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Nation-Building, Singapore-Style: Better Living Through Density



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Dr. Cheong Koon Hean has been credited with shaping much of Singapore's urban landscape. In her role as CEO of the Urban Redevelopment Authority from 2004 to 2010, she was the key driver of Marina Bay, Singapore's new city extension, and also initiated the Urban Design and Architecture Excellence Program. As CEO of the Housing & Development Board, Dr. Cheong has improved the sustainability of the agency's high-rise housing blocks, which are home to 82% of the nation's citizens, and of which 94% are owner-occupied. A Colombo Plan Scholar, Dr. Cheong graduated with a first-class honors degree and University Gold Medal in Architecture from the University of Newcastle; a masters degree in Urban Development Planning from University College London, and has completed the Advanced Management Program at Harvard University. She is also the recipient of the CTBUH Lynn S. Beedle Lifetime Achievement Award in 2016.

Dr. Cheong Koon Hean was the first woman to receive the Lynn S. Beedle Lifetime Achievement Award from CTBUH, in 2016. As the CTBUH Awards program expands into the Tall + Urban Innovation Conference in 2018 and a new CTBUH Technical Guide on urban spaces is released, featuring Marina Bay and many other successful urban developments, editor Daniel Safarik caught up with Dr. Cheong to look back upon the trails she blazed and the future she envisions.

What does it mean to you to have won the Lynn S. Beedle Lifetime Achievement Award from CTBUH?

I am thankful that CTBUH recognizes the work of government planners and their contributions in shaping urban habitats and creating quality lives for the people they serve. But urban planning is never a "one-man show." The award is also a wonderful recognition of the good work of my colleagues in the Urban Redevelopment Authority (URA) and the Housing & Development Board (HDB) who have worked tirelessly, so that together, we can shape the Singapore cityscape and create endearing homes. The award also affirms the value of our contributions and spurs us on to bring about a positive change in our urban environment and to improve the lives of all Singaporeans. It's a great honor to be among luminaries such as Cesar Pelli, Lord Norman Foster, and the late Minoru Mori, who have made such a positive impact on their own cities through their work.

Of what project or achievement are you most proud?

The development of Marina Bay, a collective effort involving many colleagues, remains one

of the most fulfilling projects I have worked on (see Figure 1). Even today, I feel very proud and happy when I am there, and I continue to think of how we can improve it further, since it's a continuous "work in progress."

I have also found the formulation of our long-term concept plan extremely satisfying. We undertake reviews of our concept plan every five to 10 years, and while such long-term planning is less visible to the public, it is a crucial part of our work. Having worked on three rounds of concept plan reviews, I believe such far-sighted planning has enabled us to achieve a highly livable environment, in spite of our land constraints in Singapore.

I have also enjoyed working on some of the recent new HDB Master Plans for public housing – particularly those in our new towns and estates, where we are introducing fresh design ideas that capitalize on each town's surrounding environs and unique heritage. We're even incorporating smart planning and smart technology to create a more sustainable, livable, and safe environment for residents (see Figure 2). I am excited that we are progressively implementing them, and look forward to creating the unique environments envisioned in these plans.

How is it that Singapore has a model of tall social housing that is unlike any in the world?

Singapore is unique because it is a city-state – it is both a country and a city. An island of only 720 square kilometers, it is about half the size of metropolitan London. Unlike other cities, Singapore not only has to provide the usual housing, commercial, industrial, social, and recreation facilities for its population; it

“[Singapore’s high quality of life] is possible only with good governance and clean government, the building up of capable institutions, and the harnessing of public-private partnerships and technology to ensure that our plans do get implemented.”

also has to cater to the needs of a country – including ports, airports, spaces for military uses, and water sufficiency.

Nonetheless, by carrying out long-term and comprehensive planning, we have managed to cater to all our needs, including safeguarding a primary forest rich in biodiversity right in the heart of the island, which doubles up as our water catchment area.

Given our land constraints, Singapore has no choice but to adopt a high-density development model in order to optimize our land to fit in all our needs. Yet, despite our land and resource constraints, Singapore has been ranked as one of the most livable cities in Asia. We try to create “livable density.”

How do you define “livable density”?

It is about achieving a good-quality living environment despite the high density. Livable density can bring about opportunities, variety and convenience. With high density, we can offer closer proximity and easier access to a wider range of amenities (shops, schools, entertainment, leisure facilities, health facilities, etc.); more convenient and affordable public transport rail networks, which reduce traffic congestion; and more optimal and reliable infrastructure and utilities. Livable density also means that, even as we build new typologies of high-density housing, we are able to set aside sufficient parks and recreation facilities to make it a pleasant and green environment.

We take a lot of care to design and develop our buildings well. For example, within HDB, we study different types of housing typologies, so as to create good living and community spaces that are well ventilated, with a sense of space that suits our residents’ lifestyles, and which would encourage community bonding. In Singapore, we are the leader in precast concrete technology, which enables us to build productively and cost-effectively, while ensuring good quality finishes for our housing. We deploy various sustainability initiatives such as greenery, rainwater harvesting and the use of solar photovoltaics to generate energy.



Figure 1. Marina Bay area, Singapore. © Chen Si Yuan (cc by-sa)



Figure 2. Caldecott – one of the latest HDB master plans for public housing. Source: HDB.

Some say the special conditions of Singapore would be hard to reproduce elsewhere. But you have taken your work overseas to China, where you helped formulate the Sino-Singapore Tianjin Eco-city Master Plan, for instance. Do you think the Singapore model is exportable?

Every city has its unique challenges and must find solutions which suit their own context. However, there are useful good practices that may be applicable for most cities, and we all learn from each other.

For Singapore, we found that several success factors have helped us to transform into one of the most livable cities in the world today. Firstly, cities need to adopt long-term and visionary planning. This helps cities to plan ahead and resolve internal trade-offs; and to prioritize investments into much needed infrastructure to support urban growth.

There really has to be a focus on livability and sustainability. We are clear that we want to build a sustainable and livable environment and have put in concrete plans over many years to realize our vision. I think there is also a strong commitment on providing affordable housing through good policy design. For example, in Singapore buyers can use their Central Provident Fund (CPF), a compulsory retirement savings scheme, to help them to buy housing.

It’s important to develop innovative planning solutions and harness technology to support growth. For example, despite our small size, we have used technology to ensure that we will be “water sufficient” in times to come. We create the “illusion of space” in the way we juxtapose our buildings with green and blue elements. And all of this is possible only with good governance and clean government, the building up of capable institutions, and the harnessing of public-private partnerships and technology to ensure that our plans do get implemented.

And it is exportable, with determination and adaptation. Even with Tianjin Eco-city, one key challenge we faced was how to adapt our policies and practices such that they could be applied in China. This was where we worked very closely with our Tianjin counterparts to adapt our recommendations to suit the local social, cultural, environmental and economic conditions, legislation, and governmental structure.

What role do you expect the Internet of Things, smart buildings, and other technologies to play in the near future of tall residential developments?

In the next two decades, the pace of change will likely accelerate, given the rapid advances in technology. To ride the wave of technological change, Singapore too has



Figure 3. Tengah will be the first car-free HDB town center. Source: HDB.

aspirations to be a Smart Nation. Digital innovation will be used to support stronger communities and better living, and to create more opportunities for all.

As the largest housing developer in Singapore, HDB constantly pushes the frontiers of urban design and planning, by harnessing technological improvements to build sustainable and smart towns. HDB has capitalized on the latest information and communication technology to enhance livability, efficiency, sustainability, and safety in its estates. The focus is on four key dimensions – Smart Planning, Smart Environment, Smart Estate, and Smart Living. Both new and existing towns can benefit from the application of smart technologies and sustainable solutions townwide. As all public housing is fitted with broadband fiber-optics cables, we are in a good position to make our towns smarter.

For example, right from the onset, computer simulation and data analytic tools will be used in the planning and design of the town to create a conducive living environment, with facilities located at the best possible spots within the estate. In a high-rise environment, such modeling will enable us to design our towns to better capture wind flows to improve air quality, to place uses like playgrounds in the shade, and to erect solar panels on rooftops of selected buildings where there is more sunlight.

Smart applications can also help us to maintain our estates better. Using sensor technology and data analytics, we can monitor various services like our solar panels, lighting and lifts to ensure that they function well, and even carry out predictive maintenance. This improves reliability and cost-effectiveness. Within the home, applications such as home energy

management systems, smart elderly monitoring alert systems and tele-health can make day-to-day living easier for our residents.

What were the main items that you felt needed to change when you began reviewing Singapore’s housing policy upon your appointment? How do you feel about progress made since that time?

When I first joined HDB in late 2010, a major challenge was to meet the huge demand for public housing. I had to triple the public housing program within a compressed time frame in order to meet this demand. This required several master plans to be formulated and the preparation of land with infrastructure to be ready to be built on. However, I did not want to do more of the same in a “cookie cutter” way. This was a great opportunity to build a new generation of public housing with fresh ideas. I therefore launched a “Roadmap for Better Living in HDB Towns” in 2011 – to build well-designed and community-centric, sustainable and smart towns. We have built more than 100,000 units of flats within the last five years. These new areas are progressing well, and the feedback I have received is that they are attractive and pleasant places to live in.

The subsequent new areas that we opened up had a mandate to create towns that have a distinctive character, capitalizing on the heritage and existing environment of each place. More focus was given to weaving in “green and blue” elements into the towns, creating more opportunities for recreation, cloaking the towns with a mantle of greenery and providing water amenities. We paid close attention to good urban design, ensuring that the form massing of different buildings would result in a pleasant living environment, despite the high-density, high-rise buildings. For example, the latest

town of Tengah has a “forest” theme, and will be the first HDB town to have a car-free town center (see Figure 3).

In addition to public housing, you’ve also played a role in high-end mixed-use developments like Marina Bay. What principles and methods do you think are transferable between the two project types?

For the successful transformation of areas like Marina Bay and public housing townships, it is important to carry out comprehensive long-term planning from the start. We must have clear visions of what we want to develop – in both cases, we wanted to create highly livable, sustainable and vibrant environments with a focus on people. However, to achieve this vision, we needed to carry out detailed urban design, considering the juxtaposition of buildings to create a beautiful skyline, developing great public spaces, integrating greenery and water bodies; and investing in good infrastructure, including a public transport system to create a “car-lite” environment. On top of this, it’s about good “placemaking” and programming activities that enable people to enjoy their city and town, leading to a vibrant and endearing place that people want to come to or live in. We also work with both public and private sector partners and stakeholders to help realize our plans, tapping on their ideas and enterprise. It is important to emphasize design excellence in all our developments, to give that special quality to the place. These are timeless principles for developing successful cities and towns. ■

The Tall + Urban Innovation Conference will be held in Chicago on May 30–31. Go to tallinnovation2018.com for more information.

The CTBUH Technical Guide *The Space Between: Urban Places, Public Spaces & Tall Buildings* is now available at the CTBUH Web Shop, store.ctbuh.org.

