



Affordable and Resilient Housing for Sustainable Urban and Economic Development: A Comparative Policy Analysis of Saudi Vision 2030, the UN Sustainable Development Goals, and Pakistan's National Housing Framework

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ABSTRACT

Background: More than 1.6 billion people around the world are living without safe and decent housing, which is one of the greatest challenges in the pursuit of sustainable urban development in the twenty first century.

Objective: This paper aims to provide a policy comparison of three key policies, Vision 2030 housing agenda by Saudi Arabia, the United Nations Sustainable Development Goals (SDGs) relevant to housing and urbanisation (SDGs 1, 8, 9, 11 and 13) and the National Housing and Urbanisation Policy (NHUP) of Pakistan.

Methodology: The study identifies the critical convergences, structural gaps, and contextual divergences between these systems through a systematic document analysis, multi-criteria comparative matrices and structured case study review. It presents a novel conceptual framework called the Saudi-Pakistan Affordable and Resilient Housing Framework (SPARH), that incorporates four strategic elements: Housing affordability and financial inclusion, Climate resilience and Disaster risk reduction, Smart urban infrastructure, and Economic development linkages.

Results: Saudi Vision 2030 is particularly effective at institutional transformation and finance innovation, yet the Pakistan plan does not explicitly consider on-the-ground equity issues, and both plans fail to include planning and economic linkages between sectors and across sectors that incorporate climate resilience.

Conclusion: The SPARH policy framework provides a policy blueprint which can be transferred to other emerging economies that are facing rapid urbanisation, climate vulnerability and fiscal constraints. The paper ends with policy recommendations to advance the global agenda of affordable housing through bilateral cooperation, international financing mechanisms and governance innovations.

INTRODUCTION

Urbanization is changing the way people live and work in the twenty- century. The United Nations says that 68% of people around the world will live in cities by 2050. This means 2.5 billion more people will live in cities. Most of these city dwellers will be in Asia and Africa. This change is making a problem even worse. The World Bank says that than 1.6 billion people do not have enough housing. The biggest problems are in South Asia, Sub-Saharan Africa and

parts of the Middle East. The problem is not about having enough houses. It is also about making sure the houses are affordable, safe and can handle weather changes. It is also about having roads, water and electricity. It is about making sure cities grow in a way that is good for the planet.

Two places where this problem is very important are the Kingdom of Saudi Arabia and the Islamic Republic of Pakistan. Even though these two countries have kinds of economies, they both face serious problems with housing. Saudi Arabia is a country that makes a lot of money from

oil. It is changing its economy. It still has a problem with not enough houses. The country has a lot of people and building houses is expensive. Also, the way the economy has worked in the past has not helped private companies build houses. Pakistan is a country where people are not as rich. It has a lot of people who are moving to cities. There are not enough houses. There are problems too like the risk of earthquakes and floods. The country also does not have roads, water and electricity.

Both countries have plans to solve their housing problems. Saudi Arabia has a plan called Vision 2030. This plan says housing is very important. The goal is to get more people to own their homes. The plan has ideas about how to do this. Pakistan has a plan called the National Housing and Urbanization Policy. Recently there is also the Naya Pakistan Housing Program. These plans try to build houses by working with private companies and using new technology. It is hard to make these plans work. These efforts happen while the world is trying to follow the United Nations 2030 Agenda for Sustainable Development. This agenda has goals about ending poverty, making sure people have jobs, making sure cities are safe and fighting climate change. These goals are important for housing. It is hard to make these goals into real policies for each country. This paper has three ideas. First, it looks at how the housing policies of Saudi Arabia, the United Nations goals and the policies of Pakistan're similar and different. It uses a way of looking at these policies. Second it finds where these policies are not working well and where they could help each other. It suggests ways to learn from each other. Third it introduces an idea called the Saudi Pakistan Affordable and Resilient Housing Framework. This is a way to solve housing problems in countries that are growing quickly.

The rest of the paper is divided into sections. First, it looks at what other people have written about safe housing. Then it explains how the research was done and what the big problems are, around the world. Then it looks at the policies of Saudi Arabia, the United Nations and Pakistan. After that it compares them. Look at examples. Then it talks about what it found, explains the idea and gives suggestions. Finally, it ends with the things learned and what could be studied next.

BACKGROUND OF THE STUDY

Affordable housing: definitions and debates

The concept of housing affordability has evolved considerably over the past four decades. The conventional threshold that housing is affordable when housing costs do not exceed 30% of household income has been challenged by scholars as insufficiently sensitive to the full cost of housing location, including transport, utilities, and opportunity costs (Stone 2006; Hulchanski 1995). A 'residual income' approach, which evaluates whether households can meet non-housing needs after paying for

shelter, has gained traction as a more accurate measure of housing stress (Stone 2006). More recently, scholars have called for a multi-dimensional definition that incorporates access to services, tenure security, physical quality, and community integration (Wetzstein 2017).

In the Global South, affordability is inseparable from informality. Approximately 1.1 billion people globally live in slums or informal settlements, where housing is technically 'affordable' by price but deeply unaffordable in terms of inadequate services, insecurity of tenure, and climate exposure (UN-Habitat 2022). Angel *et al.* (2011) and Buckley *et al.* (2016) argued that the enabling approach—shifting governments from housing providers to market enablers—has failed to adequately address the housing needs of the lowest-income quintiles, particularly in rapidly urbanising societies. The debate continues between supply-side interventions (land release, regulatory simplification, construction technology), demand-side interventions (subsidies, housing finance, vouchers), and integrated strategies that address both simultaneously.

Urban resilience and housing

The ability of cities and communities to resist, adapt to, and recover from shocks and stresses is a key concept in urban planning since the early 2000s (Davoudi 2012, Meerow *et al.* 2016). Resilience in housing includes structural resistance to natural hazards (earthquake, flood, cyclone) and adaptation to the climate (heat resilience, water efficiency), as well as socioeconomic resilience (tenure security, community networks, livelihood diversity). The Sendai Framework for Disaster Risk Reduction 2015 2030 explicitly mentions housing as a disaster risk and that informal settlements are highly susceptible to losses due to hazard risks (UNDRR 2015). There has been inconsistent implementation of resilience into affordable housing policy. There are also important differences in the sophistication of building codes, risk-informed land use planning and insurance systems between high-income and low- and middle-income countries, with the latter often having to choose between affordability and resilience (Birkmann *et al.* 2016; Satterthwaite *et al.* 2020). Recent scholarship has focused on the cost premium for resilient construction, which is expected to be 3-10% for seismic or flood resistance, and how disaster losses over the building's life cycle can make it economically viable in the first place, before it becomes technically feasible (World Bank 2019).

Housing, economic development, and smart urbanism

The relationship between housing investment and economic development is well-established in the literature. Housing construction is a labour-intensive sector with significant backward linkages to materials, services, and finance sectors, making it a potential engine of inclusive economic growth (De Soto 2000; Buckley and Kalarickal 2006). In

Saudi Arabia, the housing sector is viewed as a key economic diversification vehicle in the Vision 2030 framework, expected to contribute to GDP diversification, private sector employment, and domestic capital markets (Vision 2030 2016). In Pakistan, housing has been positioned similarly as a poverty alleviation tool with employment multiplier effects, particularly through the NPHP (Government of Pakistan 2019).

Smart urbanism—the application of digital technologies, data analytics, and network infrastructure to urban management—is increasingly intersecting with affordable housing policy. Smart building technologies can reduce operational costs for residents, while data-driven urban planning can improve site selection, resource allocation, and monitoring (Yigitcanlar *et al.* 2019). However, critics caution that the smart city paradigm often privileges technology adoption without adequate attention to equity, community participation, and the needs of low-income urban residents (Hollands 2008; March and Ribera-Fumaz 2016). The literature thus calls for ‘inclusive smart urbanism’ that centres affordability and social equity alongside efficiency and innovation.

Comparative housing policy studies

The comparative housing policy literature has a rich tradition of cross-national analysis, from Kemeny’s (1992) work on the distinction between unitary and dualist rental markets, to Whitehead and Scanlon’s (2007) comparative studies of social housing in Europe, and more recent efforts to compare housing policies across the Global South (Pugh 2001; Rolnik 2013). Within the Middle East and South Asian context, comparative housing scholarship is thinner, partly reflecting a historical focus on shelter in international development circles rather than integrated economic and urban development frameworks. This paper seeks to fill a gap in the literature by systematically comparing Saudi and Pakistani housing frameworks with global normative standards, and by proposing an original integrated framework for cross-national policy learning.

METHODOLOGY

This study employs a qualitative comparative policy analysis methodology, triangulated with structured document review, multi-criteria policy matrix construction, and illustrative case study analysis. The research design is consistent with the interpretive policy analysis tradition (Fischer 2003; Yanow 1996), adapted to accommodate a cross-national comparative framework.

Data sources and document analysis

Key primary policy documents are: Saudi Vision 2030 Housing Programme documentation; National Transformation Programme 2020 (Saudi Arabia); NHUP

2021-2025 (Pakistan); NPHP policy guidelines; UN SDGs monitoring tools and Voluntary National Review for each country; UN-Habitat Global State of Housing; World Bank housing sector analysis; and OECD housing policy reviews. Literature secondary sources were systematically sourced from Scopus, Web of Science, and Google Scholar databases through search terms such as ‘affordable housing,’ ‘resilient housing,’ ‘Saudi housing policy,’ ‘Pakistan housing policy,’ ‘UN SDG 11,’ among others.

Comparative policy matrix

A six-dimension comparative policy matrix was constructed to systematically evaluate the three frameworks (Saudi Vision 2030, UN SDGs, Pakistan NHUP) across the following analytical dimensions: (i) affordability targets and mechanisms; (ii) housing finance and subsidy structures; (iii) climate resilience and disaster risk reduction; (iv) smart urban infrastructure integration; (v) economic development linkages; and (vi) governance and implementation architecture. Each dimension was evaluated using a four-point scale (Absent / Weak / Moderate / Strong) calibrated against international best practice standards drawn from the literature.

Case study selection

Three national and subnational case studies were selected for in-depth analysis using purposive sampling: (i) Saudi Arabia’s National Housing Company (NHC) new town development programs; (ii) Pakistan’s Naya Pakistan Housing Programme pilot projects in Islamabad and Khyber Pakhtunkhwa (KPK); and (iii) comparative international examples including Singapore’s Housing and Development Board (HDB) and South Africa’s Breaking New Ground housing programme, selected for their relevance to the affordability-resilience-economic development nexus. Case data were gathered from project reports, grey literature, media sources, and, where available, academic evaluations.

Saudi-Pakistan Affordable and Resilient Housing (SPARH) framework development

The SPARH framework was developed through a three-stage process: (i) gap analysis from the comparative matrix; (ii) synthesis of international best practice from the case studies and literature; and (iii) conceptual integration using systems thinking to identify four strategic pillars and their inter-linkages. The framework was structured to be applicable across both Saudi and Pakistani contexts while remaining adaptable to other emerging economy settings.

GLOBAL HOUSING CHALLENGES

There are multiple global housing issues relating to quantity, quality, vulnerability to climate change, and affordability.

The quantity is very high with the UN-Habitat (2023b) estimating that we will need to increase the number of units we build globally by 96,000 each day until 2030; equalling around 2 billion new units. These issues will heavily impact South Asia, accounting for 35% of the global requirement, and Sub-Saharan Africa (25%). With secondary issues affecting Southeast Asia and portions of the Middle East and North Africa (MENA) regions. There is an expected need for 1.5 million new units to be constructed within urban areas over Saudi Arabia and the MENA region every decade (World Bank 2022).

The quality of housing is also an issue. The World Health Organisation estimate that over 3.5 billion people reside in housing not up to minimum requirements with regards to structure, sanitation, and ventilation, or are overcrowded (WHO 2018). Informal settlements with vulnerable housing to climate change have grown due to them often being built on flood plains, hills, and other undesirable land. Over 1 billion people live in these settlements within developing countries. Climate change has increased the risk that housing faces. The Intergovernmental Panel on Climate Change (IPCC) has estimated that housing will face much higher costs associated with damage and displacement from increased sea levels, severe storms, high temperatures, and changes in rainfall patterns in coming decades (IPCC 2022). For example, Pakistan had major flooding in 2022 which caused over 1.7 million homes to be damaged/destroyed. The cost of damages to housing was estimated to be over USD 5.6 billion, showing how poverty, inadequate housing, and climate change can cause issues (Pakistan Federal Flood Commission 2022).

Economic exclusion from formal housing markets affects the majority of urban residents in low- and middle-income countries. Formal housing finance systems typically require stable incomes, collateral, and credit histories that exclude informal-sector workers, who constitute the majority of the workforce in Pakistan (approximately 72%) and a significant portion of Saudi Arabia's migrant workforce. The result is a 'missing middle' in housing finance: households too affluent for government-subsidised housing but too poor for formal market products, driving the growth of informal settlements (Datta and Jones 2001; Mercer 2020). Selected indicators for each of these dimensions are summarised in Table 1.

SAUDI VISION 2030 HOUSING POLICIES

Overview and policy architecture

Saudi Vision 2030 is the biggest restructuring of the Saudi Arabian state since the oil boom era, announced by Crown Prince Mohammed bin Salman in April 2016. In this national transformation agenda, housing is a focal point, which is set out as one of 13 Vision Realisation Programs, with a Vision 2030 target of achieving homeownership to increase from 47% (2016 baseline) to 70% by 2030 (Housing Programme

2018). Major restructuring of institutional frameworks for housing delivery under Vision 2030. The Ministry of Housing was bolstered and enhanced in its coordinating capacity. The National Housing Company (NHC) is of joint-stock company which is responsible for large-scale housing development and public-private partnership. The Real Estate Development Fund (REDF) was reorganized as the main form of mortgage loan facilitation and subsidy, providing subsidized loans to eligible Saudi nationals. The Real Estate General Authority (REGA) was created to control the real estate industry, increase transparency and end land hoarding.

Affordability mechanisms

The cornerstone of Saudi Vision 2030's affordability strategy is the Sakani programme, launched in 2017, which integrates housing land allocations, subsidised mortgage products, and ready-to-build infrastructure. By 2023, the Sakani programme had provided over 700,000 housing solutions (a combination of plots, apartments, and mortgage subsidies), substantially exceeding initial targets (NHC 2023). The REDF offers mortgage support products including profit-rate subsidies, down-payment assistance, and guarantees to commercial banks, making formal homeownership accessible to first-time buyers in the middle- and lower-middle-income segments.

Land policy has been an important issue for making housing affordable. Urban land markets have traditionally been dominated by vacant land speculation in Saudi Arabia. To increase land supply and tackle land speculation, the White Land Tax was introduced in 2017 under Vision 2030. This tax is applied to vacant land over a certain minimum size in urban areas. Initial evidence suggests that it has been somewhat successful at increasing land supply however there have also been issues with implementation and avoidance (Al-Surf and Bharat 2021).

Construction technology and quality standards

Saudi Vision 2030 has explicitly promoted industrialized and modular construction technologies as mechanisms to reduce construction costs, improve quality, and accelerate delivery. The NHC has piloted prefabricated construction systems in several large-scale developments, and a National Building Code revision process has been ongoing to incorporate energy efficiency, structural resilience, and smart building standards.

The government has also promoted the adoption of Building Information Modelling (BIM) for large housing projects, aligning with global trends in construction digitization. However, climate adaptation in building standards remains an underdeveloped area. Saudi Arabia's severe climate (with peak summer temperatures exceeding 45°C in interior cities) creates significant building performance requirements for cooling energy efficiency and heat-island management, yet systematic integration of

passive cooling design and urban heat island mitigation into national housing program remains limited (Alshehri 2020).

Gaps and critiques

Despite Vision 2030 housing having achieved some successes there have also been substantial criticisms. Scholars of social equity have identified that the Sakani programme is very focused on providing housing for Saudi Nationals within the formal sector. This leaves a huge amount of low income workers, such as many Saudi females who have recently entered the workforce, without housing (Alqahtani and Saber 2022). Migrant workers make up around 38% of the overall population of Saudi Arabia and play a key role in the construction sector. They, however, are completely left out of any housing schemes and face severe issues in regard to informal housing. The biggest issue in terms of strategy would be the lack of focus on climate resilience. There is no element of climate adaptation or disaster risk reduction in the housing scheme. Saudi Arabia faces numerous climate related risks including extreme temperatures, sudden flooding (specifically in Jeddah and Makkah) and water scarcity. Having no requirement for housing to be designed resiliently will leave them vulnerable in the long term. (Saudi Green Initiative 2021)

UN SUSTAINABLE DEVELOPMENT GOALS AND HOUSING

SDG 1: No Poverty

The UN 2030 Agenda for Sustainable Development provides the most comprehensive normative framework for housing within the context of integrated sustainable development. Five of the seventeen SDGs have direct relevance to housing and urban resilience. SDG 1 targets include ensuring that all men and women, particularly the poor and vulnerable, have equal rights to economic resources, access to basic services, and ownership of and control over land and other forms of property (UN 2015). Target 1.4 specifically addresses property rights and access to financial services, directly linking poverty eradication to housing tenure security and housing finance access. Inadequate housing is both a symptom and a cause of poverty: households insecure, substandard, or overcrowded housing face higher health costs, poorer educational outcomes for children, limited ability to accumulate assets, and greater vulnerability to economic shocks (Patel 2021).

SDG 8: Decent Work and Economic Growth

SDG 8 targets inclusive and sustainable economic growth and full productive employment. The housing construction sector is one of the most labour-intensive sectors of any economy, with significant forward and backward economic linkages. The SDG 8 framework thus supports housing

investment as an economic development mechanism, particularly when it generates local employment, promotes small and medium enterprise development in construction supply chains, and enables the productive use of slum-upgrading assets (ILO 2019).

SDG 9: Industry, Innovation, and Infrastructure

SDG 9 calls for building resilient infrastructure, promoting inclusive and sustainable industrialisation, and fostering innovation. In the housing context, this encompasses resilient building materials and construction practices, innovative housing finance mechanisms, digital infrastructure in residential developments, and the development of a sustainable housing construction industry. SDG 9.1 specifically calls for developing quality, reliable, sustainable, and resilient infrastructure to support economic development and human well-being. The key target is 9.1: quality, reliable, sustainable and resilient infrastructure that supports economic development and human well-being, with affordable and equitable access for all.

SDG 11: Sustainable Cities and Communities

SDG 11 is the most directly relevant goal for housing and urban development. Target 11.1 specifically commits to ensuring access for all to adequate, safe, and affordable housing and basic services, and upgrading slums by 2030. Target 11.3 addresses inclusive and sustainable urbanisation, 11.4 focuses on protecting cultural and natural heritage, 11.5 addresses disaster loss reduction, 11.6 targets urban environmental impact, and 11.7 ensures access to safe public spaces. New Urban Agenda (Quito 2016) operationalises SDG 11 with detailed implementation guidance.

SDG 13: Climate Action

SDG 13 calls for urgent action to combat climate change and its impacts. For the housing sector, this translates into the imperative for climate-resilient construction standards, risk-informed urban planning, integration of climate adaptation into housing programs, and mobilisation of climate finance for housing resilience investment. The IPCC's Sixth Assessment Report (2022) identifies housing as both a significant source of greenhouse gas emissions (through embodied carbon in construction and operational energy) and a critical adaptation frontier. Table 2 summarises the alignment of Saudi Vision 2030 and Pakistan's NHUP with the key SDG target.

PAKISTAN'S HOUSING AND URBAN DEVELOPMENT POLICIES

Housing crisis context

Pakistan is one of the fastest-urbanising countries in the

Table 1: Global housing challenge dimensions and selected indicators

Dimension	Global Estimate	Saudi Arabia	Pakistan	Relevant SDG
Housing Deficit	1.6 Billion persons	Estimated 200,000+ units/year demand	10–12 Million units	SDG 11.1
Informal Settlement Residents	1.1 Billion	≈5% urban population	≈45% urban population	SDG 11.1, SDG 1
Housing Finance Access	< 30% of adults in LMICs	Expanding; Sakani programme	< 10% of adults	SDG 8, SDG 1
Climate-Vulnerable Homes	1 Billion+	Heat & water stress	Flood/seismic risk acute	SDG 13, SDG 11
Housing Investment (% GDP)	5–8% typical	≈5% (growing)	≈3% (inadequate)	SDG 9



Fig. 1: Conceptual overview of the Saudi–Pakistan Affordable and Resilient Housing (SPARH) framework. The scene contrasts the housing contexts of the two countries: a rapidly urbanising Saudi Arabia guided by Saudi Vision 2030 (left), and a flood-exposed Pakistan guided by the National Housing and Urban Policy (NHUP; right). SPARH (centre) is shown as a single housing system aligned with the UN Sustainable Development Goals (SDGs 1, 8, 9, 11 and 13) and resting on a foundation of governance, data and accountability (underground layer). This foundation links delivery institutions (NHC, REDF, REGA), unified building codes and land records, a national housing data system, monitoring mechanisms and South–South cooperation. The framework is organised into four pillars (I–IV): affordability and financial inclusion, climate resilience and risk reduction, smart and inclusive infrastructure, and housing–economy linkages. Together they lead to four outcomes: affordable homes for all, climate-resilient communities, inclusive growth with decent jobs, and smart, sustainable cities.

Table 2: Alignment of Saudi Vision 2030 and Pakistan NHUP with key UN SDGs

SDG Target	Saudi Vision 2030 Alignment	Pakistan NHUP Alignment	Gap Assessment
SDG 1.4 (Property Rights and Finance)	Strong – REDF, Sakani mortgage support	Moderate – NPHP, housing finance expansion	Pakistan: credit access weak
SDG 8.3 (Inclusive Growth/Jobs)	Moderate – construction sector jobs	Strong – explicit employment focus in NPHP	Saudi: migrant workers excluded
SDG 9.1 (Resilient Infrastructure)	Moderate – building code reform	Weak – limited resilient infrastructure	Both: climate standards missing
SDG 11.1 (Adequate Housing)	Strong – Sakani, NHC programmes	Moderate – NPHP targets; delivery gaps	Pakistan: delivery gap; Saudi: equity gap
SDG 11.3 (Sustainable Urbanisation)	Strong – master-planned communities	Weak – rapid informal urbanisation	Pakistan: governance fragmented
SDG 11.5 (Disaster Loss Reduction)	Weak – no explicit DRR in housing	Weak – reactive post-disaster only	Both: DRR not mainstreamed
SDG 13.1 (Climate Resilience)	Absent – no climate adaptation in housing	Weak – post-2022 floods policy emerging	Critical gap in both frameworks

Table 3: Comparative policy matrix – Saudi vision 2030, UN SDGs, Pakistan NHUP

Policy Dimension	Saudi Vision 2030	UN SDGs (Relevant)	Pakistan NHUP	Synthesis Gap
Affordability Mechanisms	STRONG: Sakani, REDF subsidies, land tax	NORMATIVE: SDG 11.1 targets; no mechanism	MODERATE: NPHP, Mera Ghar; delivery gap	Finance depth & delivery capacity
Housing Finance Innovation	STRONG: REDF restructuring, mortgage market	NORMATIVE: SDG 8.3 inclusive finance	WEAK: <1% GDP mortgage depth	Inclusive finance for informal sector
Climate Resilience Standards	ABSENT: No explicit climate-housing linkage	STRONG: SDGs 9, 11.5, 13 norms	WEAK: Post-disaster only; no mainstreaming	Critical gap across all frameworks
Smart Urban Infrastructure	MODERATE: NHC smart communities pilot	NORMATIVE: SDG 9, 11.3 references	WEAK: Digital infrastructure limited	Technology-equity tension
Economic Development Linkage	MODERATE: GDP diversification rationale	STRONG: SDG 8 employment, SDG 9 industry	STRONG: NPHP employment emphasis	Monitoring & value chain integration
Governance and Institutional Capacity	STRONG: NHC, REDF, REGA institutional reform	NORMATIVE: SDG 17 partnerships	WEAK: Federal-provincial fragmentation	Data systems & accountability

world, with an urban population growing at approximately 3% per annum and projected to reach 50% of the total population by 2047 (Pakistan Bureau of Statistics 2022). Pakistan's urban areas are characterised by stark spatial inequality: Karachi, Lahore, and Islamabad host large formal residential sectors alongside vast katchi abadis (informal settlements) that house 45–60% of urban residents in many cities. The national housing shortfall—estimated at 10–12 million units, with an additional 700,000–900,000 units needed annually—reflects decades of underinvestment in housing policy and infrastructure. The housing finance market in Pakistan remains severely underdeveloped. Outstanding housing finance as a share of GDP stood at less than 1% in 2022, compared with a South Asian average of approximately 4% and a global average of approximately 40% (State Bank of Pakistan 2022). The formal banking sector predominantly serves upper-income households, while the bottom 60% of urban households—largely engaged in informal employment—are almost entirely excluded from formal mortgage products.

Naya Pakistan Housing Programme (NPHP)

The most significant recent housing policy initiative in Pakistan is the Naya Pakistan Housing Programme (NPHP),

launched under the Pakistan Tehreek-e-Insaf government in 2018–2019, with a target of delivering 5 million affordable housing units within five years. The NPHP introduced several innovative policy mechanisms: a government-backed mortgage scheme (Mera Pakistan Mera Ghar) offering subsidised loans at 3–5% interest rates; a construction technology park initiative to promote affordable building materials and techniques; and a partnership framework to engage private developers in affordable housing delivery on government-provided land.

The NPHP achieved some notable early results, including the issuance of approximately 400,000 mortgage approvals through the Mera Pakistan Mera Ghar scheme by 2022, and the initiation of several pilot housing colonies in Islamabad, Lahore, and KPK. However, the programme fell substantially short of its 5 million unit target, with fewer than 50,000 units in various stages of construction by 2022 (Pakistan Housing Authority Foundation 2022). Critics attributed these shortfalls to institutional fragmentation (housing is a devolved subject under the 18th Constitutional Amendment, creating coordination challenges between federal and provincial governments), land acquisition difficulties, lack of standardised building codes, and the absence of a functioning construction supply chain for affordable units.

Climate vulnerability and disaster risk

Pakistan's housing crisis intersects acutely with climate change and natural disaster risk. The country ranks among the world's ten most climate-vulnerable nations (Germanwatch 2021). The 2022 super-floods, described as a 'climate catastrophe,' submerged approximately one-third of Pakistan's total land area, displacing 33 million people, damaging or destroying 1.7 million homes, and causing estimated total economic damage of USD 30 billion (UNDP 2022). The floods exposed the catastrophic inadequacy of Pakistan's housing stock in climate-exposed areas: the vast majority of damaged homes were constructed from mudbrick or other kutcha materials without any flood-resistant features.

Pakistan's post-disaster housing reconstruction policies have historically focused on temporary shelter and ad hoc reconstruction without systematically integrating resilient building standards or risk-informed land use planning. The Resilient Recovery, Rehabilitation, and Reconstruction Framework (4RF), developed following the 2022 floods with international support, represents an important step toward integrating resilience into Pakistan's housing reconstruction agenda, but systematic integration into forward-looking housing policy has yet to be achieved.

Provincial policies and governance fragmentation

The 18th Constitutional Amendment (2010) devolved significant housing and urban development functions to Pakistan's four provinces (Punjab, Sindh, KPK, Balochistan) and federal territories. While devolution has enabled more context-specific policy, it has also created significant fragmentation in building codes, land administration systems, housing finance frameworks, and urban planning governance. The absence of a unified national housing data system makes accurate monitoring of housing need and programme delivery extremely difficult. The SPARH framework proposed in this paper explicitly addresses governance architecture as a critical enabling condition for effective affordable housing delivery.

COMPARATIVE POLICY ANALYSIS

Building on the documentary analysis and matrix developed in the Materials and Methods section, this section provides a systematic comparative analysis of the three policy frameworks on six dimensions (Table 3). The matrix shows three important discoveries. The first is that climate resilience is not represented in either national framework, although it is identified as a normative priority in the SDGs, and is the most important gap to address now. Second, the innovation and inclusion in housing finance is one of the critical weaknesses of Pakistan and one of the relative strengths of Saudi Arabia, thus making it possible to transfer knowledge from south to south. Third, the capacity of

governors and data systems are also basic enabling conditions, whose lack of strength in Pakistan has a basic and profound impact on programme delivery, regardless of the quality of the programme design. Perhaps the most striking thing that can be said about this is that across the frameworks, there is a strong focus on housing as an economic development engine. Saudi Vision 2030, like Pakistan's NPHP, sees housing investment as a way to create jobs, expand the private sector, and diversify the economy. This alignment with SDG 8 goals justifies the development of common frameworks based on the housing sector for wider economic development goals.

CASE STUDIES

Saudi Arabia: National Housing Company New Community Developments

The National Housing Company (NHC) has been the primary vehicle for large-scale housing supply under Vision 2030. Its flagship projects include Al-Fursan City (Riyadh), a 10,000-unit mixed-income development integrating residential, commercial, and recreational uses; and Juman City (Eastern Province), a waterfront residential community targeting middle-income Saudi families. These developments exemplify the NHC's master-planned community model: land is acquired by the government, serviced with infrastructure, and then sold or developed in partnership with private sector developers.

Key lessons from the NHC model include: the effectiveness of integrated land preparation and infrastructure provision in reducing developer cost and risk; the challenge of ensuring affordability at the lower end of the income spectrum when market mechanisms are primary; the importance of location (several NHC projects have been criticised for peripheral locations disconnected from employment centres); and the pilot-stage adoption of green building features that have yet to be scaled systematically.

Pakistan: Naya Pakistan Housing Programme Pilot Projects

Pakistan's NPHP pilot projects in Islamabad's G-13 sector and KPK's Haripur district provide instructive evidence of the programme's strengths and limitations. The Islamabad pilot demonstrated the feasibility of government land preparation for affordable housing and the potential of subsidised mortgages to mobilise demand from middle-income households. However, the KPK pilot, intended to demonstrate delivery for lower-income rural-to-urban migrants, faced severe delays due to land acquisition disputes, contractor capacity limitations, and building material supply chain disruptions.

The 2022 floods provided an inadvertent case study in housing resilience failure. Post-flood assessments found that majority of the destroyed homes in Sindh and Balochistan

were constructed with non-engineered, non-resilient materials—a stark demonstration of the cost of neglecting resilient design standards in affordable housing. The government's post-flood reconstruction effort, supported by UNDP and the World Bank, has systematically incorporated resilient rebuilding standards for the first time, offering an important model for scaling.

International comparators

Singapore's Housing and Development Board (HDB) is widely regarded as one of the world's most successful public housing models, housing over 80% of Singapore's resident population in high-quality, well-located, and comprehensively serviced public housing estates. The HDB model's transferable lessons include long-term institutional continuity and political commitment; compulsory national savings (Central Provident Fund) mobilised for housing finance; systematic integration of social diversity, commercial services, and transit access in estate design; and ongoing asset upgrading programs that maintain housing quality over decades. While Singapore's city-state context limits direct transferability, the institutional architecture and finance mechanisms offer clear lessons for both Saudi Arabia and Pakistan.

South Africa's Breaking New Ground (BNG) programme, initiated in 2004 as a reform of the predecessor RDP housing programme, aimed to produce 'sustainable human settlements' rather than isolated housing units. BNG's emphasis on location efficiency, mixed-income community design, social services integration, and incremental upgrading of informal settlements offers relevant lessons for Pakistan's urban context. However, BNG has also been criticised for slow delivery and the persistence of spatial apartheid patterns, underscoring the importance of implementation capacity and political economy alongside good policy design.

RESULTS AND DISCUSSION

The conclusions that can be drawn from comparative analysis is important, not only in terms of theory, but also policy. One finding is that the affordability-resilience trade-off is a financing issue and not a technical one. Saudi Arabia and Pakistan have misleadingly marketed the construction of 'climate resilient' facilities as an 'extra expense' on the projects they seek to target. On the bright side, however, the evidence from international case studies and literature on disaster economics, is highly consistent in showing that the cost benefit ratio of resilience investment is positive over the building lifecycles (World Bank 2019). The lack of resilience investments is not an affordability issue, it's a financial market failure, short housing loan terms, low-risk premiums in the insurance market and the lack of foresight by the public sector in managing contingent disaster liabilities. Finding 2: The institutional

architecture is the salient constraint in Pakistan whereas the salient constraint is equity in Saudi Arabia. The comparative analysis reveals that the lack of institutional coherence, data systems and delivery capacity are the main issues in the housing programme in Pakistan which are universal and applicable to various policy designs and political leadership. However, the institutional reforms in Saudi Arabia (NHC, REDF, REGA) have established a functional housing delivery system, but there is a lack of development in the equity architecture, with lower-income Saudi households, women and migrant workers significantly under-served. The issue of housing inequality can be exacerbated by Smart Urbanism without Inclusive Design (Find 3). Although both countries have implemented smart urban infrastructure on housing, they have not paid attention to the costs for low-income citizens, and the community governance of smart systems. Research in other emerging-economy smart cities (India, Kenya, Indonesia) has been consistent that smart infrastructure can be exclusionary without an awareness of the need for equity. Challenging: SDG framework does not have an operational mechanism apart from the normative guidance. The UN SDG framework rightly targets the key drivers of the housing issue and establishes aspirational regulatory targets. The SDG monitoring framework is, however, not operationally detailed enough for policy design at country level: For example, SDG 11.1 does not specify the institutional design, the financing model or technical standards to achieve the SDG 11.1 at country level. The SPARH model is a chance to fill this gap with its operational framework, which it seeks to establish. Finding 5: There is much potential for knowledge transfer from South-South. The Saudi Pakistan economic, cultural and diplomatic ties are quite broad and extensive, including substantial remittance transfers by Pakistani migrant workers in Saudi Arabia and development finance. But little systematic knowledge sharing of housing policy has been observed. This is shown as a proposed model framework (SPARH) to operationalise this potential, in bilateral institutional mechanisms, development of joint research programs and technology transfer modalities.

THE SAUDI PAKISTAN AFFORDABLE AND RESILIENT HOUSING FRAMEWORK (SPARH)

Framework overview

The SPARH Framework is an original integrated policy model that synthesises the comparative analysis findings, international best practice lessons, and SDG normative standards into a four-pillar framework for affordable and resilient housing policy. The framework is designed to be applicable across both Saudi and Pakistani contexts while remaining adaptable to other emerging economy settings

confronting the combined challenges of housing affordability, climate resilience, and sustainable urban economic development. The four strategic pillars of SPARH are: (I) Housing Affordability and Financial Inclusion; (II) Climate Resilience and Disaster Risk Reduction; (III) Smart and Inclusive Urban Infrastructure; and (IV) Housing-Economic Development Linkages. These four pillars are supported by a cross-cutting enabling condition: Governance, Data, and Accountability Architecture. The pillars are conceptualised as mutually reinforcing progress in each pillar creates enabling conditions for the others, while weakness in any one pillar undermines the effectiveness of the overall framework. The framework is shown in Fig. 1.

Pillar I: Housing Affordability and Financial Inclusion

The first pillar addresses the supply-demand-finance triangle that determines whether housing is accessible to households across the income spectrum. Under SPARH, affordability policy is operationalised through three integrated sub-components.

The first sub-component is Inclusive Housing Finance, encompassing: (a) the development of mortgage products adapted to informal and variable income patterns, including 'step-up' mortgages where payments increase as household incomes grow; (b) community-based savings groups (following the Slum Dwellers International model) as complementary savings mechanisms; (c) risk guarantees to commercial lenders to crowd in private capital for low-income mortgage lending; and (d) Islamic finance instruments (murabaha, diminishing musharakah) adapted for low-income housing, highly relevant to both Saudi and Pakistani Muslim-majority contexts.

The second sub-component is Supply-Side Cost Reduction, encompassing: (a) public land banking and affordable lease mechanisms that separate land cost from housing development cost; (b) regulatory simplification (streamlined building permits, standardised planning requirements) to reduce time and cost of formal housing development; (c) industrialised construction technology promotion through government procurement preferences and construction technology centres; and (d) local materials development that reduces dependence on expensive imported construction materials.

The third sub-component is Demand-Side Targeting, encompassing: (a) income-graduated subsidies that target the deepest subsidies to the lowest-income quintiles while using market mechanisms for upper-income groups; (b) housing vouchers for rental support as an alternative to ownership subsidies for the most mobile or economically vulnerable households; and (c) cross-subsidy mechanisms within mixed-income developments that generate internal finance for below-market units.

Pillar II: Climate Resilience and Disaster Risk Reduction

The second pillar directly addresses the critical gap identified in both national frameworks. Under SPARH, climate resilience in housing is operationalised through mandatory standards, risk-informed planning, and innovative finance. Mandatory Resilient Building Standards would establish minimum resilience requirements calibrated to local hazard profiles (seismic zones, flood maps, heat extremes) for all formally permitted housing, phased over five years to allow supply chain and skills adaptation. These standards would cover structural resistance, flood-proofing passive cooling performance, and water efficiency, with technical specifications adapted from international standards and frameworks (ISO 13157 for flood resilience; the Sendai Framework for DRR).

Risk-Informed Urban Land Use Planning would integrate national hazard maps with formal land use planning systems to prohibit new formal housing development in high-risk zones and create incentive systems (density bonuses, infrastructure priority, expedited permits) for development in low-risk locations. This component requires significant investment in geospatial data infrastructure and planning capacity, particularly in Pakistan.

Resilience Finance Mechanisms would address the affordability-resilience financing gap through: (a) a Resilient Housing Fund that combines domestic budget allocation with climate finance from the Green Climate Fund, the Loss and Damage Mechanism, and bilateral climate finance to subsidize the resilience cost premium for low-income housing; (b) mandatory risk disclosure in housing markets that allows buyers to price resilience into property decisions; and (c) parametric disaster insurance products for low-income housing that provide rapid post-disaster reconstruction finance without the administrative burden of traditional insurance claims.

Pillar III: Smart and Inclusive Urban Infrastructure

The third pillar addresses the integration of digital and smart infrastructure into housing and neighbourhood design, with a central emphasis on inclusion and affordability of operational costs.

Inclusive Smart Infrastructure Standards would establish requirements for digital infrastructure in all new housing developments (fibre connectivity, smart metering, secure digital identity systems) while mandating community ownership of shared data and infrastructure rather than private vendor lock-in. Operational cost transparency requirements would ensure that smart infrastructure does not create unaffordable utility bills for low-income residents.

A digital housing management System would provide digital solutions to: Transparent allocation system for subsidized housing using digital waiting list systems property management systems to manage buildings

efficiently and effectively energy monitoring systems to reduce costs community information systems. Smart Urban Mobility ensures that housing locations are valued by ensuring that housing is located in sites that have good access to a transport network. This is achieved by requiring housing developments to be located within 800m of a transport network (Pillar III of SPARH). Cycles and pathways will also be included. Low-income residents will also have access to digital mobility systems.

Pillar IV: Housing Economic Development Linkages

The fourth pillar explicitly operationalises the relationship between housing investment and broader economic development goals, addressing a dimension that is recognised in both national frameworks but inadequately operationalised in either. Local Employment and Supply Chain Development standards within SPARH would require public housing developments above a threshold size to achieve minimum percentages of local labour (70%), local materials (50%), and local professional services (60%). Small and medium enterprise development programs would build construction sector capacity, particularly among women-owned enterprises and youth-owned businesses. Housing as Asset-Building for Households recognises that housing is the primary store of wealth for most low- and middle-income households. SPARH supports secure tenure for all housing (whether rental or ownership) as a precondition for households to use housing as an asset; improved property registration systems that reduce transaction costs and enable the use of housing as collateral for productive credit; and incremental building programs that allow households to invest in their own housing quality improvements over time.

Neighbourhood Economic Development Integration designs housing developments as nodes in broader urban economic systems rather than isolated residential enclaves. This includes mandatory provision of commercial and economic space within large housing developments; co-location of housing with employment zones, industrial parks, and economic development initiatives; and digital platforms connecting housing estate residents with local employment opportunities (Fig. 2).

Enabling condition: governance, data, and accountability

The SPARH framework recognises that high-quality policy design is insufficient without complementary governance architecture. The enabling condition layer specifies: a unified national housing data system that tracks housing need, supply, programme delivery, and outcome indicators against SDG and national targets; a multi-level governance architecture that coordinates national policy with provincial and local delivery, with clear role delineation and intergovernmental transfer mechanisms; independent programme monitoring and evaluation with public

reporting; meaningful community participation requirements in housing programme design and governance; and bilateral Saudi Pakistan institutional cooperation mechanisms (annual ministerial dialogue, joint research fund, technical exchange programme). Table 4 summarises the operational components, indicators, and SDG alignment of the framework

POLICY RECOMMENDATIONS

Based on the comparative analysis and the SPARH framework, this paper advances twelve specific policy recommendations for Saudi Arabia, Pakistan, and for bilateral and multilateral action.

Recommendations for Saudi Arabia

Recommendation 1: Extend the Sakani programme's reach to lower-income quintiles and to Saudi women entering the workforce for the first time through dedicated mortgage products with lower income thresholds and alternative credit assessment methodologies.

Recommendation 2: Introduce mandatory climate resilience standards in the National Building Code for all residential buildings, prioritising passive cooling performance, water efficiency, and flash flood resistance in coastal and valley locations. The Saudi Green Initiative (2021) already provides a normative anchor for this measure.

Recommendation 3: Develop a bilateral technical cooperation programme with Pakistan on housing finance innovation, specifically exploring the transfer of REDF financing models and Islamic finance housing products to the Pakistani context, including a joint Islamic Housing Finance Development Fund.

Recommendation 4: Expand the NHC's community development mandate to include economic development components—local enterprise development, job training centres, and digital economic infrastructure—within large-scale housing developments, thereby converting residential estates into mixed economic communities.

Recommendations for Pakistan

Recommendation 5: Establish a unified National Housing Data System under the Ministry of Housing, Works, and Urban Affairs, integrating data from all four provinces and federal territories, with annual public reporting against SDG 11.1 targets and national housing programme indicators.

Recommendation 6: Mainstream climate resilience into housing reconstruction and new housing programs by adopting a National Resilient Housing Code, calibrated by provincial hazard zones, as a precondition for public sector housing finance and subsidy eligibility.

Recommendation 7: Resolve the housing-sector governance fragmentation created by the 18th Amendment

Table 4: SPARH Framework – Operational Components, Indicators, and SDG Alignment

SPARH Pillar	Key Operational Component	Primary Indicator	SDG Alignment
I – Affordability & Finance	Inclusive mortgage products	% LI households with housing finance access	SDG 1.4, 8.3, 11.1
I – Affordability & Finance	Public land banking	Affordable units on public land (annual)	SDG 11.1, 10.2
II – Resilience & DRR	Mandatory resilient building standards	% new units meeting resilience code	SDG 11.5, 13.1, 9.1
II – Resilience & DRR	Risk-informed land use planning	% housing in low-risk zones	SDG 11.3, 13.1
II – Resilience & DRR	Resilience Finance Fund	Annual climate finance for housing (USD M)	SDG 13.a, 17.3
III – Smart Urban	Digital infrastructure in housing	% units with broadband connectivity	SDG 9.c, 11.3
III – Smart Urban	Transit-accessible site selection	% units within 800m of public transport	SDG 11.2, 11.3
IV – Economic Linkage	Local employment standards	% local labor in public housing projects	SDG 8.3, 8.5
IV – Economic Linkage	Secure tenure for all	% households with documented tenure	SDG 1.4, 11.1
Enabling: Governance	National housing data system	Data completeness & timeliness score	SDG 17.18

through a National Housing Coordination Council that brings together federal and provincial housing authorities, with a statutory mandate for intergovernmental coordination and minimum national standards.

Recommendation 8: Scale the Mera Pakistan Mera Ghar programme with specific targeting of informal sector workers through salary or income verification via digital payment records, mobile money transaction history, or employer cooperatives, thereby reducing the exclusion of the informal sector from formal housing finance.

Bilateral and multilateral recommendations

Recommendation 9: Establish a Saudi Pakistan Housing Cooperation Initiative under the ambit of the Saudi Fund for Development, with dedicated funding for Pakistani affordable and resilient housing projects that pilot SPARH framework components in Pakistan’s peripheral cities.

Recommendation 10: Both countries should develop and submit to UNFCCC their National Adaptation Plans (NAPs) with specific chapters on housing sector climate adaptation, enabling access to the Green Climate Fund’s adaptation financing window for housing resilience programs.

Recommendation 11: Engage UN-Habitat as a technical partner for the development and operationalisation of the SPARH framework, leveraging UN-Habitat’s global programme expertise, knowledge platform, and advocacy access to position SPARH as a model for bilateral housing cooperation among other emerging economies.

Recommendation 12: Both governments should invest in joint research and professional exchange programs in affordable and resilient housing design, construction technology, and urban planning, building the professional human capital pipeline needed for long-term housing programme delivery.

CONCLUSION

The present paper has thus conducted a comprehensive comparative policy analysis of the housing agenda in Saudi Vision 2030, the UN Sustainable Development Goals pertaining the housing and urban development and the

National Housing and Urbanisation Policy of Pakistan. The paper, through structured documentary analysis, the multi criteria comparative matrix and case study review, has identified critical gaps, convergences and opportunities for policy learning across these three frameworks. The main conclusion is that both Saudi Arabia and Pakistan have progressed substantially towards establishing a more ambitious housing policy and improving institutional development in the last few years, but both housing policy frameworks have a critical and common strategic gap: the lack of systematic incorporation of climate resilience and disaster risk reduction into affordable housing programs. This is not only a policy oversight but is fundamentally threatening the housing investment programs in both countries, as there is growing evidence of climate related extremes happening at a greater frequency as seen in the floods of 2022 in Pakistan as reported by the IPCC. The SDG framework, with its targets and goals, is the normative mandate to address this gap, and an operational translation is needed now. The paper is an original contribution to the literature and to the practice of policymaking, presented here under the name of Saudi Pakistan Affordable and Resilient Housing Framework (SPARH). SPARH offers an enabling framework that brings the four strategic pillars (housing affordability and financial inclusion, climate resilience and disaster risk reduction, smart and inclusive urban infrastructure, and housing economic development linkages) together in an operationally grounded approach to housing policy development that goes beyond the existing approach in both countries. The SPARH framework is provided as a guide to policy dialogue, adaptation and contextualisation, not as a blueprint to be implemented. Political economy, culture, institutional history and fiscal capacity are all part of housing policy and need to be understood locally and involve communities. The real strength of the framework is the common language, the analytical dimensions, and the operational components which open the framework to the Saudi and Pakistani policy makers, practitioners, civil society and international partners for structured policy dialogue. The context of the Saudi Pakistan bilateral is just one of the many factors. The urbanisation, housing shortages, increased climate

vulnerability and budget constraints that affect both countries are common to dozens of emerging and developing economies. The contribution of the SPARH framework to the long-term future is, perhaps, its potential as a transferable model which can be adapted for different country pairs and/or regional groupings to fit their local context. In an era of increased global housing pressure and of the fast-approaching opportunity to fulfil SDG 11 targets, innovative bilateral approaches, which build on complementary national strengths and capacities towards a shared housing agenda, are a much-needed element in the international development architecture. Further studies are needed to empirically test the SPARH framework components in pilot programs in both countries, to rigorously evaluate the affordability-resilience trade-off under various financial scenarios, and to create a digital decision-support tool to operationalise the SPARH planning model for local housing development authorities.

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DATA AVAILABILITY

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