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Investigating the Role of Government and Economic Factors in Sustainable Housing Development in Swabi, Pakistan

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Abstract

It will study the factors that contribute to housing development in district Swabi, with particular concerns: government planning and design consideration of various development projects, economically viable at cost-effective developments, considering occupants' comfort while maintaining environmentally safer conditions. Quantitative and qualitative data obtained through self-designed survey questionnaire targeted architects, planners, and developers. A total of selected samples was finally participated to respond to online survey in Google Forms. This study hypothesizes that government housing policies and design significantly influence sustainable housing, while economic factors and cost efficiency are important in developing the same. Moreover, sustainable housing will contribute to the comfort of the residents and environmental protection. One sample t-test has been utilized for analyzing data and assessing the perception of participants about the same aspects. The results highlight that government policies, economic factors, and cost-efficiency are significantly related to shaping sustainable housing initiatives in Swabi. Further, the research has confirmed that sustainable housing has helped improve residents' comfort while promoting environmental sustainability. This has brought to the fore an imperative of strategic government intervention and economically viable approaches towards the attainment of sustainable housing development in Swabi for improved living standards and environmental well-being.

Keywords: Sustainable housing in Pakistan, Government policies for sustainable housing, housing economy, housing cost-efficiency, residents' comfort in sustainable housing, environmental safety.

INTRODUCTION

The official housing strategy of the Government of Pakistan, prepared in 2001, aimed to address critical housing challenges by enhancing the supply of land for housing through provincial and local governments and by eliminating obstacles in land acquisition. It concentrated on resource mobilization, incentivized financial institutions to provide market-based mortgage loans, and suggested a home refinancing window at the State Bank of Pakistan in collaboration with multilateral institutions like the World Bank, ADB,

and JICA. It also urged the construction industry to meet the demands of the low and lower-middle-income classes, the regularization of katchiabadis as well as resettle plans to avoid forced evictions. Moreover, it identified the need for research into new construction materials and techniques and the involvement of women in decisions about housing. As Malik and Wahid, 2014 state: Though it was a very ambitious policy with high aspirations, very little of these policy recommendations have been translated into practice. While some progress has been made to facilitate builders with loans and tax reductions and regularizing katchiabadis, major housing finance reforms remain inadequate. Mortgage financing is hardly accessible to low-income groups due to unavailability of loans for land acquisition, stringent collateral requirements, and high interest rates. Moreover, neoliberal practices in the economic and housing sectors have given rise to a market characterized by domination by developers. These developers, often supported by institutions like the House Building Finance Company Limited (HBFCL), focus on constructing housing units in big cities, primarily catering to high- and middle-income groups.

However, the affordability of these units often comes at the cost of inadequate space and subpar living conditions, particularly for lower-middle-income families (Ali, Bashir, and Ali, 2015). The speculative real estate business and proliferation of garrisoned communities in cosmopolitan cities like Karachi have further exacerbated the situation of inequality in housing. Most property was never occupied and thus became oversupplied, unable to house the fast-growing population. These connections of speculators, closeness of developers to ruling politicians, and speculation over need mark a deep-seated problem of housing in general (Tariq et al., 2018; Khan, 2018). Recent judicial interventions, like the Supreme Court's decision against the illegal land acquisition by big developers, hint at structural changes in the property market. But in the face of these challenges, the dream of affordable and sustainable housing for middle and lower-income groups in Pakistan remains a mirage.

Green Building Architecture in Pakistan

The EPA defines "green building" as "designing, constructing, operating, maintaining, renovating, and deconstructing structures and using ecologically responsible and resource- efficient methods. This method expands and complements traditional building design considerations of economy, usability, durability, and comfort. A sustainable or high-performance building is another name for a green building. Said green buildings use less energy and water and produce less waste while also improving the quality of the indoor environment and not harming the local ecosystem or natural resources (Ullah et al., 2018). Building sustainably is quickly gaining favor worldwide, but due to a lack of awareness in Pakistan, such methods are not used, especially in the residential sector. Pakistan has the fifth- largest population in the world, a high rate of urbanization, a growing economy, and a surge in the construction of homes shortly. There will be a strong demand for new homes in the foreseeable future, and Pakistan's residential sector offers a significant opportunity to promote sustainable building practices. The only organization in Pakistan that campaigns promote, creates region-specific green guidelines for, and certifies sustainable/green building techniques and goods is Pakistan Green Building Council. It is a nonprofit organization that offers building codes and standards to the

building sector in order to promote buildings that are resource, water, and energy efficient as well as ones that offer better indoor air quality to occupants based on local codes because sometimes the international codes of the green building certification system are not applicable in some areas (Azeem et al., 2017). The Ministry of Climate Change created the current Green Building Guideline to spread awareness of the fundamental ideas and procedures required to build green homes and lessen the overall impact on the built environment, human health, and resource consumption. It would support government efforts to reduce the damaging effects of construction on the environment and implement sustainable practices in the Five Million Naya Pakistan Housing Program.

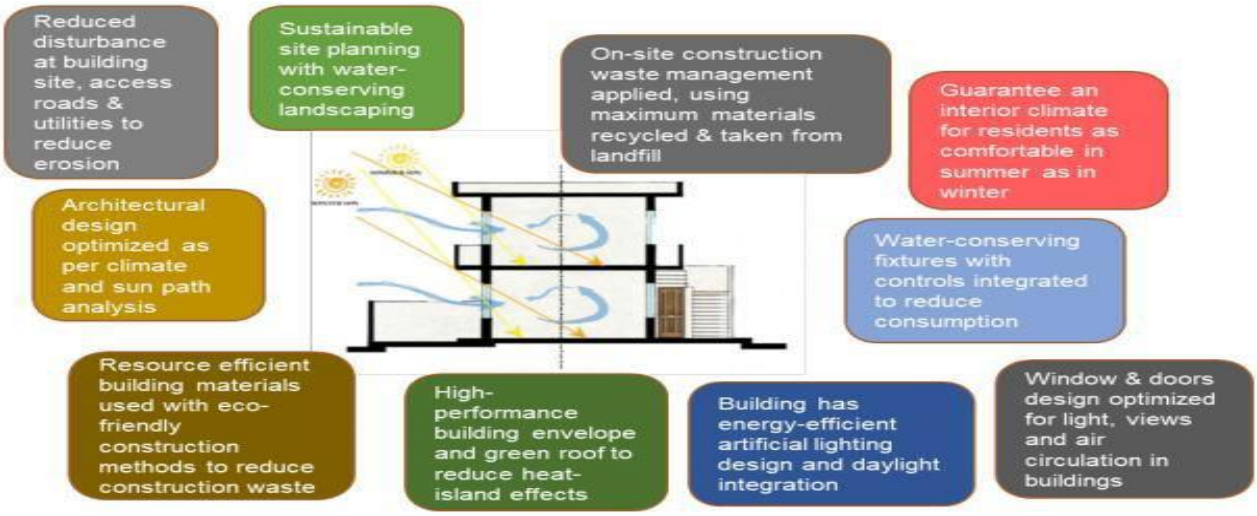

Figure 1:
Green Building Guideline (Azeem et al., 2020)

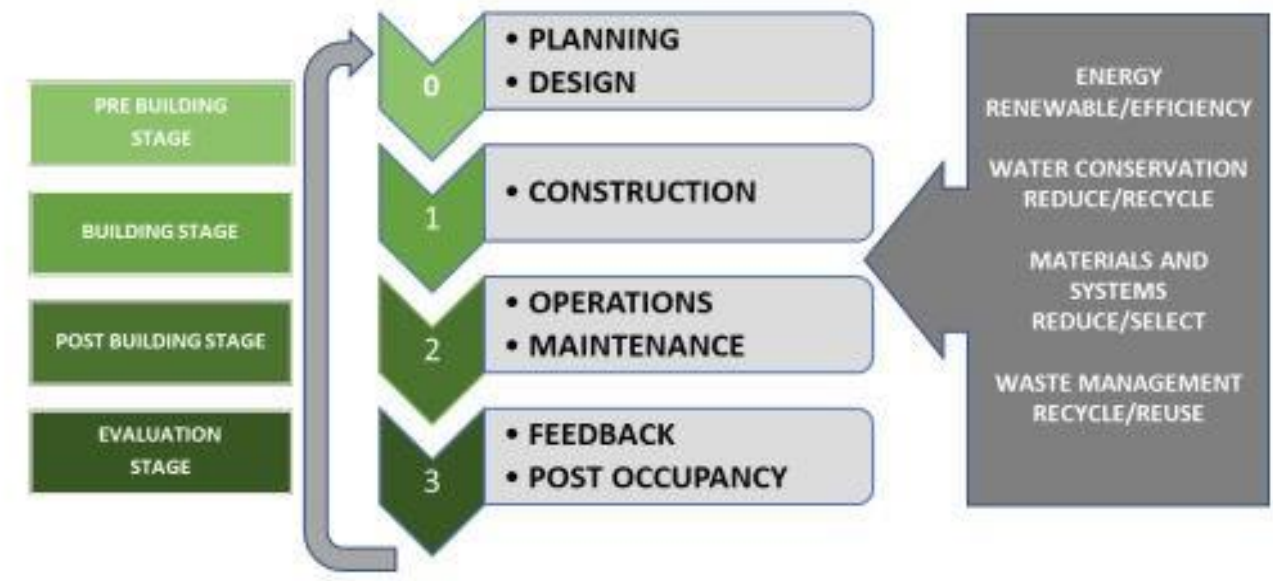

Figure 2:
Green Building Step-by-Step Implementation (Switch Asia, 2022)

All provinces of Pakistan face housing issues that keep the residents from their fundamental living rights. They are unable to achieve everyday living due to poor housing dilemmas. The greenhouse infrastructure can be applicable in Pakistan to improve the living standards of its people and cater to housing issues by following these strategies step by step.The Ministry of Climate Change created the current Green Building Guideline to spread awareness of the fundamental ideas and procedures required to build green homes and lessen the overall impact on the built environment, human health, and resource consumption. It would support government efforts to reduce the damaging effects of construction on the environment and implement sustainable practices in the Five Million Naya Pakistan Housing Program. The best way to supply many new homes (5 million) is to prepare for larger-scale developments and cooperate with local authorities to find appropriate locations for such projects (Ministry of Climate Change, 2021). Large and small cities in Pakistan can get benefit from this policy. Other than Karachi, Lahore, and Multan, cities of the KhyberPakhtunKhwa region, such as Swabi, can also be developed using a green building policy to preserve natural resources, and appropriate shelters can be provided to its people. The following section will shed light on the factors that contribute to barriers to sustainable housing in Pakistan.

Financial Constraints

Budgetary restrictions are severe at the federal and provincial levels, with small expenditures for housing needs. These expenditures pale compared to the expected annual outlay of 100 billion Pakistani rupees required to keep shelter shortages at current levels (8.5 million low-cost housing units expanding at 200,000 units yearly due to rapid urbanization and a lack of supply) over the next ten years. The lowest amount required to build a house for a disadvantaged family has been determined to be 500,000 Pakistani rupees (US$5,556 at current exchange rates). A family with a monthly income of 15,000 Pakistani rupees (US$166) should pay no more than 5,000 Pakistani rupees per month to repay the debt over 15 years. Funding a plot of land in a formal-sector housing development on which to build a house is the most crucial prerequisite for low-income groups. The HBFCL does not include a provision for this. Meanwhile, the backlog in housing has grown to more than half of the yearly supply. The financial institutions have been examined in light of these realities (Jabeen, Sheng, and Aamir, 2015). Urban land costs 20,000 Pakistani rupees per square meter, making it expensive for the lowest classes.

Urban low-cost housing is a non-starter without free or subsidized government land. The lack of foreclosure regulations discourages banks from providing mortgage financing. Pakistan's mortgage financing to gross domestic product ratio is less than 0.25 %, lower than the South Asian average of 0.34 % (World Bank 2018). Similarly to agricultural lending, the State Bank of Pakistan does not establish any goals for commercial banks to provide mandatory housing loans. There is also a skewed focus in the industry: nearly all of the 12 billion Pakistani rupees spent on shelter-building activity in the country is in the private sector, and nearly all of it is concentrated on upper-middle-class and luxury housing schemes, as it appears that there is no money to be made in developing low-cost housing. Due to inflation, steel, and cement are 250– 500% more expensive than international pricing. As a result, a low-cost housing unit of 450–500 square feet are twice as expensive as it should be (Ahmad et al., 2020). The Strengthening of Land ownership

is a contentious issue throughout Pakistan. Previously, development was limited to the city's immediate outskirts. Due to rising middle-class demand, practically all of Pakistan's immediate periphery is being held for speculation and development. Informal development now nearly invariably takes place outside of this territory. The cost and time required in commuting by poor transportation and the degraded environmental conditions from the settlement to the job area and back make life challenging for low-income populations. Hypertension, mental stress, and cardiac disease are all frequent as a result (Urban Resource Centre et al. 2016). In addition, these remote towns lack physical and social infrastructure, and women cannot find work. As a result, renting within the city rather than owning a home on the outskirts has become more affordable and convenient. As a result, both legal and informal inner- city low-income settlements, as well as city centers abandoned by the wealthy, are becoming denser (Malik, Roosli, and Tariq, 2020).

The current situation has sparked a debate in Karachi about houses vs. apartments, which is relevant nationwide. It is well established that individuals prefer houses over apartments and want to improve their living conditions. Until the early 2000s, the state considered this acceptable. On the other hand, the government now wants to bulldoze these villages and replace them with medium-rise housing towers by giving developers land. The government's justification is that flats allow for larger densities and give the city a more modern appearance. On the other hand, individual residences can produce densities higher than those allowed by Karachi's construction rules and zoning regulations (1,625 people per hectare). Densities in Karachi's inner-city settlements have risen from 450 people per hectare in 1973 to more than 3,000 people per hectare in 2010. In the case of government-provided labor housing in the form of apartments, the number of people per room climbed from 5.8 in 1976 to 10 in 2010 (Hasan, 2015).

SUSTAINABLE HOUSING IN SWABI

Current Demographics and Housing Situation in Swabi

Swabi is a small district in the division of Mardan that belongs to Khyber Pakhtunkhwa. Khyber Pakhtunkhwa is one of the four provinces of Pakistan. The last Census was conducted in 2017, showing this district's population is 1,625,477, primarily divided into rural and urban areas. The rural area of Swabi consists of 1,349,513 people, and the urban area consists of 275,964 people, but this is assumed that the population in this region is day by day constantly increasing as it is increasing in the whole country. It is also evident that Swabi has been recognized as the fourth most populous district of KhyberPakhtunkhwa. The Census also revealed that 95.49% of the population in Swabi speaks Pashto, and 2.93% speaks Hindko. The total area occupied by the Swabi district is 1543 square kilometers. The district of Swabi has big, beautiful mountains on its north side and River Indus on the south end. The presence of a river makes this district ideal for agriculture. It is calculated that almost 100 villages are located in this district, and most of the people there are associated with the agriculture profession. The other major areas responsible for economic growth in this district are horticulture, livestock, fisheries, dairy development, mining, and industrial work. Due to the agricultural importance, most of the land has been devoted to agricultural activities. Only 45% to 52% of the land is used

for residential purposes. The district's population is increasing due to the natural growth and migration of people from other areas, creating a dire need for more residential land and sustainable housing. The increase in the residential sector may hinder the environment and cause damage to agricultural land, creating a need to think about housing that can cater for the needs of this area without damaging its natural resources. A table shows the expected population increase from 1919 to 2039.

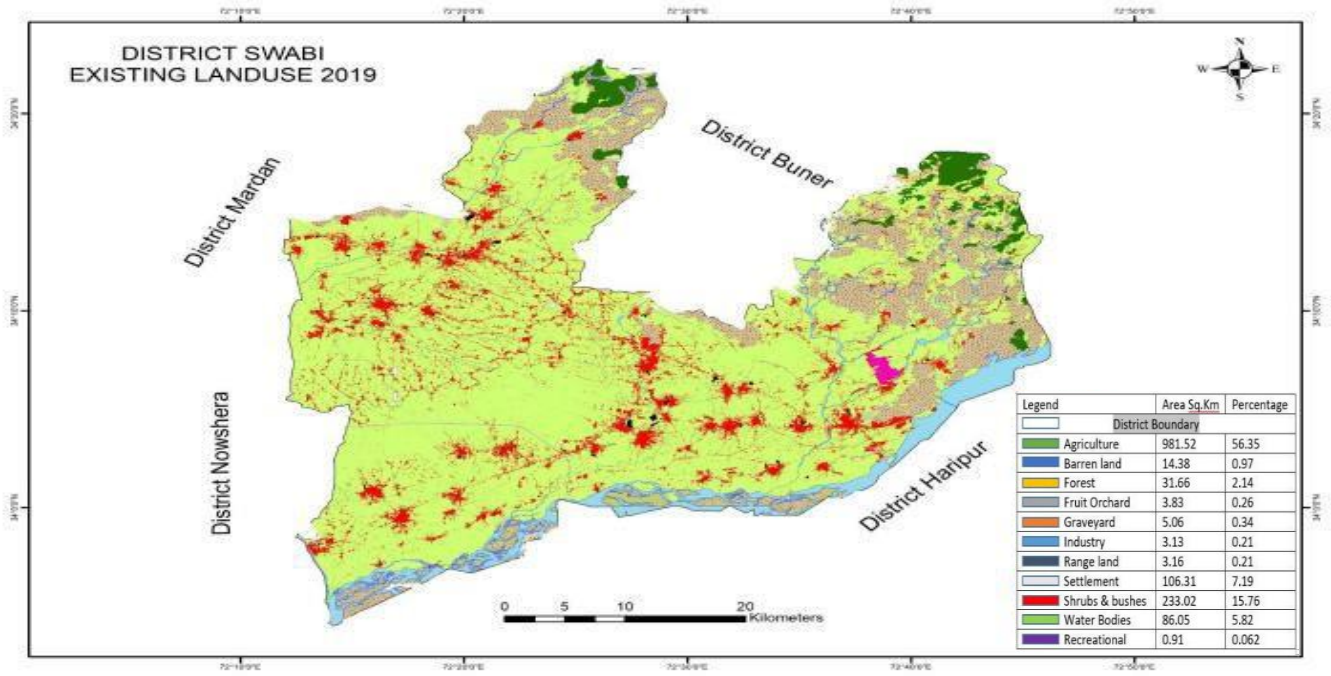

Figure 3:
Overall Land use in the Swabi District (Swabi Report, 2019)

Year	Urban Population	Rural Population	District Population
2019	288748	1416272	1705020
2024	323475	1524045	1847520
2029	362377	1808495	2170873
2034	405959	2043632	2449591
2039	454781	2309342	2764123

Figure 4:
Expected Population Increase in Swabi (Swabi Report, 2019)

No modern infrastructure, buildings, or educational facilities exist. The housing condition is unbearable due to the lack of necessities and resources, but people still live in poverty. Some recent pictures of houses in Swabi are shown below, which will provide an idea of the living standard of people there.

Figure 5:
Mujahid Colony (Picture taken by the researcher)

Two houses were captured in the Mujahid colony muhalla, showing that men, women, and children are sitting outside the houses to get fresh air, as the houses do not have poor ventilation systems. The rooftops are low, and proper window and door arrangements are absent. The electricity and telephone wires hang outside the houses, another significant risk for the residents. No sewerage or drainage system is available on the roads to drain rainwater, and the roads are also in bad condition; however, fresh pictures of politicians on banners are passed in the mohalla to gain votes for election campaigns.

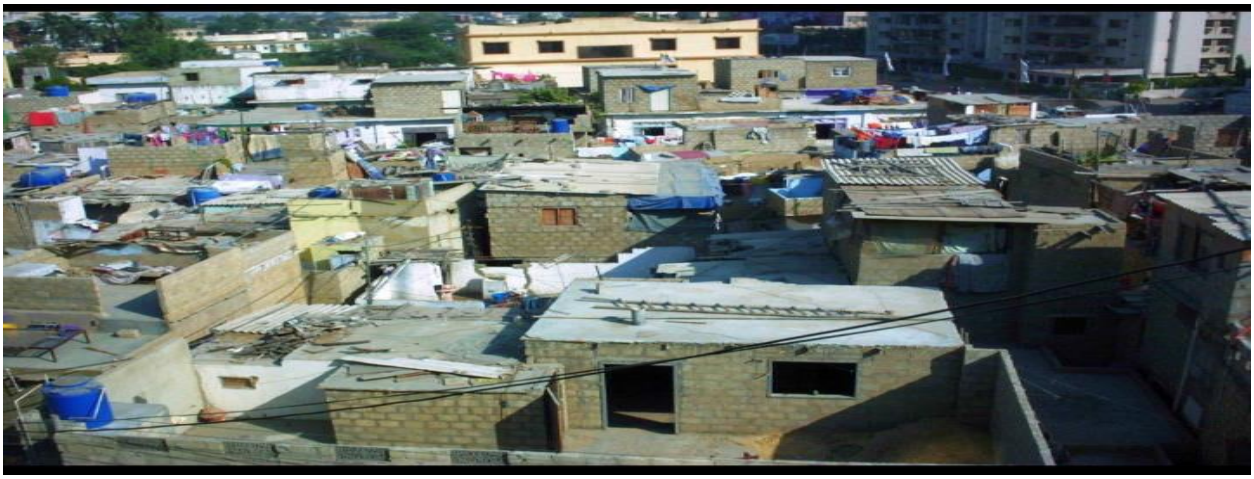

Figure 6:
A Colony in Swabi (Picture taken by the researcher)

This picture captures the rooftops and inner condition of houses in Swabi. There is not a single house with adequate infrastructure. Almost all houses are unplastered and unpainted without permanent rooftops. All the houses are covered with iron sheets, which is unreliable because they can be blown away with high air pressure and become very hot in summer. The inside condition of the houses is not healthy for human survival as there is no planning of rooms, veranda, ventilation system, or water storage system available. Moreover, the houses are very close to each other, and there are no specific gaps, and a sense of alignment is visible in-house construction, which creates congestion and can cause much damage in case of earthquake and flooding.

Figure 7:
A burnt house in Swabi District (Picture taken by the researcher)

This is another depressing picture of a mohalla in Swabi showing damaged houses, but still, people live there. The house was burnt due to gas leakage, and the poor infrastructure caused much damage because the houses were improperly constructed. The roofs are not built adequately, and no proper architecture is used to build rooms and other house parts. The wastage left on the road can create health issues and severe pollution.

Figure 8:
A Katcha mohalla in Swabi (Picture taken by the researcher)

Two more areas in Swabi depict are the poor construction of houses and roads. There are no concrete roads or houses in the area; even shops are located within the houses to lead the livelihood by opening small grocery shops, etc. Small doors in the houses without proper strong gates and small walls show the lack of a security system in the area.

Figure 9:
Apartments infrastructure in Swabi (Picture taken by the researcher)

Some apartments are also built, some by private construction and some by the government for the employees of Jadoon Industries, but they also lack infrastructure and basic facilities. They are built randomly, and no modern construction is involved. Proper ventilation systems and heat energy utilization are not seen in their construction, and even no technology is used for earthquake resistance material. This picture shows that some of the houses in Swabi have built-in fields and open areas but lack sewerage and water facilities, electricity issues are also there, and people living in those areas struggle to have a better everyday life. There is currently no dedicated organization for implementing land use planning management and development control in the province of Khyber Pakhtunkhwa, including the Swabi district. The Local Government Act of 2013 gives TMAs authority to perform land use planning, but due to the function's complexity and the involvement of several stakeholders, TMAs cannot perform it effectively. TMAs

only partially execute the building control function outside of metropolitan centers in Swabi. There is a perceived need to establish a Land Use Planning and Management Authority at the provincial level due to the capacity issue facing local governments (TMAs).

Figure 10:
A housing system in Swabi (Picture taken by the researcher)

To implement the Land Use plans for the five Districts, it is necessary to establish a regional organization, such as the Land Use Management Authority (LUMA), that can not only implement the plans for each District but also do so in a way that is coherent and integrated and that also addresses any inter-district planning issues that may come up during the plan implementation process. No regional organization can take on regional-level development initiatives for the entire valley and offer a framework for implementing Land Use Plans. In the five Districts of the Greater Peshawar Area, several projects are either starting or are already underway. Thus, it is crucial to form a company like LUMA, which may be set up under the Urban Policy Unit KPK, to oversee and manage the activities of these projects. The position of Chief, LUMA, may be given to a senior executive. Thus, it is crucial to form a company like LUMA, which may be set up under the Urban Policy Unit KPK, to oversee and manage the activities of these projects. The position of Chief, LUMA, may be given to a senior executive.

Housing Needs in Swabi District

Previous governments have addressed the housing needs of Swabi district and other districts of Khyber Pakhtunkhwa many times, but no effective development is seen on the level of residential construction. Commercial buildings and tourist residents have been given more attention to enhancing tourism. A new policy was made in 2022 that is majorly focusing on Urban development in the housing sector in Swabi, named Khyber Pakhtunkhwa Urban Policy 2022-2023. Urban policies are viewed as a multi-level policy mix that spans several industries and is accomplished through multi-stakeholder participation. An urban strategy cannot achieve its goals without an institutional setting that fosters these relationships. Such a time of policy is also needed in Swabi to foster a better life for its residents. This policy focuses on effective land use and proper physical structure of roads, transport, and plantation. Housing affordability is also a significant concern addressed in this policy. Another essential housing policy developed by the

former government of Pakistan was known as the "PTI Housing Policy." This policy firmly aimed to develop 10 lacs housing units per year in Pakistan's rural and urban areas. According to this policy, every year, 4 lacs housing units were to develop in rural areas, 2 lacs in peri-urban areas, and 4 lacs in urban areas of Pakistan (PTI Housing Policy, 2018). But unfortunately, the unstable political situation in the country and the change of government destroyed these plans. Now it is necessary to develop another strong housing policy for areas such as Swabi in Pakistan with the help of various stakeholders. Moreover, the Naya Pakistan Policy concept can also be implemented in the Swabi district to assist the region in efficiently using their land. The Naya Pakistan housing scheme will be discussed in detail later.

Table 5.7. 1: Housing Demand for Additional Population in the District Swabi

Year	District Pop	Additional Population					Housing Demand			
		2017-19	2019-24	2024-29	2029-34	2034-39	2019-24	2024-29	2029-34	2034-39
2017	1624616									
2019	1705020	80404								
2024	1923816		218796				36466			
2029	2170707			246891				41148.5		
2034	2449282				278575				46429	
2039	2763608					314326				52387.6
Total			1059103				176517			

Figure 11:
Housing Demand (2019-2039) Social Modification in Swabi District

Social change refers to modifying or transforming social (human) interactions, relationships, structures, institutions, organizations, and behavior patterns in a particular society. Change is a constant process and the fundamental rule of existence. The current social situation of Swabi, including their housing structures, educational setups, health care facilities, employment opportunities, and social arenas, is not satisfactory. Even if Swabi's core education metrics are in a slightly better state, they are still not particularly adequate. Low primary school admissions, illiteracy, and high school rates are all significant issues in the district. High student-teacher ratios and a lack of basic amenities are common in rural primary schools. Accordingly, the district has a high proportion of unaccompanied minors. According to an estimate, 9.2% of kids who should be in school are not. This can be attributed to several things, including lack of accessibility and quality, inadequate infrastructure, and misaligned goals. Disability, child labor, gender discrimination, and poverty are further obstacles to schooling in the Swabi district (Human Development Report, 2015). Health-related indicators also paint a bleak picture in the Swabi district. The district has a relatively low Contraceptive Prevalence Rate (CPR) and a high frequency of issues relating to reproductive health. Public health facilities are few and are rapidly failing to meet the demands of the local population. As a result, the

community frequently incurs very significant out-of- pocket expenses. Due to an increased reliance on private healthcare facilities, out-of-pocket expenses are considerable. These facilities and services, which may include testing, treatments, medications, and consultation fees, are mostly unregulated and come with astronomically expensive prices (Human Development Report, 2015). On the other hand, public social areas such as parks, malls, and play areas for children are rarely found in the Swabi district. There is no proper infrastructure for these outdoor facilities where children, adults, and old age people can spend good time together socializing and doing physical activities (Human Development Report, 2015). This secondary structure leads the children to play on their streets and rooftops, making their life riskier. Low school enrollment rates, a lack of facilities, subpar instruction, and a high percentage of children not attending school are all telltale symptoms of wrong priorities, squandered chances, and widening marginalization. The consequences of policies and governance practices are primarily seen at the district level.

In order to address issues in education, it is necessary to identify and analyze the issue holistically and to look for workable solutions in a creative manner. There is a great need to look at the Swabi district's infrastructure and sustainable housing. The people in the district need other facilities such as better health facilities, clinics and hospital buildings, educated and experienced staff, availability of resources and treatment aids, affordable and reachable school and other educational facilities, educated and supportive teachers, availability of books and other school equipment, parks, play areas, mosques, clean and concrete roads, and transport system along with the basic sustainable shelters so that their quality of life cannot be compromised. The children in the Swabi district are the future of that area, and to make them successful, it is necessary to invest in them by providing them with the necessities of life that are very important for human survival and healthy life. Moreover, the availability of primary resources and facilities can also support a healthy environment in the district by keeping the area clean, green, and sustainable.

DISCUSSION

Swabi, a district of the Khyber Pakhtunkhwa Province, Pakistan, is highly problematically positioned with regard to its demographical setup and present housing situation. It has a population of around 1.6 million, with a rural majority of 1.3 million and an urban minority of about 276,000, according to the 2017 Census. This disparity between rural and urban populations reflects broader trends in Pakistan, as the population of Swabi is growing due to natural increase and migration. Swabi's geography, being close to the River Indus and nestled within a mountainous area, helps in establishing a good agricultural economy. Agriculture is still the major livelihood for most of the inhabitants since 45-52% of the land is used for residential purposes. This is highly pressurized by the increase in population, hence increasing the demand for residential areas. Unfortunately, the infrastructure to be accommodative of this is absent. The absence of modern facilities, coupled with inhumane housing structures, drastically affects the living conditions of residents. Most of the houses are badly constructed with unplastered walls, lowly elevated rooftops, and poor ventilation systems. To make matters worse, it lacks basic amenities such as sewage and drainage, and worsens the situation for dwellers, where even roads are in a sorry

state. The housing situation in Swabi is terrible, and the observational data shows makeshift materials used in the making of these houses, like iron sheets, contribute to immense thermal discomfort during summers and risks from weather conditions. With houses built in close proximity, issues of congestion arise that, in the event of such natural disasters as earthquakes and floods, can become very dangerous. Moreover, residential development shows an acute division between rural and urban areas. Whereas rural areas are underdeveloped, the urban ones have Mujahid Colony with pressing needs to reconsider house policies. The images of such localities reflect glimpses of family compelled to live with insufficient space and infrastructure. Pakhtunkhwa Urban Policy 2022-2023 seeks to enhance urban development and housing affordability, but executing such policies requires a robust institutional framework that currently doesn't exist. The Local Government Act of 2013 places responsibility on Tehsil Municipal Administrations for land use planning; however, their capacities are limited.

There is a dire need to have a Land Use Management Authority, LUMA, that will ensure coherent planning and sustainable development in Swabi. Such a body would be instrumental in the regulation of housing projects and addressing regional planning issues that would enhance coordination at large and resource allocation, respectively. Besides housing, the social environment in Swabi is disquieting. High illiteracy rates and inadequate educational infrastructure have created a vicious cycle of poverty. Due to social injustices, discrimination, and an overall lack of resources, many children remain out of school. Health indicators are equally disheartening, with public health facilities overwhelmed and unable to provide adequate care. All this has gone further to limit community engagements and physical activities, thereby affecting the quality of life for all citizens, especially children. While public parks and social arenas are limited, children find themselves playing in unsafe places; this marks a great omission in urban planning that really needs attention.

The demography and housing condition of Swabi District pose many challenges that are multifold in nature and require urgent action by the policymakers, the stakeholders, and the community as well. In-depth housing policies, better infrastructure, and social services will surely lead to an increase in the living standards within the district. Such investment in education and healthcare facilities will improve quality of life and long-term answers to the systemic problems of poverty and underdevelopment. What is required for the dream of Swabi to become sustainable and prosperous is a people's collective effort in the establishment of sound governance frameworks, dedicated management authorities, and inclusive planning that reflects residents' voices, who better know what they need. This is the only way Swabi can hope to have its housing landscape transformed along with the improved well-being of its population.

CONCLUSION

These are, thus, not insurmountable challenges in perspective of the demographic imbalance, shortage of housing, and underdeveloped infrastructure in the Swabi District. Increase in population, added to geographical advantages, calls for addressing such issues through comprehensive and inclusive planning. Housing policies should emphasize sustainable and affordable residential development; governance frameworks, like LUMA,

should provide the requisite strength. It is only investment in education, healthcare, and community spaces that can break the vicious circle of poverty and poor living standards. Consequently, Swabi should work toward a future of sustainable development, quality of life, and social equity by mobilizing collective efforts of the government, stakeholders, and community. It is only through concerted and inclusive effort that the district can transform its housing landscape and secure a prosperous future for its inhabitants.

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