

By Dr Cheong-Chua Koon Hean

SINGAPORE: Housing a Nation



Singapore's Housing and Development Board (HDB) houses more than 80% of the island's population. Over three million residents live in just under one million public housing flats across our small city-state of 710 square kilometres. Similar to cities with diverse competing demands for limited land, a high-density, high-rise housing model was thus a natural choice.

Yet, public housing in Singapore stands out internationally, as the HDB went beyond the provision of basic shelter to provide quality housing that residents can proudly call homes and a living environment that nurtures the development of vibrant and cohesive communities. This was achieved through long-

term, integrated urban planning that optimised limited land resources, which provided highly liveable environments for its residents to live, work and play.

Today, through generous incentives and subsidies, approximately 90% of HDB residents own their homes, unlike

many global cities where public housing is predominantly rental housing. Furthermore, to maintain high standards of living, the HDB has launched a variety of initiatives aimed at rejuvenating older towns and estates. HDB also encourages community bonding and promotes good neighbourliness amongst its residents. In spite

of its high population density and limited natural resources, according to Mercer's *2011 Quality of Living rankings*, the city-state still ranks among the top 25 cities worldwide in terms of quality of living.

Creating Liveable Towns and Homes

Long-term integrated urban planning

Long-term integrated planning is crucial for Singapore to ensure it is developed sustainably and that there is sufficient land to meet its development needs. At the national level, the Concept Plan - an integrated land use and transportation plan - takes into consideration the city-state's various competing land use demands. It also ensures land and infrastructure planning is strategic, integrated across various government agencies and oriented towards the long term.

To date, three such plans have been launched - in 1971, 1991 and 2001. As a result of these, the HDB safeguards land for public housing development in the form of satellite towns that are interlinked by expressways to one another, and ultimately with Singapore's central business district. Each town is complemented by regional and sub-regional centres and is serviced by the city-state's mass rapid transit (MRT) system.

All three concept plans have significantly shaped Singapore's physical landscape, with the HDB playing a major role in its overall development. Care is also taken to maintain greenery and water bodies in order to preserve the living environment. Since the establishment of the HDB in 1960, it has built 23 towns and three smaller public housing estates across the island.

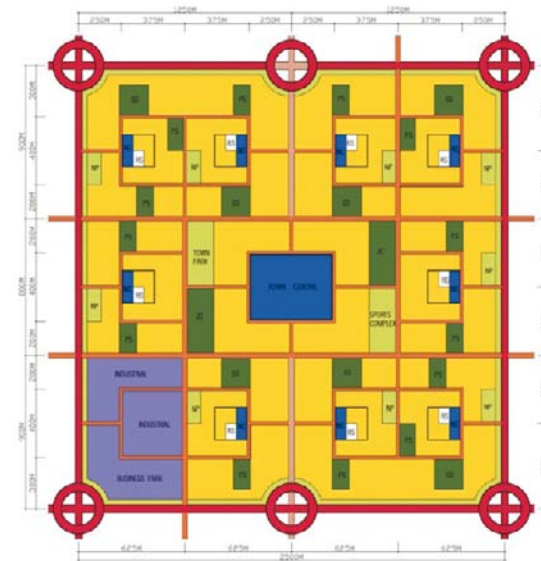
Comprehensive Town Planning and Urban Design

Comprehensive and Self-sufficient

At the town level, the HDB adopts a comprehensive approach, exemplified by the holistic planning of towns as self-sufficient environments. Each town is equipped with a full range of facilities - such as schools, shops and recreational amenities - in order to serve the daily requirements of its residents and reduce the need to travel to the downtown city centre.

Town and Neighbourhoods

Each town is designed with a central hub serving several neighbourhoods. In turn, each of these neighbourhoods is served by precincts with supporting socio-communal facilities, such as kindergartens, shops and eateries, to meet the needs of residents. Typically, a town has around 25,000 to 50,000 dwelling units, while each neighbourhood has around 4,000 to 6,000 dwelling units. Within each neighbourhood are precincts of about 600 to 1,000 dwelling units each.



Hierarchy Design

To create a sense of structure, a hierarchical concept is adopted to help residents navigate their living environment. Facilities that serve more people - such as shopping complexes and hawker centres - are placed at the top of the hierarchy (the centre of the town), while facilities that are more localised - such as smaller supermarkets and mini-marts and eating houses - are placed further down in the hierarchy (within neighbourhoods and precincts). Similarly, parks, commercial facilities and educational amenities are allocated on a town, neighbourhood and precinct basis.

Seamless Connectivity

Connectivity was planned from the onset to allow residents to move efficiently within their town and to other parts of Singapore. The city-state's transportation network derives from a planned island-wide transportation plan. This incorporates bus interchanges and MRT stations, which are strategically situated in the centre of towns, as well as local roads within towns that connect to the major arterial roads and expressways.

To meet the rising need for greater connectivity and accessibility - particularly with an ageing population - barrier-free design features, such as ramps, ensure that residents of all ages have convenient access to public transport.

Checkerboard Pattern

Due attention is also given to ensure visual and spatial relief of high-rise, high-density HDB developments between each town. This is achieved by juxtaposing low-rise developments in a checkerboard pattern to create a more interesting and varied skyline for HDB towns.



- 1 pg 38: Aerial view of Sengkang town from Serangoon Reservoir. Photo courtesy of HDB.
- 2 pg 39: Schematic drawing showing checkerboard planning concept for HDB towns. Image courtesy of HDB.
- 3 pg 40: Stepped terraces at the Waterway Terraces maximise residents' view of Punggol Waterway. Photo courtesy of HDB.
- 4 pg 41 above: View of old blocks at Toa Payoh Town, before and after redevelopment under the SERS. Photo courtesy of HDB.
- 5 pg 41 below: Community spaces such as the precinct pavilion allow residents to bond with one another. Photo courtesy of HDB.
- 6 pg 42: Remaking plans for the East Coast areas - Outdoor Play Corridor. Image courtesy of HDB.
- 7 pg 43: Vision of Punggol as 'The Sustainable Waterfront Town in the Tropics'. Image courtesy of HDB.

Urban Design Guidelines

The HDB formulates urban design guidelines to ensure individual buildings and precincts relate to each other in a coherent and user-friendly fashion. Urban design studies are also conducted for strategic landmark projects as well as large-scale mixed-use developments in town centres. In this way, urban design serves to bridge the gap between land-use planning at the broader level and the design of individual developments. This enhances a town's identity and character.

An example of distinctive housing design can be found along the Punggol Waterway in the northeast area of Singapore. Here, the housing was shaped by urban design guidelines that encouraged tiered-buildings. The development features lower buildings in front and taller ones behind, thus creating a stepped terrace effect by the waterway. Within the development, courtyards and open spaces integrate seamlessly with the waterway promenade and surrounding landscaping, producing an urban environment that is visually pleasing.

Continual Improvements and New Planning Concepts

The design of precinct facilities and flats also plays a significant role in delivering high quality homes for residents. With this in mind, the HDB has applied new planning concepts that capitalise on the locality's unique characteristics. For example, in the regeneration of the Dawson Estate in the central Singaporean district of Queenstown, the planning vision was to provide housing in a park. In line with this concept, the flats were developed in a park-like environment, with greenery situated within the mid-levels of residential blocks, complete with sky gardens for panoramic views.

Besides introducing new planning concepts that strengthen identity and character, the HDB has also introduced improvements to community facilities. At the precinct level, for example, recreational areas that integrate the needs of three generations – the children's playgrounds, adult fitness facilities and elderly fitness stations – have been introduced to encourage interaction between the young and old. At the block level, the HDB void deck – an empty or void ground floor that is a unique feature of many HDB blocks – has been given a facelift. Using the

lift lobby as the focal point, the block's drop-off porch, letterboxes, residents' notice boards, as well as tables and seats, are situated together to provide a stronger focal point for community interaction.

The design of HDB flats has also improved over the years. For example, flat layouts have grown more efficient, optimising the use of internal space. Wherever possible, the living room or bedrooms are also orientated to take advantage of the views outside. The windows of HDB flats today no longer face the common corridors unlike in the earlier years, in response to residents' preference for greater privacy.

Keeping Old Estates Relevant and Vibrant

Another unique aspect of public housing in Singapore is the extensive role HDB plays in estate renewal and rejuvenation. Here, the objective is two-fold: to ensure the quality of living in older estates and to retain the value of property in the estate. Rejuvenation also optimises land use wherever feasible, and helps bring in younger families to inject vibrancy into older estates.

In response to Singapore's rapidly aging population, HDB introduced its Lift Upgrading Programme (LUP) in 2001 to provide residents with direct lift access to every floor. The HDB has also implemented the Selective En bloc Redevelopment Scheme (SERS), for more comprehensive redevelopment. SERS aims to renew the physical and social fabric of an old estate by constructing new replacement flats next to older buildings. As residents move to brand new replacement flats with enhanced living environments, existing bonds and friendships are therefore retained. With the introduction of new and younger residents into these developments, the demographic of these estates remain varied and positively mixed.



In 2007, the HDB introduced the Home Improvement Programme (HIP), which sponsors essential improvements within older flats. In addition, residents can select value-for-money optional improvements for their flats and co-pay only what they have chosen. In the same year, the HDB launched its Neighbourhood Renewal Programme (NRP) that catered

for comprehensive, integrated and coordinated external improvements, complementing those in surrounding neighbourhoods. These programmes further continue the work of earlier upgrading programmes such as the Main Upgrading Programme (MUP) and Interim Upgrading Programme (IUP), which were introduced in 1990 and 1993 respectively to provide improvements to precinct areas, blocks and flats. At the same time, they provide residents with greater flexibility and say in the improvements to their living environment.

Building Cohesive Communities

Besides its high-density environment, HDB's estates comprise a diverse population of different cultures and lifestyles. Thus, the building of cohesive communities, among residents of all backgrounds, is also very important.

In pursuit of this, the HDB has provided community spaces such as playgrounds and pavilions where residents can interact with one another and enjoy group activities. To ensure communal facilities and spaces cater to the needs of each community, the HDB regularly conducts consultations with residents to seek their views on various aspects of their neighbourhood.

The HDB has gone a step further in promoting bonding within communities - by organising welcome parties in newly-completed precincts for instance, to provide opportunities for residents to interact and forge friendships. The



HDB also promotes gracious living and good neighbourliness amongst residents. Since 2009, the HDB has awarded residents who demonstrate exemplary acts of neighbourliness with the Good Neighbour Award. These acts of kindness are publicised to encourage and inspire other residents to be good neighbours.

Meeting Future Challenges As Singapore Becomes Increasingly Built-Up

With an increasingly built-up environment, ageing properties and higher public expectations, the HDB will continue to work towards a better living environment and to meet the evolving needs and housing aspirations of our residents. The HDB's new initiative, *Roadmap for Better Living in HDB Towns*, will guide the organisation in meeting these challenges over the next five to 10 years. By building on past efforts and good practices, this roadmap emphasises the developing of well-designed, sustainable and community-centric towns.

Well-designed Towns

Well-designed towns will remain the HDB's focus, but these will move beyond good, functional, design to become neighbourhoods with greater vibrancy and character. To achieve this, in 2007 the HDB launched the Remaking Our Heartlands (ROH) initiative to achieve a more holistic approach to rejuvenate towns. An example is the remaking plans for the East Coast area was announced in January 2011, of which a key feature is to transform the Bedok Town Centre into a vibrant new hub by 2016. Residents can look forward to a shopping mall, an air-conditioned bus interchange and private residential units all integrated under one roof. To inject further vibrancy there will also be a new food centre, a town plaza and a new integrated sports complex. Detailed urban design guidelines are formulated to ensure better synergy and integration of the new facilities.

Sustainable Towns

In support of the Sustainable Singapore Blueprint initiative, the HDB pursues suitable green initiatives and urban solutions for its towns. HDB has already

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developed its first eco-precinct - Treelodge@Punggol. This project, located in Singapore's northeast region, incorporates environmentally-friendly features. These include a rainwater harvesting system and water saving fittings to promote water conservation; and an additional rubbish chute at each block dedicated for recyclable waste to encourage recycling. Energy conservation initiatives, such as harvesting energy from the sun using solar panels, and tapping on kinetic energy created by moving lifts to generate electricity are also implemented in the development.

The HDB will continue to explore sustainable development initiatives on a larger scale. Punggol will be developed as Singapore's first eco-town. With the vision to become 'The Sustainable Waterfront Town in the Tropics', several urban solutions and environmental sustainability strategies are to be implemented. These include greener forms of transport, enhanced greenery and biodiversity, effective water and waste management, greater deployment of solar PV and smart grids, aimed at achieving greater energy efficiency, reducing carbon emissions and providing a clean and comfortable living environment.

Community-centric Towns

Going forward, the planning and design of HDB towns will continue to facilitate the building of cohesive communities and to promote harmonious living. In addition, HDB will also engage the community more frequently on matters and decisions affecting their living environment to ensure we cater to their lifestyle needs.

Conclusion

Singapore has limited land resources and a growing population. Never before has the city-state's need for land use optimisation been more pressing, nor the trade-offs between competing uses been so stark. The challenge facing HDB is to create innovative and sustainable solutions that meet competing land use needs, while maintaining a high quality living environment for its residents. The HDB will continue to capitalise on the opportunities presented by a high-density environment and will work with its multiple stakeholders to co-create urban solutions that transform the way Singaporeans live, work and play.



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From 2004 to 2010, Dr Cheong was the CEO of the Urban Redevelopment Authority, in charge of strategic land use planning, conservation of built heritage and the real estate market, in Singapore. She played a key role in the development of major growth areas, including Marina Bay.

She is also a Board Trustee of the International Urban Land Institute and serves on several international expert panels advising on sustainability and cities development.

Dr Cheong has been conferred several awards including the Meritorious Service Award for exceptional public service and the Convocation Medal for Professional Excellence (Australia).

