

Research



BRICK ^{By} BRICK

LONG TERM CAPITAL TO FUND
AFFORDABLE HOUSING FOR ALL

October 2021



Mumbai HO

Knight Frank (India) Pvt. Ltd.
Paville House, Near Twin Towers,
Off. Veer Savarkar Marg, Prabhadevi,
Mumbai 400 025, India
Tel: 022 6745 0101 / 4928 0101;

Bengaluru

Knight Frank (India) Pvt. Ltd.
204 & 205, 2nd Floor, Embassy Square,
#148 Infantry Road,
Bengaluru 560001, India
Tel: 080 40732600 / 22385515

Pune

Knight Frank (India) Pvt. Ltd.
Unit No.701, Level 7, Pentagon Towers P4,
Magarpatta City, Hadapsar,
Pune 411 013, India
Tel: 020 67491500 / 30188500;

Chennai

Knight Frank (India) Pvt. Ltd.
1st Floor, Centre block, Sunny Side,
8/17, Shafee Mohammed Road,
Nungambakkam, Chennai 600 006, India
Tel: 044 4296 9000

Gurgaon

Knight Frank (India) Pvt. Ltd.
Office Address: 1505-1508, 15th Floor, Tower B,
Signature Towers South City 1,
Gurgaon 122 001, India
Tel: 0124 4782700;

Hyderabad

Knight Frank (India) Pvt. Ltd.
Western Dallas Centre, 5th floor, Office #3,
Hyderabad Knowledge City,
Survey No. 83/1, Raidurg, Serilingampally Mandal,
Ranga Reddy District, Telangana
Hyderabad - 500032, India
Tel: 040 44554141;

Kolkata

Knight Frank (India) Pvt. Ltd.
PS Srijan Corporate Park
Unit Number - 1202A, 12th Floor,
Block - EP & GP, Plot Number - GP 2,
Sector - V, Salt Lake, Kolkata 700 091, India
Tel: 033 66521000

Ahmedabad

Knight Frank (India) Pvt. Ltd.
Unit Nos. 407 & 408, Block 'C', The First,
B/H Keshav Baugh Party Plot,
Vastrapur, Ahmedabad - 380015
Tel: 079 48940259/ 40380259



www.knightfrank.co.in/research

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A large, close-up image of a hand holding a small, white house with a grey roof. The background is a dark, blurred cityscape with colorful bokeh lights in shades of purple, blue, and red. The overall mood is one of scale and urbanization.

EXECUTIVE SUMMARY

Affordable housing is a global challenge, which has gained significant attention from various governments and private sector organisations worldwide. However, despite genuine success stories, the problem continues to overrun the efforts in most places. The urbanisation process is a continuous phenomenon, especially in developing countries. In spite of all the policy efforts by governments globally, the population living in substandard housing continues to rise as supply of affordable housing has failed to keep pace with migration of people in search of economic opportunities.

Affordable housing: defining the shortage

As per the latest United Nations' data, more than 57 per cent (4.5 bn) of the world's population (7.9 bn) is living in urban areas as of year 2021. Twenty-nine per cent (1.3 bn) of this urban population is living in substandard housing, which translates into a need gap of 325 mn urban houses. In India, 35 per cent of urban population is living in substandard housing, which translates to a need gap of 35 mn houses, which is 11 per cent of the world's housing need gap.

The urban housing shortage is primarily driven by the low-income segment population, as majority of the housing supply that is being built across urban areas is beyond their affordability. There are various supply and demand side challenges that are limiting the process of bridging the need gap, especially in developing economies. The supply side challenges include the costs associated with land acquisition and securing a marketable title, land use zoning and regulation linked anomalies, lack of infrastructure in distant areas, limited availability of funds for affordable housing projects, inefficient design & development, as affordable housing developments are extremely cost sensitive. Demand side challenges include difficulty to access formal financing for purchase of affordable housing units by the low-income households and determining eligibility to ensure that the demand promotion scheme benefits reach the intended beneficiary. Unavailability of affordable rental housing supply has also resulted in development of informal housing clusters. These challenges reflect the market inefficiencies that are plaguing the sustainable development of affordable housing globally.

Policy interventions and impact

Countries over the years have responded to the shortage through various policy level interventions on both demand and supply side. In India, the recent initiative of Housing for All (HFA) by 2022 policy marked a major shift in focus towards delivery of houses. Under HFA, Pradhan Mantri Awas Yojna (PMAY) is the umbrella scheme at the national level. In 2020, the central government took one significant step towards introducing an affordable rental housing scheme in India via the Affordable Rental Housing Complexes Scheme (ARHC) under PMAY (U). Further, The Model Tenancy Act introduced in 2021 aims to balance the scales for both landlords and tenants, so that

perceptions about rent control laws favouring tenants can go away and a transparent and speedy regulatory environment can be created for resolution of disputes between both parties.

Development of a Housing Finance mechanism from the demand perspective has been one of the focus areas of Indian policies. There have also been efforts at expanding affordable housing supply while improving the housing and neighbourhood quality. Through the policy interventions like In-situ slum redevelopment and Affordable Housing in partnership with private players has been encouraged. The PMAY scheme has been a success and is on road to achieve its targeted construction of almost 11 mn houses by 2022.



Appropriate financing structure and funding are critical to address the affordable housing shortage. Private developers primarily have targeted the luxury, high-end and upper-mid housing segment owing to higher returns that can be gained from such projects. The burden of supply of affordable housing mostly falls on the back of government and social impact organisations. Over the years role of the government has moved from being a provider to a facilitator.

Funding affordable housing

Affordable housing is increasingly developed, financed and managed by a mix of state, social impact organisations, and private investors (supported by state grants). Various international organisations, such as UN Habitat, World Bank, Rockefeller Foundation, Johannesburg Housing Company, Department for International Development, Habitat for Humanity, etc. are investing in the affordable housing sector across the globe, especially in developing countries. There is also an increasing trend, particularly in the US, where many major private corporations, such as Microsoft, Google and Amazon, have taken initiatives under their CSR activities to improve supply of housing for the poor.

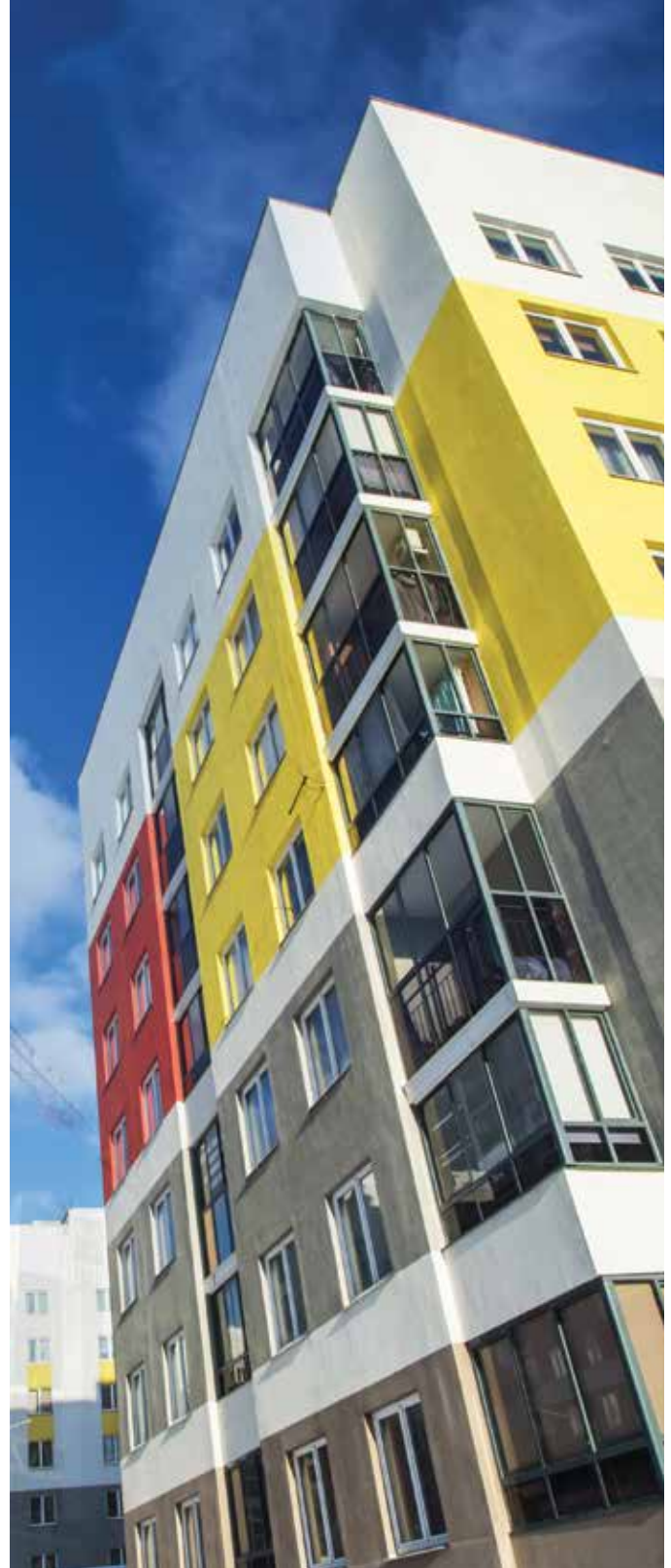
Private Equity (PE) investments in affordable housing globally

Over the past decade, affordable housing has attracted increasingly more private capital aimed at building real estate that serves society and at the same time generates adequate returns. However, it is still not close to the funding requirement needed to match the demand due to various regulatory, financial and political roadblocks.

In the year 2020, at the global level, a total of US\$759 bn capital investment has been traced to the real estate sector. The transaction volume in 2020 was 29 per cent lower than 2019 levels due to a COVID-19 induced slowdown. Out of the total transaction volume, US\$225 bn, i.e. 27 per cent, is being invested in the residential sector. The share of residential sector in investment in Asia Pacific is generally very low as compared to the sector share in America and EMEA, which indicates that there is huge scope for investment in residential sector in the Asia Pacific region.

Understanding the importance of affordable housing and the demand gap, various institutional investors are increasingly entering into this segment, which can provide appealing financial returns along with a positive social impact. Apart from the dedicated funds, various global multi asset funds are investing in affordable housing, which also enables them to meet their own environmental, social and governance (ESG) targets. Impact investing in affordable housing

and increasing focus of PE funds on meeting the ESG goals, can help bring positive social change along with stable risk adjusted returns.



SECTION : 1

AFFORDABLE

HOUSING:

DEFINING THE SHORTAGE

1.1 Defining affordable housing

The right to housing has been recognised as one of the very basic human rights in the Universal Declaration of Human Rights adopted by the United Nations. The basic aim is to provide shelter for every human being and the next step is to establish adequate housing. To achieve this, a few conditions must be met to differentiate basic shelter from adequate housing. One of these conditions is affordability.

Globally, various countries define affordability differently as the term 'Affordability' is considered as a relative term which has different meanings depending on the context. As a result, there is no definition of affordability that can be applied uniformly across the globe.

UN Habitat defines affordable housing as "housing which is adequate in quality and location and does not cost so much that it prohibits its occupants meeting other basic living costs or threatens their enjoyment of basic human rights."

The United States' Department of Housing and Urban Development, defines affordability as when a household "pay(s) no more than 30 per cent of its annual income on housing". When housing expenditure is above 30 per cent of annual income, families are 'cost-burdened' and must be provided financial support.

In India, affordable housing is defined in terms of income level and unit area, which is specified from the perspective of the target sector for various social schemes. As per "Pradhan Mantri Awas Yojana", Housing for All scheme launched in 2015 by the Ministry of Housing and Urban Poverty Alleviation, criterion for Economically Weaker Sections (EWS) and Lower Income Group (LIG) was categorised in terms of Household (HH) income level and carpet area of dwelling unit, which is defined below:

EWS

Household income upto INR 0.3 mn per annum. Carpet area should not exceed 30 sqmt

LIG

Household income INR 0.3 - 0.6 mn per annum. Carpet area should not exceed 60 sqmt



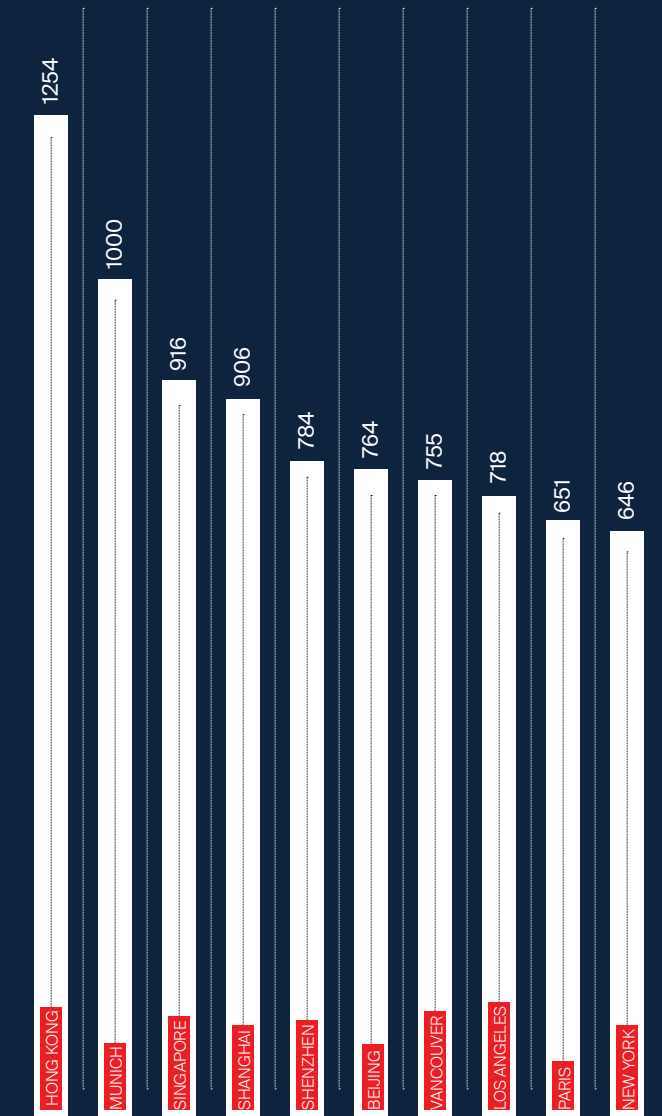
From a broader perspective, affordability can be measured by correlating income and housing expenses. From a narrower perspective, the costs for housing must not compromise other basic rights, such as the right to food or family well-being.

An affordability gap is the difference between median selling price of a house and the amount that a person can afford to pay for buying a housing unit. From high-income earners, to hourly wage workers, to people experiencing homelessness, and for all those who fall in between; the rent or price of a home that is affordable may vary from one household to the next, but the need for housing remains constant for everyone.

Even though there is no concurrence on any standard affordability norm, the fact that there is a pressing need to identify the affordability of various income groups in different geographies of the world is well acknowledged.

Most expensive residential property markets worldwide in 2020

Average price of property in US\$1000



Source: Tatler Asia (Hong Kong)

In 2020, Hong Kong had the most expensive residential property market worldwide, with an average property price of US\$1.25 mn. The Government of Hong Kong provides public housing for lower-income residents and 45 per cent of Hong Kong's population lived in permanent public housing in 2019.

1.2 Population and urbanisation trend

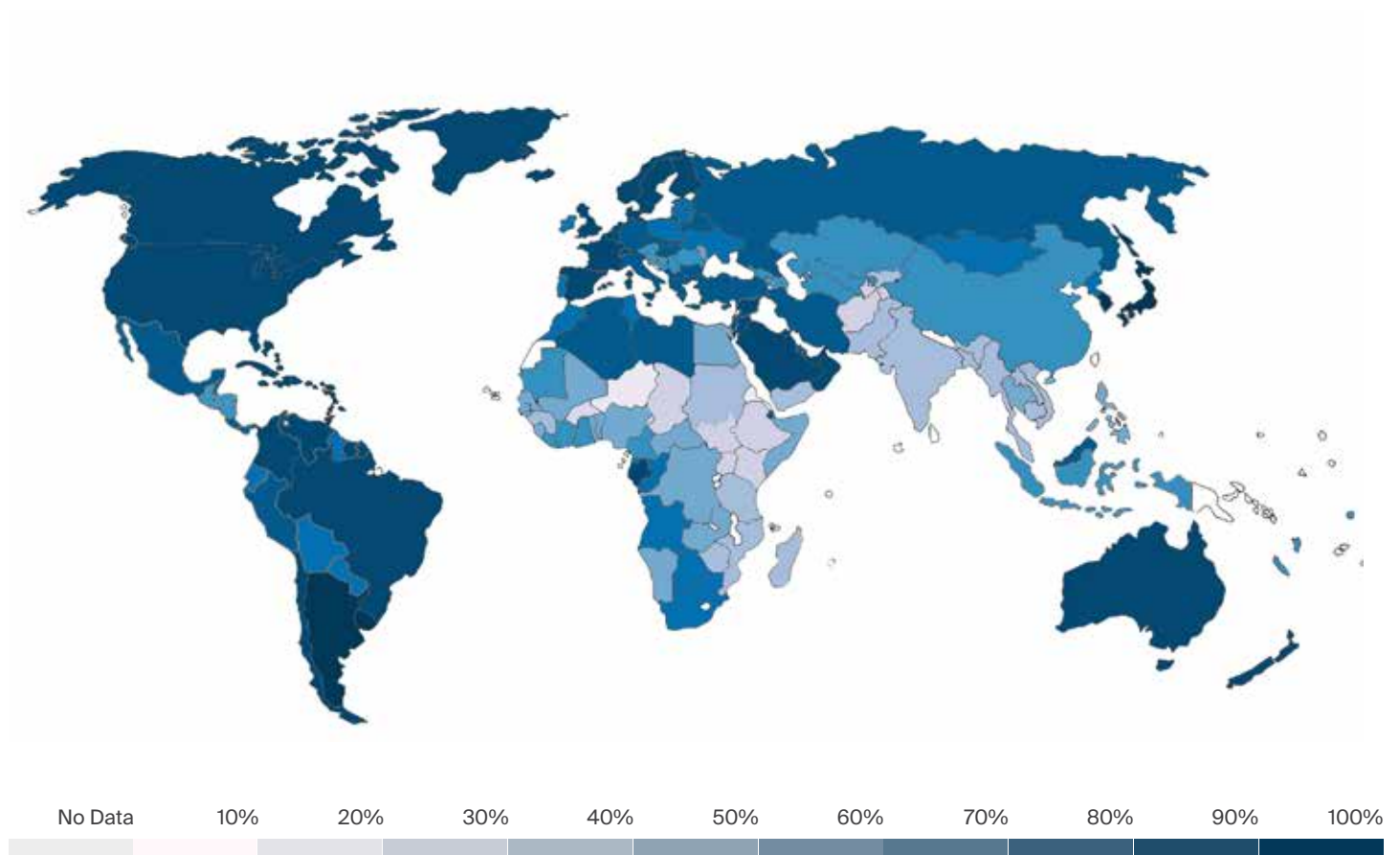
Economic growth and urbanisation are linked with each other. As per the United Nations, more than 57 percent of the world's population lives in urban areas, as of year 2021. The discussion in recent years has been about whether to denounce urban life, which has led to the mushrooming of slums, where housing conditions are substandard, sanitation is almost non-existent, leading to an environment where infectious diseases flourish, and where exploitation and physical threats are common; or emphasise on the importance of urbanisation for economic growth.

Throughout human history, people across the world have mostly lived in rural areas or small communities. Over the past few centuries, and particularly in recent decades, there has been a dramatic shift. Globally, we have witnessed a mass migration of populations from rural to urban areas.

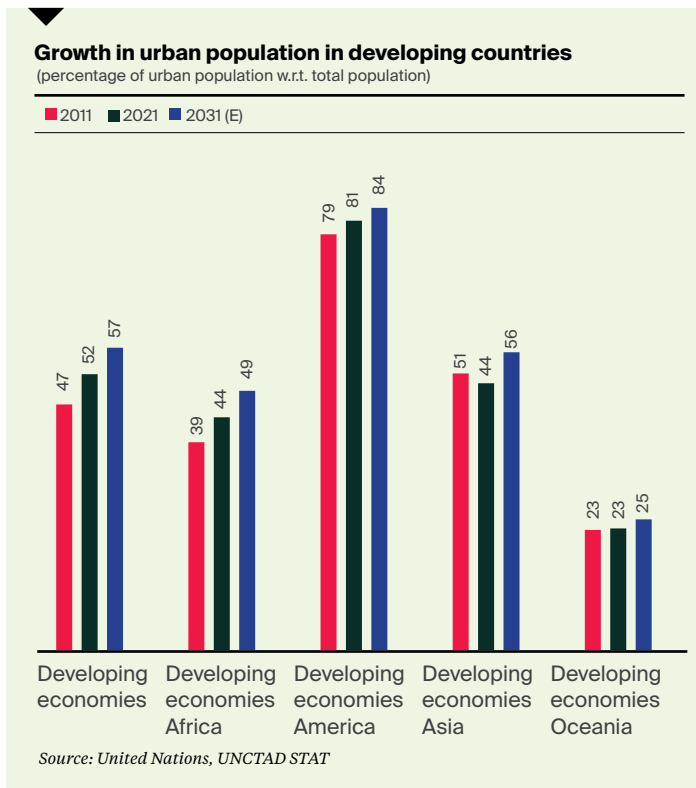
According to the United Nations data, ten years ago, 52 per cent of the population across the world lived in urban areas, at present the share has increased to 57 per cent and as per the projections, it will reach to 61 per cent by 2031. The share of urban population is much higher in the developed countries (81 per cent) than the developing countries (52 per cent) as of year 2021.

Urbanisation's biggest problem is that it has not kept pace with the housing demand of those living in towns and others migrating to cities in search of employment. With most megacities and medium-sized cities witnessing a high concentration of urban population, there has been a rising pressure on housing as well as basic urban infrastructure and services.

Share of the total population living in urban areas (2020)



Source: UN Habitat, Knight Frank Research

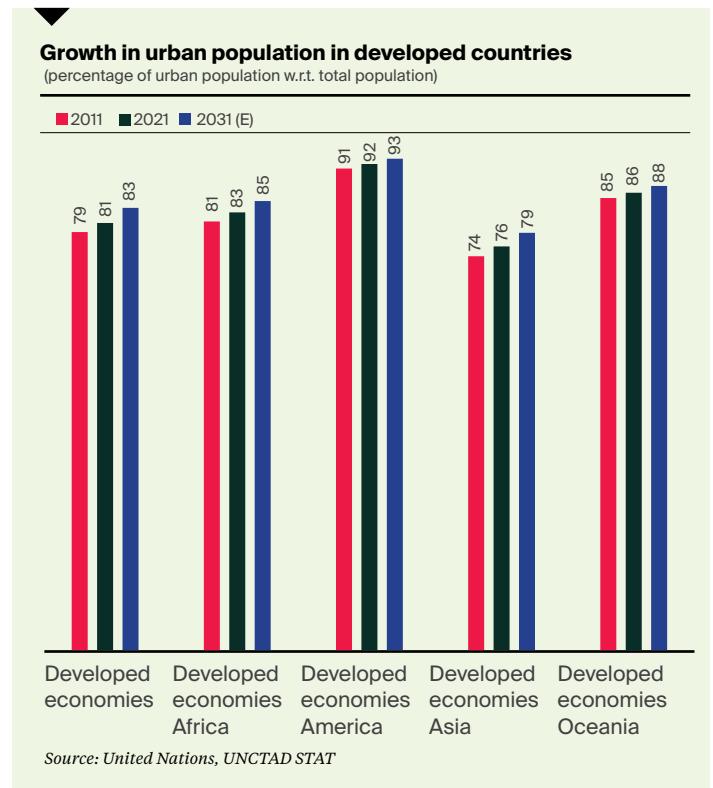


The growth in urban population is far more rapid in developing economies than developed economies,

1.3 Substandard housing: a global problem

To provide social security, housing is important because it offers protection to families from the weather and provides families a safe environment to bring up their children. Quality of living standards in urban centres is an important measure of well-being. One metric of living standards is the share of the urban population living in substandard housing / slum households. UN Habitat defines a slum household as a “group of individuals living under the same roof with inadequate/limited provision of one or more of the following conditions: access to improved water, access to improved sanitation, sufficient living area, durability of housing and lack of security of tenure”.

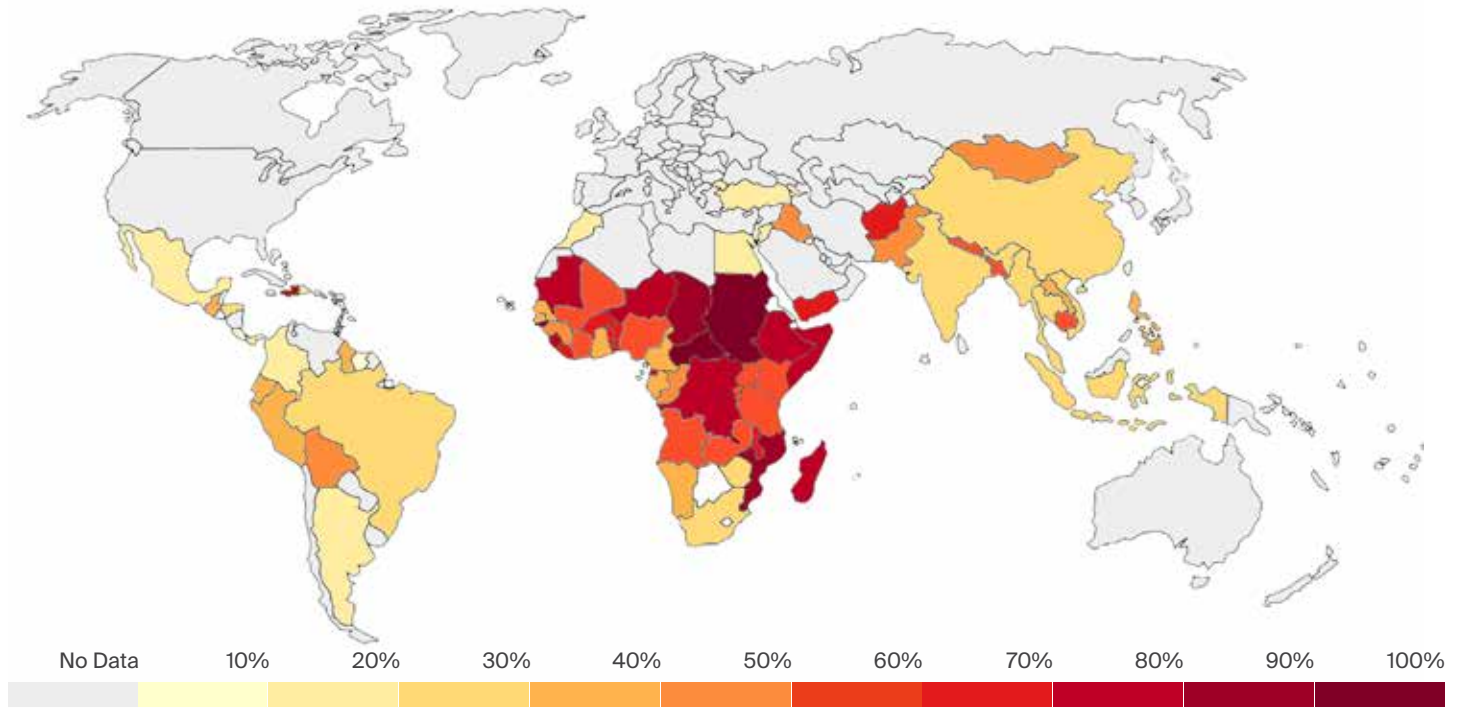
Slum areas are characterised with substandard housing, which are houses made of materials unsuitable for housing, such as plastic, earthen floors, mud-and-wattle walls, wood held together by ropes, straw or torn metal pieces being used as roofs. In some cases, brick and cement is used, but without attention to proper design and structural engineering requirements. Such structures are inadequate to withstand heavy rains, high winds, or other local regular climate conditions.



The most recent global estimates by the UN suggest that just under a third of the population in urban areas lives in slum households. Most countries across Asia and Latin America have 10 to 30 per cent of the urban population living in slum households.

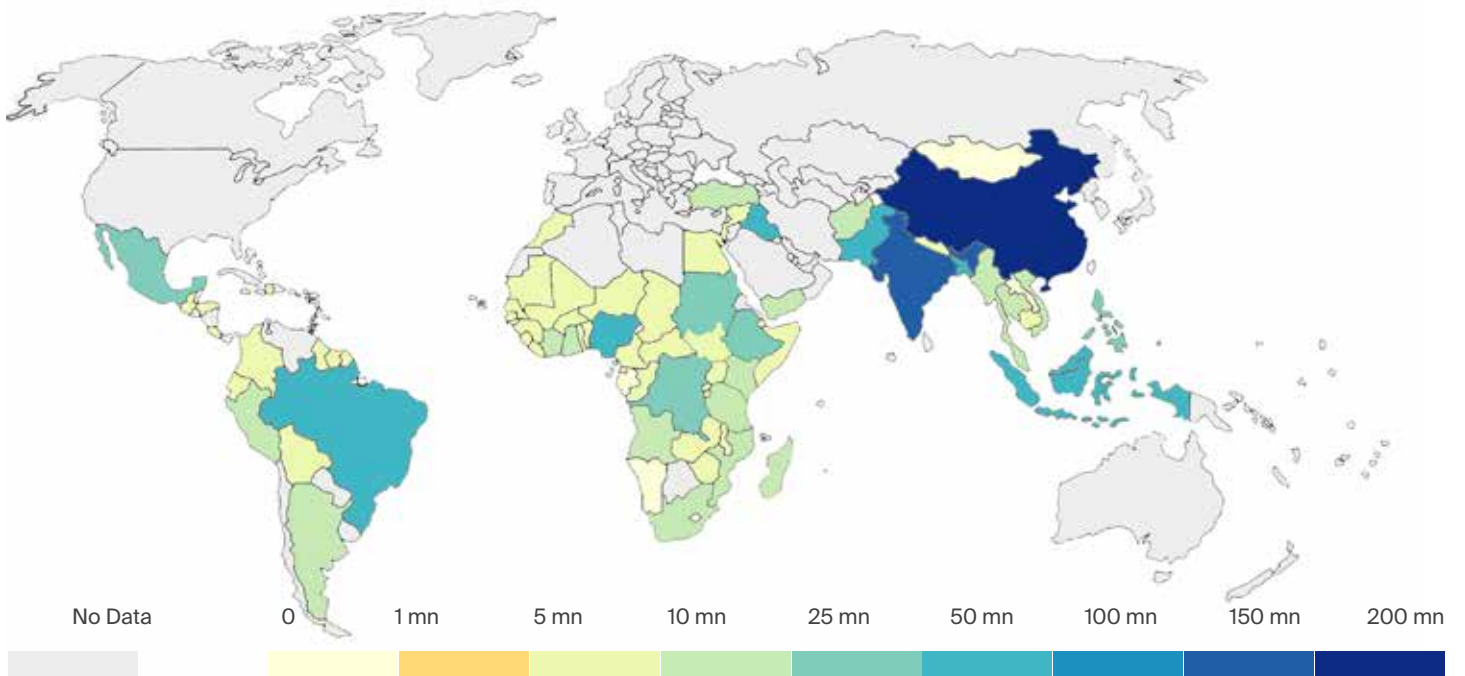
According to these estimates, a total of 1.3 bn urban population is living in substandard housing; Assuming a household size of 4, this translates to a need gap of 325 mn houses.

Share of urban population living in slums (2020)



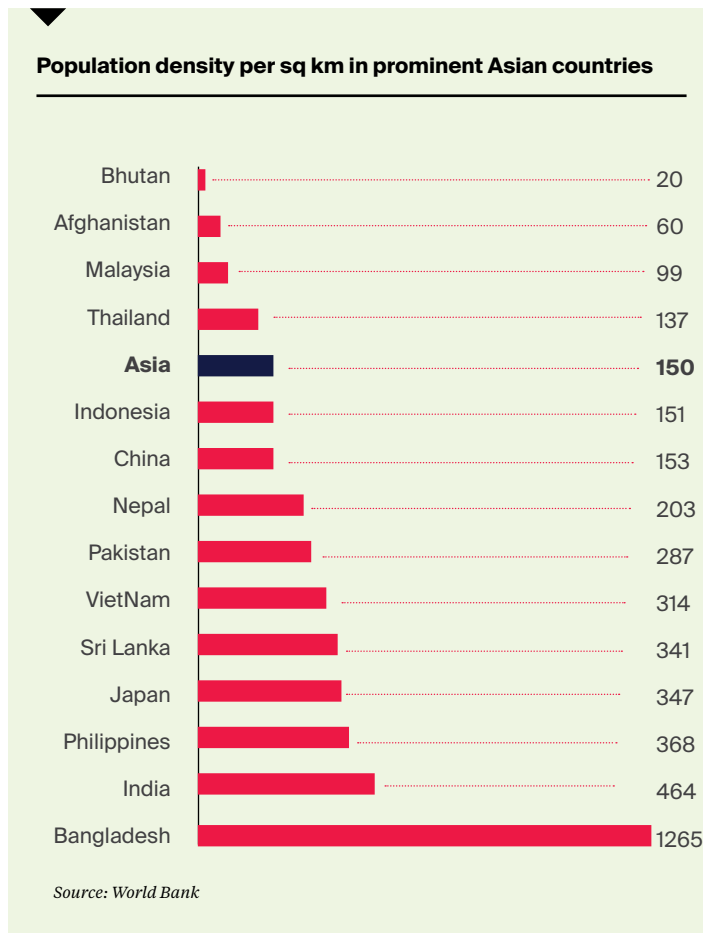
Source: UN Habitat, Knight Frank Research

Urban population living in slums (2020)



Source: UN Habitat, Knight Frank Research

There has been a strong relationship between urbanisation and income: as countries get richer, they tend to become more urbanised. Urban areas attract migrants, as they are the principal drivers of economic growth and livelihood opportunity. Urbanisation is complex, however, there are many recognised benefits of urban settings (when developed successfully) which include a high-density of economic activity, however it results in higher population density (person per sq km), i.e. less liveable space available in the country.



As per the latest World Bank data, at the global level, the Asian continent has the highest population density, i.e. 150 person per sq km, as of the year 2020, as majority of developing countries fall under the Asian continent. In South Asia, Bangladesh has the highest population density, i.e. 1,265 person per sq km, followed by India at 464.

1.4 Urban housing shortage in India

The growth of urbanisation in India has resulted in increasing pressure on the housing sector as well as the basic urban infrastructure and services provided in the cities. Substantial housing shortage looms in urban India and a wide gap exists between the demand and supply of affordable housing, both in terms of quantity and quality.

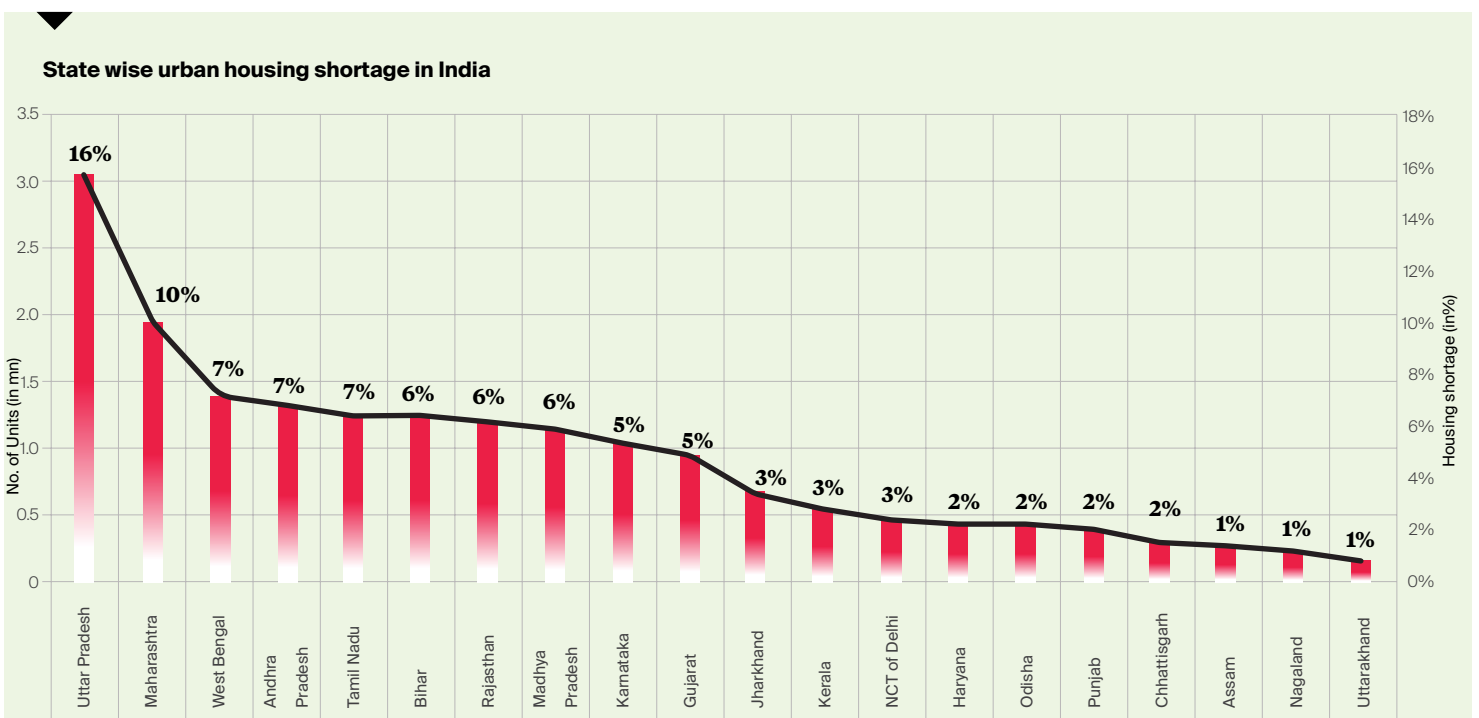
In India, where the total population is around 1.25 bn (Census of India, 2011), and the country is the second-most populated in the world, more than 31 per cent of the total population, i.e. about 377 mn, live in urban areas. This population is living in 7,933 urban centres, including 53 cities with populations above 1 mn and 3 megacities with population above 10 mn (Greater Mumbai, Delhi and Kolkata).

As per the National Commission on Population – Government of India, by year 2030 approximately 40 per cent of the total population of India would be residing in urban areas.



As per estimates from the UN, as of 2021, 35 per cent of urban population in India is living in substandard housing, which in absolute numbers is 170 mn. Considering the current average household size of 4.8, this translates to 35 mn households living in substandard housing indicating the need gap for adequate housing. The need gap for adequate housing in India is 11 per cent of the world’s housing need gap in terms of population living in substandard housing.

To further substantiate the need gap figures, the estimates from the Ministry of Housing and Urban Poverty Alleviation have been referred to, which indicated an urban housing shortage of about 18.78 mn housing units in the country in 2012. The chart below indicates the state wise bifurcation of this shortage.



1.5 Major challenges causing global affordable housing shortage

Globally, the urban housing shortage primarily comprises of low-income segment population as majority of the housing supply that is being built across urban areas is beyond their affordability. There are various supply and demand side challenges that hold back the process of bridging the need gap of affordable housing, especially in developing economies. Some of the major shortcomings leading to shortage of affordable housing are listed below:

Supply side challenges:

- Land acquisition and securing title: High population density in urban areas leads to a huge demand for urban land, thus increasing the cost of land. Unavailability of affordable land with clear title is one of the biggest barriers to creation of affordable housing in cities.
- Land Use – Zoning and regulations: Various governments can typically use two simple tools – zoning and regulation – to either restrict housing supply and inflate prices or spur growth in affordable housing units and stabilise prices. The regulatory concerns such as restricted development regulations, i.e. lower FAR, restricted height, uneven population density distribution, etc. limits the healthy supply of housing stock, resulting in high land values and income to affordability mismatch, resulting in housing shortage.
- Infrastructure: Considering the high cost of land, as well as better returns from other asset classes, it is unviable for developers to undertake affordable housing projects in prime areas. Even if affordable housing is feasible on the outskirts of the city, there is no civic infrastructure to support the same, which creates a bottleneck in the utilisation of land in the city outskirts to make affordable housing a viable proposition.
- Funding affordable housing: An adequate financing structure and funding are critical to address the affordable housing shortage. The funding instruments and sources of capital typically consist of private equity (PE) funds, developers' equity, banks, Non-Banking Financing Companies (NBFCs) and other financial institutions. Development finance can be in the form of debt or equity. Private players tend to target luxury, high-end and upper-mid housing segment owing to the higher returns that can be gained from such projects and the responsibility of provision of affordable housing mostly falls on the back of government and

social impact organisations.

- Housing design & development costs: Affordable housing developments are extremely cost sensitive, hence, the ability to efficiently manage costs is the key performance indicator for such development.

Demand side challenges:

- Affordability: Majority of the urban poor are not able to purchase a home, as even with the help of proper financing, many are not able to pay monthly installments due to the very issue of affordability.
- Determining eligibility: Demand side challenges concern the ability of urban population to rent a home or credit access to purchase a home, which includes determining the eligibility of households to access government subsidies or affordable housing programmes. Affordable housing can follow either a targeted approach or universal approach. In countries such as the US, Canada, Malaysia and India, vulnerable and low-income households are targeted for provision of affordable housing. In countries such as Singapore, Netherlands, Sweden and Denmark, the entire population is eligible for affordable housing. The prime challenge is to ensure that the scheme benefits reach to the intended beneficiary.
- Unavailability of affordable rental housing supply: Most of the urban poor, especially in developing economies, are engaged in the informal sector and are faced with income uncertainties due to the absence of job security. Moreover, they need to be mobile to respond to employment opportunities and therefore cannot afford to be rooted geographically to a single city. Given these characteristics of low-income households, rental housing can be a viable housing option for them. A rental market also makes it easier for young people to move around inside the city as their needs change in terms of proximity to educational institutions, workplaces, public transit, and social and cultural amenities.

The above stated challenges clearly indicate towards the market inefficiencies that are plaguing the sustainable development of affordable housing.

Key highlights

57%

57 per cent of the world's population lives in urban areas, as of year 2021.

150 persons per sq km

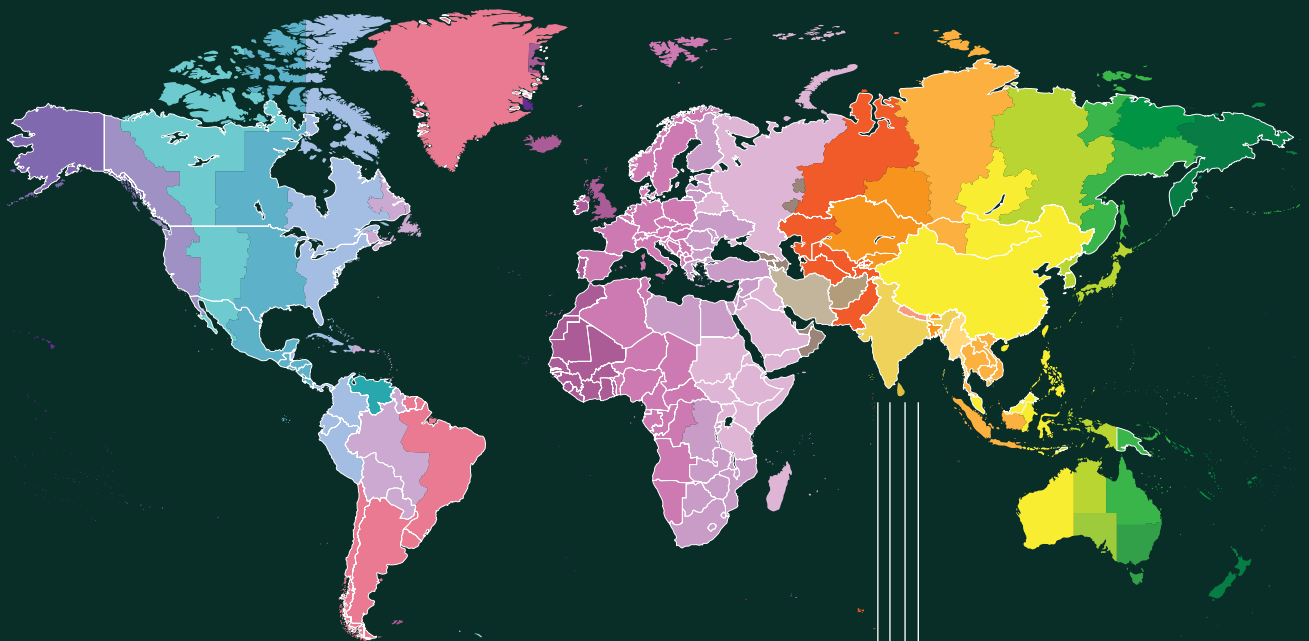
Asia has the highest population density in the world at 150 persons per sq km. In South Asia, Bangladesh has the highest population density, i.e. 1,265 per sq km.

3rd

Just under a third of population in urban areas lives in slum households.

325 mn

As per current estimates, 1.3 bn urban population globally is living in substandard housing, which translates to a need gap for adequate housing of 325 mn houses.



35%

As per the current estimates, 35 per cent of the Indian population i.e. 486 mn, live in urban areas.

464 persons per sq km

India's population density is 464 persons per sq km, the second highest in South Asia and much higher than the world's or South Asia's average.

35%

35 per cent of urban population in India is living in substandard housing, which in absolute numbers is 170 mn.

35 mn

170 mn population living in substandard housing translates into a need gap of 35 mn housing units, which is 11 per cent of the world's housing need gap.

SECTION : 2

KEY POLICY INTERVENTIONS

2.1 Affordable housing policy interventions

Affordable housing shortage exists across the globe. Countries over the years have responded to the shortage through various policy level interventions. The nature of these interventions has varied depending upon the scale of the shortage but more importantly the degree of maturity of the economy, land, real estate and financial markets. The interventions, however, can be broadly categorised as demand side and supply side interventions.

2.2 Demand side policy interventions: Global

2.2.1 Home ownership and renting assistance

Assisting homebuyers to purchase their first home has been the most frequently used policy response. Home ownership assistance has been in the form of direct subsidy to targeted first-time owners, tax breaks or in many cases interest rate subsidies.

- *Interest rate subsidies is offered in case of targeted low-income housing loans in Ireland, the Netherlands, the United States, the United Kingdom and Spain*

Many countries with well-functioning rental housing markets have introduced rental subsidies in the form of housing allowances. These are offered to people from the low-income group, in order to facilitate leasing of rental housing.

- *Low-income renters in Canada, the United States, the United Kingdom, Finland, Sweden, and Germany are offered housing allowances.*

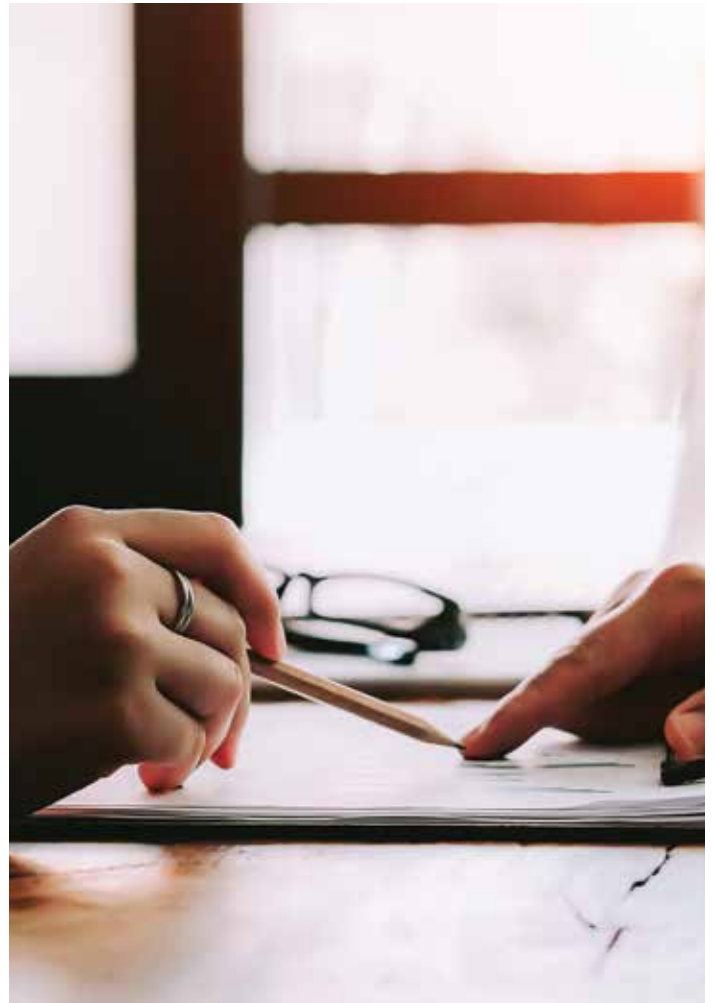
2.2.2 Compulsory saving scheme

Compulsory savings is another policy tool implemented by various countries across the globe. The schemes primarily involve a contribution being collected from employees and employers to fund the Housing Provident Fund. The proceeds are used to finance long-term mortgage loans for eligible recipients.

- *The scheme has been successfully implemented in Singapore. Singapore's Central Provident Fund (CPF) collects and utilises the proceeds for affordable housing finance.*
- *China introduced a similar scheme in 1994 through creation of China Housing Provident Fund.*
- *Indonesia (Indonesia National Housing Savings Fund) and Malaysia (Malaysia Employees Provident Fund) have also*

implemented Housing Provident Funds for affordable housing creation.

- *INFONAVIT (Instituto del Fondo Nacional de la Vivienda para los Trabajadores), in Mexico, is a pension fund supported by the mandatory contribution of workers in the formal sector, their employers, and the federal government. The programme provides loans to workers to purchase or build their own housing and pay it back at subsidised interest rates, usually over a 30-year term.*
- *Brazil has also relied, in part, on compulsory savings to mobilise capital for housing finance through its Unemployment Insurance Fund.*



2.2.3 Housing finance interventions

Development of a robust housing finance market has been a major policy intervention on the demand side. Policy measures promoting housing finance interventions have been two-fold.

First, their focus has been at increasing penetration of mortgages in the lower-income group segment. For this, countries have come up with policies to enable mortgage eligibility of workers on temporary / non-traditional employment.

Second, the focus of policy measures has been to enable Housing Finance Companies to raise the required capital. These interventions have allowed Housing Finance Companies to raise capital through secondary markets. Many policy interventions have facilitated the deployment of provident fund collections in Housing Finance Companies. Mortgage-backed securities have also been used as a tool by many countries to raise housing finance capital.

- *Singapore's housing system is government-built and approximately one third of mortgages have originated through a compulsory savings fund. This is a compulsory saving scheme where benefits are for all except second home buying or luxury property buying etc.*
- *Mongolia's housing finance corporation has devoted considerable resources to building property for private purchase among target beneficiaries, such as veterans.*
- *Several countries, including Mongolia, Indonesia and Thailand, have developed mortgage-backed securities for capital markets.*
- *Success of mortgage securitisation can also be found in Chile, where mortgage-backed securities have come to represent one of the principal mechanisms for raising housing finance capital.*
- *Other countries such as Brazil, Colombia, Mexico, Argentina, and Panama have used similar mechanisms with less robust success.*

Community mortgages have also been found to play a significant role on the demand side. In the absence of access to formal banking and credit institutions, non-profits and community-based savings and lending organisations have provided an important means for low-income groups.

- *Community mortgages are available in Indonesia, the Philippines and Thailand to access finance for acquiring land, developing sites or building homes.*

- *Indonesia's Kampung Improvement Programme (KIP) is an early example of a programme leveraging community-based organisations to plan for the improvements of urban settlements. KIP began in 1968 as a sites and services upgrading programme and has since benefited around 15 mn people.*

2.2.4 Different home ownership models

Many countries have explored different home ownership models, including shared equity, shared ownership models, tenant cooperatives, rent-to-own models and co-operative housing models.

Shared ownership schemes are a cross between buying and renting; aimed mainly at first-time buyers. With shared ownership, one can buy a fraction of a property, with an option to buy a bigger share in the property later. Buyers usually enter a shared ownership arrangement with a housing association or similar organisation, paying rent to them for the part of the property the association/ organisation owns but buyers are allowed to live in.



Shared equity schemes are based on the premise that the buyer can pay a small deposit – usually 5 per cent – and top up to 20 per cent of the purchase price with a low or no cost ‘equity loan’, with the remainder paid by his mortgage. After 25 years of the loan period, the buyer will be required to pay it off in full. The loan to be repaid will be proportionate to the value of the property at the time of the 25th year.

- *In the UK, shared ownership and shared equity arrangements are available to first-time buyers with an annual income of less than US\$82,800 who are unable to obtain a mortgage in the open market. The UK government’s shared ownership scheme is called Homebuy and their scheme for first-time buyers is First Buy.*

Tenant cooperatives are a hybrid between owning and renting. They often operate with government subsidies to provide newly built housing to low income individuals. Co-operative housing is neither rental housing nor individual ownership.

- *The National Housing Authority in Thailand sells units to low-income households on five-year hire-purchase contracts with*



Government Housing Bank providing the financing at government mortgage rates.

- *The share of tenant cooperatives is relatively high in Poland (18 per cent), Slovakia (7 per cent), Denmark (6 per cent), and Latvia (4 per cent), although in Slovakia cooperatives are closer to the equity type of housing cooperative. In Germany, tenant cooperatives account for 6 per cent of the national stock.*

2.2.5 Making private rental housing more affordable

Many governments have focused on creation of private rental housing markets. They have implemented various policy interventions aimed at reducing the risk perception and incentivising landlords to bring their properties into the rental housing markets. The policy interventions have been aimed at striking a better balance in tenancy regulations between landlord and tenant rights. Many policy interventions have focussed on introducing controls on rent increases (e.g. rent stabilisation measures). Overall, policy interventions have tried to focus on increasing transparency and enforcing rental regulations, which facilitates greater security for landlords and increased quality and security of tenure for tenants.

- *In Sweden, specific measures such as rent loss guarantees are used by some municipalities to encourage landlords to accept homeless people with low and uncertain incomes or with a poor rent-paying history.*
- *Dubai RERA (Real Estate Regulatory Authority) issues annual guidelines for rent increases, depending upon the state of the economy and housing market conditions.*
- *In Germany, private renting is around the same size as owner occupation (around 45 per cent), by far the highest share in Western Europe.*
- *The size of the private rental stock in Finland and Sweden is also significant, due to rental housing policies pursued in these countries.*
- *In Singapore, Purpose Built Worker Accommodation (PBWA) is another popular form of private operated rental housing format for migrant workers.*

2.3 Supply side policy interventions: Global

2.3.1 Expanding supply of affordable and social housing

Governments have focussed policies on creation of affordable housing supply. This has been done through fiscal framework changes to influence increased affordable housing supply. Developers have been offered subsidies (capital and non-capital in the form of eased development controls) to improve the attractiveness of the affordable housing business model.

Hong Kong's Private Sector Participation Scheme (PSPS) To provide an additional source of subsidised ownership housing, the government introduced the PSPS in 1977 to supplement the Home Ownership Scheme (HOS) by inviting participation of private developers. Under the PSPS, private developers were invited to tender for housing sites on which they were required to build flats conforming to certain specifications stipulated by the government. Like other government land sales, the land title of a PSPS site was vested in the developer. Under the 'Conditions of Sale' for PSPS projects, the Housing Authority (HA) was named to nominate eligible purchasers to purchase the flats from the developer concerned within a specified period. In the event that flats remained unsold at the end of the specified period, the HA was obliged to purchase the flats at the guaranteed purchase price.

Governments have also created policy and institutional framework to support direct investment in social and/or affordable housing construction. Programmes in Hong Kong, China and Singapore are better models for publicly subsidised, targeted, low-income housing.

- In Singapore, nearly 80 per cent of residents live in housing built by the government's Housing and Development Board (HDB) and approx 90 per cent of these residents own their home. HDB and the sole agency in charge of public housing with effective resource planning and allocation with an approach covering all the aspects, viz. planning and design, land assembly, construction, allocation, and maintenance receiving support from the government in the form of political and financial commitment, complemented by legislation.
- China – Comfortable Housing Project (1995) changed to Economic and Comfortable Housing (ECH) (1998). ECH is designed to be available to middle to low-income households, including public-sector employees, to encourage home ownership. Eligibility criteria consists of residence of place as urban, annual household income, housing floor area per person, household previous homeownership





record and total asset of the household. In general, the Chinese central government sets policies and mandates with respect to affordable housing, and the subnational governments, cities in particular, are responsible for the construction, financing, and management of that housing.

- Hong Kong – Housing Authority’s Home Ownership Scheme: Home Ownership Scheme (HOS) is designed to assist residents to buy their own home. HOS flats are subsidised public housing and the buying, selling and mortgage of these flats are subject to certain restrictions. HOS flat owners, from the third year onwards from the date of first assignment, may sell their flat in the HOS Secondary Market to tenants of rental housing estates managed by the HA or the Housing Society (HS), authorised residents of Interim Housing managed by HA, or holders of Green Form Certificate issued by the Housing Department (HD) without payment of a premium to the HA. Owners who have sold their flats and their spouses are not eligible to join any of the subsidised housing schemes administered by the HA (including public rental housing, HOS, PSPS, HALS, HOS Secondary Market Scheme, TPS) and any subsidised scheme administered by the HS.*
- Malaysia’s public low-cost housing programme ((PLCHP) is aimed at direct supply of low-income housing. PLCHP is the main housing programme formulated by the Federal government to accomplish the objective of providing affordable housing for persons from the lower income group. The state government is responsible for planning, implementing and administering the programme and is assisted by the Federal government through the National Housing Department (NHD), especially on technical matters. Meanwhile, the state government has to identify suitable state land for the projects. Low cost houses built under this programme are either for sale or for rent for a number of years with the option to buy. Therefore, eventually all the rental houses were sold to the tenants under the hire-purchase scheme. PLCHP schemes also provide integration among the various racial groups in Malaysia, since the housing allocation was based on the racial composition. Maximum selling price is fixed for PLCHP housing and the eligibility criteria is based on annual household income and size of the unit.*
- Vietnam National Affordable Housing Programme (2015): Three flagship initiatives have been taken under this programme, viz. Housing Finance assistance, Affordable Rental initiative and Starter Home initiative. Two structural reforms, viz. institutional strengthening and urban tax land reform have been undertaken to achieve the housing goal by 2040.*

2.3.2 Public rental housing schemes

Governments across the world have also created policy and institutional frameworks to support direct investment in public rental housing creation. Public rental units are presently a significant portion of the rental housing stock in many countries. Many governments have also focussed on policy guidelines and institutional arrangements for non-profit professionally managed organisations to be brought in to manage the public rental housing stock.

- *Austria (30 per cent), Denmark (21 per cent) and Sweden (16 per cent) have the highest rate of supply of social housing followed by Finland, the UK, and the Netherlands with rates in the range of 12 per cent.*
- *Several countries (Poland, the Czech Republic and Slovakia) have initiated new social housing programmes in recognition of their importance for many groups in society.*
- *Hong Kong has 30 per cent share of public rental housing in overall housing stock, supported by a long-term government commitment to rental housing.*
- *China (with 8 per cent existing share) has also moved toward massive public investment in affordable rental housing. The Cheap Rental Housing Guarantee Plan aims to construct 7.5 mn subsidised rental units with funding from the central government, offset in part by contributions of local governments. Korea (with 9.7 per cent existing share) has set a goal to construct one mn new 30-year lease rental units targeted to workers in urban areas.*
- *The UK's Arm's-Length Management Organisations (ALMOs) comprise 1 mn public housing across 66 local authorities, which are run by the ALMOs. ALMOs are not-for-profit companies that provide housing services on behalf of local authorities (usually on a 5 or 10-year contract).*
- *In Australia, the Management Outsourcing Program aims at transfer of tenancy and property management (but not the ownership) of public housing properties to registered community housing providers (CHPs). As not-for-profit organisations, CHPs have access to a range of tax benefits.*

2.3.3 Improving housing and neighbourhood quality

Many policy interventions have been aimed at boosting investment

in urban renewal strategies and reducing spatial segregation. Many interventions have also aimed at providing financial support to individual households to improve housing quality.

- *Brazil is using public-private partnerships to redevelop city land and create space for affordable housing in the centre of São Paulo.*
- *Mexico has succeeded at providing subsidies and is now recalibrating its policies to promote better located housing.*
- *Colombia is renewing its underutilised downtown areas. Medellin is piloting 'tax-increment financing' (a model to capture increases in land values) to finance this remodelling.*

2.3.4 Planning reforms

Policy interventions aimed at increasing the supply and controlling the price for land dedicated for affordable housing creation has been exercised by many countries. They have implemented reforms to local planning, land-use, and zoning regulations. This includes legislation allowing governments to impose mandates for inclusive zoning or mandatory set-asides for affordable housing in new developments. The units are assigned long-term price limits that are affordable for the target segment.

Generally, developers who are allowed to increase density may obtain access to public land or may be eligible for certain tax or construction finance breaks in exchange for setting aside units for low-income groups.

Several countries have introduced initiatives to supply social housing with subsidies, e.g. England, Denmark, Ireland, the Netherlands, Finland, and Germany. These mechanisms depend on local governments supplying free or low-cost land and use of the planning system to enable land provision.

- *In Dublin, private developers must transfer 20 per cent of new dwellings on large development sites to the city for use as social or affordable housing.*
- *Cities such as Munich are also requiring private developers to include a certain percentage of social housing in new developments.*
- *In England, between 20 and 50 per cent of larger, new and regeneration developments must be for affordable housing.*

2.3.5 Land pooling, readjustment, and Land Value Capture (LVC)

Land pooling and readjustment strategies help local authorities subsidise future developments by capturing a portion of land value increase between undeveloped (pre-readjustment) plots and planned readjusted plots, well serviced by urban infrastructure.

- *In Japan, approximately 30 per cent of the land has been developed using land readjustments.*
- *The land pooling arrangements also exist in France and Germany, where landowners have financial incentives to make land collectively available for housing.*
- *Colombia has capitalised on urban growth to create resources for expanding land supply for the urban poor. The programme Nuevo USME is authorised by Colombian legislation to recover a 30 to 50 per cent increment of the equity gained by private properties that have recently benefited from regularisation, infrastructure improvements or changes in land use. This land value recapture is channelised to fund future land purchase or grants for affordable housing construction. Similar arrangement can be seen in other countries in various forms viz. TP scheme in Gujarat in India is used in similar manner to create land bank for different govt initiatives for public amenities.*

2.4 Policy response to affordable housing shortage in India: a brief history

Housing policies have come a long way post-Independence in India. The initial two decades saw a lack of focus on housing with the priority being capital goods and infrastructure sectors. This was based on an argument that higher the growth rate of production of capital goods, the ultimate growth rate of the economy would be higher.

The next two and half decades from 1965 to 1990 saw the setting up of the housing finance backbone of the country. It was only in the 1980s that housing finance came into the picture in a meaningful way. This period saw the setup of HDFC, LIC and HUDCO. Post-liberalisation era (1991–2000) witnessed the change of role of the government from a provider to an enabler. During this era, urban housing issues were recognised for the first time and a separate policy and implementation approach was created that was different from the rural area.

The ‘Economic Globalisation’ era (post 2000) is distinctly characterised by its focus on urban centres. A major urban-focused

capital investment and urban reform programme called Jawaharlal Nehru National Urban Renewal Mission (JNNURM) was launched in 2002. This particular programme took several drastic steps towards addressing housing shortage by modifying present land related laws, reforming the property tax system and repealing the Urban Land Ceiling and Regulation Act (ULCRA), which were the major hindrances behind the slow-paced housing market.

In 2011, Rajiv Awas Yojna (RAY) was launched which was a focussed policy to address urban housing problems. Slum redevelopment was the major focal point of this policy, while affordable housing in participation with private players, increase of FSI/FAR as incentive to developers, single window clearance, master plan amendments, improving access to credit, addressing lease and tenure rights, etc. also had its fair share in this policy framework.

In May 2015, Rajiv Awas Yojana was rolled over into the Housing for All (HFA) by 2022 policy. This marked a major shift in focus towards actual on-ground delivery of houses.





HOUSING FOR ALL UNDER PMAY

Under the Housing for All policy, Pradhan Mantri Awas Yojna is the umbrella scheme at the national level which is further divided into Pradhan Mantri Awas Yojana – Urban (PMAY-U) and Pradhan Mantri Awas Yojana-Rural (PMAY-G). In 2017, under PMAY (U), the government had set a target to achieve completion of 10 mn housing units by 2022. Pradhan Mantri Awas Yojna is being implemented through four verticals giving an option to beneficiaries, urban local bodies (ULB) and state governments. These four verticals are as below:

“In Situ” Slum Redevelopment

Using land as a resource

With private participation

Extra FSI/TDR/FAR if required to make projects financially viable

Affordable Housing Credit Linked Subsidy Scheme

Interest subvention subsidy for EWS and LIG for new house or incremental housing

EWS: Annual Household Income upto INR 0.3 mn and house size upto 30 sq m carpet area

LIG: Annual Household Income between INR 0.3 - 0.6 mn and house sizes upto 60 sq m carpet area

Affordable Housing in Partnership

With private sector or public sector including Parastatal agencies

Central Assistance per EWS unit in affordable housing projects where 35% of constructed houses are for EWS category

Subsidy for beneficiary-led individual house construction or enhancement

For individuals of EWS category requiring individual house

State to prepare a separate project for such beneficiaries

No isolated / splintered beneficiary to be covered

Source: PMAY (Urban) document by HUDCO

2.5 Demand side policy interventions: India

2.5.1 Housing finance interventions

Demand side policy intervention under PMAY (U) can be broadly categorised as housing finance intervention. Both the sub-schemes help the beneficiary to own housing while aiding the affordability either via interest subsidy or via monetary assistance towards building or repairing houses.

PMAY (U): Credit Linked Subsidy:

Since 2009, the central government has provided an interest subsidy to the lower income households for house purchases. The Interest

Subsidy Scheme for Housing the Urban Poor, targeted at the EWS and LIG segments of urban population, was designed to promote housing loans and increase home ownership. The scheme was rolled over under the PMAY scheme in 2015 as Credit Linked Subsidy Scheme.

This sub-scheme enables urban poor to take a loan from banks, HFCs, NBFCs or such institutions for their housing needs with an interest subsidy at the rate of 6.5 per cent for a tenure of 20 years or during tenure of loan, whichever is lower.

For EWS and LIG category, credit linked subsidy will be available only for loan amounts upto INR 0.6 mn and additional loans beyond INR 0.6 mn, if any, will be at non-subsidised rate. In the MIG-I category, an interest subsidy of 4 per cent has been provided for loan amounts up to INR 0.9 mn, while in MIG-II category, an interest subsidy of 3 per cent has been provided for loan amount of INR 1.2 mn.

Beneficiaries by income groups	Economically Weaker Section	Lower Income Group	Middle Income Group 1	Middle Income Group 2
Annual family income (in INR 1000)	up to 300	between 300 and 600	between 600 and 1200	Between 1200 and 1800
Loan eligible for subsidy (in INR 1000)	Up to 600	Up to 600	up to 900	Up to 1200
Maximum loan tenure	20 years	20 years	20 years	20 years
Credit Linked Subsidy rate	6.50%	6.50%	4%	3%
Carpet area of house	Up to 30m ²	Up to 60m ²	Up to 160m ²	Up to 200m ²

Source: Ministry of Housing and Urban Affairs

While the other pillars of the Housing for All programmes are centrally sponsored schemes implemented by the state government agencies, this is a central government scheme implemented through banks and housing finance companies.

PMAY (U): Subsidy for beneficiary-led construction or enhancement:

This sub-scheme provides INR 0.15 mn central government assistance to individual families belonging to the EWS category to either construct a new house or enhance their existing house. Beneficiaries desirous of availing this assistance should approach the Urban Local Bodies (ULBs) with adequate documentation regarding availability of land owned by them. The state government has the

flexibility of providing their own assistance under this scheme. Further, the last 20 per cent instalment of central government assistance is disbursed after the completion of the house.

Few states, like the Government of Jammu & Kashmir, provide INR 0.2 mn interest-free loan for PMAY (U) beneficiaries for the EWS category under this sub-scheme.

2.6 Supply side policy interventions: India

2.6.1 Expanding supply of affordable housing

Supply side policy interventions under PMAY (U) are mainly intended to expand the supply of affordable housing for EWS and LIG

segments. Improving housing and neighbourhood quality, especially in slum areas, is another prominent driving factor behind these sub-schemes.

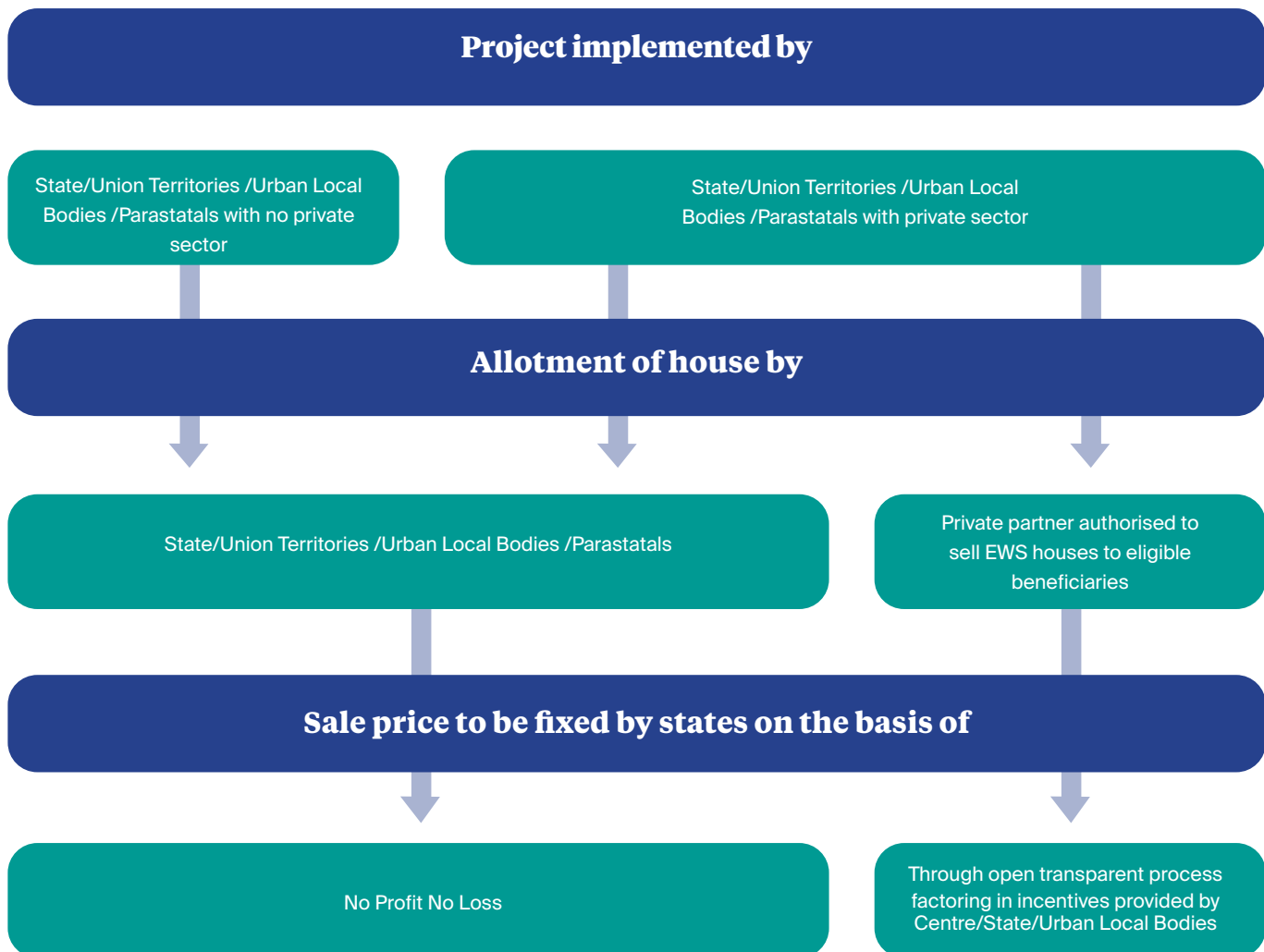
PMAY (U): In-situ slum redevelopment

This sub-scheme has focussed on unlocking the potential of land as a resource for both government owned and privately held land. On an average, INR 0.1 mn per house is being provided as a central government grant managed by states and Union Territories with some amount of flexibility. It is being implemented in partnership with private bodies, while giving extra FSI/TDR/FAR as incentive to developers, where it is required. It serves both the purpose of de-notifying slums while rehabilitating slum dwellers in formal housing

and using the remaining land for commercial purpose.

Affordable housing in partnership

The government is providing financial assistance to private developers for the EWS houses being built with different partnerships by states / Union Territories / cities. Central government assistance at the rate of INR 0.15 mn per EWS house is granted for all EWS houses in such projects. Also, states and cities provide for other types of incentives like land at affordable cost, stamp duty exemption, etc. Projects with at least 250 houses, 35 per cent of which are for EWS category, are eligible under this scheme. The sale prices are fixed either on the project basis or city basis using the following principles:



Source: PMAY document by HUDCO

Tax benefits to developers Section 80IBA of the Income Tax Act entitles the developers of affordable housing projects to claim deduction of 100 per cent of the profits, provided the project meets certain conditions.

Initiative by various state governments

Further, state governments also provide an assistance amount per EWS house for projects made under the Affordable Housing in Partnership (AHP) scheme. State governments have also introduced different development control relaxations to incentivise private developers. Following are few examples:



Maharashtra

Incentives for developers to construct affordable housing are as follows:

- Floor Space Index (FSI) for Residential zone projects and 1 FSI for Green/NDZ zone projects
- INR 0.10 - 0.25 mn subsidy per EWS house depending on eligibility under different state schemes.
- Stamp duty at INR 1,000 only per EWS and LIG Dwelling Units (DUs)
- Joint Measurement Charges at 50 per cent prevailing rate
- Exemption in Development charges
- FSI Premium relaxation in specific cases



Gujarat

- INR 0.15 mn subsidy per EWS house
- A Residential Affordable Housing Zone has been created in Ahmedabad. With this, planning norms specific to affordable housing have also been laid down for inclusive planning for the first time. Building bye-laws and zoning regulations, including relaxations in height restriction are also being offered to boost construction of affordable housing developments.
- The Town Planning Schemes (TP Schemes) are deployed to create land banks, which in turn are used for affordable housing projects under PPP in some cases.



Uttar Pradesh

- INR 0.1 mn subsidy per EWS house



Telangana

- In case of affordable housing projects, the developer shall be provided double of the permissible FAR



2.6.2 Public Rental Housing Schemes

According to the 2011 census, 28 per cent of the population in urban India lives in rental housing, however since independence, the policy focus has always been on homeownership; rental housing was the prerogative of the private sector only. In 2015, the Draft Rental Housing policy was introduced. However, the policy did not get notified after that. In 2020, the central government has taken one significant step towards introducing an affordable rental housing scheme in India via the Affordable Rental Housing Complex Scheme (ARHC) under PMAY (U). More recently in June 2021 govt has introduced Model Tenancy act which is another significant step to boost rental housing.

Affordable Rental Housing Complexes (ARHCs):

The ARHC has been envisaged as a sub-scheme under PMAY-U with a view to provide ease of living to urban migrants engaged in informal sectors of the economy. During the lockdown, migrant workers suffered the most, as a result of poor communication and lack of welfare schemes. ARHC will help unlock existing vacant housing stock and make them available for affordable rental. It will also encourage investment and promote entrepreneurship in the rental housing sector by providing the right incentives for private companies and public entities to utilise their vacant land for developing ARHCs.

Key Highlight of ARHCs is as follows

What is ARHC?

ARHCs mean a listed project with a mix of atleast 40 Dwelling Units (DUs) and Dormitories along with basic civic infrastructure facilities such as water, sanitation, sewerage/septage, road, electricity along with necessary social / commercial infrastructure for urban migrant/poor of EWS/LIG categories

Who are the Beneficiaries?

Beneficiaries belong to EWS/LIG categories who are Urban migrants, Street vendors, rickshaw pullers, industrial workers along with market/trade associations, educational/health institutions, hospitality sector long term tourists/visitors, students or any other category

Size of DU

DUs will comprise of single bedroom upto 30 sqm, double bedroom upto 60 sqm with living area, kitchen, toilet and bathroom and Dormitory Bed of upto 10sqm carpet areas each

Rent to be decided

Initial rent of ARHC will be fixed by local authorities / entities based on local survey of surrounding area where project is situated and shall be operated for a minimum period of 25 years.

Source: Roadmap to Rental Housing in India (Primus Partners, Invest India & Gesture)

The ARHC scheme shall be implemented with two models:

Model 1: Converting existing government funded vacant houses of JNNURM and RAY in cities into ARHCs through Concession Agreement for 25 years.

Model 2: Construct, operate and maintain ARHCs by private entities / public agencies on their own available vacant land.

Benefits for developers:

Exemption of GST

Exemption of GST on any profits and gains derived from operation of ARHCs at par with rental services of residential premises.

Exemption of Income Tax

Exemption of Income Tax on any profits and gains derived from operation of ARHCs on similar lines as that of 'Affordable Housing' under section 80-IBA of Income Tax Act 1961

Project finance through AHF

Project finance loan at lower interest rate through concessional window under Affordable Housing Fund (AHF) by HFCs and priority sector lending (PSL)

Municipal Charges

Municipal services such as water supply, electricity, house property tax, sewerage charges etc. for operation of ARHCs will be levied as par with residential projects rather than higher rates for commercial projects.

Single window clearance

State/UTs/ULBs/Parastatals shall follow single window system for approval of design/drawings and other statutory approvals within 30 days, after which proposed project will be considered as deemed approved for construction.

Specific Model-2 Incentives

Only for Model-2

- Technology Innovation Grant for innovative technology projects
- 50% additional FAR free of cost
- "Use Permission" changes for houses on vacant land.

Trunk Infrastructure

Necessary trunk infrastructure facilities like road, sanitation, water sewerage/septage, etc. up to project site will be provided by states/ UTs without any additional cost to concessionaire.



Source: Roadmap to Rental Housing In India (Primus Partners, Invest India & Guesture)

2.6.3 Construction finance interventions

- **SWAMIH Investment Fund:** The fund has been set up by the Government of India to help the affordable and mid-income segment housing projects stuck due to funding crisis. A Special Window has been formed to complete the construction of stalled RERA-registered affordable and mid-income category housing projects that are stuck due to paucity of funds. The Fund is expected to provide relief to homebuyers and fast track stalled projects by providing last-mile funding on a last in, first out (LIFO) basis.
- **FDI Relaxation:** Relaxed FDI norms to attract investments in building townships, housing and infrastructure
- **NIIF:** National Investment and Infrastructure Fund or NIIF has been set up to attract investment from both domestic and international financial sources for infrastructure development in commercially viable projects, e.g. NIIF has invested US\$88 mn in HDFC Capital Affordable Real Estate – 2 (HCARE-2) Fund for the development of affordable housing in the country.
- **RERA:** Approved in 2016 by both houses of the parliament, the Act aims to regulate and promote the real estate sector, protect the interest of consumers, ensure sale of plot, apartment in an efficient and transparent manner and establish an adjudication mechanism. The Act has brought transparency in the sector, hence increasing the confidence of various funding agencies.
- Refinance Scheme for construction finance for affordable housing by National Housing Bank (NHB) aids the market supply for affordable housing by concessional finance assistance to developers to develop affordable projects through scheduled commercial banks and Housing Finance Companies.
- Relaxation in External Commercial Borrowings (ECB) framework by RBI to allow developers to raise funds through ECB for low cost affordable housing projects and slum rehabilitation projects as part of infrastructure sector.

2.6.4 Other recent interventions

The Indian real estate sector has been undergoing a transformation over the past five years. It is evolving from an opaque, slow moving business that heavily favoured the developer to a well-regulated, transparent business that fosters an increasingly buyer-friendly environment and helps the long-term health of the market. Central government measures such as the Real Estate (Regulation and

Development) Act (RERA), 2016, Benami Transactions Amendment Act, 2016, 'Housing For All' initiative and the granting of infrastructure status to affordable housing have radically impacted residential market dynamics, giving a significant boost to affordable housing development in India.

Measures taken by the government, such as GST rate cut from 8 per cent to 1 per cent for the affordable housing segment have been made to help the EWS section access affordable housing. As per GST council, affordable housing is defined as housing units valued less than INR 4.5 mn with unit carpet area of up to 60 sq m in metro cities and up to 90 sq m in non-metro cities.





Model Tenancy Act (2021):

The Union Cabinet's move in June 2021 to approve the Model Tenancy Act, 2021, signals the creation of an organised rental housing marketplace and will act as a catalyst to augur the rental housing supply in India. Once implemented, this policy adaptation will provide for market conditions to support private players and investor participation in rental housing as a business model.

The Model Tenancy Act, 2021 aims to balance the scales for both landlords and tenants, so that perceptions about rent control laws favouring tenants can go away and a transparent and speedy regulatory environment can be created for resolution of disputes between both parties.

Major Highlights of the Act:

- **Creation of a three-tier redressal structure**, comprising Rent Authorities, Rent Courts and Rent Tribunals, to create a fast-track quasi-judicial mechanism for adjudicating disputes. The cases need to be closed within 2 months.
- **Security deposit demands capped:** The Act puts a lid on the security deposit to be paid by a tenant in advance to - a) not exceed two months' rent in case of residential premises, and b) not exceed six months' rent in case of non-residential premises, thus taking away the freedom of contracting and improve dispute resolution.
- **Rights and obligations of landlords and tenants:** The Act defines the do's and don'ts for each party and covers aspects such as retention of original tenancy agreements, rents and other charges payable, repair and maintenance of the property, entry into premises, and consequences of violation of necessary duties.
- **Eviction of tenant and recovery of possession of premises by the landlord:** By limiting the grounds for eviction and termination of tenancies, this Act seeks to bring a consistent approach towards addressing these issues at the ground level.
- **Role of property managers:** The Act provides for the definition of property managers, their duties, and consequences of violation and fixes accountability.

2.7 Global vs India affordable housing policy comparison

Policy Focus	Demand Side / Supply Side	India	Korea	Thiland	Singapore	China	Hong Kong	Indonesia
Home Ownership , Rental Assistance								
Home ownership assistance. Fiscal benefits to First-time homeowners to better target households in greatest need;	Demand Side	Yes	Yes	Yes	Yes			Yes
Housing Allowance to Low-income renters.								
Interest subsidies on purchase of affordable housing.		Yes						
Compulsory savings schemes								
Housing Provided Funds	Demand Side				Yes	Yes		Yes
Housing Finance Interventions								
Enable mortgage eligibility of workers on temporary/non-traditional employment.	Demand Side	Yes		Yes	Yes			
Mortgage Backed securities, to generate funds for affordable housing finance		Yes		Yes				Yes
Community Mortgages.		Yes		Yes				Yes
Different Homeownership models								
Explore different home ownership models, including shared equity and shared ownership models.	Demand Side			Yes				
Rent to own models				Yes				
Tenant cooperatives to provide affordable housing								
Make the private rental market more affordable								
Strike a better balance in tenancy regulations between landlord and tenant rights. Introducing controls of rent increases. Increasing transparency and enforcement of rental regulations	Demand Side	Yes				Yes		

Philippines	Mangolia	United Kingdom	Germany	Finland	Denmark	United States	Canada	Australia	Brazil	Mexico	Colombia
	Yes		Yes			Yes	Yes		Yes	Yes	Yes
		Yes	Yes	Yes		Yes	Yes				
		Yes				Yes					
Yes										Yes	
	Yes									Yes	
	Yes								Yes	Yes	Yes
Yes											
		Yes				Yes					
			Yes		Yes						
			Yes	Yes			Yes				

Policy Focus	Demand Side / Supply Side	Korea	Malaysia	Thailand	Singapore	China	Hong Kong	Indonesia
Expand the supply of affordable and social housing								
Fiscal frameworks changes to influence increased affordable housing supply.	Supply Side	Yes				Yes	Yes	
Direct investment in social and/or affordable housing construction.	Supply Side	Yes			Yes	Yes	Yes	
Public Rental Housing								
Invest in public rental housing.	Supply Side	Yes	Yes	Yes	Yes	Yes	Yes	
Improve housing and neighbourhood quality								
Invest in urban renewal strategies and reduce spatial segregation.	Supply Side							
Planning Reforms								
Reforms to local planning, land-use and zoning regulations	Supply Side		Yes					
Land Pooling, Readjustments and Land Value Capture								
Land pooling and readjustment strategies. Land Value capture	Supply Side		Yes	Yes		Yes		Yes

Key takeaway

Historically, Indian policies were mainly focussed on homeownership, housing subsidies by different government bodies can be singled out as the most popular mechanism applied to solve the affordable housing crisis till the last decade. However, in the past decade with the introduction of Rajiv Awas Yojna (RAY) and then PMAY policy, the government has focussed on an enabling mechanism to provide housing to EWS and LIG category population in the Indian scenario.

In the Indian context, the focus is currently on housing finance mechanism from demand side perspective and also on expanding affordable housing supply while improving the housing and neighbourhood quality.

Mangolia	Mayanmar	Papua New Guinea	Fiji	Solomon Islands	Japan	United Kingdom	Germany	France	Finland	Sweden	Poland
	Yes	Yes			Yes			Yes			
									Yes	Yes	Yes
Yes		Yes	Yes		Yes			Yes			
	Yes		Yes						Yes	Yes	Yes

Through the policy interventions like In-situ slum redevelopment and Affordable Housing in Partnership, private players like developers, contractors, PE funds, etc. are being encouraged to participate in this sector.

For the first time, in the year 2020, the Government of India put focus on the rental housing policy through ARHC and Model Tenancy Act. These policies will encourage both government bodies as well as the private sector to work in the rental housing sector.

SECTION : 3

POLICY IMPACT WITH CASE STUDIES

Housing policies have always been crucial for development of any nation. Housing being a basic and primary need of citizens, housing policies are expected to cater to that need successfully. Some countries around the world have done an exceptional job of catering to the housing needs of its citizens, while some are still trying to catch up. The previous section explained various policy initiatives undertaken by governments across the globe and in India to tackle the affordable housing shortage. In this section, some of those policies have been analysed in detail with case studies to understand the actual benefits and impact on ground in qualitative as well as quantitative terms.

3.1 Global policy impact

In the following section two such examples have been discussed that are regarded as exemplary successes of housing policy worldwide:



The Housing & Development Board (HDB) is the key pillar of Singapore's housing system. It began operations on 1 February 1960. In its initial years of operation, HDB followed the British public housing model of providing only rental units. It began offering housing units for sale on 99-year leasehold basis from 1964 under its Home Ownership for the People scheme.

Price subsidies and housing grants are given to eligible households at the point of purchase and not deferred. Government support for HDB is in the form of:

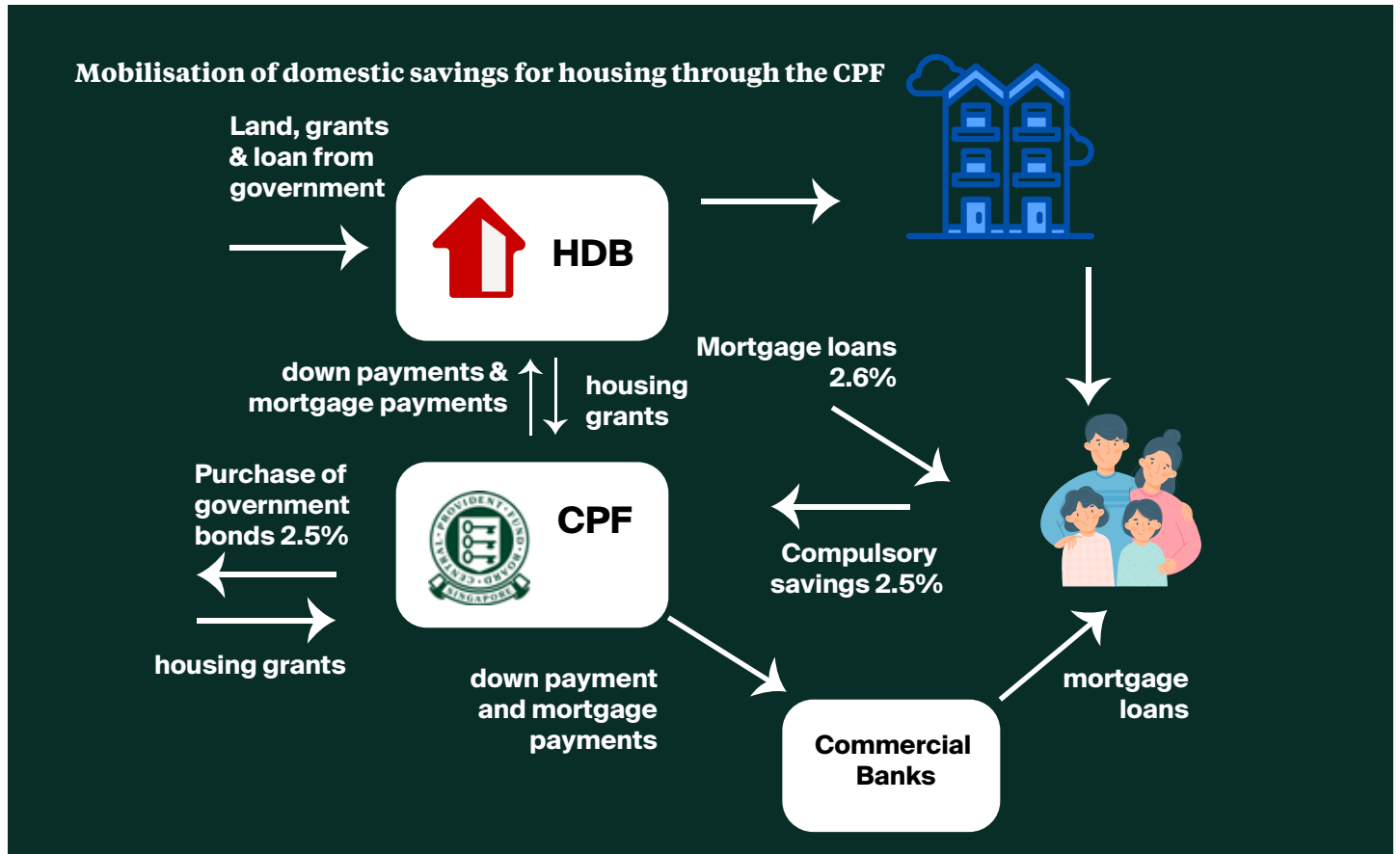
- (i) annual grants from the current budget to cover its deficits incurred for development, maintenance, and upgrading of estates;
- (ii) loans for mortgage lending and long-term development purposes; and
- (iii) land allocation for HDB housing and comprehensive HDB town planning.

Housing Stock, Housing Supply, and Homeownership Rate, 1970–2015

Year	Population ('000)	Total Housing Stock (units)	HDB Housing (units)	HDB Dwelling as proportion of housing stock (%)	Resident Homeownership rate (%)
1970	2,075	305,833	120,138	39%	29%
1980	2,414	467,142	337,198	72%	59%
1990	3,047	690,561	574,443	83%	88%
2000	4,017	1,039,677	846,649	81%	92%
2010	5,076	1,156,732	898,532	78%	87%
2015	5,535	1,296,304	968,856	75%	90%

Source: Asian Development Bank: Housing Policies in Singapore

A major policy innovation in 1968 was that of the government utilising the Central Provident Fund (CPF) as a vehicle for housing finance. In 1968, a new law was introduced to allow withdrawals from the Fund to finance the purchase of housing sold by HDB. Both employers and employees contributed a certain percentage of the individual employee's monthly salary toward the employee's personal and portable account in the Fund.



The integrated HDB–CPF framework contributed to the growth of housing loans and the development of the mortgage sector as homeownership rates increased. The ratio of housing mortgage loans to GDP was only 4 per cent in 1970; in 2014, the resident households' housing mortgage loans to GDP ratio was 55.5 per cent.

Price affordability of HDB Flats in 2014

HDB Flat Type	Average BTO Price	Average BTO Price after Grants	Applicants' Median Annual Household Income	Ratio of Price after Grants to Income
2-room	\$110,000	\$55,000	\$19,200	2.86
3-room	\$187,000	\$137,000	\$30,000	4.57
4-room	\$295,000	\$265,000	\$50,000	5.26
5-room	\$386,000	\$386,000	\$72,000	5.36

BTO = Build-to-order HDB= Housing & Development Board

Note: BTO refers to HDB flats. Price are for BTO Flats in non-mature estates.

Source: The Straits Time, 17 November 2014

Policy at a glance

Factor	Housing and Development Board
Home ownership	Citizens can buy directly from HDB on a 99-year lease or from resale market
Selling price	<p>HDB sells new public housing units at below market prices such that the monthly mortgage payments are lower than the prevailing rental price for a similar unit.</p> <p>On average, buyers pay less than a quarter of their monthly household income as the mortgage instalment of their first flat.</p>
Eligibility	Applicant shall be a Singapore Citizen with average gross monthly household income not exceeding US\$6,000 and shall not be owning any property at the time of application.
Government support	<p>Central Provident Fund savings can be used for down payment and EMIs.</p> <p>Various other housing grants, such as the Additional CPF Housing Grants (AHG) and Special CPF Housing Grant (SHG) are also provided to low-income and mid-income households for buying their first flat.</p>
Home Protection Scheme	A mortgage-reducing insurance scheme that protects members and their families against losing their HDB flat in the event of death, terminal illness or total permanent disability of the sole income earner of the family.
Land acquisition	Land Acquisition Act empowers the state agencies to acquire the land for construction of HDB apartments.
Construction technology	Houses are constructed using prefabrication technology that involves off-site production of building components and assembling them on-site.

Major success factors

- Town planning and land allocation
- Umbrella policy for the whole nation
- Integration of Compulsory Saving Scheme
- Strategic intervention of HDB in time of crisis such as housing price surge during 1996–2005
- Racial/ethnic integration policy in each HDB building blocks and neighbourhoods to prevent racial segregation or ethnic ghettos.


SPOTLIGHT

HOMEOWNERSHIP AND RENTAL HOUSING POLICY: CASE STUDY OF SOCIAL HOUSING POLICY IN AUSTRIA

In Austria, the current institutional framework of social housing originated after World War II, the reconstruction of war-damaged housing was considered a nationwide challenge. Public support through generous subsidies was essential for the provision of urgently needed homes. Austrian housing policy at the outset was under the authority of the Federal government but over the last 30 years the responsibility has gradually shifted to the regions. Today, the regions exclusively implement housing policy, but the state regulates the tenancy and tax law.

Vienna's city government owns and manages 220,000 housing units, which represent about 25 per cent of the city's housing stock. These city-owned housing units, called social housing, are meant primarily for lower-income residents. The city also indirectly controls 200,000 units that are built and owned by limited-profit private developers but developed through a city-regulated process.

Mechanism to provide affordable housing via private players:

- The city buys land deemed suitable for residential development and retains control over the type and nature of development.
- The city then solicits proposals from various private developers,

which will build and retain ownership of the housing units.

- A jury evaluates these proposals based on four criteria: architectural quality, environmental performance, social sustainability, and economic parameters such as proposed rent levels and costs.
- After the jury selects a developer, the city sells the land to the developer at an affordable price. In addition, the city gives the developer a loan with favourable terms such as low interest rates and extended repayment periods.
- Private developers who collaborate with the city government to build affordable housing must allow the city to rent half of the new apartments to lower-income residents; the developer generally leases the remaining units to moderate-income residents.
- Rents are regulated by the city government so that none of the residents pay any more than 20 to 25 per cent of their household income for housing. Approximately 45 per cent of the population in Austria live in rental housing.

- The city's income restrictions for subsidised units only apply when families first move in. Residents are never required to move out, even if household income levels increase in the following years. This arrangement results in a substantial number of moderate-income residents living in subsidised housing, and this mixing together of residents with different income levels helps with social integration.
- Since the city has a large stock of affordable housing, middle-income residents typically do not crowd out lower-income residents because the city continues to add new units that are subsidised, about 5,000 annually, and available to lower income residents, housing developments do not devolve into middle-class enclaves nor do they become stigmatised concentrations of poverty.
- The funds for the housing systems are financed by a fixed, earmarked proportion of income tax, as well as corporation tax and 'housing contributions' paid by all employees.

Mechanism to provide affordable housing via Limited Profit Housing Association (LPHA):

- LPHA in Austria comprises altogether 190 housing co-operatives, private-limited and public-limited companies with a total housing stock (rental dwellings and owner-occupied apartments) of 865,000 units, which represents 23 per cent of the total housing stock.
- All Limited Profit Housing Associations together have a stable housing output of 14,000 to 16,000 units per year. This is more than half of all multi-apartment housing construction in Austria. With this very high market share, LPHA have not only outperformed municipal housing, but also private multi-apartment housing construction.
- The LPH sector offers affordable apartments to a large population. Despite of a low yield of 3–4 per cent, many LPHAs have become financially strong. This results in good financial ratings and strong positions regarding financing of affordable housing.
- With their considerable output they contribute to a stabilisation of the construction and construction product industry. Housing subsidies lever innovation in building concepts, e.g. ambitious energy standards. Therefore, they not only contribute to climate targets with their own stock but have become role model for other housing sectors.
- In some provinces, emphasis is taken on high architectural standards. Plenty of examples prove a significant contribution of LPHA projects to the built environment. Both with quality and costs, the LPHA sector influences the private housing market, as both sectors compete for similar demand groups.
- A study that compared LPHAs and private developers found that for newly built rental buildings of comparable quality, construction costs for LPHAs were on average 20 per cent lower (Amann and Goetzl 2005) due to their strong market position for construction materials and services.

Major success factors

- Strong rent regulation where both social and private rents are regulated, and cost based
- Profits are limited and the companies have an obligation to reinvest
- Direct and individual subsidies
- Quality housing in low construction cost via LPHA
- Balanced neighbourhood and social city planning
- Information and public disclosure

3.2 Indian policy impact

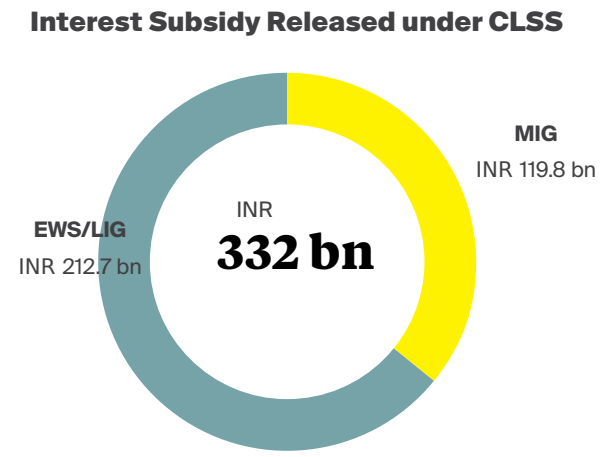
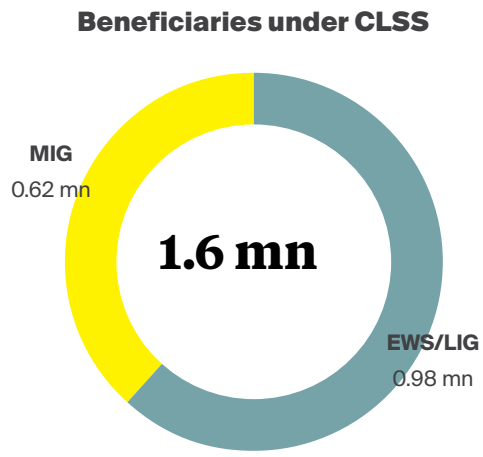
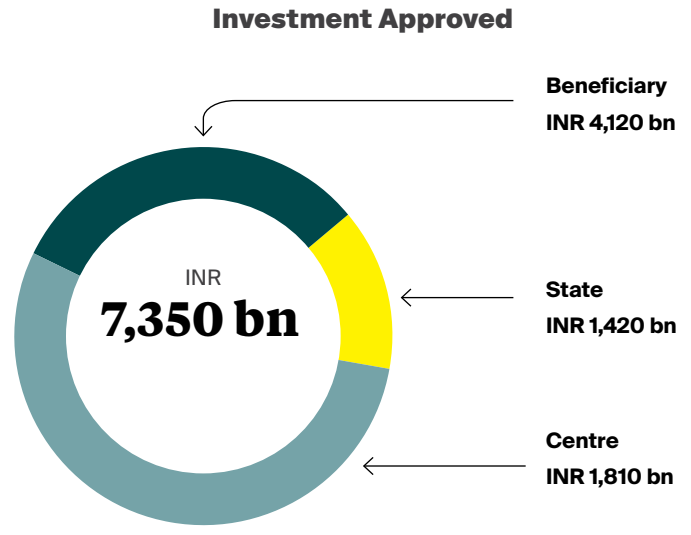
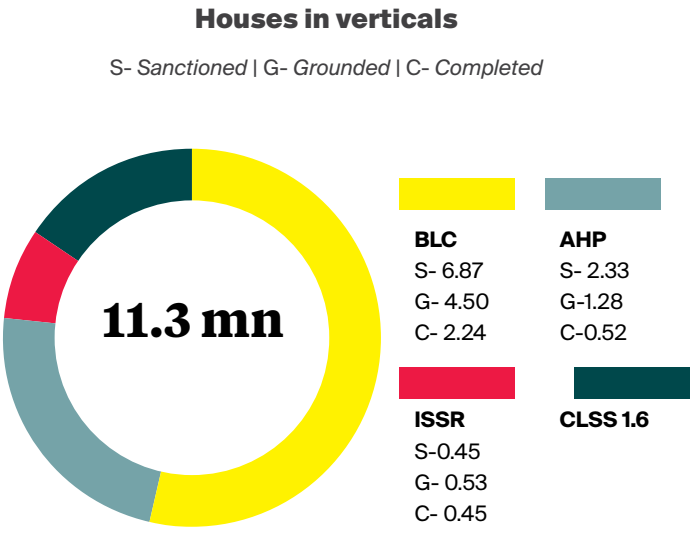
PMAY has been lauded as an exemplary policy in the Indian affordable housing landscape due to its focus towards on ground delivery. In the next section, the overall progress of PMAY (U) and few prominent residential projects under the scheme have been discussed to understand the major impact of the policy.

Progress so far:

According to the calculation during the adaptation of PMAY policy in 2015, there was demand of 11.22 mn houses in India. Since the launch of the policy to 31st March 2021, 11.3 mn houses have been sanctioned, out of which, 4.8 mn have been completed till date. The figures indicate that the policy is close to achieving its set target.

Overall sanctions for 11.3 mn Houses

Demand 11.22 mn	Sanctioned 11.3 mn	Completed 4.8 mn
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Source: PMAY urban.gov.in, Data as on 31st March, 2021

Through the recent policies, the Indian government acknowledged the role of private sector participation in affordable housing development, which resulted in an active participation from various private players to make the scheme a success. Few case examples of projects under development / completed by public as well as private institutions are highlighted in the following section.

Affordable housing projects backed by government institutions



- City and Industrial Development Corporation (CIDCO) was established on 17 March 1970 by the Government of Maharashtra. CIDCO is a special planning authority, established with the purpose of development of satellite towns for Mumbai city, thus reducing the congestion in Greater Mumbai by facilitating the planned expansion. Navi Mumbai, which is the largest planned city of India, is developed and owned by CIDCO. Over the years, the role of CIDCO has evolved and expanded to other cities of Maharashtra.
- As part of their mission to provide low-income and socially vulnerable residents with subsidised housing, CIDCO has planned to deliver approximately 0.2 mn housing units under PMAY scheme in Navi Mumbai's areas like Panvel, Taloja, Kharghar, and Kalamboli and other areas such as Bamandongri, Kharkopar, and Juinagar. CIDCO has already awarded contracts to construct approximately 94,000 homes. Out of this, 53,000 units are LIG houses and 41,000 units are EWS houses for which an allotment by lottery system has already started. Final sites for the additional 1 mn houses are yet to be finalised.

The beneficiaries for the CIDCO housing scheme are defined as:

Beneficiary	Households monthly income	Flat Carpet Area (sq m)	Expected price (INR mn)
EWS	< INR 25,000	25.81	1.7-1.8
LIG	INR 25,000-50,000	29.82	2.5-2.6

Delhi: 32,000 vacant flats will be offered under ARHC

- Union Housing and Urban Affairs Ministry announced in August 2020 that around 32,000 vacant flats built under various government schemes in Delhi and about 1,000 units in Faridabad will be included in the newly announced Affordable Rental Housing Complex (ARHC) scheme.
- Further, in March 2021, the Delhi Development Authority has approved the inclusion of ARHC scheme in Master Plan 2021, paving the way for budget rental housing for poor and migrant workers living in the capital city.

Surat: 393 1 BHK vacant flats will be offered under ARHC

- Surat Municipal Corporation has finalised a scheme under ARHC for migrant labourers with 393 one-bedroom flats in the city's Sachin GIDC Area, as of November 2020.
- These flats were completed in 2014 by SUDA and are lying vacant. A consultant, post competitive bidding, won the bid under Model-1 of ARHC. Consultants have retrofitted the complex to house migrant labourers and will also overlook the operation and maintenance part.

3.3 Key takeaway

Exemplary precedents in housing policies have been set by many countries globally, viz. Singapore, Austria, Japan, South Korea, Hong Kong, Switzerland, etc. whose success factors can be adopted.

Successful implementation of PMAY (U) Scheme by the govt in the last five years has put significant focus on affordable housing and recently affordable housing has become the most transacted residential segment.

Encouraged by the initiatives, many prominent private developers have set up separate business arms which will cater to the affordable housing segment such as Value Homes (Tata Housing), Happinest (Mahindra Lifespaces), Homekraft (ATS), Provident Housing (Purvankara Group), etc. These developer groups through their large-scale projects have helped the government to reach its target ahead of time.

Along with the developers many international Development Finance Institutions (DFI), viz. IMF, DFID (UK), CPPIB, ADB, ADIA, etc. have also started focussing on the affordable housing market in India.

Due to the interest of developers in this segment, Private Equity (PE) funds like HDFC Capital, Actis, etc. have also entered into the affordable housing funding market in recent years, which is a significant development to boost funding in this sector.

SECTION : 4

FUNDING AFFORDABLE HOUSING

4.1 Marketplace factors

The demand for affordable housing continues to grow driven by the rapid urbanisation and unbridged demand gap. To address the huge demand, a subsidy-based approach may not be enough for maintaining sustained growth in the affordable housing segment and private participation is of utmost importance. A well-functioning affordable housing marketplace comprises the following symbiotic marketplaces:

- Space occupancy market – market where home occupants interact with homeowners to lease houses
- Housing sale purchase market – comprising home sellers, buyers, and intermediaries involved in sale, purchase of houses
- Home development market – comprising landowners and property developers engaged in housing development
- Home construction marketplace – comprising construction companies, material suppliers, and labour
- Project finance marketplace – comprising developers, private equity players, banks, NBFCs and other financial institutions
- Home finance marketplace – comprising banks, Home Finance Companies and NBFCs funding individuals for home purchase

For the successful development of the affordable housing marketplace, which is less dependent on subsidy, all the above sub-markets need to develop viable business models. Such a well-functioning marketplace in which all stakeholders can play their role, is the need of the hour.

4.2 Financing framework for affordable housing

Adequate financing structures and funding are critical to address the affordable housing shortage. The funding instruments and sources of capital typically consist of PE funds, developers' equity, banks, NBFCs and other financial institutions. Private players have primarily targeted luxury, high-end and upper-mid housing segment owing to the higher returns that can be gained from such projects and the responsibility of provision of affordable housing mostly falls on the back of government and social impact organisations.

Generally, bankers, investors, and financial institutions refrain from catering to affordable housing projects due to the perceived high risk of financing due to low repayment ability of homebuyers. Banks as well as HFCs find it difficult to provide credit to customers who are employed in the informal segment. Also, commercial banks and other traditional Housing Finance Companies do not serve low-income groups, whose income may vary periodically, or is below the viable threshold to ensure repayment.

There are two major avenues in the affordable housing segment which are in dire need of finance:

A. Developer (construction) finance

Developer finance can be in the form of debt or equity. Despite the push from the government, not many established developers have ventured in the affordable housing segment. They are not keen to venture into constructing affordable homes for the low-income segment because of the returns achievable in the comparatively higher margin smaller volume projects of the mid and higher income segment. There are not many established developers active in the affordable housing space and the ones who are active find it very difficult to attract the required funding.

B. Financing home purchase

Home finance or home loans are always in the form of debt. Any equity used to finance the apartment purchase comes from the homebuyer's own funds, which can be their savings or borrowings from friends/family. For residential real estate there are large number of national banks and other financial institutions competing with each other to offer the competitive home loan rate to a customer, but not many of them are keen to lend to potential homebuyers from the low-income segments.

In this section, we delve into the avenues of financing the affordable

housing projects from the supply side.

4.3 Funding sources

4.3.1 Social housing: funding sources

Affordable housing has traditionally been catered to by the public sector due to an unviable business model for private players, hence the segment has been thriving on the back of subsidies. Over the years, the role of government has moved from being a provider to a facilitator, however, in order to cater to the housing need of the lowest strata of society, or due to under-developed marketplace, governments have to undertake various social housing programmes.

While subsidies are necessary to kick-start any paradigm shift in the structure of the industry and gear it towards affordable housing, eventually policies must be formulated such that a marketplace develops, and subsidies can be withdrawn gradually. Affordable housing has got an unprecedented boost due to variety of policy level interventions by governments across the globe, which was followed up with targeted incentives.

Several market mechanisms can be used by governments to influence the supply of affordable housing. These include providing tax incentives, grants or exemptions for construction of affordable homes, inclusionary zoning on sites not previously zoned for such purposes, facilitating debt through low interest rates or discounts, acting as guarantors for debt.

Further, affordable housing is increasingly being developed, financed and managed by a mix of state, third-sector organisations (housing associations and foundations), and private investors (supported with state grants). This has led to the emergence of various hybrid governance and finance arrangements. In recent decades, more hybrid provisions have emerged where affordable housing has been provided through cooperation between these different types of actors, which includes a growing mix of public and private finance. The section highlights few such examples in detail.

Case Study 1:**Governments' intervention in market forces may not always be impactful and may make matters worse for its populace**

The neighbourhood around Nowon station, on the north-eastern edge of Seoul, is an ordinary district which has caught the full blast of a house-price boom that is reverberating around Seoul. The prices of apartments rose by around 30 per cent in the second half of 2020, making them unaffordable for majority of first-time buyers and couples looking for a house. Apartment prices in Seoul, as a whole, rose by 58 per cent in the three years leading to December 2020. The price of the average flat in the city is about 16 times the median household income, compared with around 12 times in London.

The factors that have fuelled the boom includes the ultra-low interest rates intended to cushion the economic impact of the COVID-19 pandemic that have spurred demand and the supply of flats in the crowded capital region has failed to keep up.

Solution: The government intervened to control the speculation in market by taking more than 20 steps to curb demand, including restricting mortgage lending, raising taxes on homeowners and penalising the rapid 'flipping' of recently purchased properties. It also improved protection for tenants. However, it resulted in further

shortage in supply instead of cooling off the market as extra taxes may have induced potential sellers to take their properties off the market.

The step resulted in many people in Seoul living in housing units in inferior conditions, which prompted the government to take further coercive action by announcing to construct more than 600,000 flats in the capital area by 2025, either by themselves or by private participation.

Source: The Economist, 27 February 2021

Case Study 2:**Absence of well-developed marketplace, makes it essential for government to step in for provision of affordable housing****SPOTLIGHT****INNOVATIVE APPROACH
TO AFFORDABLE HOUSING:
PHUNTSHOLING, BHUTAN**

High costs and a space crunch in Phuntsholing have resulted in unaffordable housing, driving several thousand Bhutanese to the Indian town of Jaigaon in search of cheaper shelter. In Bhutan, there is no coordinating nodal agency at the national level to co-ordinate the functions of the different institutions that work towards the national goal of housing development. Bhutan does not have a dedicated financing institution for housing, which would provide opportunities at lower interest rates for affordability. Thus, housing financing in Bhutan is provided mostly by private banking institutions, with 10.6 per cent interest rate.

Phuntsholing has limited land available for development, and horizontal expansion is restricted due to its natural barriers. The Phuntsholing structure plan indicates only 20 per cent of the total city and existing residential precincts are comprised of low-density development. According to the survey of Phuntsholing in 2005, the city has only 16 per cent owned houses, 58 per cent rental houses and 26 per cent of its population staying in government-subsidised units. By 2019, private sector housing had increased to 68 per cent, which gave rise to unaffordable house rents and an irregular increase in rents.

Solution: In Bhutan, National Housing Development Corporation Limited (NHDCL) and National Pension and Provident Fund (NPPF) are two notable institutions working towards affordable housing. Following His Majesty, the King's Royal Command, NHDCL implemented a Special Housing Project in Phuntsholing by constructing 62 buildings, with 506 units, for the people living across the border. The project was completed in 2019 and its subsidised rents range from US\$ 60-80 per month, which is equivalent to an average monthly rent of Phuntsholing. The NPPF provides subsidised rental housing for its members (those who contribute to the provident fund). By 2018, 20,890 members were accommodated in NPPF housing, out of which 2,432 members are residing in Phuntsholing. A tenant can rent NPPF units for a maximum period of 10 years. Additionally, NPPF also provides financing for home ownership to its members through a 'Member Home Loan Scheme'.

Source: Jimne Thinle and Chimi, Innovative approach to Affordable housing, The Dark Journal, Autumn 2020

Case Study 3:**Increased involvement of market players through a new financing vehicle for affordable housing**

Wohnbauinitiative (WBI) of Vienna, which is a subsidy scheme by the municipality of Vienna provides medium-term, low-interest loans and/or subsidised building land for housing construction. It encourages new construction in the mid-price range, granting financial benefits in exchange for limited-term social obligations by the developers concerning rent levels and access criteria, thus adding an instrument for the affordable (non-traditional social housing) segment.

Minimum requirement from the developer in return of above mentioned privileges include, minimum amount of equity to be brought in by the developer/consortia, the minimum investment per completed dwelling and limitations on rent levels and capital contributions by tenants during the duration of the loan term (10 years). Furthermore, the allocation of 50 per cent of all completed dwellings, and 50 per cent of all re-allocations of dwellings during the duration of the loan term, are conducted by the general allocation agency for subsidised housing, which allocates dwellings according to social criteria and general waiting lists, (although, in contrast

to other subsidy schemes, there are no income limits). All rental contracts have to be of an unlimited term, and rental rates will only increase during tenancy linked to overall inflation rate. Rents can be raised when tenants relocate, and dwellings can also be offered for sale at these turnover moments.

The case emphasises new elements within subsidy arrangements, including the orientation on both commercial and limited-profit housing providers, the inclusion of capital from institutional investors, municipal building plots and municipal medium-term loans, and the limited-term nature of maximum rents for new contracts. The initial WBI program was set up for some 6,300 new dwellings to be built between 2012 and 2015 following this scheme. Due to good experience with the new subsidy scheme, a second wave of the WBI was initiated in 2015.

Source: Gerard van Bortel and Vincent Gruis, Urban Science, 2019

Case Study 4:**Increased involvement of communities through combination of co-housing and cooperative housing in affordable housing developments and management**

In 2008, the Italian government introduced an Integrated System of Housing Funds (Sistema Integrato dei Fondi [SIF]) to support 'social housing' as a new form of affordable rental housing tenure in the Italian context. While low-income housing in Italy was traditionally provided by public actors, the SIF initiative aimed to boost social housing provided by partnerships that included a mix of not-for-profit, private, community and government actors.

SIF funding has created a new source for affordable housing investments. It combines investment mechanisms developed and tested in the commercial real estate sector, complemented by innovative collaborative forms of housing management. The Integrated System of Housing Funds, in total, comprises an amount of US\$2.73 bn, of which US\$1.20 bn has been invested by the Cassa Depositi e Prestiti (a bank closely related to the Italian state), US\$168 mn by the Ministry of Infrastructure and Transport, and US\$1,065 mn by banks, insurance companies and pension funds.

Since 2008, the Italian social housing sector has grown to the point whereby it is now seen as an attractive sector to invest in. There are 27 approved local funds spread throughout Italy, comprising about 220

projects, 14,800 social homes and 6,500 beds in temporary or student residences. The fund aims to support the construction of about 20,000 apartments.

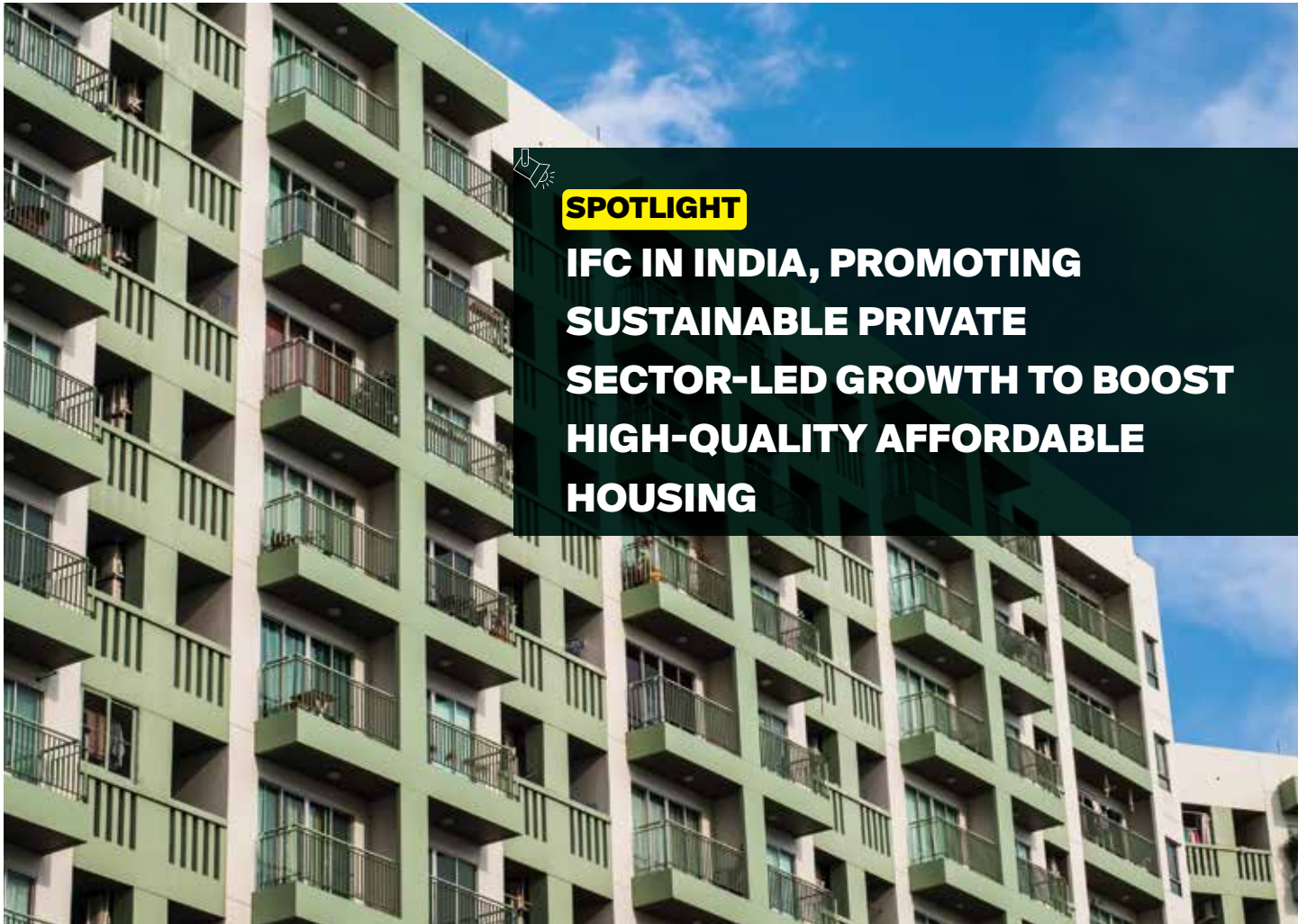
In these funds, gains cannot be drawn until the end of the funds' lifespan, which usually occurs in the long term. The private financial groups invested in these tools can be considered as 'safe' investments. Housing and services built with this method guarantee a profit, even if in the long term.

The goal of this building operation is to increase the medium to long-term housing supply through sustainable fiscal initiatives, and with a social approach (promoting relations between inhabitants, social cohesion and strengthening the vulnerable population). Nevertheless, the outcome of this system is private housing partly funded by public resources.

Source: Gerard van Bortel and Vincent Gruis, Urban Science, 2019

Case Study 5:

Social impact organisations comprising community and voluntary organisations, non-governmental organisations (NGOs), International Development Finance Institutions (DFIs) contributing to the task of facilitating housing construction and financing affordable housing

**SPOTLIGHT**

**IFC IN INDIA, PROMOTING
SUSTAINABLE PRIVATE
SECTOR-LED GROWTH TO BOOST
HIGH-QUALITY AFFORDABLE
HOUSING**

International Finance Corporation (IFC), a member of the World Bank Group, is the largest global development institution focused exclusively on the private sector in developing countries. IFC was founded in 1956 on a bold idea: that the private sector has the potential to transform developing countries. Since then, they have expanded to 100 developing countries, coining the term 'emerging markets'. The US\$693 mn IFC Emerging Asia Fund (EAF), launched in 2016, that makes equity and equity-like investments across all sectors in emerging markets in Asia. They have identified housing finance as one of the fastest growing areas of investment, and a priority sector.

IFC has made a total investment of US\$235 mn in past 10 years in the affordable housing sector in India by investing in the projects by various Indian developers such as Provident Housing, Signature Global, Mahindra Lifespaces, Shapoorji Pallonji, Tata Value Homes and Value and Budget Housing Corporation.

Source: ifc.org

Case Study 6:**One of the biggest charitable initiatives by a major corporate in the affordable housing segment**

Amazon has invested US\$2 bn in a Housing Equity Fund for affordable housing, which will help low-income households to get a house in a decent area that will have easy access to neighbourhood services, amenities and jobs. These funds were distributed through below-market loans and grants to housing partners, traditional and non-traditional public agencies, and minority-led organisations.

Amazon is providing below-market capital in the form of loans, lines of credit, and grants to construct 20,000 affordable homes in its headquarter regions like Arlington, Puget Sound, and Nashville. The focus income group for affordable housing will be those earning less than US\$79,600 per year. The first investments include US\$381.9 mn in below-market loans and grants to the Washington Housing Conservancy to preserve and create up to 1,300 affordable homes on the Crystal House property in Arlington, Virginia, and US\$185.5 mn in below-market loans and grants to King County Housing Authority to preserve up to 1,000 affordable homes in the state of Washington.

Along with this, US\$125 mn grants were given for minority-led organisations and public agencies.

1. The Washington Housing Conservancy (WHC): It is an NGO that tries to preserve homes so that even low and mid income people can buy homes in the National Capital Region. With the help of grants given by Amazon, WHC was able to execute the

purchase of Crystal House in Arlington, Virginia near Amazon's new headquarters. WHC's finance partner, the Washington Housing Initiative, and Impact Pool, created by developer JBG SMITH, provided commercial real estate expertise and an additional loan of US\$6.7 mn.

2. The King County Housing Authority (KCHA): It provides rental housing in Washington. KCHA was the United States' first housing authority to access the municipal bond market for preservation and conversion of market-rate apartments as affordable housing. In partnership with KCHA, Amazon invested US\$161.5 mn in a below-market loan and US\$24 mn in grants to preserve affordability for 1,000 apartment homes.

KCHA has added 67,000 rental housing units over past 10 years. Currently, KCHA is adding 7,000 units of affordable housing for the LIG and MIG segments. With the help of Amazon Equity Fund, KCHA is building affordable housing units and increasing affordability in the housing market by minimising rent increases. These buildings will remain affordable for at least 99 years.

Source: Aboutamazon.com

4.4 Housing through philanthropy

As an increasing trend in the last few years, many corporates across the globe are becoming more aware about the rampant problem of affordable housing and are making investment decisions under their CSR initiatives to provide solutions to tackle this problem. Particularly in the US, many major private corporations have stepped up to deliver affordable homes. In addition to Amazon, few other similar initiatives are listed below:

- **Microsoft** pledged US\$500 mn for affordable housing in January 2019. In addition, Microsoft is committing US\$475 mn for loans to affordable housing developers over three years and another US\$25 mn to services for low-income and homeless residents. It is

the largest pledge for a social cause in Microsoft's history.

- **Google** has announced its support to affordable housing in the San Francisco Bay Area through a financial injection of US\$1 bn. Google plans to build 20,000 homes in total with its US\$1 bn contribution, 75 per cent of which will go towards repurposing company-owned land for affordable housing. The remaining US\$250 mn will be used to establish an investment fund aimed at building the remaining 5,000 housing units.





SECTION : 5

PRIVATE EQUITY INVESTMENT IN AFFORDABLE HOUSING GLOBALLY

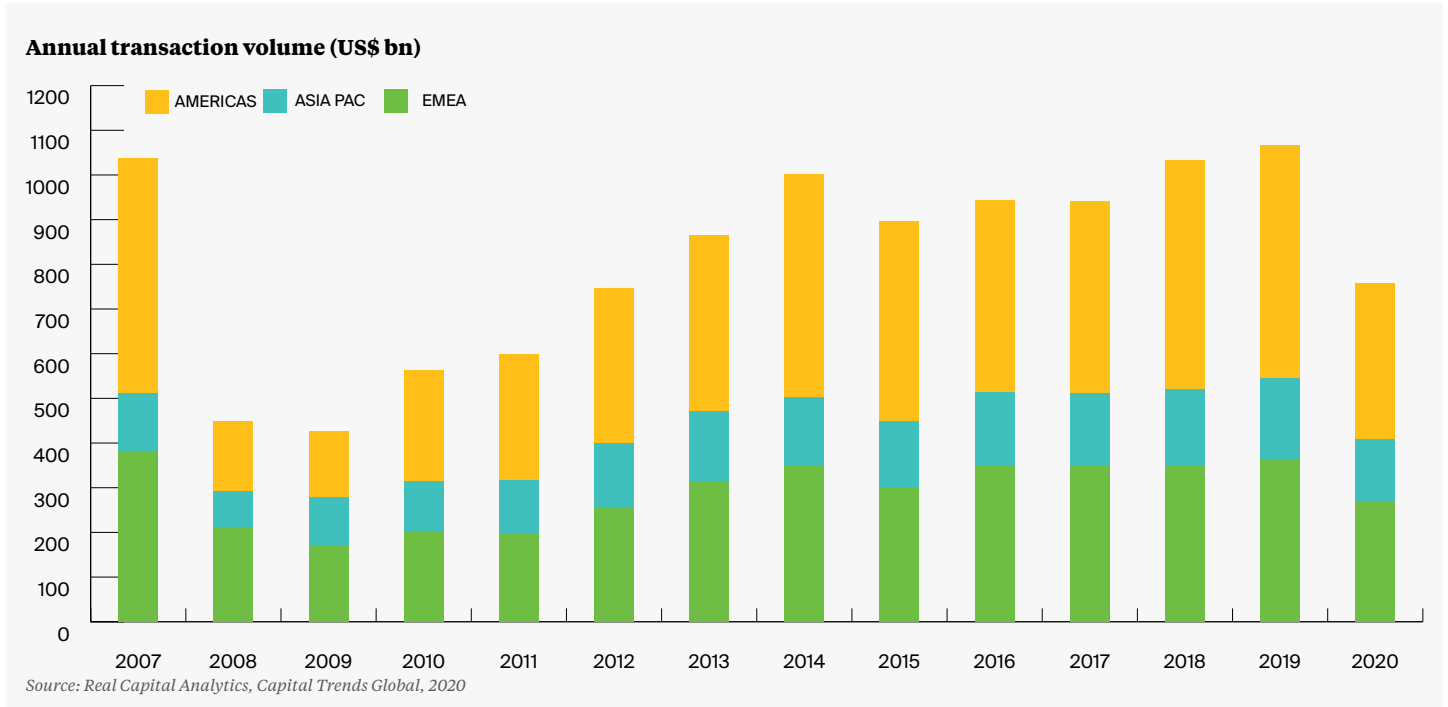
5.1 Funding gap

As per the projections by the United Nations, by 2050, 66 per cent of the world population will start living in urban areas, which will add another 2.5 bn people to urban population by 2050. Per day, nearly 200,000 people migrate to cities all over the world. Now this migrated population needs a decent housing unit at a reasonable price to stay in the various urban centers of a country; and that's how the need for affordable housing in urban areas shall keep rising. In the previous section of the report, we have seen measures which address the global affordable housing challenge, various policy interventions by governments world over, role of government and social sector organisations and increasing private participation in affordable housing provision.

Due to the increasing population in urban areas, there is a need gap of 325 mn housing units globally and in urban India the need gap is of 35 mn housing units, which is 11 per cent of the world's housing need gap.

5.2 Global investment scenario

In the year 2020, at the global level, total US\$759 bn capital investment has been traced in the real estate sector. However, transaction volume in 2020 was 29 per cent lower than 2019 levels due to a COVID-19 induced slow down.

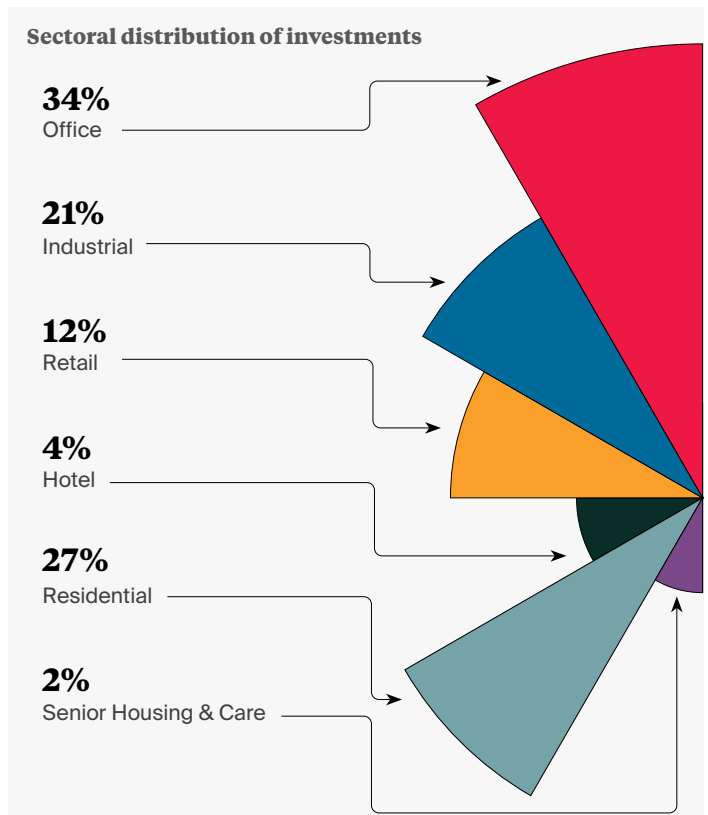


Sector investment trend

Out of the total transaction volume, US\$209 bn, i.e. 27 per cent of total investments, is being invested in the residential sector, while commercial is emerging as the most dominant sector with 34 per cent share.

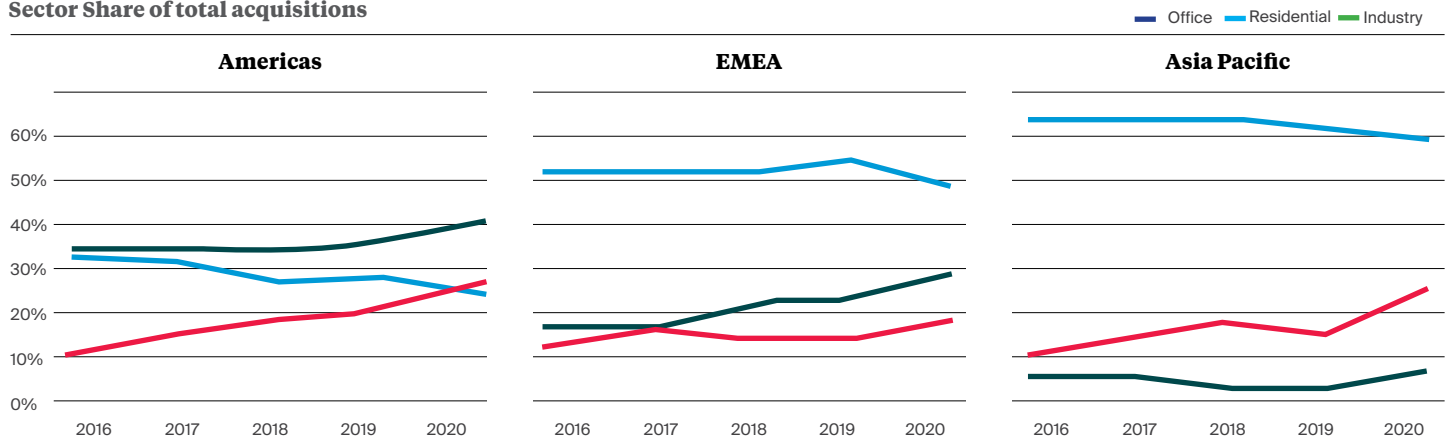
A shift is observed in the sector preferences in 2020 in investments on the global level. The increased leaning towards the residential and industrial sectors was the trend well before COVID-19, but the impetus redoubled in the face of the pandemic. The residential sector gained dominance in America and gained traction in Asia Pacific and EMEA (Europe, the Middle East and Africa).

The share of residential sector in investment in Asia Pacific is generally very low as compared to the sector share in America and EMEA, which indicates that there is huge scope for investment in residential sector in the Asian Pacific region. The past five-year trends suggest, that in the Americas, as well as in EMEA, the residential and industrial segments have expanded their at the cost of commercial sector, however in the Asia Pacific region, the residential segment has remained stagnant.



Source: Real Capital Analytics, Capital Trends Global, 2020

Sector Share of total acquisitions



Source: Real Capital Analytics, Capital Trends Global, 2020

5.3 Investments in affordable housing

Over the past decade, affordable housing has attracted increasingly more private capital aimed at building real estate that serves society and at the same time generates attractive risk adjusted returns. As discussed earlier, the residential segment constitutes 27 per cent of the total transaction volume in the real estate sector worldwide, however, the share of affordable housing within the residential segment is difficult to assess mainly due to the absence of standard parameters for defining affordable housing across various geographies.

As mentioned in the earlier section of the report, the affordable housing sector has been helped by government subsidies and social housing schemes till recent times, however, the government and social impact organisations do not have enough funds, infrastructure and flexibility to scale up the supply of affordable housing, where it is most needed. Considering these factors, the role of private participants such as developers, finance institutions, etc. has become extremely vital for the growth of the sector.

Housing is a basic human need and provision of housing is a social mission for hundreds of years. Understanding the importance of affordable housing and the demand gap, various institutional investors are increasingly entering into this segment, which can provide appealing financial returns along with a positive social and environmental impact. Hence, a growing number of impact investing funds are seeking investment opportunities in the affordable housing segment. Also, many global fund houses are investing in affordable housing, which also facilitates them to fulfil their environmental, social and governance (ESG) goals.



Given below is the list of major funds, which are investing in the affordable housing segment either in their country of origin or across borders:

Table: Three of the largest funds with focus on development of affordable homes

Sr no.	Fund	Investment in affordable housing (US\$ mn)	Place of origin	Investment location	Focus area
1	HDFC Capital Advisors (HCARE Funds)	1,100	India	India	Fund dedicated for investment in affordable and mid-segment housing projects in India
2	Actis	322	UK	India, Kenya	Total asset under management US\$10 bn, investment in real estate US\$1.5 bn with small share of affordable housing.
3	CDC Group	240	UK	India, Ghana, Kenya, Mauritius, Mozambique, Rwanda, Uruguay, Zambia, among others	It is a development finance institution owned by the UK government. CDC Group has dedicated funds for the affordable housing segment. Total portfolio size is US\$6,200 mn, with 4 per cent share of affordable housing.

Table: Five largest funds with focus on affordable rental homes

Sr no.	Fund	Investment in affordable housing (US\$ mn)	Place of origin	Investment location	Focus area
1	Bouwinvest Real Estate Investors	7,898	Netherlands	Scandinavian countries	Fund focussed on affordable rental properties for the mid-income segment
2	Bridge Investment Group	5,838	USA	USA	Fund focussed on multi-family rental housing
3	SATO	2,526	USA	Finland	Affordable rental housing for varied income groups
4	Turner Impact Capital	2,000	USA	USA	An impact fund investing in multi-family housing, as well as education and healthcare sectors. It has acquired more than 9,000 housing units across the urban areas of USA.
5	Rockpoint Group	1,287	USA	USA	Multi-asset fund with minor share in the affordable housing segment

The focus area of most of the large fund houses, in emerging economies, has traditionally been in commercial assets. However, in recent times, investments in affordable and mid-market build-to-sell housing has become an attractive option for investors seeking stable risk-adjusted returns.

5.4 Identification of major players / case examples



1

SPOTLIGHT Fund 1

Name of the Fund: HDFC Capital Affordable Real Estate Fund (HCARE 1 & 2)

Country of origin: India

Major geographical presence: India

Amount of fund in affordable housing: US\$1,100 mn

About the Fund:

HDFC Capital Advisors Limited, a real estate private equity investment manager, was established in 2015 as a 100 per cent subsidiary of HDFC Ltd. The Fund specialises in providing long-term debt and equity financing for the development of housing projects and have emerged as one of the largest alternate investment fund managers in the country. Funds managed by HDFC Capital are among the first ones dedicated to financing affordable housing in India. The Fund aims to support the development of housing units across the targeted top Indian cities through partnerships with marquee developers.

HDFC Capital Affordable Real Estate Fund (HCARE 1 & 2)

- HCARE-1 was set up as a SEBI registered AIF in 2016 with a fund size of US\$450 mn.
- HCARE-2, set up in December 2017, achieved its final close in October 2018 with a fund size of US\$650 mn.
- HCARE 1 & 2, together, create a US\$1.1 bn platform dedicated to increasing the supply of affordable housing.
- The objective is to provide long-term equity and mezzanine capital to developers building affordable and middle-income housing across India's leading 20 cities.
- HDFC Capital Advisors is the investment manager for the funds and is one of the largest real estate fund managers in the country.

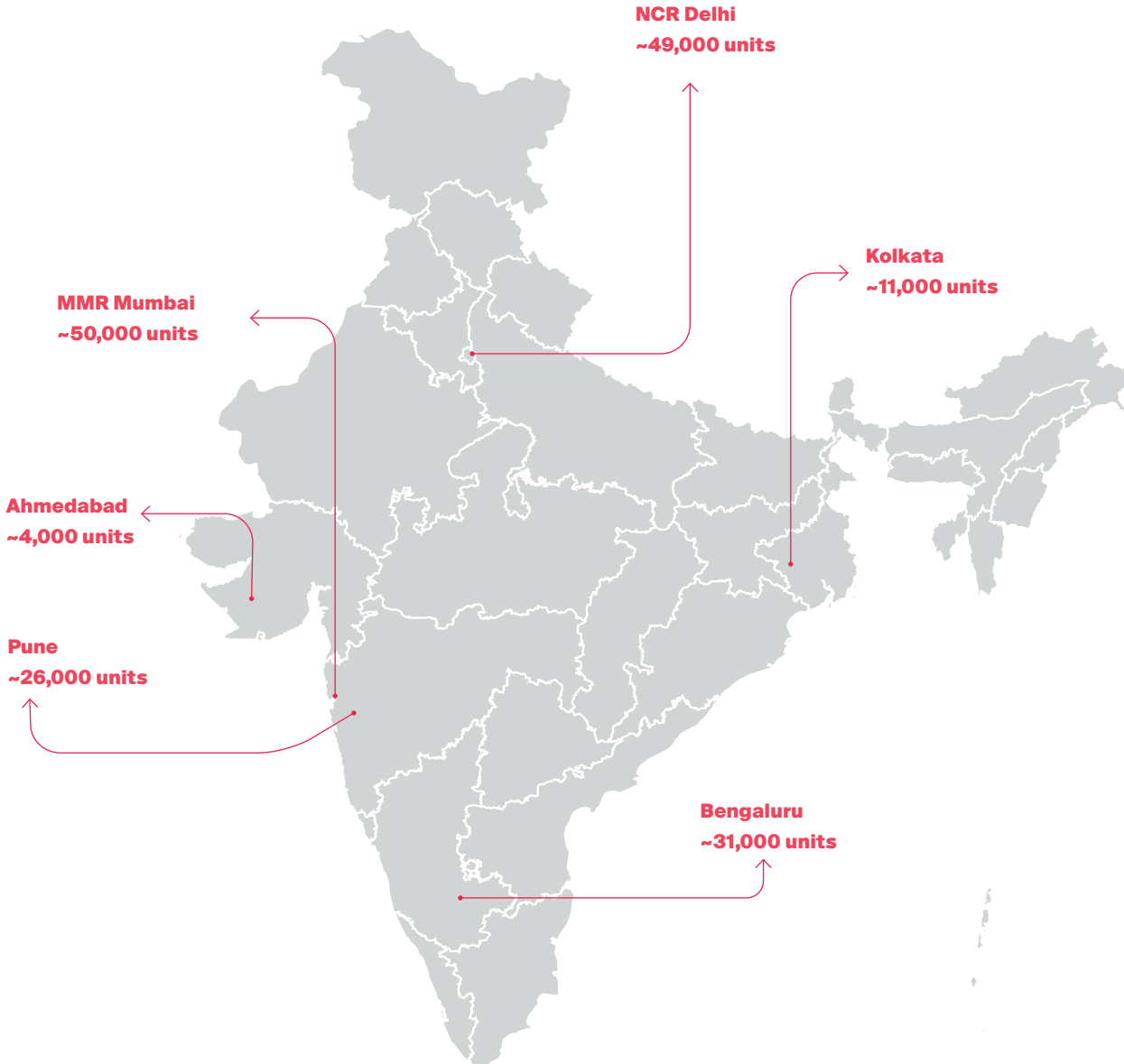
Investment strategy for affordable housing sector:

- Providing flexible capital, debt or equity, for housing development while generating market returns
- Partnering with credible developers with proven execution ability, local expertise, and a conviction for creating viable solutions
- Focus on understanding sustainability and its impact at the grass root level

- Growth through innovation in design and technology leading to better efficiencies, faster execution, and scalability
- Minimising risk through active asset management with a focus on consistent and predictable results
- Active asset management to create long-term value for the respective stakeholders

Source: www.hdfccapital.com

HCARE (1 & 2) - Portfolio of Proposed Units to be Developed



Committed to finance
~1,71,000 homes

Selling Price: ~ **45%** of homes
<US\$ 50,000
~ **81%** homes **<US\$100,000**

~180mn sf
of development

Recent development:

HDFC Capital has recently partnered with a New York based private equity investor, to launch a US\$1 bn real estate investment fund. The joint venture platform will be focussing on providing the last mile funding for under-construction residential projects in the affordable and mid-income segment, hence providing impetus to the real estate sector by achieving the financial closure for stalled housing projects.

2

**SPOTLIGHT** Fund 2**Name of the Fund:** Bouwinvest Real Estate Investors**Country of origin:** Netherlands**Major geographical presence:** Netherlands, Sweden, Finland, Denmark, USA, Japan, Australia, China**Amount of fund in affordable housing:** US\$7,898 mn**About the Fund:**

Bouwinvest Real Estate Investors is specialised in managing real estate portfolios for institutional investors. The Fund aims to achieve sustainable returns on behalf of its pension fund clients. Bouwinvest Real Estate Investors manage US\$15.48 bn (FY20) in assets within five Dutch property sector funds and three international real estate investment mandates in Europe, North America and Asia-Pacific. The group aims to ensure 60 per cent of their acquisitions are in the affordable mid-market sector.

Belgium:

Bouwinvest Real Estate Investors and CBRE Global Investment Partners (CBRE GIP) have entered into a strategic partnership with the property developer ION, which is one of the leading real estate developers in Belgium, to invest US\$336 mn in affordable new-build houses and apartments exclusively for the rental market.

Nordic EU countries:

The Fund has committed US\$120 mn to a strategy that targets various sectors, such as affordable rental housing for middle-income families, care homes and logistics in the Nordics on behalf of its European

mandate. The local partner is Nordics-based real estate manager NREP, and they target projects in leading urban centres in the region, such as Copenhagen, Stockholm, Helsinki, Oslo and Gothenburg.

USA:

Bouwinvest Real Estate partnered with Irvine based Avanath Capital Management to invest US\$85 mn on behalf of its parent investor. They fund through a low-income housing tax credit programme which is a US Federal affordable housing initiative.

SECTION : 6

KEY EMERGING THEME

6.1 Rise of impact investing

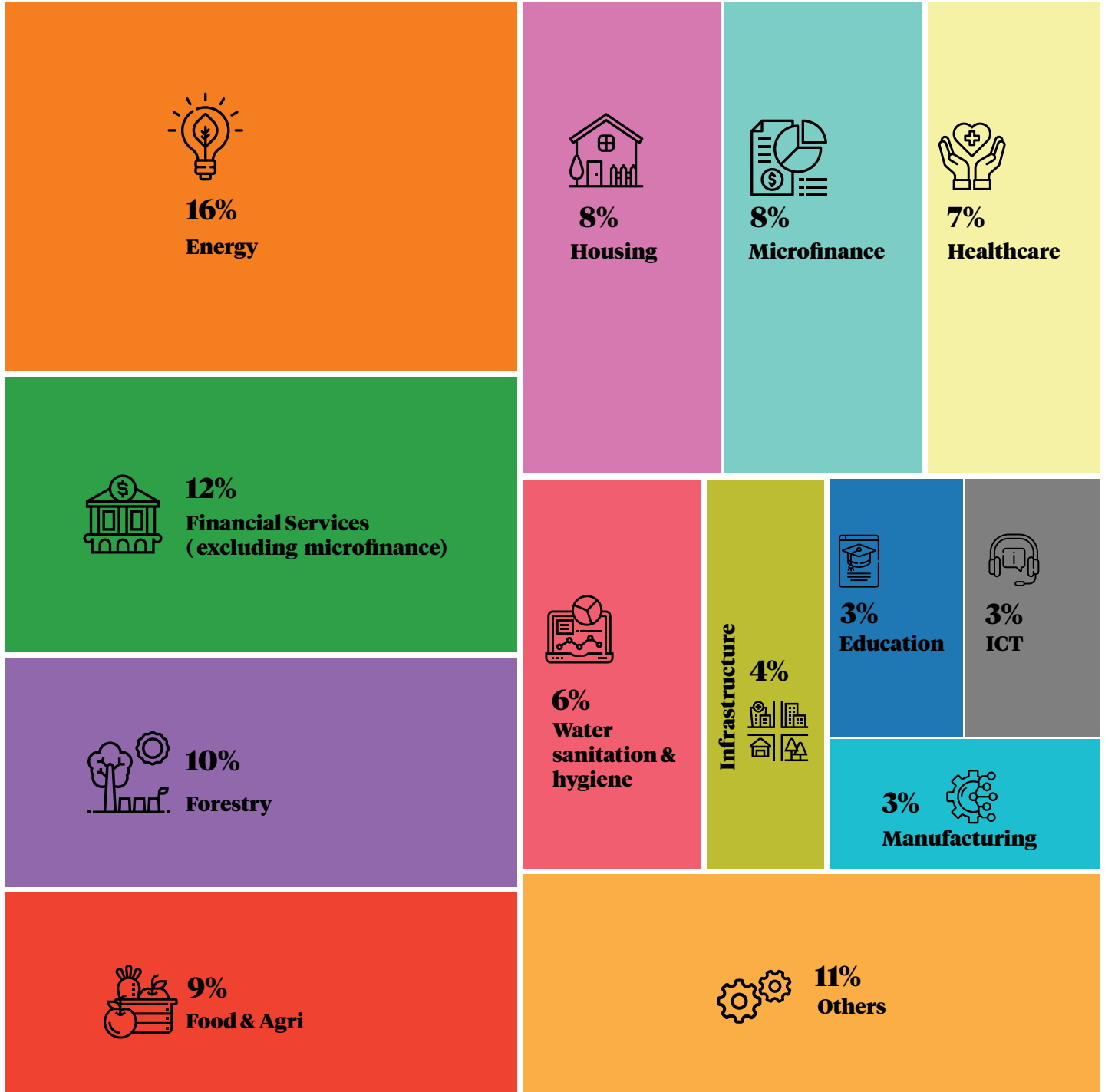
The Global Impact Investing Network (GIIN) defines impact investing as investments made into companies, organisations and funds with the intention of generating social and environmental impact alongside a financial return.

According to GIIN annual global impact investor survey 2020, the impact fund sector is in excess of US\$715 bn, as of end of 2019, and has grown at a CAGR of 17 per cent in period 2015-2019. With significant proportion of investors comfortable with the concept, double-digit growth is expected to continue.

Impact investing in affordable housing

Impact investors in housing seek to enhance access to safe, affordable housing, primarily by constructing or maintaining affordable housing units and by regenerating and remediating neglected areas to provide low-cost housing to low-income individuals and families. The chart represents the asset under management (AUM) by asset class by various impact investors globally.

Asset allocation (sector wise) by Impact Investors globally



Source: GIIN, 2020, Annual Impact Investor Survey

Affordable housing and microfinance, together, consist of 16 per cent of total AUM, representing the highest share due to mature business models in underlying industries.

About 45 per cent of all impact assets are concentrated in emerging economies. This is a much higher proportion than in traditional alternative investing, due to vast demand for social investments in these markets, which is largely unmet by governments. This paves the way for the private sector to provide social goods and services at scale. Asia is fast emerging as a hub for impact investors, especially in the housing segment, because of its high population density and rapid urbanisation and demand gap in the segment.



Spotlight:

Cheyne Capital,

a UK-based multi-asset fund, launched the Social Property Impact Fund in the year 2014, to help tackle the shortage of affordable housing for disadvantaged groups in the UK, including the homeless and the elderly. The fund raised GBP 100 mn (more than US\$120 mn) from various institutional investors, including pension funds and foundations, as well as from funds of funds. It has since provided over 1,000 units of affordable housing.

Nuveen,

a US-based investment management arm of TIAA (parent company) manages nearly US\$1 trillion in a wide range of asset classes for institutional investors around the world. Nuveen's impact investment thesis is about the emerging low-income consumer and the belief that the low-income consumer is underserved with respect to access to basic products and services, like housing, energy, education, and financial services. The firm's first impact investments were made in the late 1990s in affordable housing in the US and in microfinance in emerging markets. Between 2012 and 2017, the firm invested upwards of US\$600 mn in impact investments, most of which consists of investments in affordable housing.

6.2 Environment, social and governance initiatives

Environmental, social and governance (ESG) criteria are a set of standards for a company's operations that socially conscious investors use to screen potential investments. Environmental criteria consider how a company performs as a steward of nature. Social criteria examine how it manages relationships with employees, suppliers, customers, and the communities where it operates. Governance deals with a company's leadership, executive pay, audits, internal controls, and shareholder rights. To assess a company based on ESG criteria, investors look at a broad range of behaviours.



ENVIRONMENTAL

- Biodiversity and habitat.
- Climate change
- Land contamination
- Energy consumption
- Greenhouse gas emission
- Indoor environmental quality
- Location and transportation
- Material
- Pollution
- Resilience to catastrophe/disaster.
- Renewable energy
- Sustainable procurement
- Waste management
- Water consumption



SOCIAL

- Community development
- Health and safety
- Human rights
- Inclusion and diversity
- Labour standards and working conditions
- Social enterprise partnering
- Stakeholder relations
- Occupier amenities-showers, changing rooms
- Controversial tenants



GOVERNANCE

- Anti-bribery and money laundering
- Cybersecurity
- Data protection and privacy
- Legal and regulatory fines
- ESG clauses in existing leases

Credit Suisse real estate fund green property:

Credit Suisse real estate fund green property, launched in 2009, is the largest Swiss real estate fund for sustainable real estate investments. The fund invests in high-quality new construction projects located in strong economic regions in Switzerland.

Sustainability is the main criteria used for the selection of new construction projects, which must meet the stringent requirements of green property. The green property approach takes into account environmental, economic and social concerns and assesses the projects on the basis of five quantitative and qualitative criteria—utilization, infrastructure, energy, materials, and life cycle.

Affordable housing benefits not just those who live in these homes but also the community as a whole. Affordable housing is also an important contributor to the achievement of the United Nations Sustainable Development Goals (SDGs), adopted by all UN Member States in 2015. The SDGs provide a shared blueprint for peace and prosperity for people and the planet, now and into the future. Out of the 17 adopted goals under SDGs, the goal of sustainable cities and communities is directly linked to the provision of affordable housing, with interlinkages to various other goals.

ESG in Indian scenario

- India has had different rules and regulations since 2007 about Corporate Social Responsibility, Sustainable Development and Non-Financial Reporting, Annual Business Responsibility Report, Green bond guidelines, etc. regulated by RBI, SEBI, MCA, etc. However, the term ESG and associated responsibilities mainly came into focus in 2018, with a BSE guidance document on ESG disclosures.
- Bombay Stock Exchange (BSE) has introduced ESG guidelines, in order to:
 - To raise corporate transparency
 - To strengthen risk management
 - To promote stakeholder engagement
 - To improve communications with stakeholders
- **Regulator SEBI** is in 'active discussions' with various stakeholders to bring in greater transparency in disclosures by listed companies in the environmental, social and corporate governance space and would soon issue relevant guidelines,

Spotlight: HCARE - 2 managed by HDFC Capital

Investor focus on ESG framework: Example from a leading investor in affordable housing segment in India

HDFC Capital has an ESG framework in place through which they aim to work towards environmental, social and governance related issues being given due weightage in the investment decision making process. Few of their achievements under this framework are:

- Sixty per cent of units financed cater to EWS and LIG, for contributing to sustainable cities and communities
- Driving reduced dependence on new material at their projects to limit waste and fight climate change
- Supporting a water management company under the H@ART Program, that has helped to save 3 bn liters of water over the last 5 years

Procedure:

1. Initial Screening

Screening of potential investment against Investor's Exclusion List & ESG Questionnaire

2. Due Diligence

Review and identification of specific ESG risks associated with the investment

3. Investment Agreements

Incorporation of legal clauses and covenants in the investment agreement

4. Performance Monitoring

Engagement with investees to monitor ESG performance in line with agreed actions

5. Reporting

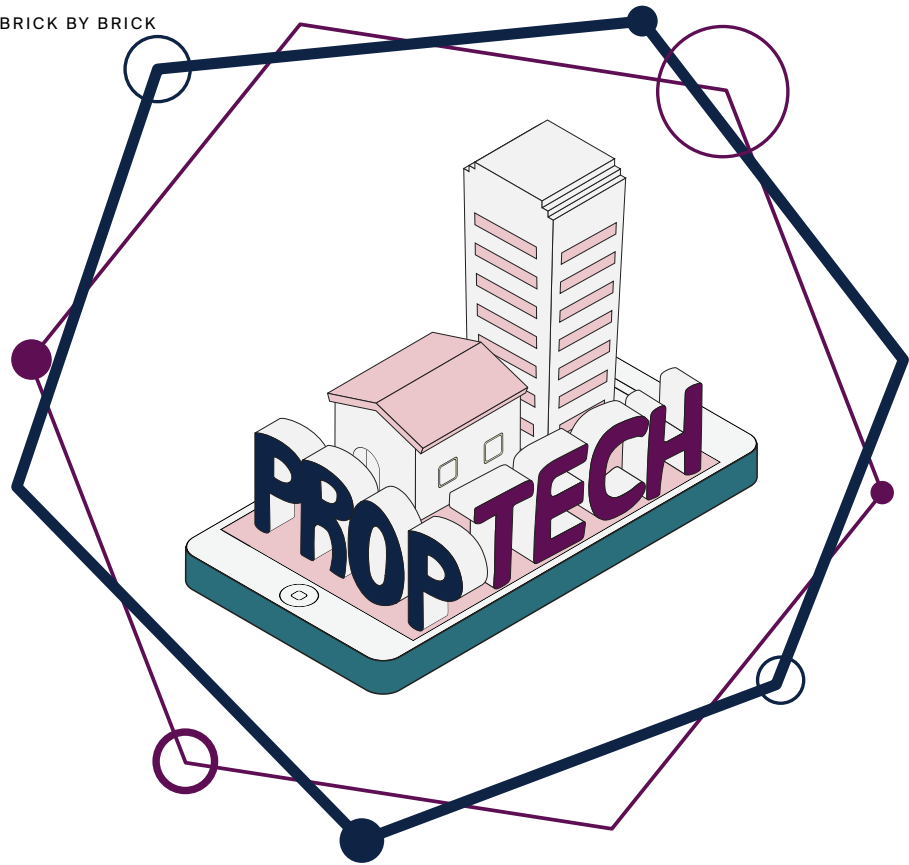
Active engagement with Investors and other stakeholders through disclosures and annual reporting

6.3 PropTech revolution

The construction industry is one of the least digitized sectors in the world – the real estate sector spends less than 1.5 per cent of its revenue on tech, most of which is spent on the head office and not for on-site execution.

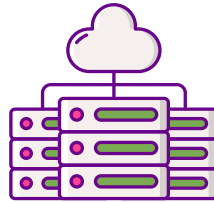
PropTech, a blend of the words property and technology, refers to the use of digital disruption and technological advances to challenge the inherently traditional real estate market. There are some silent technology innovations which are reshaping the real estate industry.

Innovative technologies such as 3D printing, robotics, stay-in-place recyclable formwork, augmented and virtual reality (AR/VR), Internet of Things (IoT), artificial Intelligence (AI) and Big Data are disrupting the real estate development industry. Intelligent building design, smart building technologies and building information modelling have begun to influence the way buildings are designed, constructed and managed.



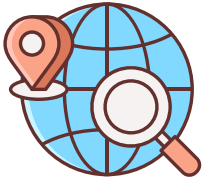
The advent of PropTech is sure to bring about time and cost efficiencies in the real estate industry, which is a critical element for improving the supply of affordable housing.

Discovering new technologies under PropTech



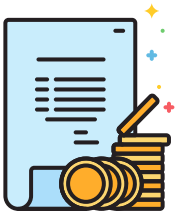
BIG DATA

'Big Data' assists companies make a more informed decision on the needs and preferences of the customers. The analysis of the available data would help them position the product as close to the buyers' expectation as possible. The technology has far reaching consequences for the affordable housing market. In recent years, researchers and policymakers have begun to evaluate the results of policy interventions for people in subsidized housing on measures such as income, educational achievement, physical and mental health, and even subjective wellbeing. Rather than merely track whether people have housing at a given level of affordability, this new focus understands that housing is a platform for a variety of life outcomes and that housing policy choices can meaningfully impact the arc of those outcomes.



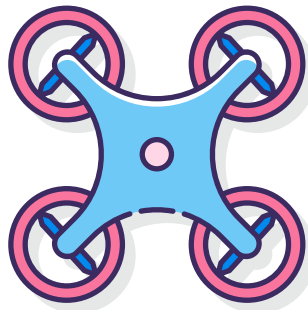
GEOLOCATION

Locating the most optimal sites based on physical, social, and economic factors is important in supplying the affordable housing demand in the best way possible. Site selection studies using location and spatial analysis are a powerful way of obtaining ideal placement results. Mapping technologies are fast evolving to co-populate host of data attributes such as property types, social infrastructure (schools, hospitals, day care centres), transit times, property prices, etc. Property search attributes and transaction data-linked algorithms are helping automate accurate valuation models, based on predicted demand for different asset types.



CLOUD COMPUTING

Perhaps the most mainstream of the technologies underpinning PropTech, cloud computing is the practice of using a network of remote servers hosted on the Internet to store, manage and process data, rather than using a local server or a personal computer. This means that files previously held in an individual business location can now be accessed by anyone with permission, anywhere in the world, on a multitude of compatible devices. Virtual data rooms have replaced physical documents for due diligence enhancing transparency and security; collaborative software applications have become standard; and digital workflows help with the transparent and time-optimized execution of standard processes.



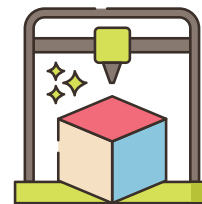
DRONES

Unmanned aerial vehicles (UAVs) are exceedingly used by property developers and portals to capture 360-degree images and videos. The use of drones for aerial land surveying and mapping for all the different kinds of terrain has brought about significant efficiencies in what previously used to be a cumbersome manual exercise. UAVs are also used to film videos of major community level infrastructure improvements. Drones are also being used to match actual construction vis-a-vis the planned drawings and provide the capability for continuous project monitoring.



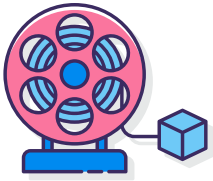
VIRTUAL REALITY

Currently, extensively being applied in sectors such as entertainment and retail, virtual reality (VR) technology aids in creating a simulated environment. In the real estate sector, VR acts as an excellent tool for displaying properties and its surrounding areas, enabling the developers to provide near-reality experience to potential buyers, where they can navigate and analyse the space on their own remotely. Also, along with VR, the use of Augmented Reality (AR) adds a layer of realistic projections, thus creating a highly interactive experience for buyers.



3D PRINTING

The 3D printing technology continues to attract attention. The technology is still maturing but there are numerous international real-world examples from China, the Netherlands and the USA of successful deployment of technology in construction and development. The concrete 3D printing market is expected to reach US\$56.4 mn. The technology can bring up to 75 per cent reduction in construction time. WASP, an Italian company, has developed one of the world's largest 3D printers which is capable of building homes using locally sourced material using solar, wind and hydro power.



4D PRINTING

4D printing is the new trend which uses the 3D printed structures to change shape over time. 4D printed products, for example, can create water pipes that can contract or expand depending on the demand. Currently, 4D printing has not been applied to the concrete technology, but researchers are in process of conducting analysis on materials like cement and limestone. 4D printing can manipulate the material to handle the excess stress that is formed when the pressures are applied. These materials have been labelled as smart materials that can transform based on variety of energies.



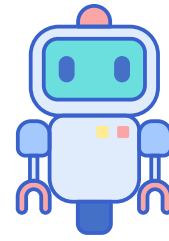
INTERNET OF THINGS

The rise in urbanisation and trend of affordable housing is leading to increased utilisation of scarce water resources, in addition to greater burden on the electrical supply infrastructure – leading to greater wastage of precious resources. The Internet of Things (IoT) promises value delivery on optimising resource management along with many more innovative use-cases for the real estate sector. IoT is the network of physical devices embedded with electronics, software, sensors and actuators enabling them to connect and exchange data.



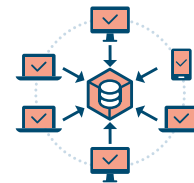
ARTIFICIAL INTELLIGENCE IN CONSTRUCTION

Artificial Intelligence (AI) presents an opportunity to maximise the benefits of modularisation and 3D printing, through machine learning. For example, the robotics industry has successfully trained robotic arms to move by learning from simulations. This application has far reaching implications in pre-fabrication technologies and building maintenance. The design industry is trying to use machine learning in the form of generative design to identify and mitigate clashes between the different models developed by different teams. AI and related software can be used to handle the logistics side of operations.



ROBOTICS

Advanced robotics are working on improving existing processes to make them more efficient and accurate. Collaborative Robots (Cobots) are designed to work alongside its human counterparts and improve productivity by carrying out tasks to support the human work. Robots offer higher efficiency on repetitive tasks. For example, SAM 100 masonry robots can lay up to 350 bricks per hour, much faster than most human masons. Wearable robotics are used to augment abilities.

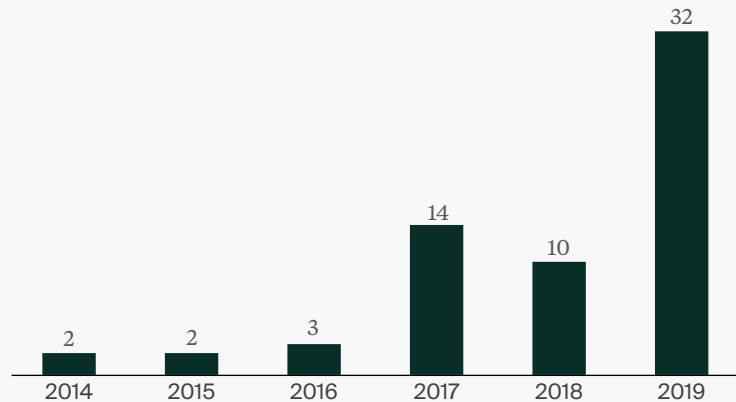


BLOCKCHAIN

With a blockchain system as a database, users will not only be able to view the property listings but also conduct transactions on a secure platform and have all the property documents under a single roof. It shall also induce a level of transparency in the system, something unseen in the past.



Investment scenario in PropTech globally (US\$ bn)



Source: CREtech End Year Report, 2019

Indian scenario

Even though PropTech is a global phenomenon, the majority of businesses in the industry are based in the United States and Europe. PropTech only became popular in Asia after the 2000s, and the markets are still in their infancy relative to their western counterparts. Currently, the bulk of PropTech companies in Asia (roughly 70 per cent) are based in China, India, and Singapore, with the remaining companies spread across Japan and Southeast Asia. With a population of 1.3 bn people and a real estate market forecast to cross US\$1 trillion by 2030 (Source: IBEF), India is an intriguing case study for PropTech.

Spotlight:

HDFC Capital supporting PropTech in India

In 2019, HDFC Capital launched the 'H@ART' (HDFC Affordable Real Estate and Technology) Program to mentor, partner and invest in real estate technology companies that shall drive breakthrough innovations and efficiencies in the affordable housing ecosystem. This initiative will catapult into the spotlight real estate technology firms and their innovative technologies aimed at increasing efficiencies and lowering costs in the development of a real estate project.

The H@ART eco-system: At the junction of real estate and technology, the objective of the H@ART Program is to create an ecosystem of innovation & engagement with all stakeholders of affordable housing i.e. key participant influencers, innovators and opinion leaders.

This programme was initiated by HDFC Capital and has various benefits on the supply side of real estate, such as:

- o Access to Capital: H@ART start-ups will get the opportunity to access international institutional growth capital.
- o Access to the H@ART ecosystem: Engage with leading players in the real estate community to brainstorm and ideate efficient solutions for the industry.
- o Pilot projects: Opportunities to collaborate on product validation and undertake pilot projects with India's top developers.
- o Mentorship: Domain experts and market executives will provide industry specific guidance.
- o Direct market access: Showcase solutions directly to the decision makers of potential customers, leading to shorter lead times.

H@ART has been set up to fund companies that are developing technological tools to increase the availability of affordable housing. There is a serious housing crisis in India, and these modest measures would help to reduce the cost of housing for homebuyers.

Abbreviations

ADB	Asian Development Bank	LPHA	Limited Profit Housing Association
ADIA	Abu Dhabi Investment Authority	LVC	Land Value Capture
AHF	Affordable Housing Fund	MCA	Ministry of Corporate Affairs
AHP	Affordable Housing in Partnership	MIG	Middle Income Group
AI	Artificial Intelligence	MMR	Mumbai Metropolitan Region
ALMO	Arm's-Length Management Organisations	Mn	Million
AR	Augmented Reality	NBFC	Non-Banking Financial Companies
ARHC	Affordable Rental Housing Complexes Scheme	NCR	National Capital Region
AUM	Asset Under Management	NHB	National Housing Bank
BLC	Beneficiary-Led Individual House Construction or Enhancement	NHD	National Housing Department
bn	Bn	NHDCL	National Housing Development Corporation Limited
BSE	Bombay Stock Exchange	NIIF	National Investment and Infrastructure Fund
BTO	Build-to-order	NPPF	National Pension and Provident Fund
CBRE GIP	Bouwinvest Real Estate Investors and CBRE Global Investment Partners	NREP	National Rural Employment Programme
CHP	Community housing providers	PBWA	Purpose Built Worker Accommodation
CIDCO	City and Industrial Development Corporation	PE	Private Equity
CLSS	Credit Liked Subsidy Scheme	PLCHP	Public low-cost housing programme
CPF	Central Provident Fund	PMAY	Pradhan Mantri Awas Yojna
CSR	Corporate Social Responsibility	PMAY-R	Pradhan Mantri Awas Yojana-Rural
DFI	Development Finance Institutions	PMAY-U	Pradhan Mantri Awas Yojana – Urban
DFID	Department for International Development	PPP	Public Private Partnership
DU	Dwelling Units	PSL	Priority Sector Lending
EAF	Emerging Asia Fund	PSPS	Hong Kong's Private Sector Participation Scheme
ECH	Economic and Comfortable Housing	RAY	Rajiv Awas Yojna
EMEA	Europe, Middle East and Africa	RBI	Reserve Bank of India
ESG	Environmental, Social and Governance	RERA	Real Estate Regulatory Authority
EWS	Economically Weaker Sections	SEBI	Securities Exchange Board of India
FAR	Floor Area Ratio	SIF	Integrated System of Housing Funds
FDI	foreign direct investment	SUDA	Surat Urban development Authority
FSI	Floor and Space Index	SWAMIH	Special Window for Affordable and Mid-Income Housing
GIIN	Global Impact Investing Network	TDR	Transfer of Development Rights
GST	Goods and Services Tax	TPS	Town Planning Scheme
HA	Housing Authority	UAV	Unmanned aerial vehicles
HALS	The Housing Association Leasing	ULB	Urban Local Body
HCARE	HDFC Capital Affordable Real Estate	ULCRA	Urban Land Ceiling and Regulation Act
HD	Housing Department	UN	United Nations
HDB	Housing and Development Board	UT	Union Territory
HDFC	Housing Development Finance Corporation Ltd.	VR	Virtual Reality
HFA	Housing for All	WBI	Wohnbauinitiative
HFC	Housing Finance Companies	WHC	The Washington Housing Conservancy
HH	Household		
HOS	Home Ownership Scheme		
HS	Housing Society		
HUDCO	Housing and Urban Development Corporation Ltd		
IBEF	India Brand Equity Foundation		
IFC	International Finance Corporation		
IMF	International Monetary Fund		
INFONAVIT	Instituto del Fondo Nacional de la Vivienda para los Trabajadores		
IoT	Internet of Things		
ISSR	In situ Slum Redevelopment		
JNNURM	Jawaharlal Nehru National Urban Renewal Mission		
KCHA	The King County Housing Authority		
KIP	Kampung Improvement Programme		
LIC	Life Insurance Corporation of India		
LIFO	Last in, First out		
LIG	Lower Income Group		

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Key contacts

RESEARCH, ADVISORY, INFRASTRUCTURE AND VALUATION

Gulam Zia

Senior Executive Director
gulam.zia@in.knightfrank.com

Rajeev Vijay

Executive Director - Advisory
rajeev.vijay@in.knightfrank.com

Saurabh Mehrotra

Executive Director - Valuation & Advisory
saurabh.mehrotra@in.knightfrank.com

CAPITAL MARKETS

Sharad Agrawal

Executive Director
sharad.agrawal@in.knightfrank.com

FACILITIES & ASSET MANAGEMENT SERVICES

Sathish Rajendren

Executive Director
sathish.rajendren@in.knightfrank.com

INDUSTRIAL & LOGISTICS

Balbirsingh Khalsa

Executive Director
balbirsingh.khalsa@in.knightfrank.com

Pinkesh Teckwani

National Director
pinkesh.teckwani@in.knightfrank.com

TRANSACTIONS

Viral Desai

Executive Director
viral.desai@in.knightfrank.com

PROJECT MANAGEMENT

Deben Moza

Executive Director
deben.moza@in.knightfrank.com

RESEARCH

Rajani Sinha

Chief Economist & National Director
rajani.sinha@in.knightfrank.com

Vivek Rathi

Director
vivek.rathi@in.knightfrank.com

AHMEDABAD

Balbirsingh Khalsa

Branch Director
balbirsingh.khalsa@in.knightfrank.com

BENGALURU

Shantanu Mazumder

Executive Director
shantanu.mazumder@in.knightfrank.com

CHENNAI

Srinivas Ankipatti

Senior Director
srinivas.ankipatti@in.knightfrank.com

HYDERABAD

Samson Arthur

Senior Branch Director
samson.arthur@in.knightfrank.com

KOLKATA

Swapan Dutta

Senior Branch Director
swapan.dutta@in.knightfrank.com

NCR

Mudassir Zaidi

Executive Director - North
mudassir.zaidi@in.knightfrank.com

PUNE

Paramvir Singh Paul

Branch Director
paramvirsingh.paul@in.knightfrank.com

REPORT AUTHORS

Saurabh Mehrotra

Executive Director - Valuation & Advisory
Advisory Services
saurabh.mehrotra@in.knightfrank.com

Toshi Mittal

Vice President - Advisory Services
toshi.mittal@in.knightfrank.com

Vedashri Chonkar

Associate Consultant - Advisory Services
vedashri.chonkar@in.knightfrank.com

GRAPHICS & DESIGN

Mahendra Dhanawade

Manager - Graphics & Design
mahendra.dhanawade@in.knightfrank.com

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RESEARCH
Rajani Sinha
Chief Economist & National Director
rajani.sinha@in.knightfrank.com

CORPORATE - MARKETING & PUBLIC RELATIONS
Piyali Dasgupta
Director - Corporate - Marketing & Public Relations
piyali.dasgupta@in.knightfrank.com

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