Sustaining Singapore's Liveability: The Urban Systems Approach

Global Platform for Sustainable Cities Lunch Conversation
25 March 2019, Washington D.C.

Mr Khoo Teng Chye
Executive Director, Centre for Liveable Cities

CENTRE for LiveableCities SINGAPORE

A division of MND SINGAPORE

Outline

I. Introduction
   - Singapore's development in summary
   - Centre for Liveable Cities

II. Singapore Liveability Framework
   - Urban Systems Approach

III. Urban Systems for Liveability

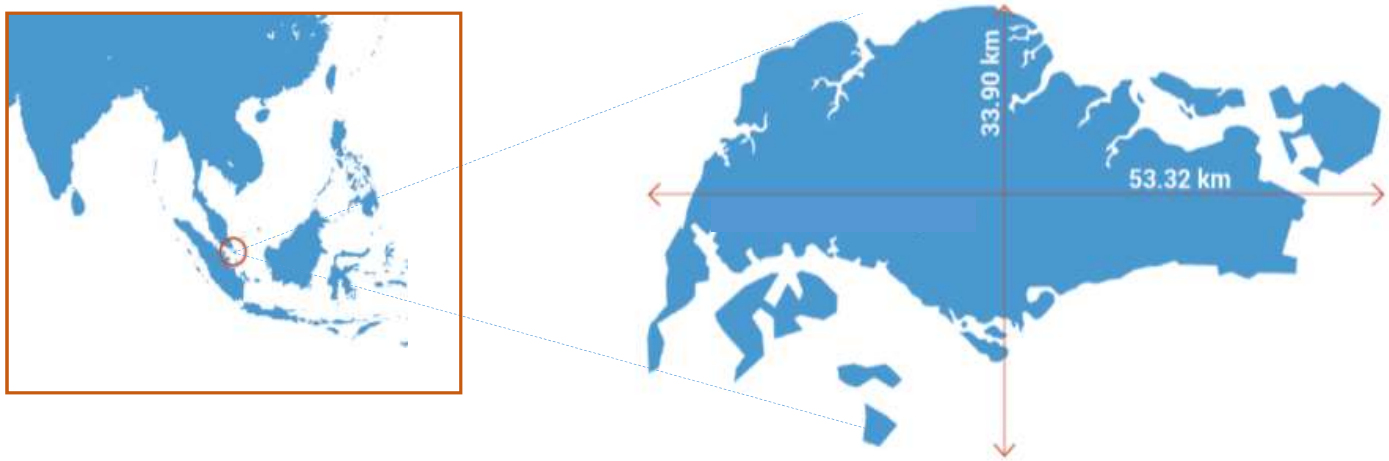
IV. Urban Systems Case Study
   - Singapore River and Marina Bay

V. Financing Urban Growth

VI. Sharing Urban Systems Knowledge

I. Introduction

Singapore: The Challenges of a Small City-State



- Population of **5.61 million**
- Land area of **719 km²**
- Population density of **7,800 persons/km²**
- Scarce and limited natural resources
- Need to create space to meet essential needs such as accessibility and connectivity (air, sea ports), defence and for survival (e.g. water supply)

I. Introduction

Singapore in the 1950s and 1960s

A newly independent country grappling with rapid urbanisation.

Overcrowded slums

High unemployment

Water shortages

Polluted river

Traffic congestion

Flooding

CENTRE for LiveableCities SINGAPORE

I. Introduction

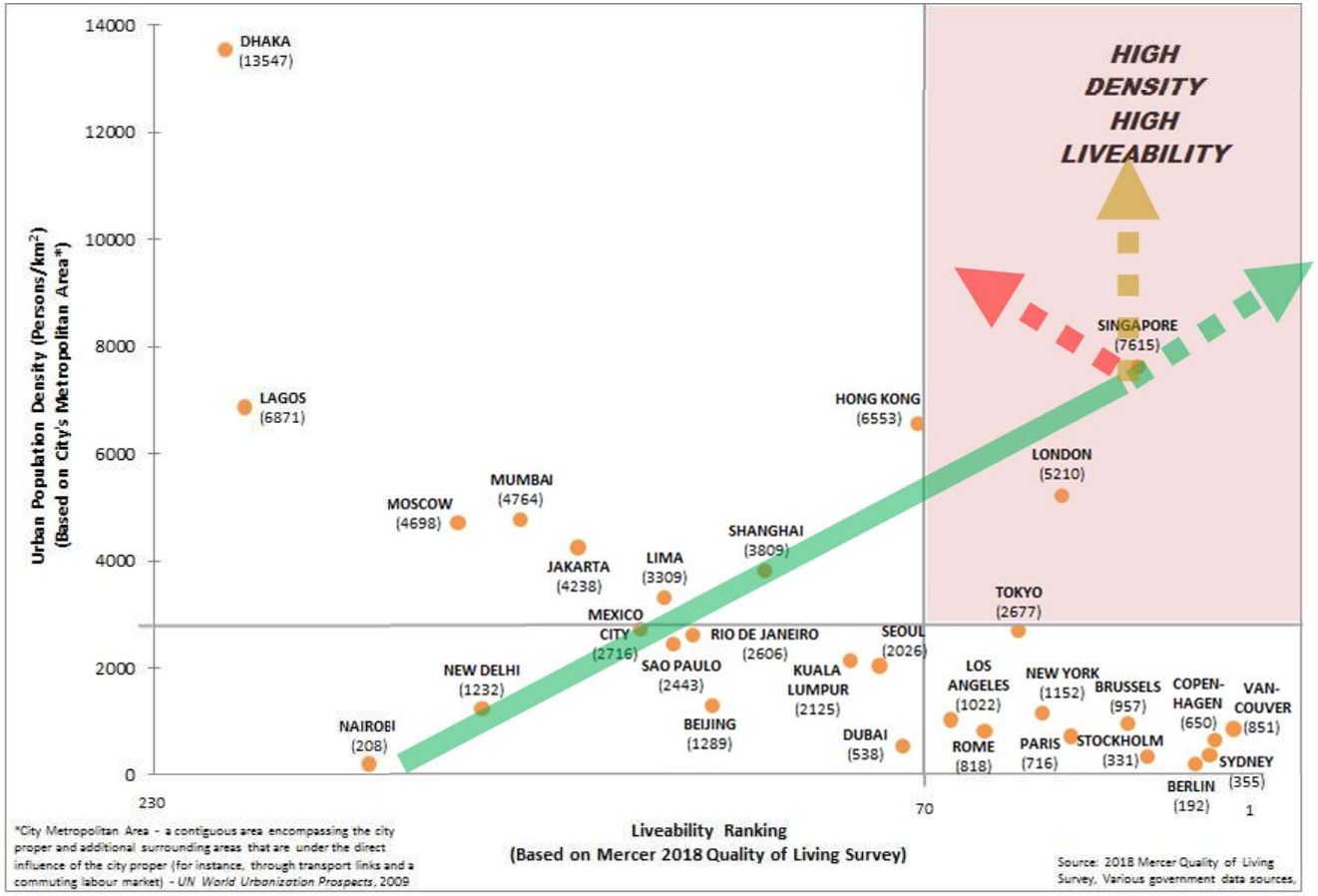
Singapore Today

A highly liveable and sustainable city.

CENTRE for LiveableCities SINGAPORE

I. Introduction

CLC Liveability Matrix

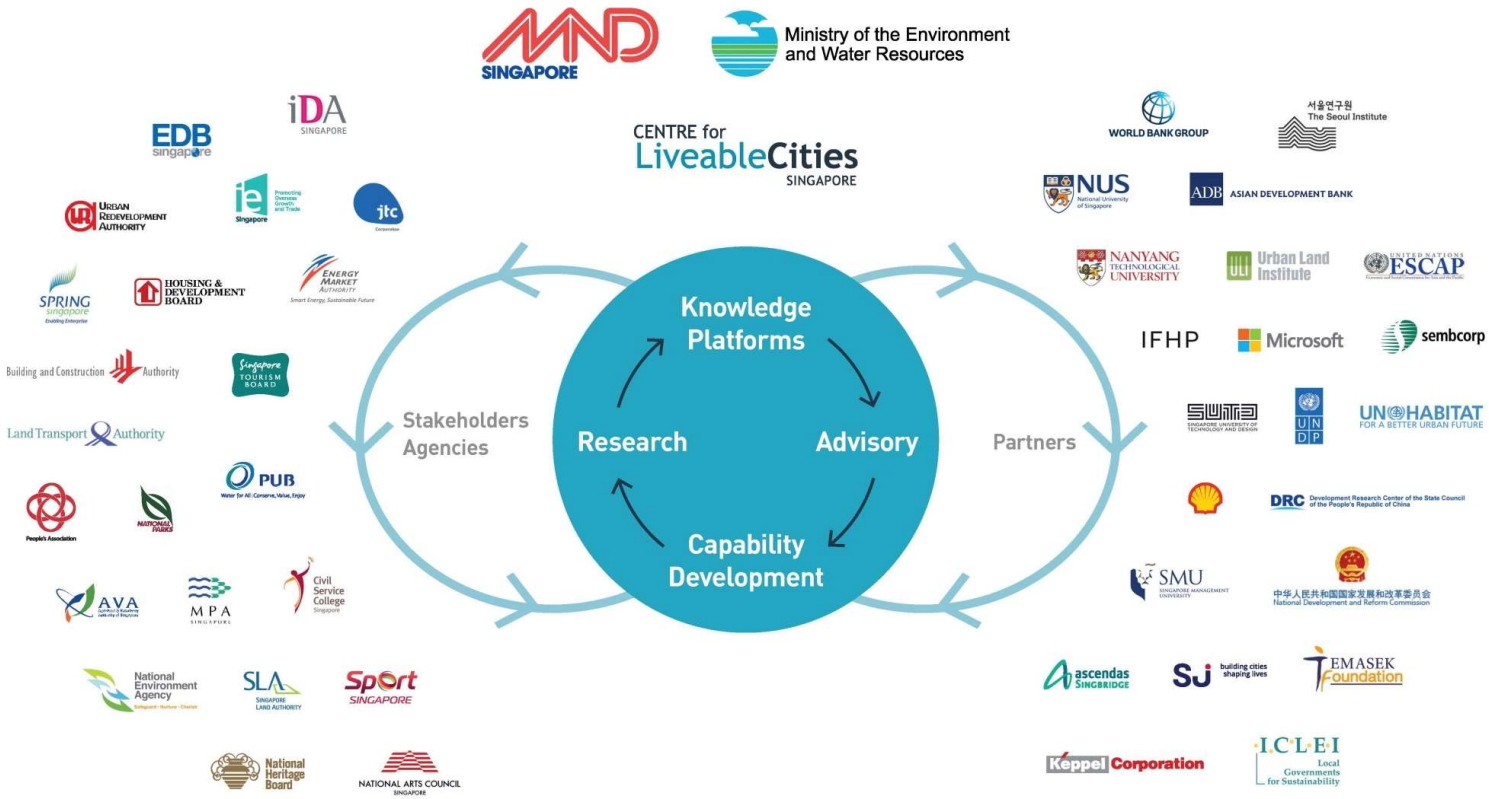


CENTRE for LiveableCities SINGAPORE

I. Introduction

Centre for Liveable Cities

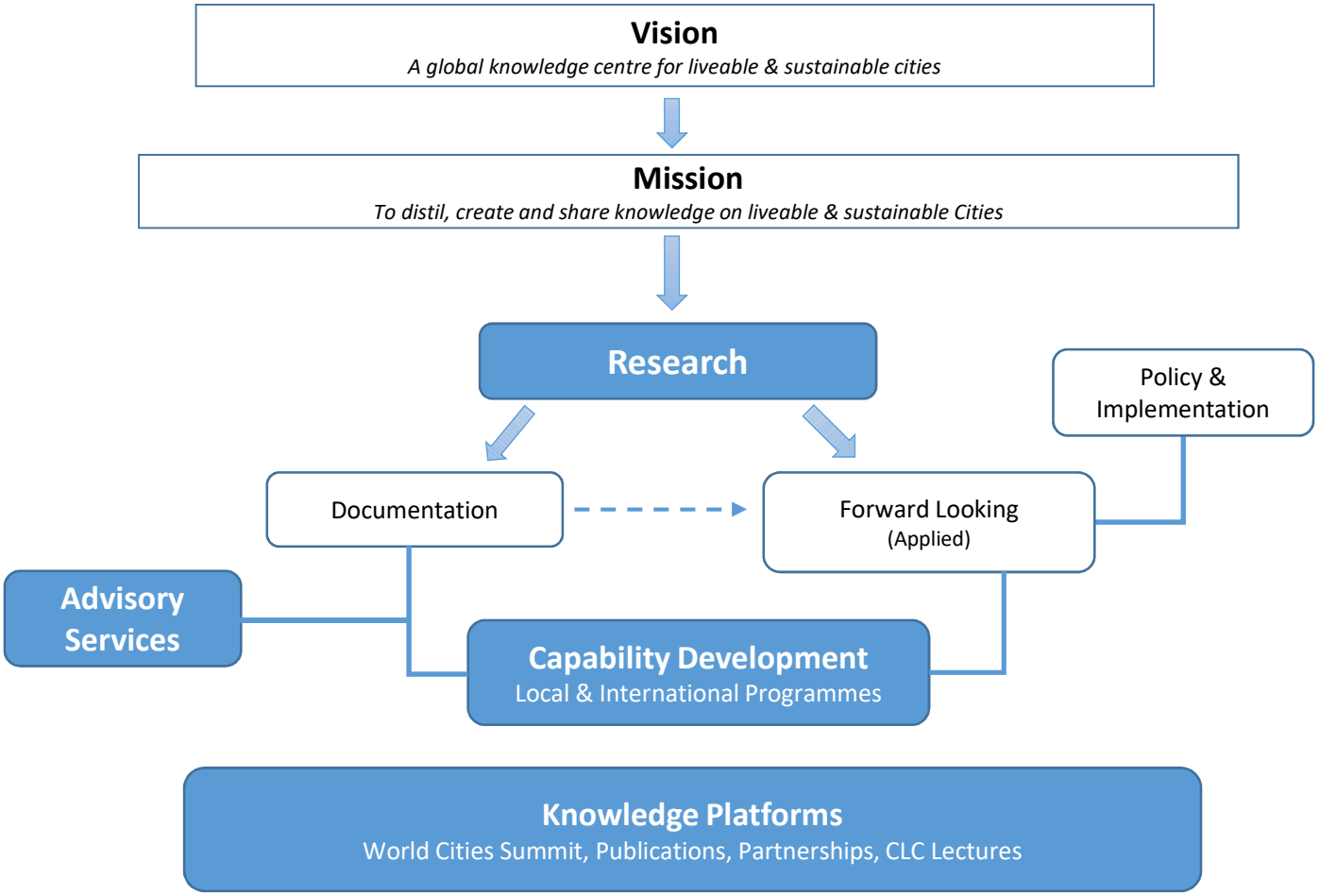
Established in 2008 by MND and MEWR as a knowledge centre for liveable and sustainable cities.



CENTRE for LiveableCities SINGAPORE

I. Introduction

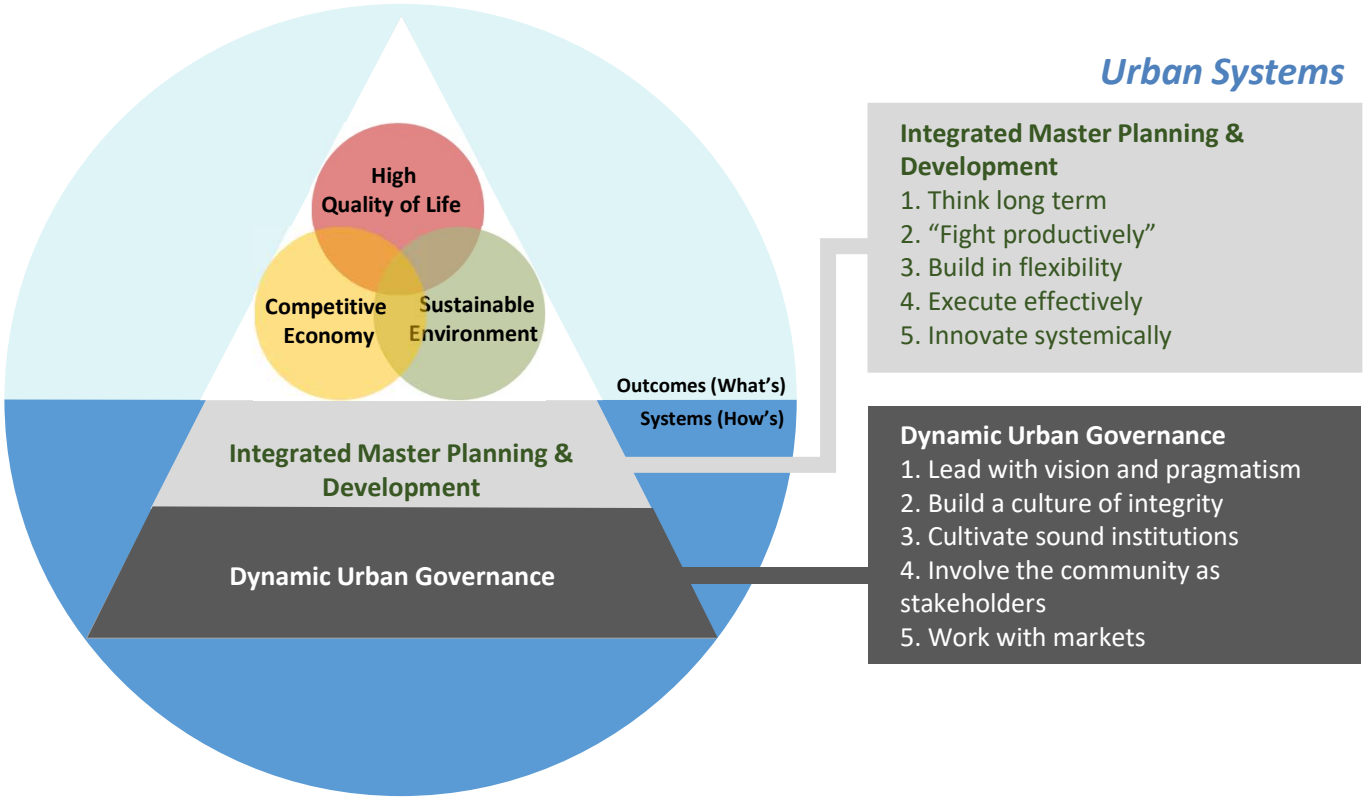
CLC's Value Proposition & Focus Areas



CENTRE for LiveableCities SINGAPORE

II. Singapore Liveability Framework

A framework for planning and developing a liveable city.

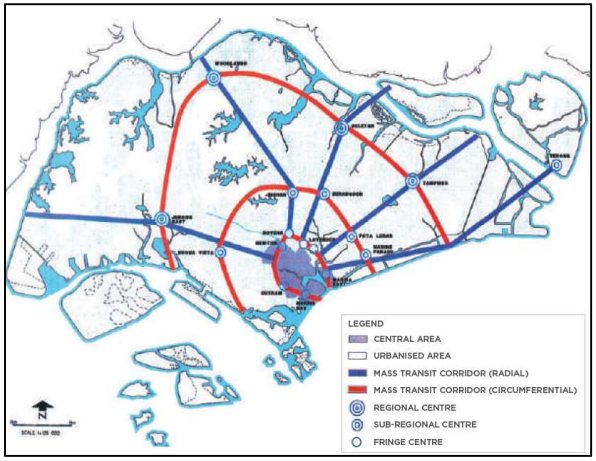


CENTRE for LiveableCities SINGAPORE

III. Urban Systems for Liveability

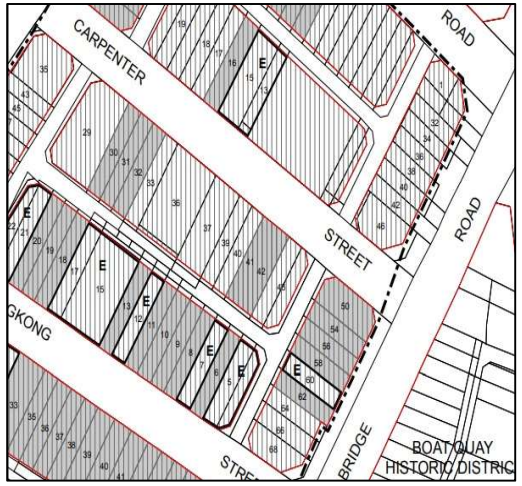
Long-Term Planning

Concept Plan



Master Plan

Urban Design Plans



CENTRE for LiveableCities SINGAPORE

III. Urban Systems for Liveability

Sustainable Living

In the 1950s, Singapore experienced severe housing shortages and overcrowding in urban slums and squatter settlements.

Newly independent Singapore's government moved quickly to implement a public housing programme.

III. Urban Systems for Liveability

Sustainable Living

The Housing & Development Board was formed to develop low-cost public housing as quickly as possible.

First generation HDB blocks, Queenstown (1960)

Newly developed Toa Payoh New Town (1967)

III. Urban Systems for Liveability

Sustainable Living

Today, more than 80% of Singaporeans live in high-density, high-rise HDB flats.

- HDB towns are self-sufficient communities, with commercial, transport, recreational and other facilities
- Policies are in place to ensure social integration through a mix of flat types, racial quotas and common public spaces
- These efforts promote community identities and foster a sense of home ownership and pride


Pinnacle@Duxton


Tree Lodge @ Punggol


Tampines New Town

CENTRE for LiveableCities SINGAPORE

III. Urban Systems for Liveability

Sustainable Mobility

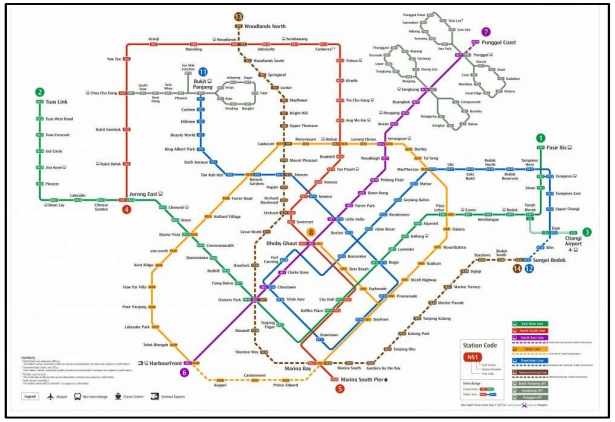
Singapore's transport system was chaotic, with severe traffic congestion, poorly managed private bus services and decaying infrastructure.

There were little to no controls on car ownership.

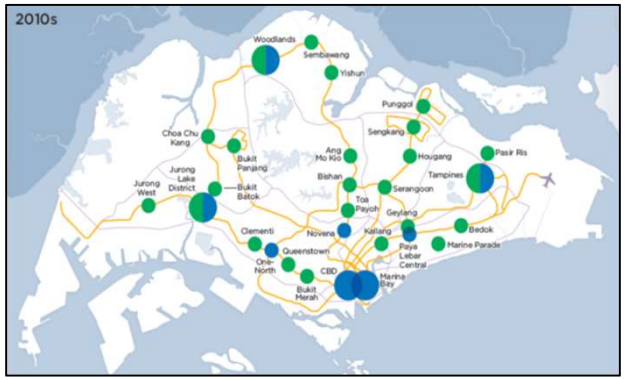
III. Urban Systems for Liveability

Sustainable Mobility

The government implemented measures to improve the public transport system and reduce urban congestion.



- Development of the Mass Rapid Transit (MRT) system (1980s)
- Establishment of the Area Licensing Scheme (1975) and Electronic Road Pricing (1990)
- Introduction of Constellation Concept to establish regional centres to reduce CBD congestion (1991)



CENTRE for LiveableCities SINGAPORE

III. Urban Systems for Liveability

Sustainable Mobility


High Density Developments Around Major Nodes


Expanded cycling network

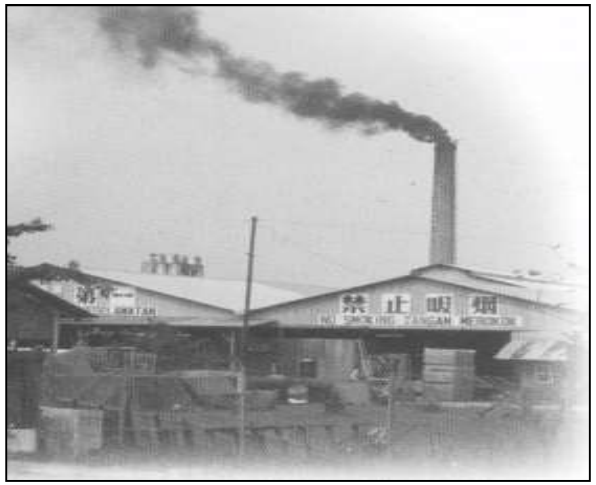

Amenities close to housing

CENTRE for LiveableCities SINGAPORE

III. Urban Systems for Liveability

Sustainable Environment

With rapid urbanisation and industrialisation, there was a need to balance environmental needs and economic interests.

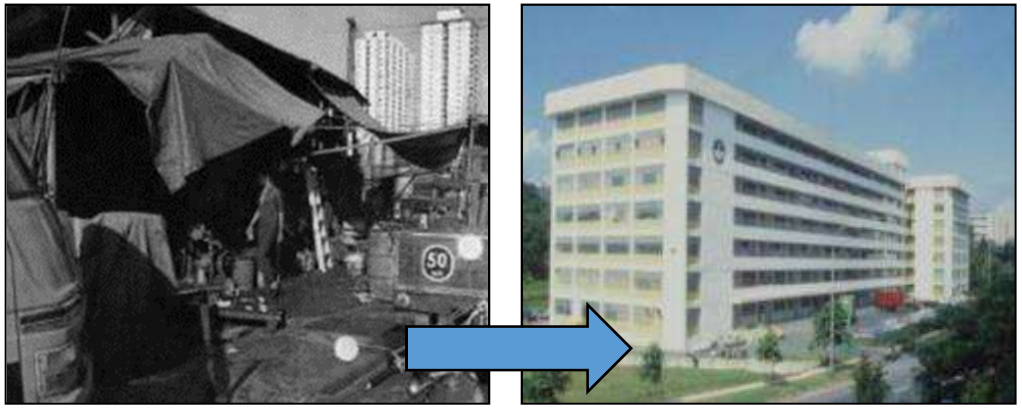


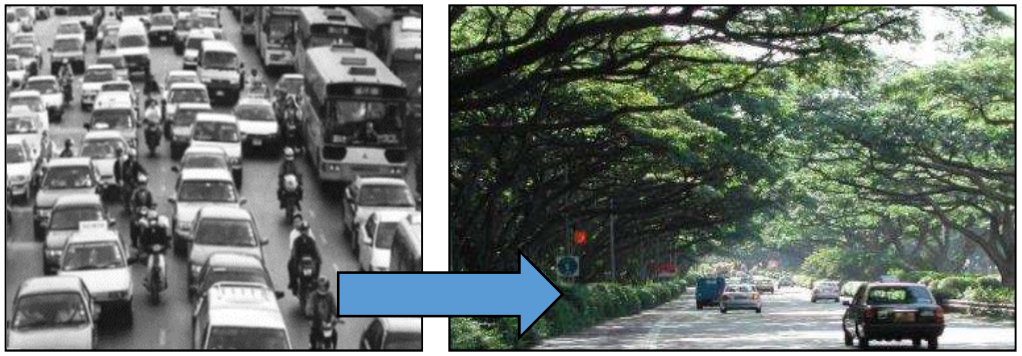
Former Prime Minister Lee Kuan Yew's vision was for Singapore to be a "Garden City" – a clean and green city state.

III. Urban Systems for Liveability

Sustainable Environment

Measures were taken to increase Singapore's green cover, clean up polluted waterbodies and relocate industries.





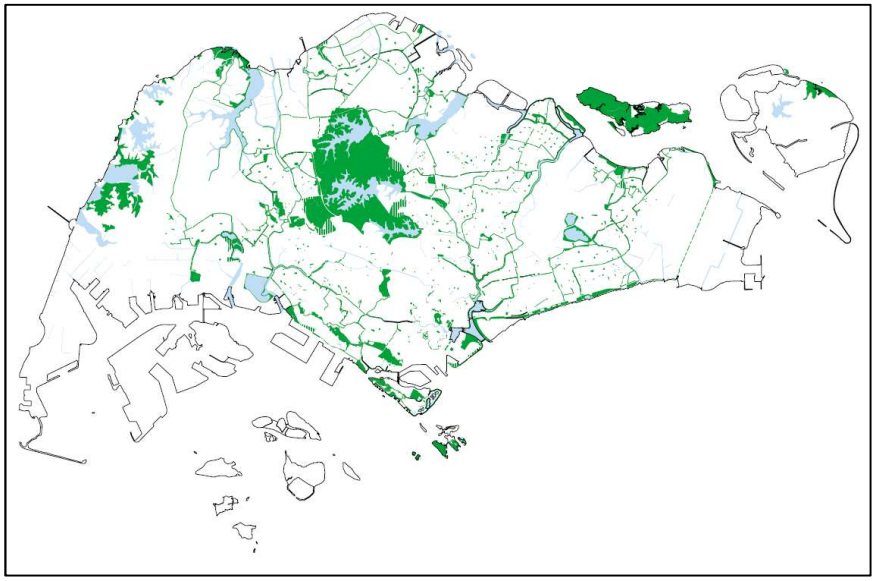
CENTRE for LiveableCities SINGAPORE

III. Urban Systems for Liveability

Sustainable Environment

Today, Singapore is a City in a Garden, with a high proportion of green cover, park and nature areas, and clean waterways – even in the City Centre.

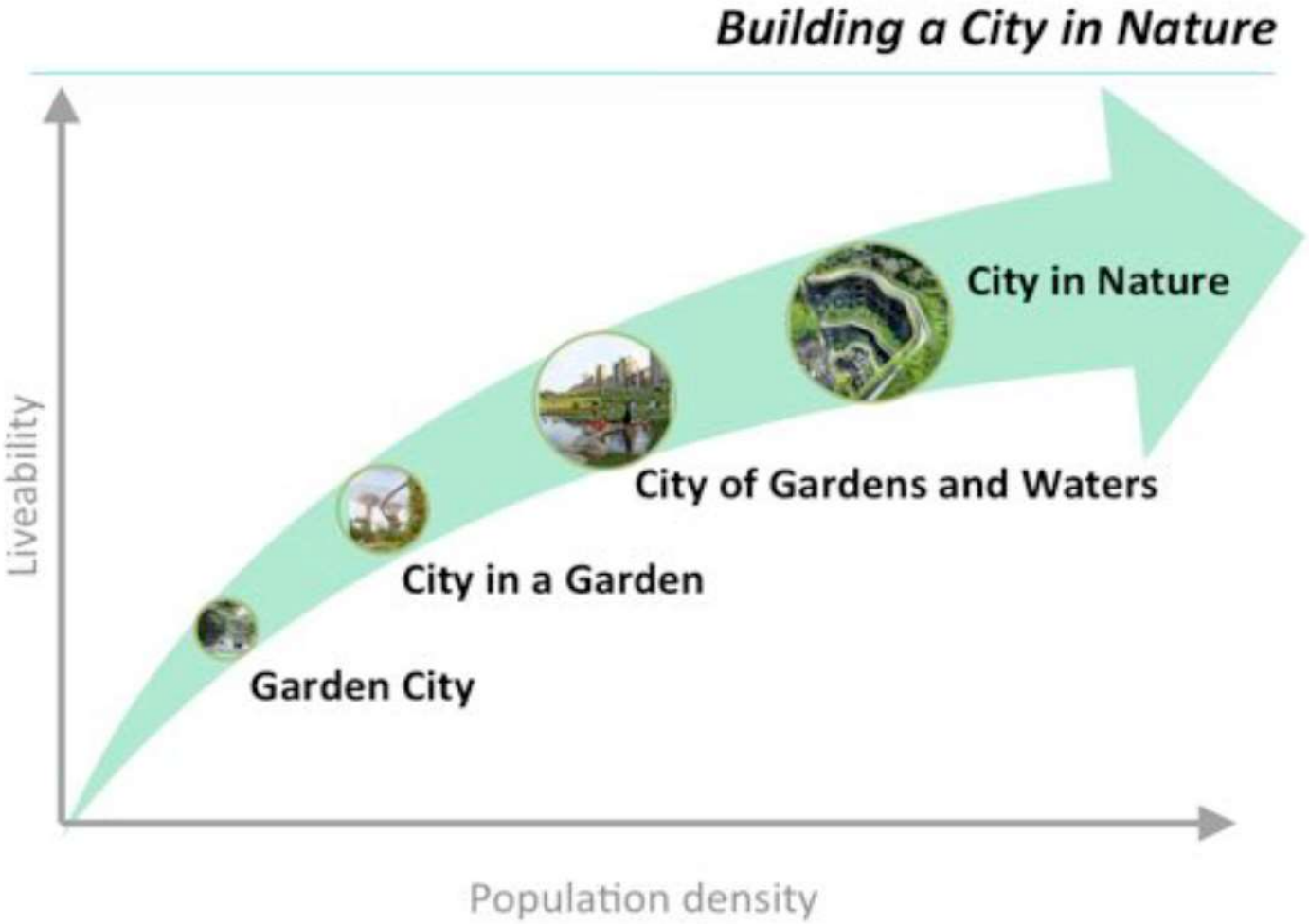
Parks and nature reserves make up about 10% of land area



Otters at Marina Bay

III. Urban Systems for Liveability

Sustainable Environment



CENTRE for LiveableCities SINGAPORE

IV. Urban Systems Case Study

Tackling Singapore's urban challenges systematically: Singapore River and Marina Bay

- Land amalgamation through acquisition
- Resettling people and developing public housing
- Cleaning up the rivers
- Urban planning
- Government Land Sales
- Conservation and Identity
- Sustainability

IV. Urban Systems Case Study

Land amalgamation through acquisition

- Land ownership highly fragmented
- Difficult to assemble large tracts of land to support urban redevelopment
- Government enacted law to acquire land for development
- Also introduced tax on enhancement in land value arising from development

Land ownership in the Central Area in 1971.

Parcels in dark yellow depict state land available for redevelopment.

Image courtesy of Urban Redevelopment Authority.

IV. Urban Systems Case Study

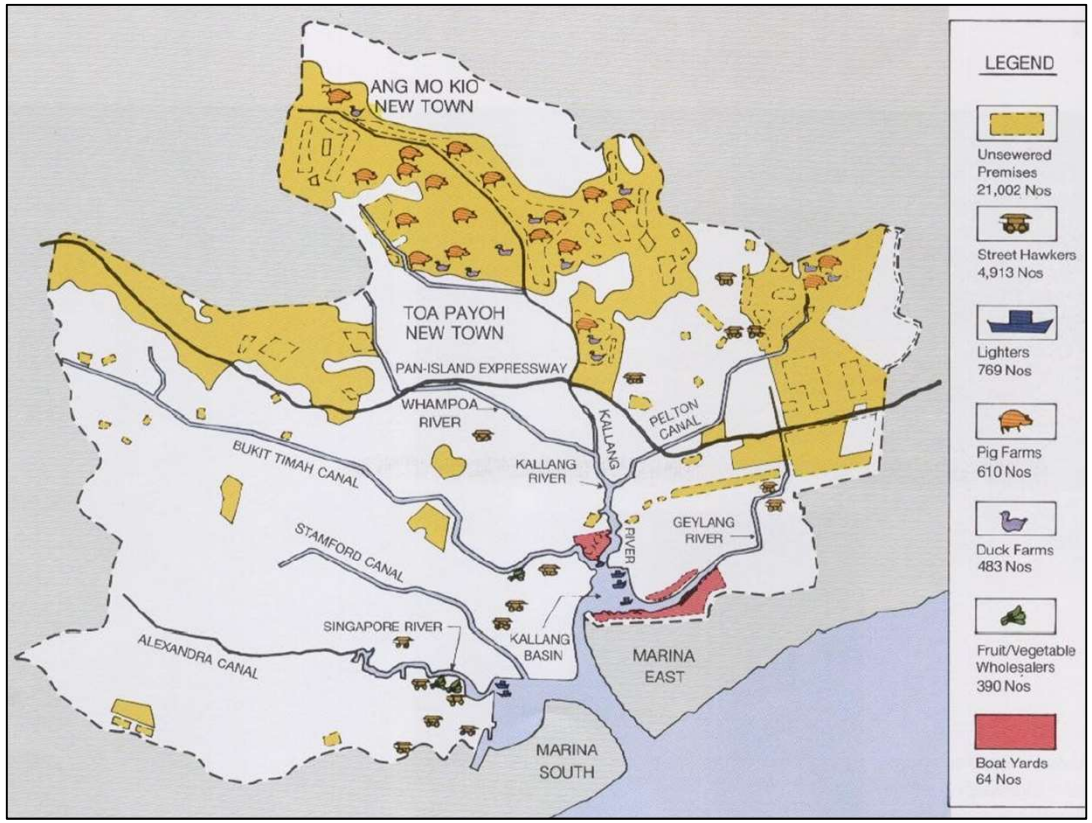
Resettling people and developing public housing

- As government acquired land, residents had to be resettled
- Resident offered generous resettlement benefits
- Housing and Development Board established to build modern, low-cost public housing
- Policies to encourage home-ownership
- Today, 80% of Singaporeans live in attractive, well-connected and inclusive public housing estates

CENTRE for LiveableCities SINGAPORE

IV. Urban Systems Case Study

Singapore River Clean-Up



- Master Plan drawn up in 1977
- 26,000 families resettled, pig and duck farms phased out, street hawkers relocated
- Lighterage activities relocated to Pasir Panjang
- Cost nearly $300 million

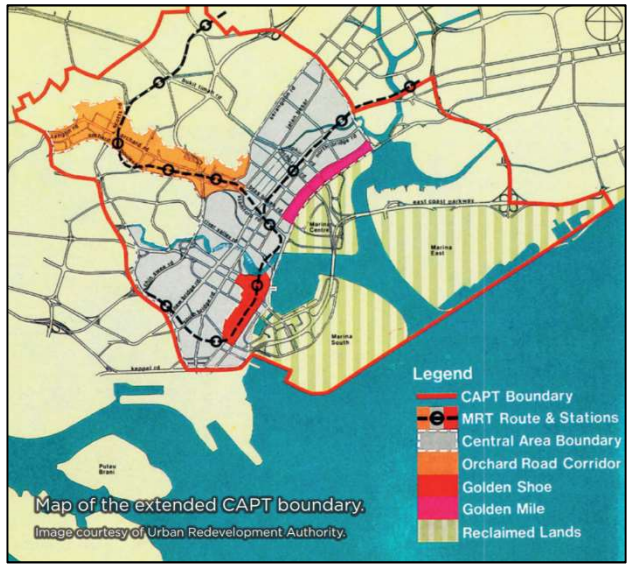
The Singapore River clean-up made possible the further development of the CBD and Marina Bay.

CENTRE for LiveableCities SINGAPORE

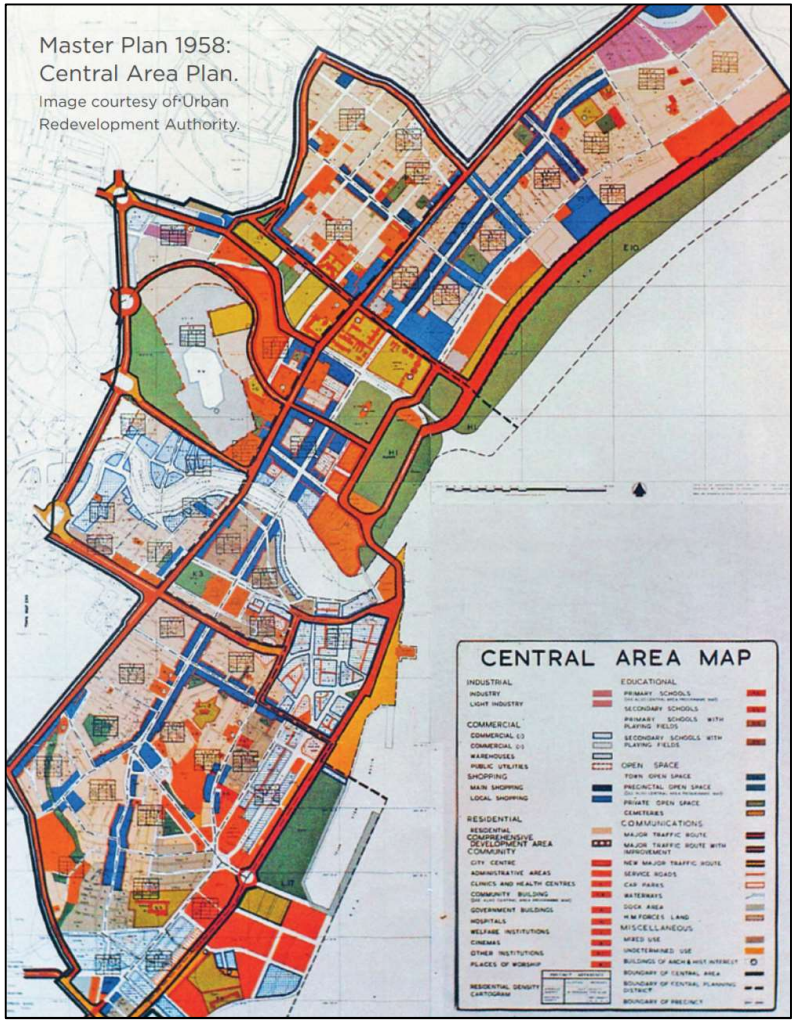
IV. Urban Systems Case Study

Urban Planning

- Comprehensive planning framework for urban renewal in the Central Area
- Government took an action-oriented approach



Map of the extended CAPT boundary.
Image courtesy of Urban Redevelopment Authority.



Master Plan 1958: Central Area Plan.
Image courtesy of Urban Redevelopment Authority.

CENTRE for LiveableCities SINGAPORE

IV. Urban Systems Case Study

Government Land Sales

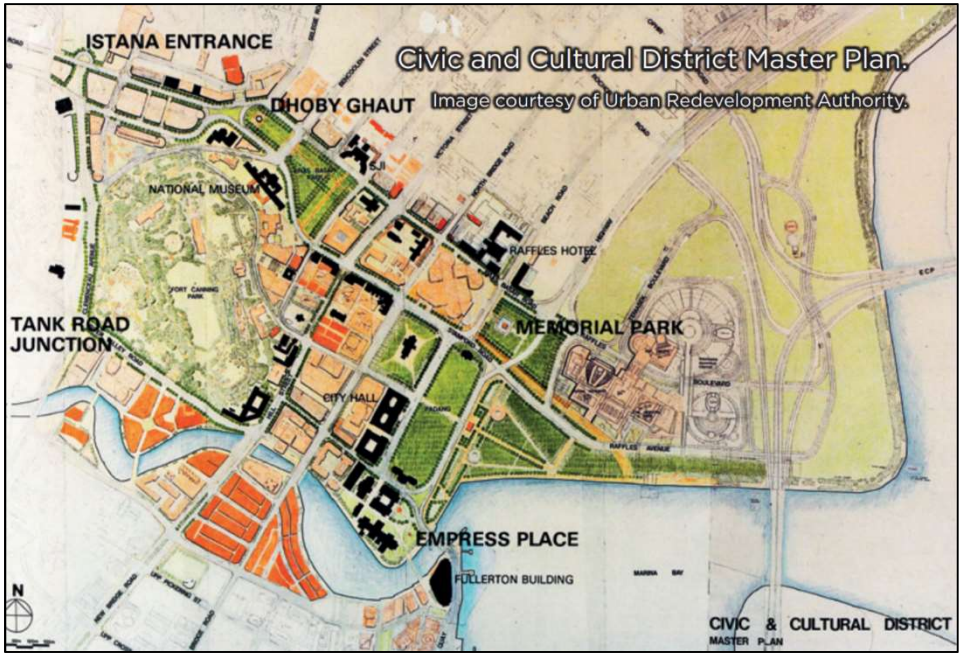
- Started in 1960s, as a form of Public-Private Partnership in real estate
- Government sold land to developers through open tender for development
- GLS helped shape important districts: CBD, Singapore River, Marina Bay

CENTRE for LiveableCities SINGAPORE

IV. Urban Systems Case Study

Conservation & Identity

- Conservation policy to retain heritage-rich buildings, structures and districts, including at Singapore River



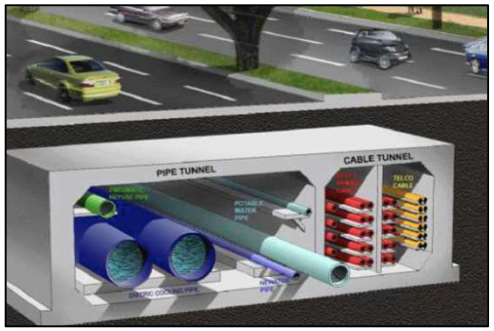
CENTRE for LiveableCities SINGAPORE

IV. Urban Systems Case Study

Sustainability: Marina Bay

A district planned on principles of sustainability, innovation and liveability.

- Designed to be seamless extension of the CBD
- A Common Services Tunnel system to house utilities underground, freeing up terrestrial space
- Many landscaped and open spaces throughout the precinct



CENTRE for LiveableCities SINGAPORE

IV. Urban Systems Case Study

Sustainability: Marina Bay

A district planned on principles of sustainability, innovation and liveability.

- Bay retained to create a waterfront city centre, forming a reservoir
- 100 hectares allocated to three public gardens – Gardens by the Bay
- Building a lifestyle precinct with commercial, entertainment and recreational spaces

CENTRE for LiveableCities SINGAPORE

V. Financing Urban Growth

World Bank

Singapore obtained loans from the World Bank and other institutions.

- 14 loans between 1963 and 1975, 10 exclusively for infrastructure
- Helped us develop water projects, ports, sanitation, power generating plants, telecoms facilities
- Loans from the World Bank amounted to S$ 90 million

Singapore paid back all its loans by the mid-1980s.

V. Financing Urban Growth

Fiscal Prudence

Informs many of our approaches to developing infrastructure.

- Public-Private Partnerships, e.g. in real estate, utilities, waste management, etc.
- Market-based pricing of public services
- Privatising public services

Fiscal prudence is enshrined in Singapore's Constitution.

VI. Sharing Urban Systems Knowledge

Partnering the World Bank

- CLC works closely with Singapore Infrastructure and Urban Hub (est. 2009)
- Partnership has taken form of staff and client training programmes, joint research and publications, seminars
- Leverages CLC's network of Singapore practitioners, researchers, policy-makers

CENTRE for LiveableCities SINGAPORE

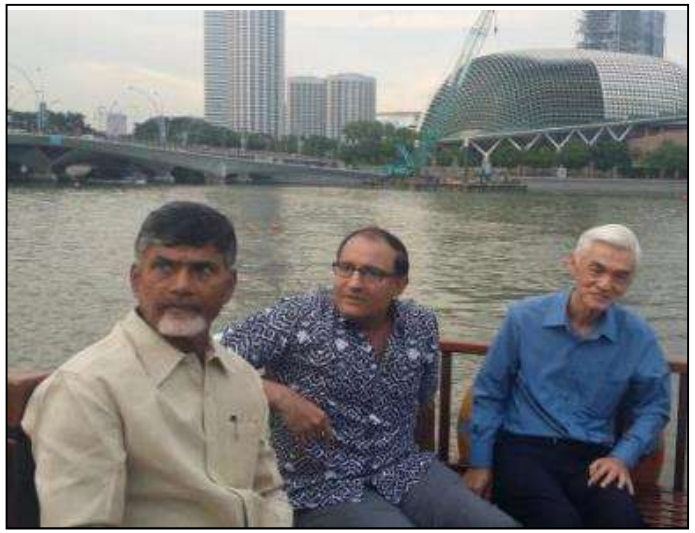
VI. Sharing Urban Systems Knowledge

Partnering the World Bank

- Timely to strengthen and formalise our partnership
- Go beyond ad-hoc projects, working together more formally to promote the Urban Systems approach to sustainable urban growth
- We will pilot infrastructure action-planning workshops at Singapore Hub in June 2019 involving multiple stakeholders, bringing together World Bank clients, and experts across the urban development chain
- Intention is to help regional officials structure, plan and implement infrastructure projects, making them more bankable and attractive to capital markets
- Aim is to bridge the gap between urban infrastructure needs and financing requirements

VI. Sharing Urban Systems Knowledge

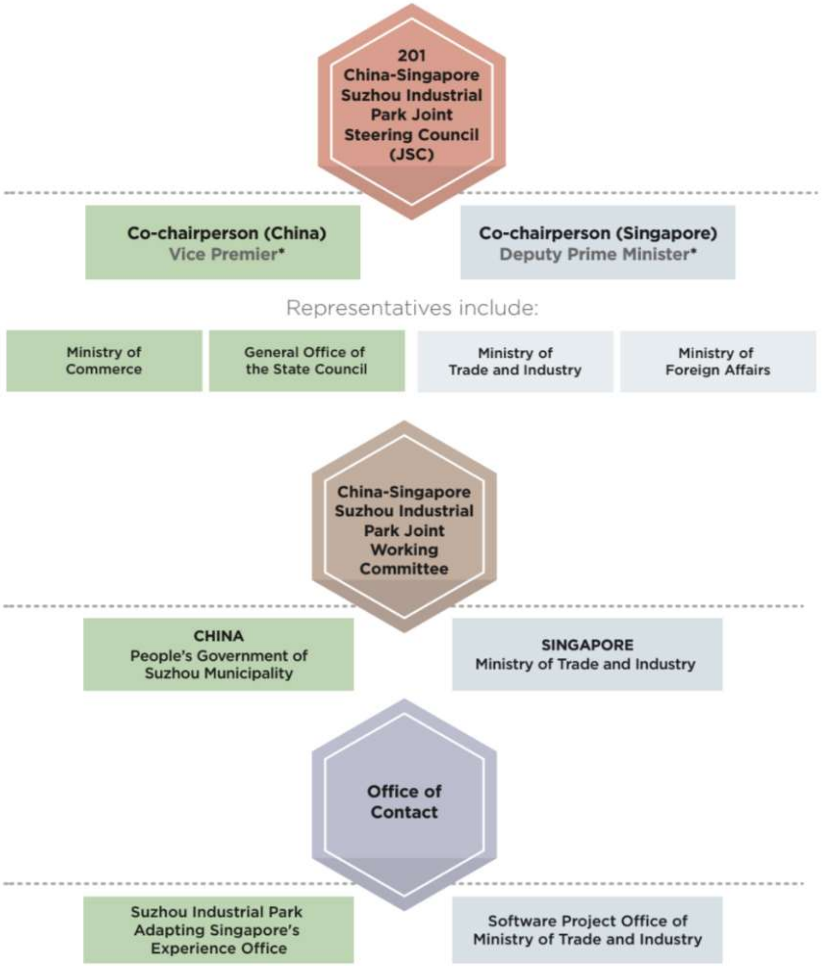
Amaravati, India



CENTRE for LiveableCities SINGAPORE

VI. Sharing Urban Systems Knowledge

Suzhou Industrial Park

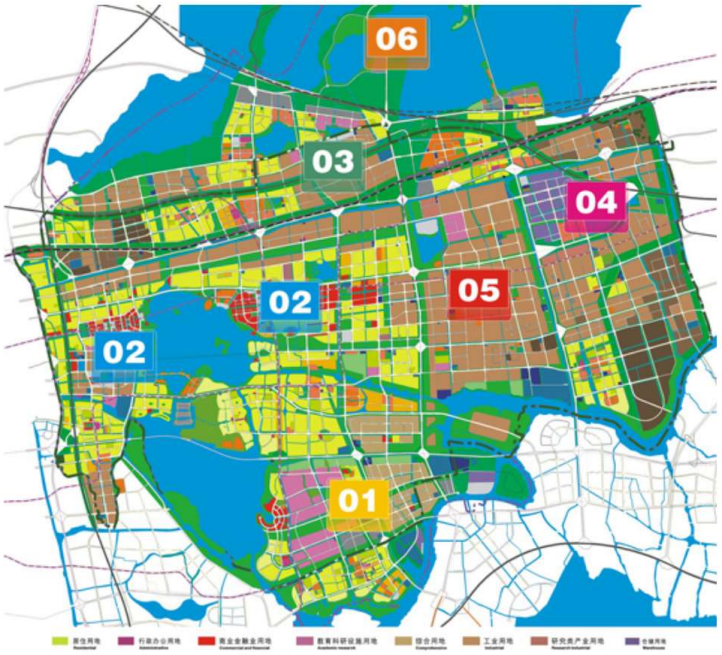


CENTRE for LiveableCities SINGAPORE

VI. Sharing Urban Systems Knowledge

Suzhou Industrial Park

Six Key Areas for Economic Transformation and Development:



01. Dushu Lake Sci-Edu Innovation Park

02. Jinji Lake Central Business District

03. Ecological Science Hub

04. Integrated Free Trade Zone

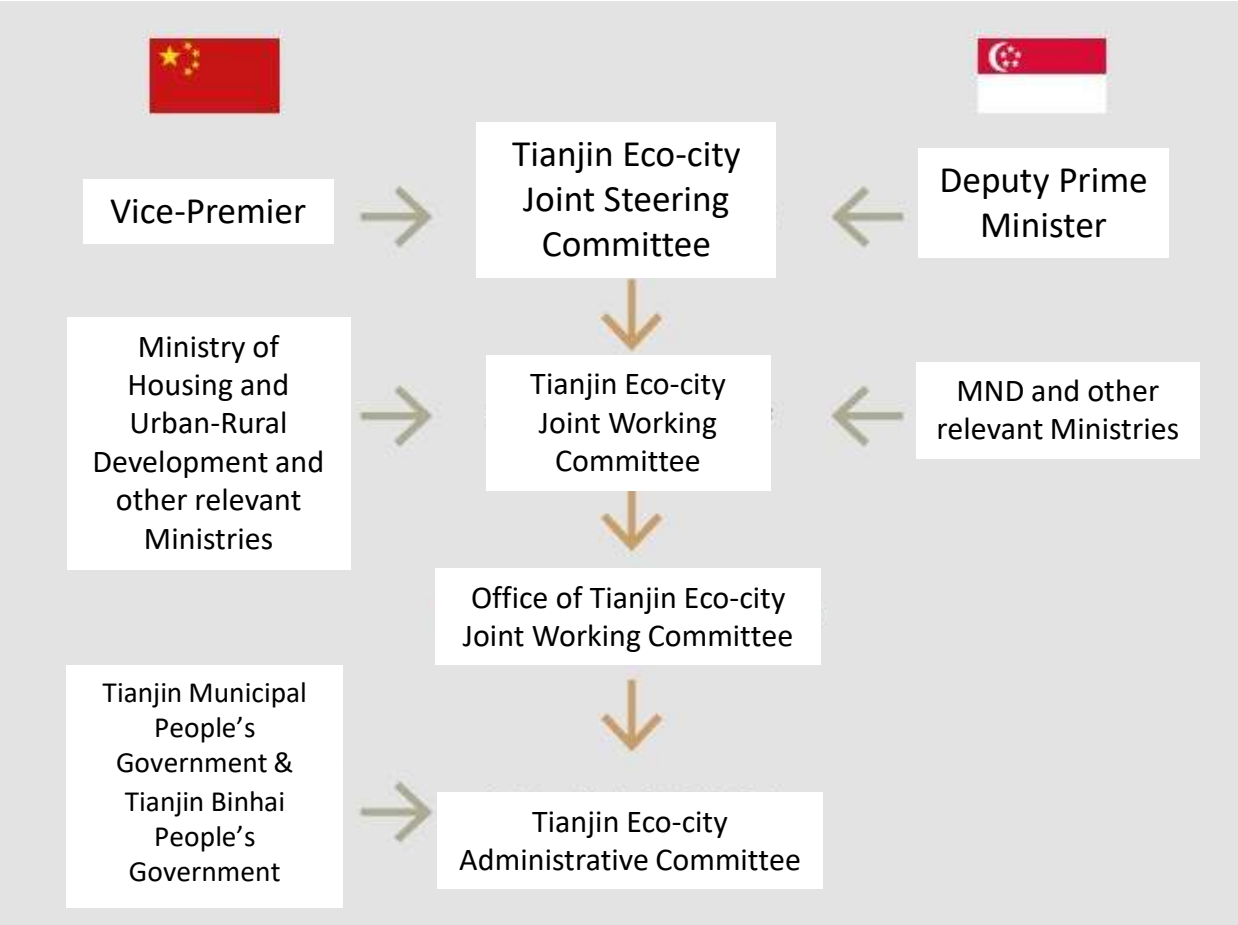
05. Phase-3 New and Hi-Tech Industrial Zone

06. Yangcheng Lake Eco-Tourism Resort

CENTRE for LiveableCities SINGAPORE

VI. Sharing Urban Systems Knowledge

Tianjin Eco-city



CENTRE for LiveableCities SINGAPORE

VI. Sharing Urban Systems Knowledge

Tianjin Eco-city

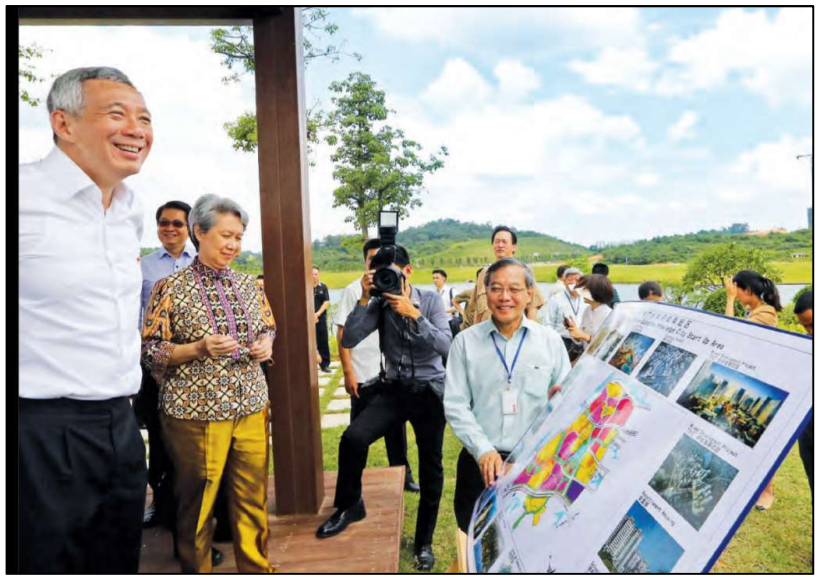
VI. Sharing Urban Systems Knowledge

Sino-Singapore Guangzhou Knowledge City

CENTRE for LiveableCities SINGAPORE

VI. Sharing Urban Systems Knowledge

Sino-Singapore Guangzhou Knowledge City



VI. Sharing Urban Systems Knowledge

World Cities Summit

An exclusive platform for government leaders and industry experts to address liveable and sustainable city challenges, share integrated urban solutions and forge new partnerships.

LKY World City Prize Exhibitions

Opening Plenary helmed by leaders from government and industry

WCS Mayors Forum

Group discussions at the WCS Young Leaders Symposium

Networking events

Visit to Singapore Botanic Gardens

CENTRE for LiveableCities SINGAPORE

VI. Sharing Urban Systems Knowledge

Lee Kuan Yew World Cities Prize

International award to honour achievements and contributions to creation of liveable, vibrant and sustainable urban communities around the world.

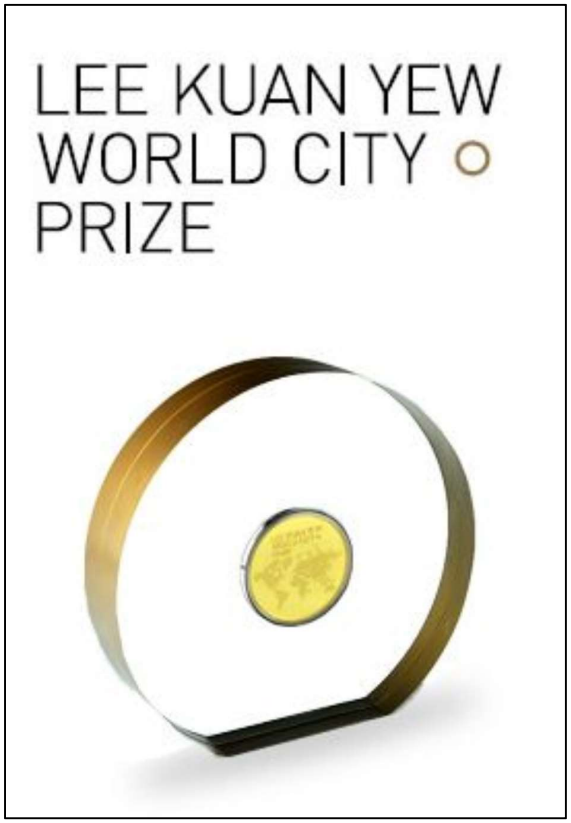
2010 – Bilbao, Spain

2012 – New York City, USA

2014 – Suzhou, China

2016 – Medellín, Colombia

2018 – Seoul, South Korea



CENTRE for LiveableCities SINGAPORE

VI. Sharing Urban Systems Knowledge

Singapore Sustainability Week

3 global events offering thought leadership, networking and collaboration in integrated urban solutions

Over **24,000 Attendees** from **110 countries and regions**

124 mayors and representatives from **119 cities** at WCS Mayors Forum

$26 billion worth of projects, investments and MOUs announced

Over **1,100 companies** participated in the exhibition

CENTRE for LiveableCities SINGAPORE

VI. Sharing Urban Systems Knowledge

World Cities Summit 2020

WORLD CITIES SUMMIT

5 – 9 July 2020

Sands Expo & Convention Centre
Marina Bay Sands, Singapore

More information:
www.worldcitiessummit.com.sg

CENTRE for LiveableCities SINGAPORE

Questions and Answers