



CENTRE for
LiveableCities
SINGAPORE

Water Management: *Lessons learnt from Singapore*

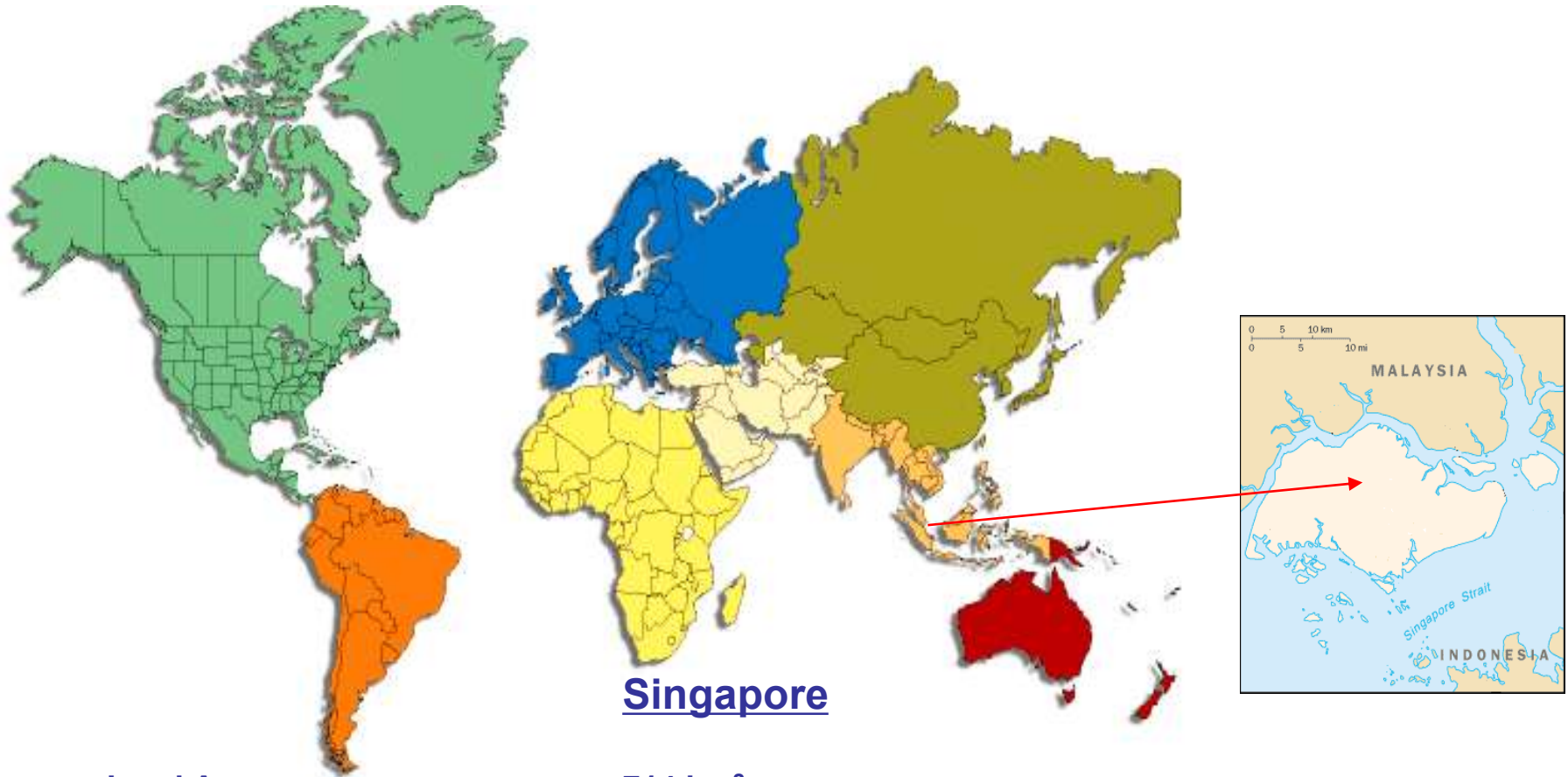
Khoo Teng Chye
Centre for Liveable Cities, Singapore

Latin American Cities Conference, 8 November 2013

Singapore today



Geographical context of Singapore



Singapore

Land Area	714 km²
Population	5.3 mil
Average Annual Rainfall	2,400 mm
Average Water Demand	1.8 mil m³/day (approx 760 olympic size swimming pools)

Source: PUB, Singapore's water agency

Water rationing in old Singapore

Water scarcity in the 1960s



“Singapore ... at the 170th position among a list of 190 countries in terms of freshwater availability.”

- United Nations World Water Development Report , 2003

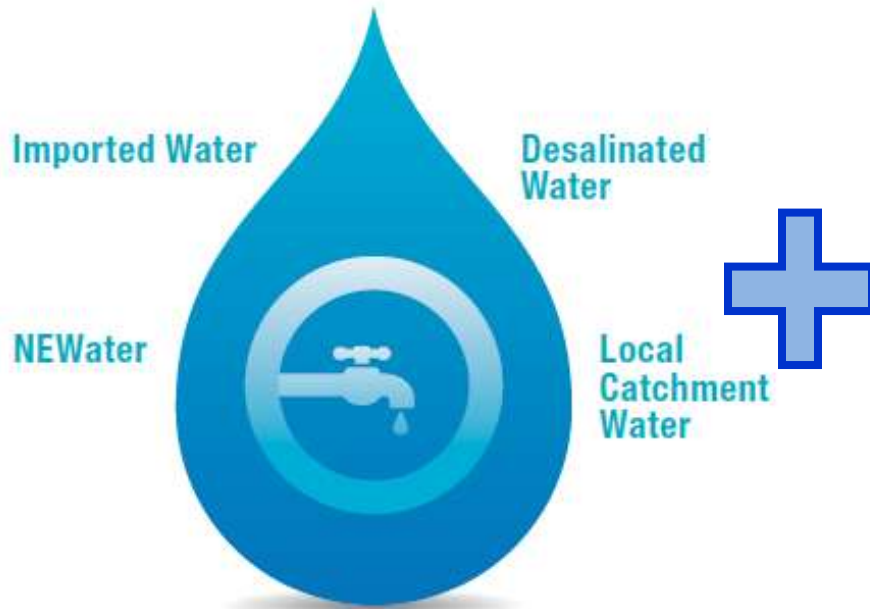
Singapore in 50s and 60s

Pollution | Squatters | Backyard industries | Street hawkers



Ensuring Water Sustainability

Water for all



Four national taps

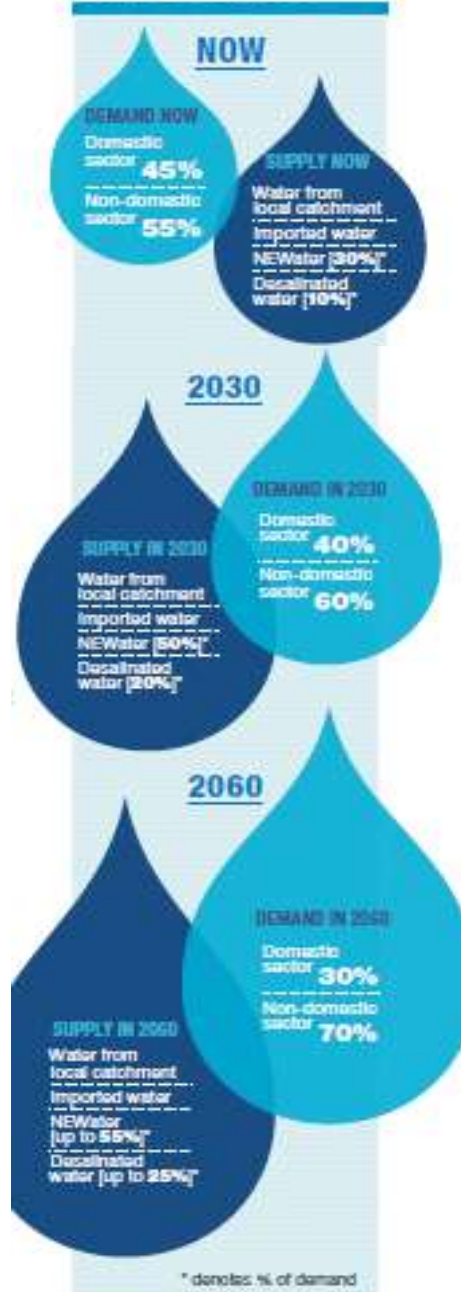
Conserve, Value, Enjoy



Public-private-people (3P) approach

WATER DEMAND AND SUPPLY

Providing water for all



		Current	2030	2060
Demand	Domestic	45%	40%	30%
	Non-domestic	55%	60%	70%
Supply	Local catchment and imported water	60%	30%	approx. 20%
	NEWater	30%	50%	up to 55%
	Desalinated water	10%	20%	up to 25%

Source: PUB, Singapore's water agency

Water is top in the national agenda



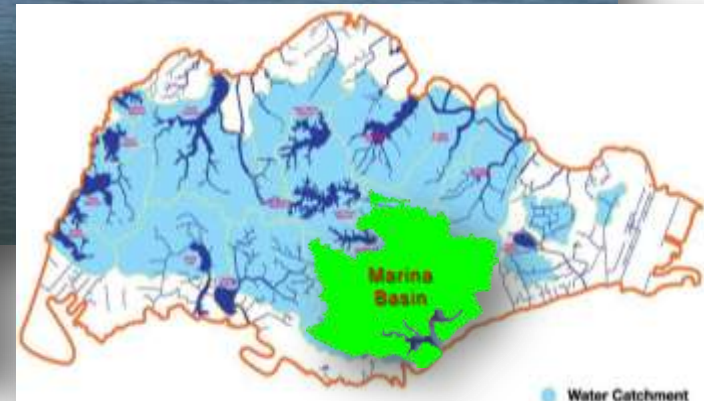
Mr. Lee Kuan Yew
Prime Minister of
Singapore (1965 – 1990),
at the inaugural
Singapore International
Water Week (2008)

“I had a unit in my office which coordinated the whole of government. This dominated every other policy-making. Every other policy had to bend at the knees of our water survival.”

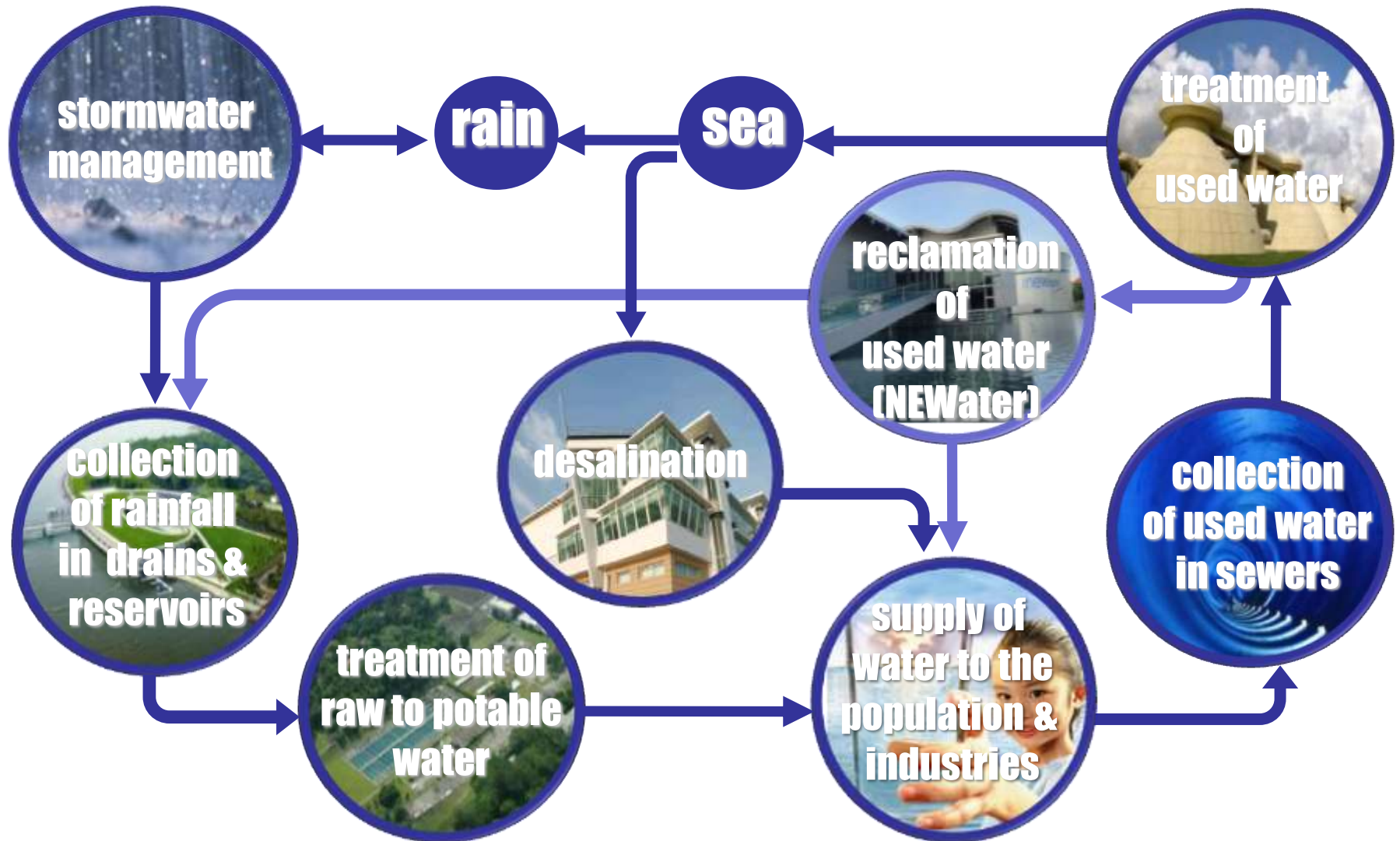
COLLECTING EVERY DROP OF RAIN



Marina Reservoir



Closing the water loop



NEWater



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Source: PUB, Singapore's water agency

Desalination

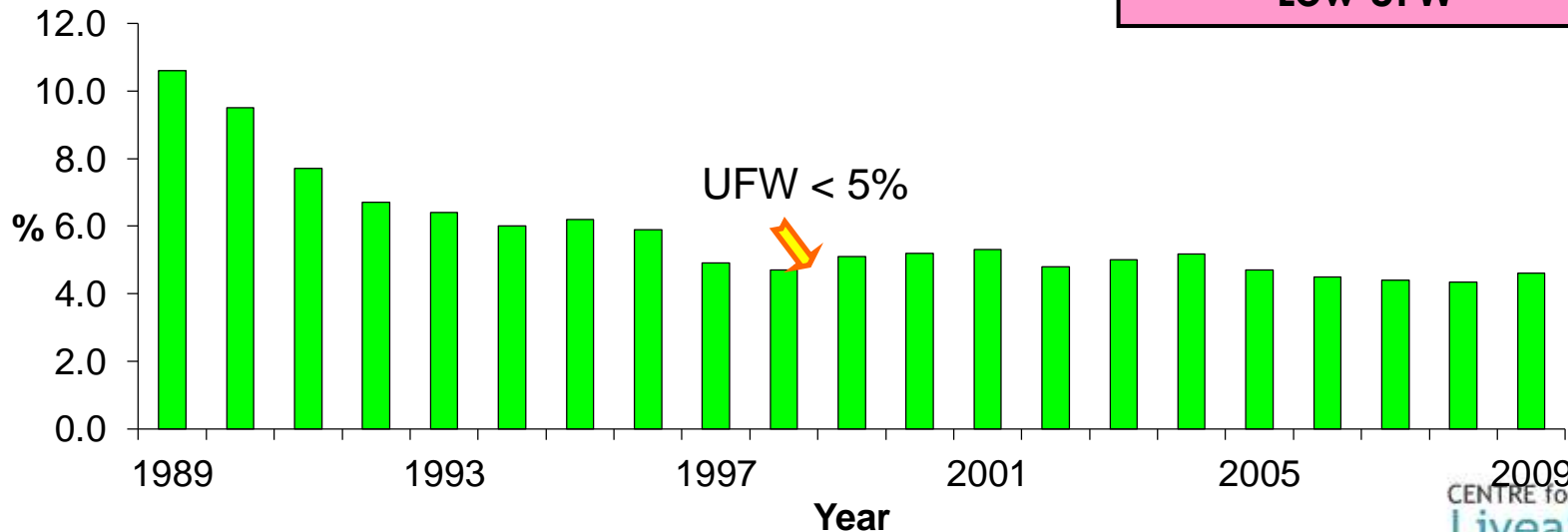


SingSpring Desalination Plant



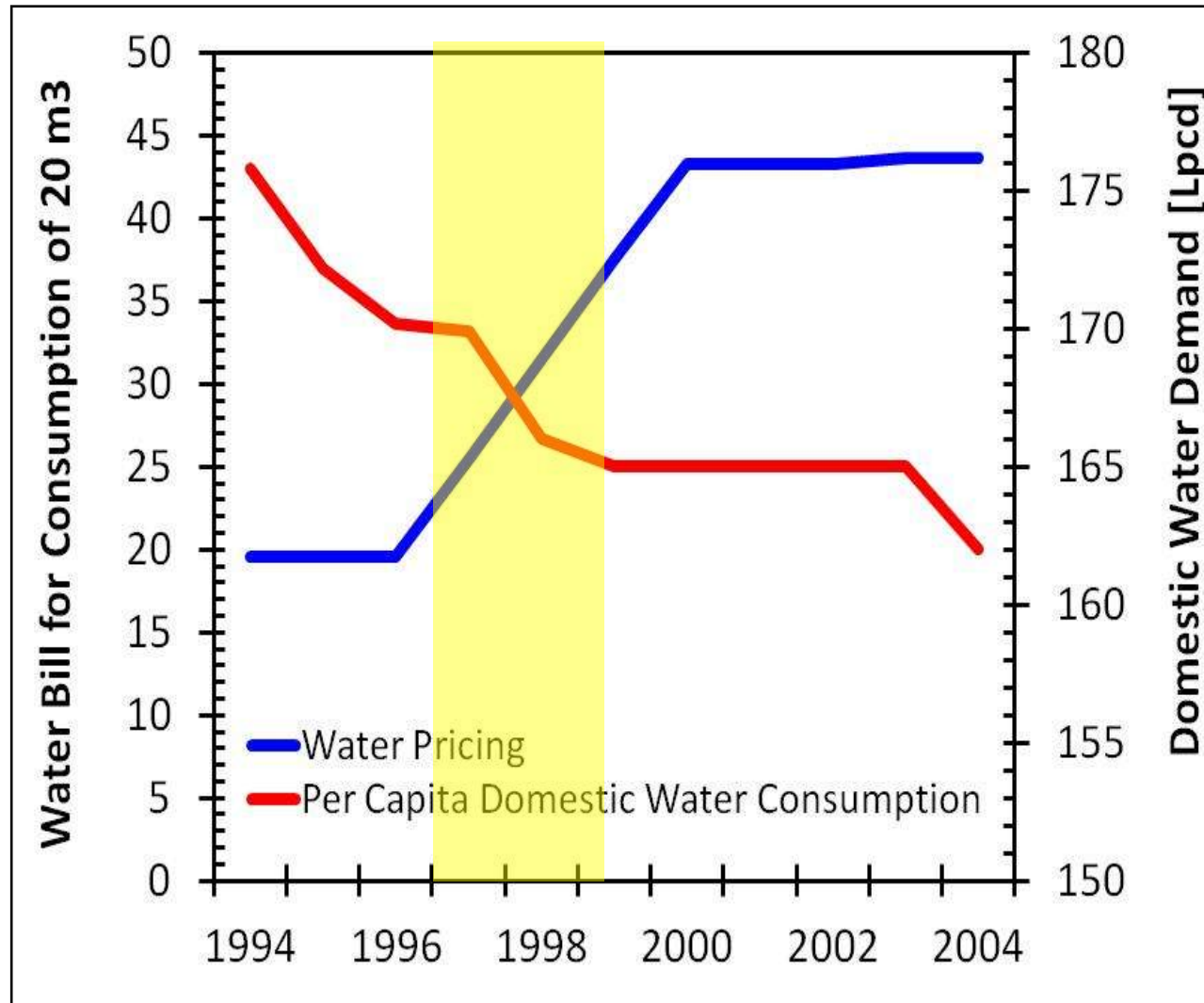
Water demand management

Reducing unaccounted-for-water



Water conservation

Water pricing



Source: PUB, Singapore's water agency

Water conservation

Mandatory and voluntary measures



Water-efficient labelling scheme

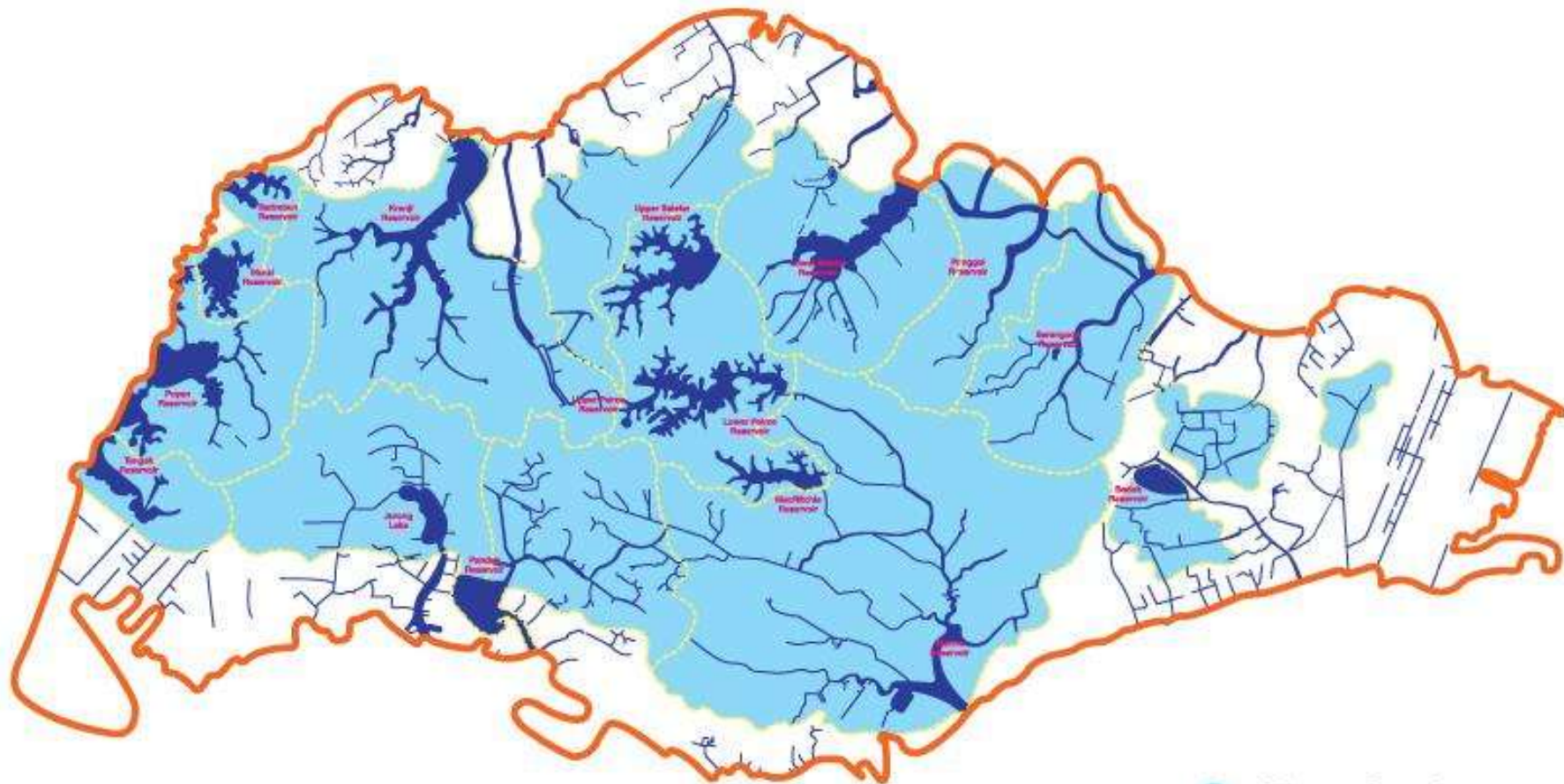


Awareness and education

Source: PUB, Singapore's water agency

Water as an environmental asset

Blue Map of Singapore



● **Water Catchment**

Source: PUB, Singapore's water agency

Water as an environmental asset

Active, Beautiful, Clean Waters



Active, Beautiful, Clean Waters: Kallang River @ Bishan-Ang Mo Kio Park

Source: PUB, Singapore's water agency

Home to a vibrant water industry

N America

Europe

Singapore

Asia Pacific

Headquarters/
Sales office/
Engineering
Services
Centres



R&D centres



Manufacturing

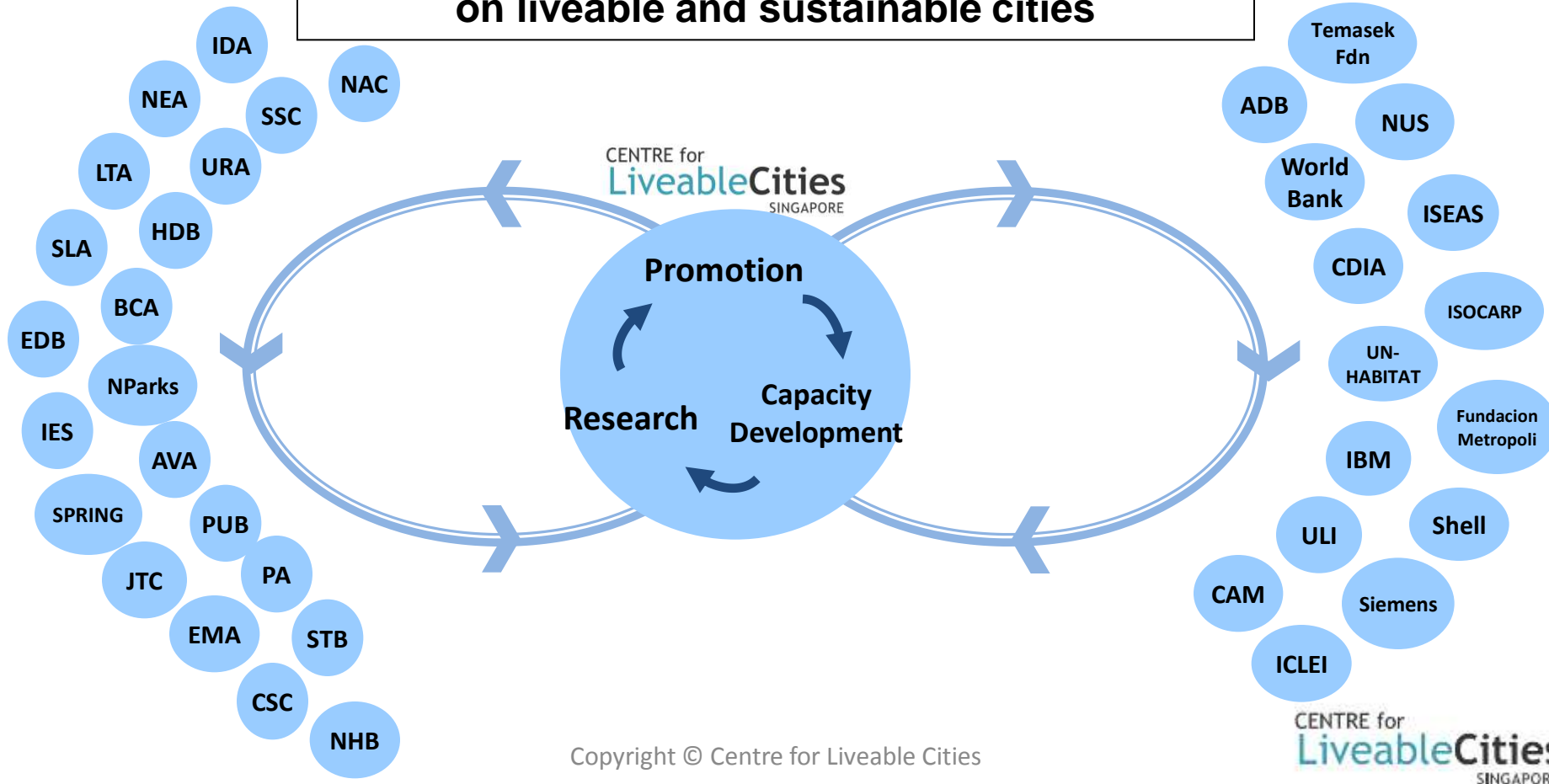


Source: PUB, Singapore's water agency

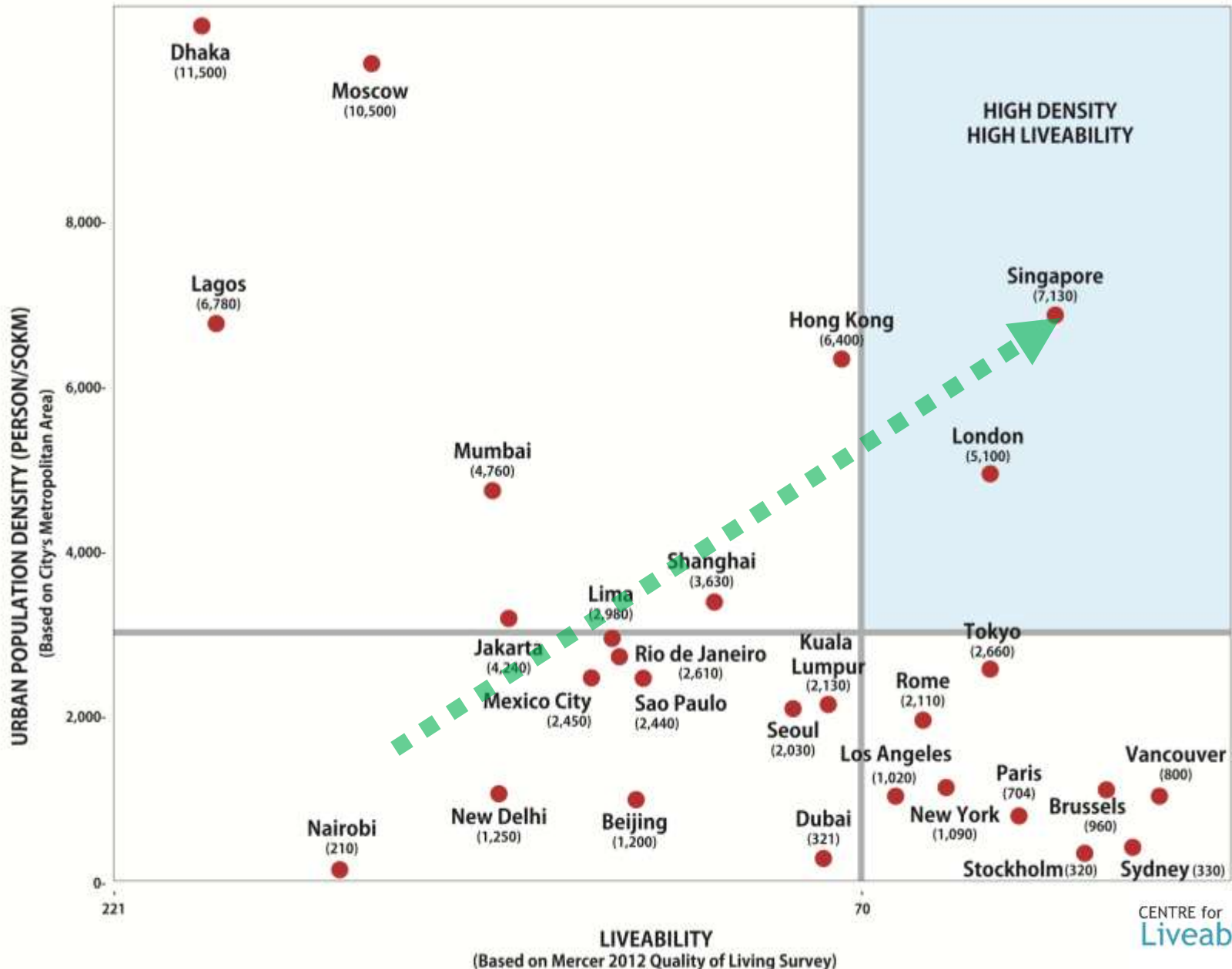
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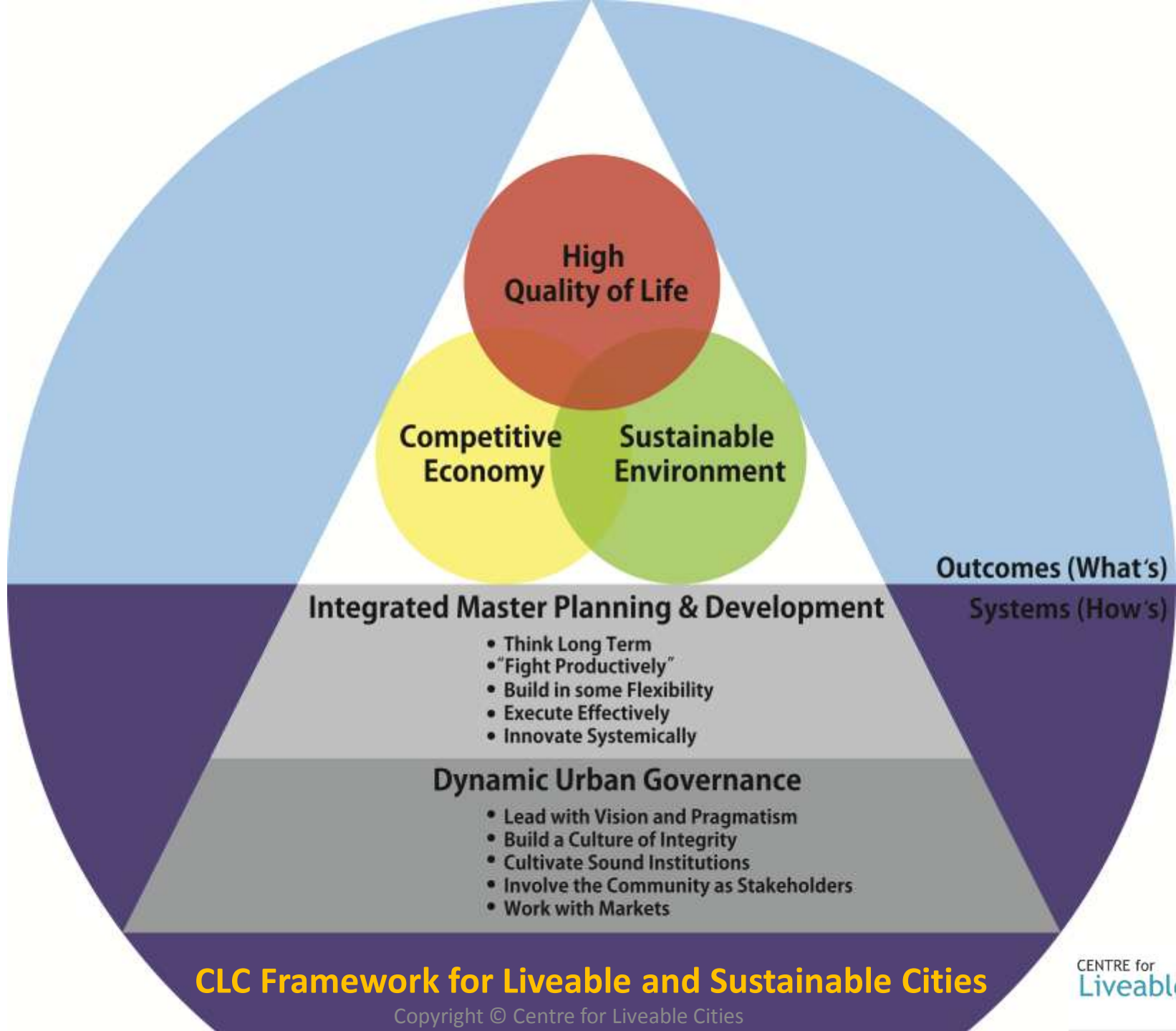
Established in 2008 by Ministry of National Development and the Ministry of the Environment and Water Resources as a knowledge centre for liveable and sustainable cities.

Mission: To distil, create and share knowledge on liveable and sustainable cities



The CLC Liveability Matrix





CLC Framework for Liveable and Sustainable Cities

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Research



Capacity Development



Promotions

You're Invited to Singapore in 2014!

Liveable and Sustainable Cities : Common Challenges, Shared Solutions



World Cities Summit, 1 - 4 June 2014

World Cities Summit Mayors Forum, 1 June 2014

Lee Kuan Yew World City Prize 2014

An integrated event with:





www.clc.gov.sg