44]" To further reduce costs bye-laws and zoning regulations can also be undertaken for social housing in urban areas and he estimates that through the implementation of such a framework 50,000 housing units can be built in Karachi alone in the first year of the introduction of this framework.[45]

Hasan further recommends that, "Planning has to respect the ecology and the natural environment of the area in which the city is located. Landuse has to be determined on the basis of social and environmental considerations and not on the basis of land value (or potential land value) alone. Planning gives priority to the needs of the majority population which in the case of Pakistan belongs to the lower income or lower middle income classes and respect the tangible and intangible cultural heritage of human settlements and of the communities living in them.[46]"

Architect Tasneem Siddiqui who designed and delivered a model for incremental housing development in the Khuda Ki Basti housing scheme in Hyderabad suggests a similar way forward, "opt for innovative ways; take steps to increase land supply; revise and improve current laws, procedures, and practices to make them poor friendly; change the sequence of development in site and services schemes to discourage speculators; establish new institutions for social housing; and attract the private sector by offering incentive packages.[47]"

In the absence of these steps, and the required institutions to implement them, it is highly probable that large scale housing projects will either not be built or become victims of property speculation and cause further environmental

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[44] Social Housing Construction Company: Concept Note. Arif Hasan 2005. http://arifhasan.org/development/institutional/social-housing-construction-company-concept-note

[45] Ibid

[46] Social Housing Construction Company: Concept Note. Arif Hasan 2005. http://arifhasan.org/development/institutional/social-housing-construction-company-concept-note

[47] Housing for the Low Income. Tasneem Siddiqui. Wilson Centre Asia Programme. 2014. https://www.wilsoncenter.org/sites/default/files/PakistanUrbanization.SiddiquiPolicyBrief.pdf

damage as seen before in many countries including Pakistan. A sustainable housing policy would further necessitate a control on speculation would need political patronage to operate in a ruthless "mafia" dominated land and real estate market. It would also mean redefining what a home means in terms of minimum space per individual and a revised typology of housing for different locations and groups. In short, housing models for the future will have to be part of a larger process of planned urbanization and rural development.

As designers of the built environment, it is imperative that in tandem to the described framework which should operate on a governmental or state level architects and planners review the design of the housing unit as well as settlement planning typologies that generate from it. Both the house form and the settlement plan need to prioritize a social and community based model that prioritizes livability and urban sustainability just as much as potential sales of built units.

At the Office for Conservation and Community Outreach (OCCO)[48] in Lahore we developed two hypothetical housing projects where we wanted to increase the number of housing units on a given piece of land without adding to the land, neither by acquiring adjacent land nor by building vertically beyond the range of a walk-up or five floors. We wanted to make houses that would consume less energy to both heat and cool and we wanted to make an updated version of housing types that were historically in use in our cities and more importantly familiar to us. We also wanted to layout the housing units to create a variety of community spaces of different scales that could become the spaces for a new social and civic infrastructure to grow, spaces other than a mosque or a park.

Located at Gulistan Colony[49] in Lahore, OCCO's first model introduced a plot size of 15'x40' in the existing fabric which was plugged in with a pre-designed housing unit in turn modeled on a traditional housing type prevalent in older parts of the city. The number of housing units increased significantly by the introduction of the rationalized plot size, and by arranging the houses in clusters of shared residential urban courtyards a variety of public spaces was achieved. In this proposal houses are stacked next to each other without any space between successive structures to gain passive cooling benefits with reduced solar exposure on the building volume translating into reduced cooling costs in the summer months while the buildings act as thermal pockets trapping heat in the building for longer. Such a settlement layout based on clusters also reduces costs of providing urban services. The courtyards are left largely un-programmed but can be used for functions as varied from urban farming, weddings, funerals, children's play areas to gathering spaces for the elderly.

[48] OCCO is registered under the Punjab Societies Registration Act, 1860. It is a not for profit dedicated to the spatial analysis of urban Lahore and its improvement in terms of livability. It is directed by the Author and is entirely self-funded.

[49] Gulistan Colony is a settlement that grew alongside an industrial area but is now part of Lahore.

Bazaars and commercial programs are similarly clustered around courtyards as well but in this case zoning allows further use of the open spaces for *rehri wallas* or hawkers. Instead of following a bungalow typology, this project adopted the townhouse typology which has been historically in use in our part of the world, with a narrow footprint and vertically stacked functions in the building.

The next project looked at Lahore's Cavalry Grounds which is designed on a Site to Services delivery model[50], the current spatial territory can house far more housing without going high rise. In an area that OCCO replanned the number of housing units was nearly trebled from 167 units to 484. The urban tree cover was also greatly enhanced in the proposed layout where 690 trees were being laid out against an existing tree count of 250 trees. The model also prioritized urban mobility by foot by programming 699,028 sft as footpaths with a width of 7 feet. Still laid out on a grid the proposed plan prioritized an even open to built ratio. The re-planned section included typologies from row houses to freestanding villas and apartment buildings as well as commercially zoned buildings parallel to the existing main road. For a city to be inclusive the settlement plan must be able to adjust a range of housing types in close proximity. Taking an urban sample from Lahore's Cavalry Ground, and re-planning it, the number of housing units can increase four fold, and a variety of public spaces and open greens can be planned for communities around them. The rewired urban sample features a wide urban green on both embankments of the existing Masood Anwari Road, with commercial blocks (ground + 5) offset behind them on a two way service road with on street parking. Perimeter apartment blocks and townhouses (ground + 3) are located in parallel blocks to the commercial blocks and then open onto blocks with 1-kanal bungalows (ground + 1). The 1-kanal unit is the minimum in this area of the city and can also be merged upto 4 kanals. 12' wide footpaths with trees ring each block on all sides. The residential blocks also feature urban parks of different sizes that serve as water recharge nodes for the soil.

Khuda Ki Basti in Hyderabad Sindh is another prototype for social housing in the country to follow. The housing scheme designed in 1989, provides shelter to the extreme urban poor, while tackling the problem of property speculation. Residents pool together their resources and buy services and amenities in blocks, and gradually upgrade their shelter towards permanence.

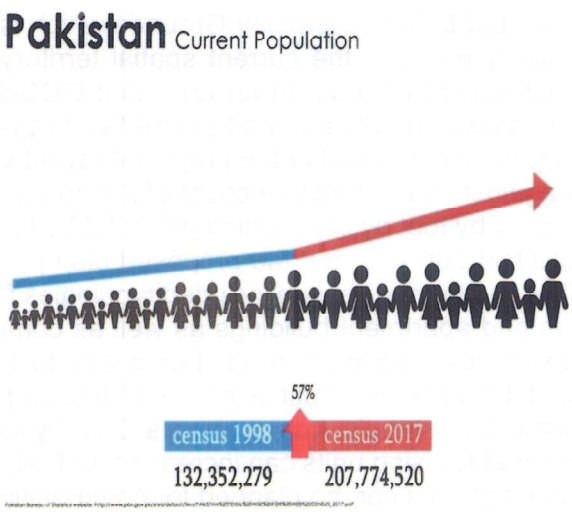
Making a house operates on several different scales simultaneously, from that of the household to that of the city to that of an eco-system. It is fundamental that while making new housing we do not shortchange the future by making unsustainable buildings and permanent hard cover that would make it

[50] A site to services model is based on the state first providing physical infrastructure on a piece of land, after which people purchase land and build their housing units themselves at their own cost.

impossible to grow food close to cities. It is vital that we make buildings that are seen as elements in a larger environment that is both civic and ecological.

FIGURES & DIAGRAMS:

1.1: Pakistan Population



1.2: Punjab Population

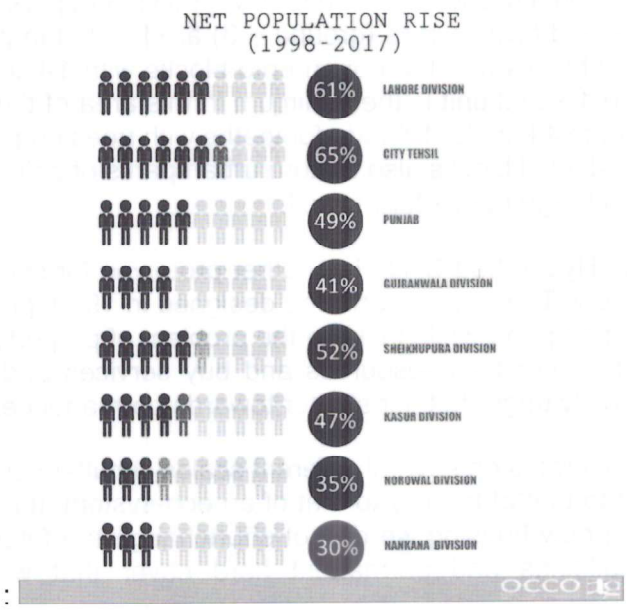


Figure 1.3 Housing Shortfall in Pakistan

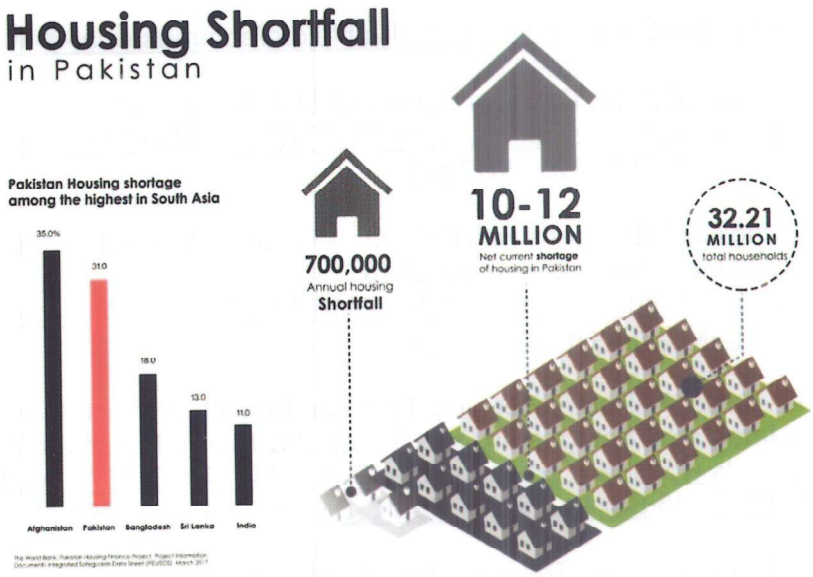
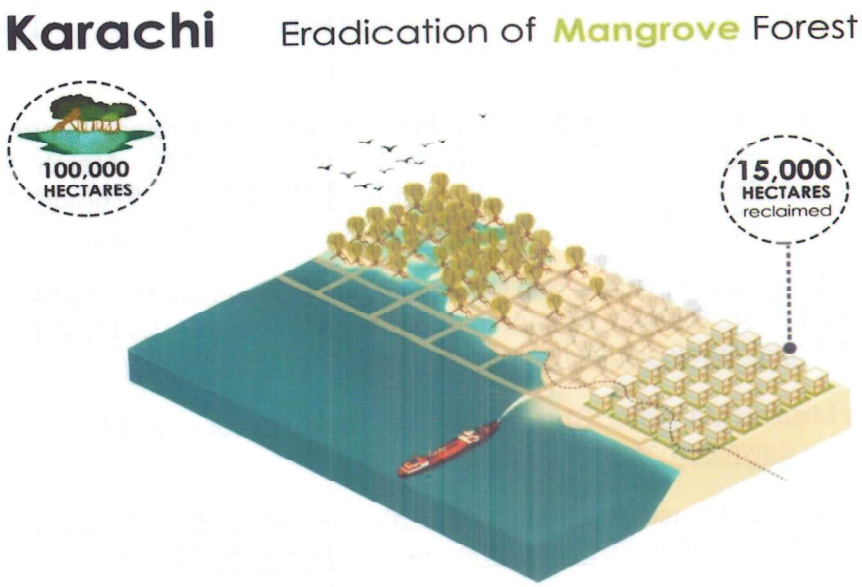


Figure 1.4: Land Reclaimed from the Sea reduces environmental resilience



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