

Improving Liveability in Three Chinese Cities

Written by Rani Samtani



Visitors walking around the pavilions in the Humble Administrator's Garden.

Source: LWYang, flickr

Cities in China have been making strides to improve liveability and sustainability. This was evident to participants of the Centre for Liveable Cities' Executive Development & Growth Exchange (EDGE) programme during their recent study trip to the country. They saw up-close a variety of initiatives, including the seamless urban design principles implemented in Suzhou's public gardens, the novel waste management methods adopted in the Tianjin Eco-City and the successful urban regeneration of Beijing's Sanli River.

Preserving the Beauty of Suzhou's Humble Administrator's Garden

This 52,000 m² garden was built during the Ming Dynasty in 1509. Over the years, it has been rebuilt and restored by various different owners but what has remained consistent is the key classical design elements of the grey roof tiles, white walls and varied pebble stone flooring. Similar to Chinese watercolour paintings, the garden houses beautiful water features, green hills, traditional pavilions, flowers, trees and rock formations. This picturesque attraction is what has made this UNESCO World Heritage Site so popular amongst tourists.



Various pebble stone floor designs differentiate the garden's different sections.
Sources: Blaine O'Neill, flickr (Left) and Sergio Tittarini, flickr (Right)

Maintaining the garden's beautiful aesthetics and protecting its cultural aspects are a high priority. To distinguish the garden's different sections, unique and contrasting floor patterns have been created. The garden is also fitted with ramps to aid the elderly, children in strollers and wheelchair users.

Other modern amenities in the park include rubbish bins, signage and access ramps, who are all designed to blend well into the surrounding environment. For example, signage and inscriptions around the garden look similar to the artefacts on display as they are designed with matching coloured wood and traditional design elements. This attention to detail ensures minimal disruption to the site's heritage.

Learning from Singapore in Suzhou

Another example of persevering heritage in Suzhou is the Suzhou Industrial Park (SIP). This industrial park has a modern town developed around an old core — the result of the government conserving heritage sites, such as its historical water town, right from the beginning of its development.

SIP is the first bilateral project between the Chinese and Singapore governments, and is also the largest cooperative project between them. Situated near the developed megacity of Shanghai, the park has adapted Singapore's urbanisation experiences to China's local context.

Although named an industrial park, SIP is planned like a modern township, mirroring Singapore's systematic approach of drafting master plans, specific project plans and strict development control guidelines. The 288km² town is divided into four functional zones — Yangcheng Lake (North), Jinji Lake (Central), Dushu Lake (South) and East — that each serve different purposes such as recreation, economic, education and international collaboration. Preferential policies and streamlined government services have created a pro-business environment that has helped SIP attract high tech industries in emerging fields such as artificial intelligence, biomedicine and nanotechnology.



How the Pneumatic Waste Collection system works in Singapore's public housing.
Source: HDB

Smart Waste Management in the Sino-Singapore Tianjin Eco-City

A more recent Sino-Singapore project is this environmentally friendly and sustainable city in Tianjin. Its administration has adopted a smart waste management system to achieve its goal of becoming an eco-city. The Pneumatic Waste Collection system uses air suction technology to move rubbish through an underground piping network to a centralised garbage collection point. Along the process, the refuse is sorted into recyclable and non-recyclable waste before being placed into sealed containers.

This completely automated system is more environmental and sanitary than the traditional open refuse collection which often emits foul odours. It also promotes better hygiene by reducing the chance of spills during refuse collection as well as minimises vehicular traffic and noise pollution. As the system operates round-the-clock, there is less need for manpower while increasing productivity. The system is flexible and can be installed at individual buildings or even scaled across an entire town. Similar systems are also currently being piloted at certain public housing flats in Singapore.

On top of setting up infrastructure, the Tianjin Eco-City Administrative Committee has introduced policies and initiatives to incentivise recycling. A key measure is a smart garbage collection platform where citizens are rewarded with points for placing their rubbish in the correct recycling bins. These points can then be exchanged for gifts, to use public facilities or to redeem groceries at local shops.

Tianjin demonstrates how both hardware and software measures have been implemented to improve waste management. By increasing public participation through the point rewards system and encouraging citizens to separate their recyclables, the government is also tackling waste production at its source.



Stone walkways, bridges and trees line the Sanli riverside.
Source: CLC

Restoring and Cleaning Up the Sanli River

Once a polluted river that was clogged up with waste, the Sanli River has recently been transformed into a stunning public park with calming water features and lush greenery. This successful urban regeneration was achieved through sewage management, ecological restoration and strategic urban design.

The 600 m long Sanli River was first constructed during the Ming Dynasty in 1487. During the Qing Dynasty in the 1600s, it became an open sewer to dump household waste and refuse. Rapid urbanisation also led to an increase in pollution and the river soon dried up and became blocked because of the large amount of waste. Officials chose to clean up the area by filling the river with concrete.

Recently, as part of government efforts to create more green spaces and preserve historical areas, the river was remodelled into a functional landscape for both residents and visitors. While the waterway serves as a flood mitigation method during heavy rains, its scenic design reflects the city's past, combining elements of Chinese culture and history with modern art and urban design.

To retain the historical value and reduce the impact on the environment during restoration, all original trees at the site were kept in-situ by turning the riverbanks into tree islands connected by boardwalks and bridges. Art was also integrated into the ecological landscape to give the district a new

cultural identity. Inspired by the traditional art of paper cutting, an 800 m red structure made of fibre glass acts as both an art piece and an integrated shelter for pedestrians. These features are connected by an integrated pedestrian walkway and cycling paths, making Sanli River a scenic public space for nearby residents to enjoy today.

Resolving Transportation Issues in Beijing and Singapore

Bike sharing is dubbed as one of the four great inventions in modern times by the Chinese. This service has modernised a 200-year old invention and changed the way people interacted with it.

Founded in 2014, the Beijing-based OFO is leading the way as the world's first station-free bike sharing platform. It provides sustainable short-distance and first/last mile transportation alternatives for commuters across many cities in China. Instead of a dock, OFO uses Internet of Things (IoT) Smart Locks that allow its bikes to be trackable. This is the world's first commercial use of Narrow-Band IoT. To date, OFO is one of the largest internet platforms in China, boasting some 32 million daily transactions, 10 million bikes across 21 countries and 250 cities.

In 2017, OFO expanded overseas, beginning with Singapore because of its well-established mass transport network, shared vision and cosmopolitan environment. Together with other bike sharing operators, OFO has enhanced Singapore's urban mobility plans to provide more convenient, accessible and comfortable options for commuters.

About the Writer



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About CLC

The Centre for Liveable Cities was set up in 2008 by the Ministry of National Development and the Ministry of the Environment and Water Resources, based on a strategic blueprint developed by Singapore's Inter-Ministerial Committee on Sustainable Development. Guided by its mission to distil, create and share knowledge on liveable and sustainable cities, the Centre's work spans four main areas - Research, Capability Development, Knowledge Platforms and Advisory. For more information, please visit us at <http://www.clc.gov.sg>

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