



LIVEABLE & SUSTAINABLE CITIES

A FRAMEWORK



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A FRAMEWORK

CENTRE for
LiveableCities
SINGAPORE



Civil Service College
Singapore

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CENTRE for
LiveableCities
SINGAPORE



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FOREWORD

LIU Thai Ker

Director, RSP Architects Planners & Engineers Pte. Ltd.

Chairman, Advisory Board for the Centre for Liveable Cities

The dramatic physical transformation of Singapore in the past five decades is increasingly attracting attention from the rest of the world, particularly from developing countries. Barely 50 years ago, 1.35 million, out of a population of 1.7 million, lived in squatter colonies. Within one generation, Singapore transformed itself into a modern metropolis, a city where there are no homeless people, no squatters, no poverty ghettos and no ethnic enclaves.

In the midst of rapid urbanisation and development, we realised that the tacit knowledge of those who led Singapore's planning and urban development had to be captured, in order to present a holistic and practitioner-centric view of our development journey. The Centre for Liveable Cities (CLC) was thus formed in 2008, with a view to revisiting critical government policies, as well as the inputs from professional bodies, public organisations and civic groups that informed some of those policies, and documenting learning points that could serve as useful reference materials for future planners in Singapore and elsewhere in the world. At the same time, CLC recognises that there are valuable lessons to be learnt from the experiences of other cities across the world and, with this in mind, it has been making concerted efforts to build links with as many cities as possible. As the title suggests, "Liveable and Sustainable Cities: A Framework" is an attempt to share with the rest of the world four key pieces of Singapore's urbanisation story. It begins with the genesis of the CLC Liveability Framework,

which sets the parameters for the concept of “liveability” and “sustainability”. This is followed by a detailed examination of the two core pillars of the Framework: Integrated Master Planning and Development, and Rational Urban Governance. The book ends with a comparative study on a global scale, from New York to Ahmedabad to Tianjin, to illustrate the applicability of the CLC Liveability Framework to other cities.

Admittedly, the physical, social and political conditions of each city are significantly different, but the underlying principles of creating a good and liveable city can be applied widely. The question is not so much the viability of principles, theories or guidelines, but the skill of applying these principles.

In the preparation of this book, we were fortunate to be able to gain access to some of the key players who contributed to the planning and building of Singapore. Their candid insights on the transformation of Singapore lend this book a unique flavour and voice. I hope that you enjoy reading this book as much as I did and find the Singapore story a useful and helpful reference.



CHAPTER 1

The CLC Liveability Framework

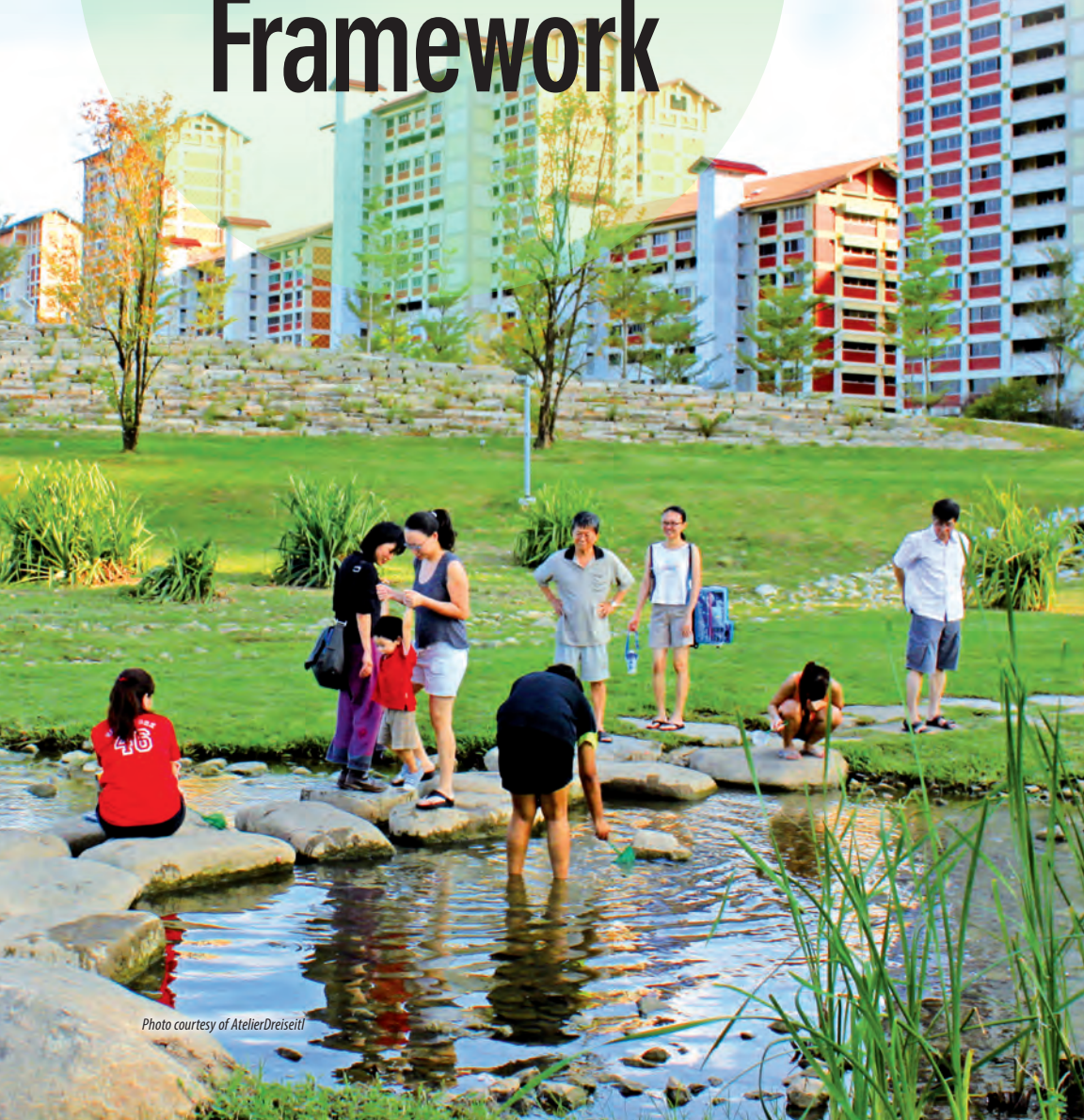


Photo courtesy of AtelierDreiseitl

The CLC Liveability Framework¹

KHOO Teng Chye

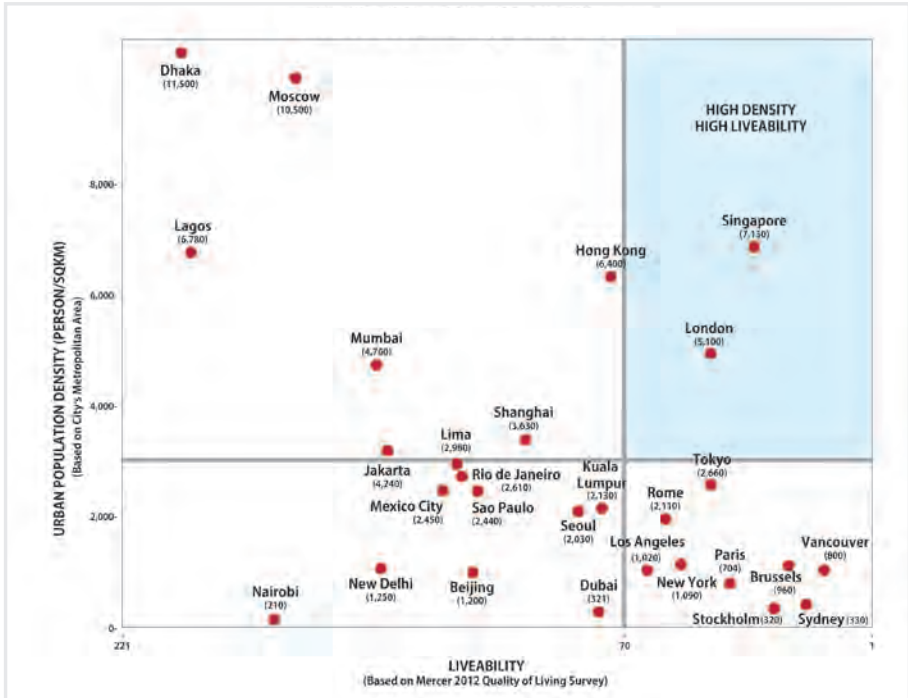


01 Singapore's City Area at dusk
Despite its high density, Singapore remains liveable, with high rankings in international studies measuring quality of life.
Photo courtesy of Erwin Soo

GENESIS OF THE CLC LIVEABILITY FRAMEWORK

Singapore is a densely populated metropolis, with more than 5 million inhabitants living on 710 km² of land. In liveable city surveys over the past few years, including Mercer's *Quality of Living Survey* of 2011, Singapore has been rated one of the few high-density cities that are able to achieve high liveability standards.

Today, many of the cities considered to be highly liveable exist in large geographical spaces with low-rise developments, low population densities and low-polluting industries. Cities such as Sydney and Vancouver are often cited in this regard. Singapore, however, is one of the outliers, combining highly dense urban structures with high standards of living.



02 The CLC Liveability Matrix*

The Matrix captures liveability against population density, where cities that exhibit both high density and high liveability are captured in the blue box.

*Compiled in 2012 by the Centre for Liveable Cities (CLC)

Singapore represents an approach to sustainable urban development where high-density living does not necessarily have to lead to a compromise on the quality of life.

Yet, back in the 1960s, it would have been hard to imagine that Singapore—then a fledging nation troubled by high unemployment, urban slums, poor infrastructure, lack of sanitation, and an unskilled labour force—would make the leap from developing nation to thriving global city-state in the space of 40 years, let alone be considered one of the world's liveable cities. It had a population then of about 1.7 million people, less than one-third of today's 5.4 million.

How did Singapore achieve this balance of density and liveability? And what did Singapore learn in the process of achieving this balance?

Many cities worldwide, especially those in the process of urbanising, have often posed these two questions to Singapore officials responsible for the city's various urban systems. The Centre for Liveable Cities (CLC) started to look for answers to these questions in 2010.

CLC's challenge has been to distil the large body of knowledge available—not just the codified knowledge from the formal institutions of urban development, but especially the tacit knowledge of those who led Singapore's urban planning and governance over the decades. When Singapore's pioneering leaders started to build the city, they did not have a particular framework in mind or a written set of principles and guidelines. CLC has captured their tacit knowledge through over a hundred in-depth interviews.

We paid special attention to the roles of key actors, the enabling processes and innovative policies that we believed are crucial to understanding how Singapore's key urban systems have developed and played their part in the country's urbanisation journey. The first sets of urban systems that CLC studied were in the areas of water, transport, housing, the environment and industrial infrastructure. While these projects were on-going, we thought we could use an inductive approach to discern from the information we had gathered for these initial projects some general principles and desired outcomes that have guided Singapore's urban planners over the years. The findings from this exercise culminated in the CLC Liveability Framework.

One thing was clear—Singapore learnt a lot from other cities in its early development phase and still looks abroad for ideas.

“We learn what not to do by watching other cities and also what to do from watching good cities. There is nothing new that you can think of that has not been tried by thousands of other cities.”²

Lee Kuan Yew, first Prime Minister of Singapore



03 Communications Minister Ong Teng Cheong (third from right) visiting Paris to study the metro system, 1980
Singapore constantly looks abroad to learn from other countries, especially when implementing new systems like the Mass Rapid Transit (MRT).
Ong Teng Cheong collection, courtesy of National Archives of Singapore

COMPONENTS OF THE CLC LIVEABILITY FRAMEWORK

Three outcomes have been constant in how Singapore envisioned liveability:

- 1 A **competitive economy** in order to attract investments and provide jobs;
- 2 A **sustainable environment** because the city has to survive with limited natural resources, especially in terms of land and water; and
- 3 A **high quality of life**, including the social and psychological well-being of the population.

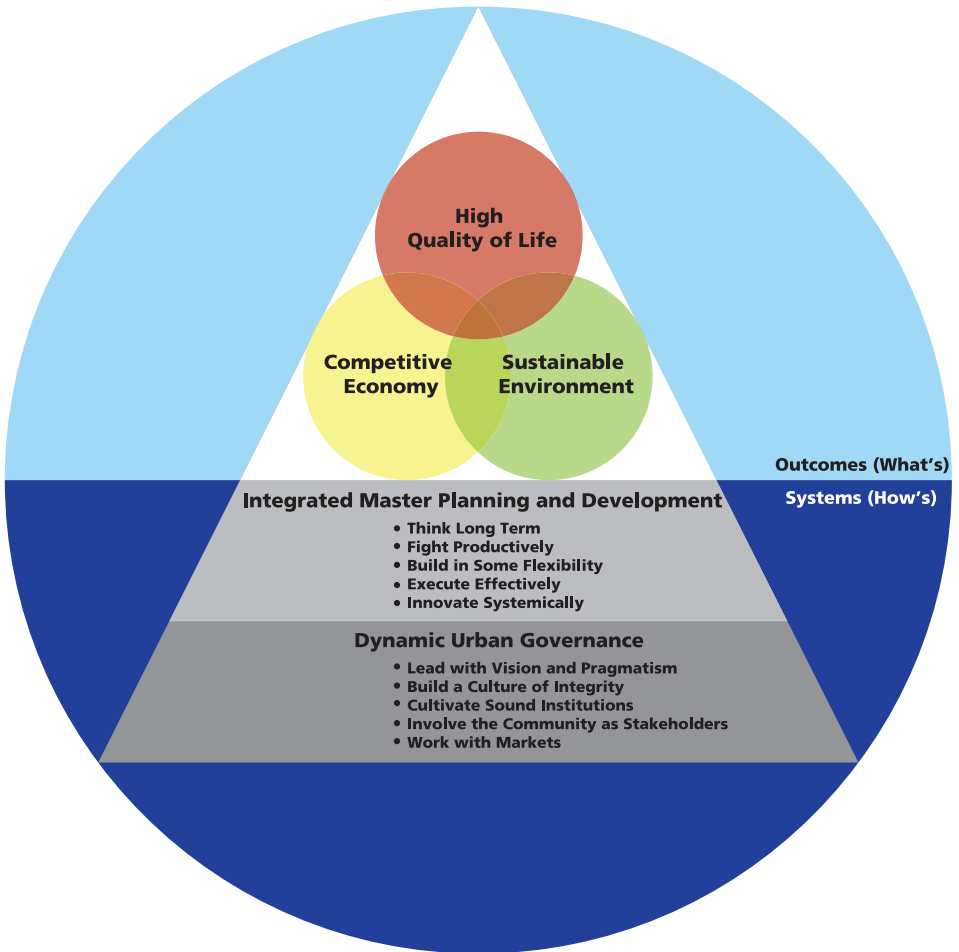
These three outcomes are highly visible and are policy goals.

Additionally, what were the processes and mechanisms that enabled this transformation? What were the principles that guided generations of urban leaders in Singapore to ensure and sustain these outcomes? In short, how did Singapore achieve these outcomes?

Our investigations show that two elements have been key to understanding how urbanisation occurred in Singapore. First, it was crucial to have a system of integrated planning and development that kept the outcomes of a liveable city constantly in view, over the long term. Second, subscribing to an urban governance approach that was dynamic helped sustain the conditions needed for a thriving liveable city.

Thus, the CLC Liveability Framework looks at urban development in terms of:

- 1 The three desired outcomes arising from urban planning that contribute to a liveable city. We term these **Liveable City Outcomes**.
- 2 The systems of urban planning that need to be in place to achieve the Liveable City Outcomes. Singapore's success has depended on an **Integrated Master Planning** system and a **Dynamic Urban Governance** approach.



04 The CLC Liveability Framework

Ten implicit principles are grounded in two key pillars of the CLC Liveability Framework—Integrated Master Planning and Development; and Dynamic Urban Governance.

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THE LIVEABLE CITY OUTCOMES

The philosophy behind the three liveable city outcomes has remained consistent for more than four decades of Singapore's development. As it turned out, this was not far from what the United Nations Conference on Environment and Development (UNCED) had posited in 1992—that the social, environmental and economic needs of a country must be met but in balance with one another. If the environment is abused and resources are over consumed, people suffer and economies decline. Likewise, if people are poor and national economies are weak, the environment suffers.

For Singapore, how each outcome was assessed, as well as its performance indicators, differed, depending on the stage of development that the city-state was at. There are no absolute levels whereby liveability is met. It is more often about optimising the trade-offs at each point or at each stage of development. Each city needs to figure out its own set of performance indicators, taking into account various factors, for example, its developmental stage, geography, access to natural resources and demographics.

Outcome 1: A competitive economy

Singapore's competitive economy has contributed greatly to the city-state's liveability quotient. At the most basic level, residents needed opportunities to make a living to achieve a degree of economic security. The importance of this should not be underestimated. As Liu Thai Ker, one of Singapore's pioneer urban planners explained, when the government set out to clear the *kampong* (rural village) and squatter areas and rehouse the people into new public housing apartments, the main objection the people had to being relocated was largely based on concerns that they would be worse off economically.

“Because in those days, if you live in a kampong, you get vegetables for free, you get a chicken for free, you get eggs for free and so on ... But when the government included job opportunities through industrialisation, that objection [to moving out of the kampong and into the new public housing estates] was diminished.”

Liu Thai Ker, pioneer urban planner

As Singapore became more developed, having a well-functioning economy became even more important as it jostled with other cities for investment dollars and global talent that was increasingly mobile. To retain local talent—since Singaporeans had the option to take their knowledge and skills elsewhere—Singapore had to remain attractive enough as well as economically viable. Singapore also had to have enough potential for others to want to relocate to the city-state to invest, work and reside.

“[I]t’s about people, right? And if the people are rooted to the place, that’s how you can help ensure that there’s a certain robustness to it and even for those who are foreigners ... the liveability and vibrancy are important ... To the extent that we can root them through clustering of knowledge and people and like-minded activities, we will do that.”

Beh Swan Gin, former Managing Director, Economic Development Board

Singapore’s urban systems have had an integral role in supporting the country’s economic development aims, from the allocation of land and facilities for industrial use, the transportation networks, the supply of water and the provision of sewerage facilities. Lee Ek Tieng, a former head of Singapore’s Civil Service, described the 1960s to 1970s as the period of building Singapore’s urban infrastructure for economic development.⁵ Having a high-functioning transport infrastructure that was well-networked locally and globally proved to be critical to the economy, especially for a global city like Singapore. To Lee Kuan Yew, connectivity was “most important”, and gave Singapore an advantage over regional neighbours.⁶

In general, the existence of a competitive economy has been important because the city-state had to be able to generate income to sustain itself, develop and create more opportunities for growth. In addition, economic stability and a distribution of prosperity helped reduce the occurrence of social and political instability.

Outcome 2: A sustainable environment

As much as Singapore's early leaders placed a huge priority on economic development, they did not take the *develop first, clean up later* approach. From the very start, environmental sustainability was important because it ensured the long-term availability of resources that were vital to Singapore's survival.

When a country is as small as Singapore, environmental sustainability has to be part of the development strategy—if damage had been done to what little natural resources there were, there would well have been nothing left to *clean up later*. Even as the government lobbied international companies to locate some of their operations in Singapore, there were certain areas which the government would not compromise. An example was the pollution control requirements the government imposed on the Japanese company Sumitomo.

“When Sumitomo built its petrochemical plant [in the mid-1970s], the Ministry of Environment said that there were certain environmental requirements they must meet in terms of the kind of investments they make to ensure that the effluent from the stacks are of acceptable quality and so on. And Sumitomo said, “No, if you insist on this, the costs will go up so much that it becomes not viable anymore.” Of course the Economic Development Board and Ministry of Trade and Industry felt strongly that we should concede to Sumitomo so that they can build the petrochemical plant. But the Ministry of Environment said, “No, we should not concede. It will pollute Singapore.” This went to Cabinet and Cabinet agreed with the Ministry of Environment. They said, “No, we insist.” Then Sumitomo proceeded and put in the investments necessary.”

S. Dhanabalan, former Cabinet Minister

Planning for clean air, clean water and green cover was integral to city planning. Since the 1971 Concept Plan (Singapore's first strategic land use plan), environmental considerations have been incorporated into land use planning through land use zoning. Industrial sites were zoned to ensure that the negative long-term

impact on the environment was minimal. Careful thought was even given to wind patterns when the industrial estates were located in the west of Singapore. Lee Kuan Yew explained: “[W]e have northeast and southwest monsoons so the pollution won’t go into the city.” He had observed the importance of wind patterns when he visited heavily polluted cities that “smelled like chemical factories”. He was determined that Singapore “protect ourselves by placing the right industries in the right places, taking into consideration the wind factor”⁸ so that we would not suffer the same fate.

Generally, environment protection was not assumed to be at odds with economic development. The government saw that it was in line with economic development and an integral part of city planning. In Singapore’s early days, having a clean and green city was a way to show foreign investors that Singapore was a well-run country and thus a good and pleasant place to set up business, distinguishing it from other countries in the region.

Environmental values were therefore embedded into a larger social and economic narrative by framing them as a means to distinguish Singapore from its regional peers. This is key to understanding how environmental concerns had an early and important place at the policy table.

Outcome 3: A high quality of life

The benchmark of what constitutes a high quality of life in Singapore is expectedly broad and can encompass many areas of urban life. CLC chose to put more focus on the economic, social and environmental aspects of city life.

“The fact that we [Singapore] have such a strong pull, such attraction is because we are a pleasant place to live in and for people to raise their children ... We have a combination of a vibrant economy, lifestyle and liveability.”⁹

Mah Bow Tan, former Cabinet Minister

In the early stages of Singapore's development, slums, squatters and sub-standard living conditions were prevalent. At that time, improving the quality of life would have included the provision of basic accommodation, sanitation, and an elementary public health system. Creating a sense of personal security was also important and the new neighbourhoods and towns were developed with that in mind.

“A good city, first, you must feel safe in. It is no use having good surroundings but you are afraid all the time ... so we have police neighbourhood stations who know the people in that neighbourhood so they will know when strangers come.”¹⁰

Lee Kuan Yew

Singapore became more populated and dense over the decades and as the population aged, other psychological aspects of liveability were considered, for instance, the sense of space, having recreational outlets and creating a sense of community.

Retaining a sense of engagement in the physical landscape was thought to be a way to encourage Singaporeans to feel connected to the land. A Park and Waterbodies Plan and an Identity Plan were launched as part of Singapore's 2003 Master Plan while a Leisure Plan was launched as part of the 2008 Master Plan. In 2013's Draft Master Plan released by the Urban Redevelopment Authority (URA), plans included developing 100 km of waterways for recreational activities and 360 km of park connectors by 2030.

“The playgrounds we design now are what we call the 3G playground ... three generations, so that you have the exercise machines next to the playground so that [if] the children go down, the babies go down, the grandparents are also there [using the exercise machines]. So there is a lot of intermingling.”¹¹

Cheong-Chua Koon Hean, CEO of the Housing & Development Board

“[T]he whole concept is to develop a green network [of park connectors] linking the coastal parts to the central Catchment ... so that residents in private and public housing have access to this green network. If they want to jog, they want to cycle, they can, eventually.”¹²

John Keung, urban planner

Since the mid-1980s, city planning in Singapore also tried to give more emphasis to the character and soul of the city-state, one that encompassed culture, identity and aesthetics. In 1989, the Advisory Council on Culture and Arts mapped out a blueprint which led to the setup of what would become the National Arts Council (NAC) and the National Heritage Board (NHB).¹³ These organisations would play a crucial role to jumpstart Singapore’s cultural development, enabling city life to be enriched by artistic pursuits and cultural appreciation.

Balancing three liveability outcomes

The three liveable city outcomes are linked directly to Singapore’s national-level outcome indicators. These indicators are published in the Ministry of Finance’s Revenue and Expenditure Estimates for each financial year and making these indicators public ensured that all government agencies kept a big picture of the overall state of urban development. It also signalled to the public that the government was committed to and serious about making Singapore liveable.

Making Singapore liveable involved balancing the three outcomes. Focusing too much on one at the expense of the others could easily have led to undesirable outcomes. One trade-off that the government has had to manage constantly has been that between regulation and Singapore’s economic interests.

INDICATORS OF SINGAPORE'S LIVEABILITY



Home ownership rates



Measures of building safety and quality, i.e., Construction Quality Assessment System



Percentage of users satisfied with the parks



Number of people living and working in the central area



Number of projects that aim for Green Mark certification (green building rating system)



Traffic congestion at peak hour



Percentage of people satisfied with the living, working and leisure environment in Singapore



Park provision ratio (ha/1,000 population)



Percentage of public transport ridership



Customer satisfaction levels for public transport



Minimisation of unaccounted for water



Access to sanitation



Utilisation rate of State land



Number of days in a year where the Pollutant Standards Index (PSI) is in the "good range"



Level of domestic water consumption per capita



Water that meets WHO drinking water quality guidelines



Number of air and water pollution incidents in a year



Recycling rate



Access to clean drinking water sources



Size of flood prone areas



Energy consumption levels

Source data: The Revenue and Expenditure Estimates for FY 2011/2012, Ministry of Finance

“Well, I think everything has to abide by certain regulatory standards, whether it’s the environment, whether it is building standards. You don’t compromise on these standards. You just make sure you don’t set those standards in a way that don’t shoot you in the foot, right? But you must set these standards which are applicable to Singapore and enforce the standards. And I think our standards are not sub-standard ... I’ll do my fair share but there is no reason to handicap our companies just because we want to be greener than everybody else ... We still have to make a living.”¹⁴

Lim Hng Kiang, Cabinet Minister

While we have described the three as discrete outcomes, the reality is that there has been some degree of interdependence and overlap among them, as the UNCED has posited. Singapore’s clean and green environment was not only important for environmental reasons but it also helped to present an attractive image of Singapore to investors and provided pleasant living conditions for Singaporeans.

In the same way, the growing arts scene in Singapore has added a new dimension to city life and given Singapore some qualitative advantages on the economic front. International companies planning to set up operations in Singapore, for instance, those in the services and lifestyle sectors, would want to be associated with a city that had a ‘buzz’.

“Why do you think [EDB is] involved in things like art exhibitions, Art Stage Singapore? We work with the National Arts Council, we work with the National Heritage Board. We even get involved with the Tourism Board in some of the activities because the whole vibrancy [of the city] is important.”¹⁵

Beh Swan Gin

One other interesting finding was that, in some cases, in solving an urban challenge to achieve one outcome, Singapore inadvertently created opportunities to contribute to another outcome. Two most notable examples are in water and waste management.

Seizing opportunities in water and waste management

Singapore's quest for water self-sufficiency has given rise to a niche sector of specialised companies—based in Singapore—that provided services along the value chain for the reclamation of used water and desalination. This nascent water sector has contributed 1,550 jobs and \$409 million to the economy. Seeing an opportunity, the government committed \$330 million to research and development over a five-year period (2007–2012) to develop this sector, which will have provided 11,000 jobs and added \$1.7 billion to the economy by 2015.

Parallel to these efforts, Singapore also paid attention to the role residents could play in helping to preserve the health of its water resources by encouraging residents. This it did by creating the Active, Beautiful and Clean Waters (ABC Waters) programme to encourage residents to care about water. Functional concrete drains and canals were given a new life and transformed into streams and rivers to make the environment more aesthetically pleasing for residents. Streams and rivers became part of the landscape and formed venues for community activities and water sports. Although the main goal behind the ABC Waters projects was environmental sustainability, they not only improved the quality of life for residents, but also had an economic impact by adding value to the surrounding land.

To remain a liveable city, it was also essential to maintain quality living environment, where standards of public health would meet the growing expectations of the local population as well as those of investors, tourists, and a highly mobile international and local talent pool. Given Singapore's limited land area and dense population, an efficient system for the collection and disposal of waste has been critically important. To fulfil this, Singapore's waste management and recycling sector has generated \$4.5 billion a year in turnover and provided jobs for 9,000 people.¹⁶



05 Students at Bishan—Ang Mo Kio Park

The transformation of a concrete canal into a stream through the ABC Waters Programme encourages residents to take ownership of water conservation, creating a more liveable and sustainable environment in the long run.

Photo courtesy of PUB, Singapore's National Water Agency

INTEGRATED MASTER PLANNING AND DEVELOPMENT

Singapore's integrated master planning system has enabled the government to create and manage urban systems that balanced the different priorities of the city. Integrated master planning goes beyond the drafting of physical plans. It looks at optimising planning decisions such that the outcomes for the environment, economy and quality of life can be balanced, especially in situations where there are competing uses for the same resources. Policies and plans have to meet short-term and long-term needs and respond to the changes of a dynamic political, economic and social environment.

On a practical level, the policies and plans have to be implementable. A key differentiating factor for Singapore's planning was that its plans had not just stayed on paper—they were implemented and executed through dedicated organisations, with expertise and resources.

At the heart of the integrated master planning approach is Singapore's overarching Concept Plan. Strategic and long term in nature, the plan looks at the country's land use over a time horizon of up to 50 years. In order to prioritise the competing uses for land, the plan is created through an inter-agency effort to ensure that all key land use requirements for the city are met and individual urban systems such as transport, water or public housing do not work in isolation. In particular, transport and infrastructure planning has to be integrated to effectively link housing estates to sites of employment, services, and recreation. More than 20 government ministries and agencies were involved in drafting the 2001 Concept Plan and 2011 Concept Plan. The plan is reviewed every ten years and, when needed, there is a mid-term review.

The broad long-term strategies of the Concept Plan are then translated into more operational details in the Master Plan, Singapore's statutory land use plan. Finer details pertaining to land use zoning, gross plot ratios and building height controls

help developers from both the public and private sectors ensure that their projects are in line with land use requirements. This is important as Singapore has very little land and cannot afford haphazard implementation.

Chapter 2 provides a detailed look into Singapore's urban planning experience. The following section describes the five implicit principles of Singapore's integrated master planning and development approach.



06 Clementi Mall

The Mass Rapid Transit (MRT) station, a bus interchange and public residential housing are seamlessly integrated, with effective urban planning.

Photo courtesy of AECOM

IMPLICIT PRINCIPLES OF INTEGRATED MASTER PLANNING AND DEVELOPMENT

Principle 1: Think long term

“[We made] a decision to project to ‘Year X’ which was 100 years. Why? Because I said to myself that if we don’t do that, we will certainly run out of land. [You] build to too low a density when you project for the short term. And then we run out of space.¹⁷”

Liu Thai Ker

Singapore’s planners did not consider a 50-year timeframe as “too long” for the Concept Plan, as explained by Liu. Taking a long-term view was important in two other ways. First, it helped officials keep the three outcomes in balance, at both the planning and implementing stages. Planners better appreciated the reality that planning decisions that were convenient *now* might not lead to results that would be convenient *later*. It also meant that planners would be willing to embark on projects that did not seem pressing at the moment but would be important in the future. For instance, even as Singapore developed and urbanised, there was thought given to how important greenery would be to the city in the future.

In former Cabinet Minister Mah Bow Tan’s words, Singapore is “different because of what we did 20 years ago”.¹⁸ The value of something like greenery would only be appreciated many years later.

Second, taking a long-term view helped the government identify problems in the future, making it expedient to start taking steps early to pre-empt the problem.

In other cases, it could be about making decisions on developing a good project that could be *before its time*. At times, it could be about waiting for technology to catch up, or it could be about

needing time to come up with sufficient funding. This was the case with NEWater, Singapore's system for recycling water to potable standards. NEWater was launched in 2002 but the idea for it originated as far back as the 1960s.

“You've got to look ahead for problems and forestall or pre-empt the problems. I mean, if we did not have the Certificate of Entitlement [a measure to limit automobile ownership] at a time when the public [could not] afford so many cars, you can't introduce it now without a big row. But today, it is accepted as a fact.”¹⁹

Lee Kuan Yew

Because there was a long-term goal in place to recycle water, the project was always on the backburner. When the technology for dual reticulation finally became a viable option, Singapore was able to develop NEWater swiftly as it was not starting from scratch.

“The reuse of water has always been there in the late 1960s and 1970s ... We put in dual reticulation in the late 1960s [in Jurong] for the purpose of trying ... [Lee Kuan Yew] was very persistent that one day, we will be able to use our water. At that time, being engineers, we had to think of the current situation. Technology was not available and it was very uneconomic to treat the water to really drinking water standards.”²⁰

Lee Ek Tieng, former Head of Civil Service

Principle 2: Fight productively

Left to their own devices, each government agency will focus on its own targets rather than the goals of the government as a whole. An inter-agency structure—which has been crucial to an integrated approach to planning—encouraged agencies to acknowledge one another's different concerns and goals. The structure created an environment where officials learnt to have *figths* that were

productive so that discussions, sometimes heated, eventually led different agencies to collectively reach decisions on planning and implementation. Trade-offs made among the three liveability outcomes were then understood by all parties and appropriately managed.

Former Deputy Prime Minister Goh Keng Swee was known to create *fight*s to encourage more critical thinking, for example, the debate on whether Singapore should implement a Mass Rapid Transit (MRT) system. A Cabinet meeting was held to decide on the MRT system because Goh had presented a case for an all-bus system that could do the job.

“[Goh Keng Swee] objected to the MRT because the case for having the MRT was that “you have no alternative” ... [He thought] you can run an all-bus system so don’t give this kind of argument that we need the MRT because there is no alternative ... That’s not to say he objected to the MRT but he objected to the logic, which is not a frivolous matter. He objected to people who don’t think deeply enough and argued deeply enough. That was what he was after.”²¹”

Lim Siong Guan, former Head of Civil Service

The ability to have *productive fights* within the government was helped by a Cabinet that was collaborative and could serve as the ultimate conflict arbitrator. In addition, the fact that office-holders were rotated within different portfolios in government built in them a deeper understanding of the work across different Ministries and government agencies.

“When a policy comes up to Cabinet, among the fourteen or sixteen of us, there will be no less than three or four who have deep knowledge of that portfolio ... It is not one person bringing his mind to it but several people ... even in a specialised portfolio like healthcare and education ... So it is not just the say of the present Minister, it is also the previous office holders who can add a perspective and provide that longer [perspective].”²²”

Lim Hng Kiang



07

Sungei Buloh Wetland Reserve

Originally slated for development, the government later decided to turn it into a wetland reserve, conserving hundreds of mangroves and bird species in the process.

Photo courtesy of National Parks Board (NParks)



As the culture of Singapore's government had placed a premium on rational thinking, many of the debates were also productively resolved through expert studies and cost-benefit analyses.

Principle 3: Build in some flexibility

While planning was necessary for the long term and done in some detail, Singapore's city planners accepted that no plan was perfect as the future was ultimately unpredictable. The Concept Plan has been periodically reviewed in the light of changing conditions, for instance, shifts in the economic or social environment, so that planners could tweak the plan if the situation warranted it.

“We cannot be so rigid that what was planned has to be executed without any adjustment. We can't. If so, then there [would have been] no business parks. If so, there is no One North.”²³

Tan Chin Nam, former Managing Director, Economic Development Board

The government has also been open to changing the schedule or form of certain developments slated in the Master Plan. For instance, what is now Sungei Buloh Wetland Reserve was to have been developed as an agro-technology park. Following a proposal from civil society groups to preserve the area and manage it for education, the government decided to turn Sungei Buloh into a nature park in 1989. Dhanabalan, then Minister for National Development, felt that the move was in line with the government's commitment to preserve the environment; moreover, Singapore could “afford” to leave Sungei Buloh undeveloped at that time.²⁴

Another type of flexibility is that which is incorporated into the plans for specific land sites. Some land parcels are reserved for the future and zoned in a way that gives developers some leeway in the land use mix. This is a concept known as ‘white sites’. As explained by John Keung, “the whole Marina Bay is a white zone because we want to leave it to the businessman to do their best.”²⁵ Although the government was not entirely convinced on the idea of having mixed use developments initially, they were persuaded by the private sector and responded with the concept of white sites.

Principle 4: Execute effectively

A plan is only as good as its successful implementation. One important element of effective execution has been the careful preparation that went on before implementation, which included extensive research into the problem when necessary. This was the case when the concept of “new town” first came into being in Singapore’s urban plans and there was no official definition of what a new town entailed then.

“I spent more than half-a-year to define what was a new town ... We wanted the new town to be highly self-sufficient ... So I interviewed a lot of people, I interviewed emporium operators, interviewed polyclinic doctors, the polytechnics ... all kinds of people, industries and so on ... Basically the question is how many people do you need to sustain an emporium, to sustain a supermarket, to sustain a polyclinic etc. And the number came to 250,000.”²⁶

Liu Thai Ker

Good inter-agency understanding among the various government departments has also played an important role in the government’s ability to execute its plans effectively. Agencies were expected to work together effectively to achieve the larger national objectives, even when they had professional differences on certain issues or projects.

“I think the government, the fact of the government backing of the housing programme is really important ... you can have all kinds of plans but if the finance people don't give you the budget, you can't move ... the fact that you have a very cooperative bureaucracy is important ... Government policies have t[o] be implemented by capable civil servants ... the fact that you have continuity in leadership is important. If there is a constant change in government, the civil servants don't know who to look to, whether to implement or not.”²⁷

Aline Wong, former Cabinet Minister

The key for Singapore has been the coordinated efforts among the operational agencies set up by the government for implementing policies and programmes. Executing a plan is also not just about completing the project but giving careful consideration to maintaining what has been built. The sewage systems are an example. Maintaining them was far more cost effective than digging up old systems for replacement. With technology, they are now relined and can last another 50 years, according to Lee Ek Tieng, former Head of Civil Service.²⁸

Principle 5: Innovate systematically

The limits of resources, whether natural, physical or financial, will place barriers on urban development. However, innovation can mitigate these limits and, in some cases, remove them in the long term. Solving Singapore's urban problems required officials to be able to see different possibilities beyond the conventional wisdom, and, in some instances, have a degree of audacity to dream big.

“I think a lot of urban development milestones and policy and what you call breakthroughs ... have to do with these very scarce resources.”²⁹

Mah Bow Tan

To cite one example, an innovative approach was needed to deal with the disposal of Singapore's increasing amount of waste. To do this, a new offshore landfill—the Semakau landfill—was created in 1999 to meet the city's solid waste disposal needs beyond 2040. Every effort was made to minimise the impact on the local environment so that the area beside the landfill, which was rich in biodiversity, would remain intact. Indications from the Raffles Museum of Biodiversity Research in Singapore are that no species has been lost because of the landfill. More remarkably, in 2005, the government was able to open up part of Semakau as a place for nature lovers to visit.



08 Semakau Landfill

Each completed cell is covered with earth and allowed to develop as a place of nature.

Photo courtesy of the National Environment Agency (NEA)

Innovation in urban systems and planning in Singapore has not been confined to engineering feats such as Semakau or the revolutionary Deep Tunnel Sewerage System³⁰ that won the “Water Project of the Year” at the Global Water Awards 2009. Innovation can also come in the form of policies. In 1997, marginal cost pricing of water was introduced to recognise the scarcity of water, and in 1998, Singapore became the first country to implement an electronic road pricing system to manage traffic congestion. On the social side, to prevent ethnic ghettos from forming in public housing estates, the Ethnic Integration Policy was created. According to Lim Hng Kiang, Cabinet Minister, these bold policies were the result of a “high level of administrative innovation” present in the government.³¹

One other important aspect of Singapore’s experience in innovation has been an inclination to ‘think big’.

“Dare to dream ... One day we want to make aircraft engines, man-on-the-moon kind of statement, but we don’t know when we will get there. Even if we don’t get there, maybe we’ll get a consolation prize—it’s still very good.”³²

Manohar Khiatani, CEO of JTC Corporation

DYNAMIC URBAN GOVERNANCE

At CLC, urban governance refers to the manner in which public leadership interacts with citizens and other stakeholders to make decisions on and have oversight of how a city plans, develops, utilises and manages its physical and environmental resources to achieve national outcomes.

The best intentions in planning amount to nothing if a city’s urban governance system—or lack of an urban governance system—

does not allow good plans to be crafted and realised. For instance, projects may never get started, may be derailed, may be done shoddily, may turn out to be white elephants or, in the worst case, may actually harm the city in the long run. Sound urban governance creates the right conditions for a city to achieve the three liveable city outcomes.

Singapore's geographical scale and structure of government has allowed for efficiency in policy formation and implementation, and the country has been able to achieve economic and institutional development. At the same time, Singapore's size and lack of resources have made it perennially vulnerable to changes in the external political and economic environment. In this context, Singapore needed an urban governance approach that was dynamic to allow its leaders to make optimal decisions and choices in an unpredictable, complex and constantly changing environment as well as to help society develop the capacity to deal with challenging situations.

Singapore's urban governance approach has been distinguished by its efficient provision of basic services to citizens and the setting up of institutions for development and coordination. Of the many elements that had an impact on Singapore's urban governance approach, five have stood out as implicit *principles* of dynamic urban governance. These are outlined in the following section: a detailed look into Singapore's urban governance approach can be found in **Chapter 3**.

FIVE IMPLICIT PRINCIPLES OF DYNAMIC URBAN GOVERNANCE

Principle 1: Lead with vision and pragmatism

How leadership was exercised both at the political and bureaucratic levels has had an important impact on planning and implementation. A leadership with vision and political will to

realise it was critical for Singapore. Of particular importance was having the political will to push through policies or projects that were considered unpopular or politically difficult, as long as the government was convinced that such policies or projects were for the long-term benefit of the country and its people. For instance, the spate of land acquisitions by the government that began in the late 1960s was recognised to be somewhat draconian but was deemed necessary for Singapore's subsequent development.

“I think you can't run away from the fact that you need one strong visionary leader ... If you go back and think of some of the things that were done, I don't think you will be able to do it today ... How land acquisitions were carried out in those days cannot be done today. But it had to be done in those days ... [What is required is] a strong political will and a population that recognises that this has to be done.”³³

Mah Bow Tan

Having such political will also indicated to the citizens that the leadership believed in the vision and was committed to it. Singapore's leaders were also pragmatic and could focus on what needed to be done immediately or was feasible. Housing was one such instance, and was a key priority for land use planning in 1959. According to Dhanabalan, even though there were other priorities like creating employment and building up a manufacturing sector, it was clear that “unless you solve the housing problem, you are not going to be able to solve many other problems”.³⁴

Principle 2: Build a culture of integrity

Public sector culture is about the values and beliefs that affect how public sector officers and politicians execute their responsibilities as well as their legitimacy with citizens. When public officials carry out their responsibilities with integrity, they gain credibility and build legitimacy. They need to do what they say they would do while eschewing leakage and minimising waste.

“After all, this is a Cabinet system and all of us have collective responsibility.”³⁵

Lim Hng Kiang

Since Singapore’s independence, a culture of integrity has been strongly encouraged by governance systems that stress the importance of accountability, transparency and incorruptibility. This culture of integrity affected how Singapore’s public officers, as well as politicians, carried out their responsibilities.

“You must have the governance right. Once you have corruption, bad administration, fickle decision making, which can be influenced by friendship or favours or bribes, then you’ve got a problem.”³⁶

Lee Kuan Yew



09 Singapore Parliament Building

Decisions concerning national development are frequently debated and made within the walls of this Parliament building.

Photo courtesy of Dion Hincliffe

The government took pains to inculcate a sense of accountability in public officers. Those responsible for city planning propose and develop large infrastructure projects that shape the city. It is not just large amounts of resources—time and money—that are involved; how well these officials do their work affects the daily lives of citizens, from the roads used, to the roofs over their heads. The government had to ensure that sound financing mechanisms were put in place to maintain fiscal solvency and the sustainability of the projects.

“One critical thing about Singapore ... is that we are very proud of the fact that we don't borrow money. Not even for development. This leads to very, very tight rules on budgeting, which is good. You can say it is good for budget discipline ... in Singapore, we kept ourselves bound to what we are able to earn, and pay for everything.”³⁷

Lim Siong Guan

The key outcome indicators for Singapore's city planning were made public, which pushed government agencies to ensure effective implementation, as each Ministry was held accountable for the progress made under its charge. Formal structures were put in place to guard against corruption, for example, systems that were transparent, had high disclosure requirements, and meted out severe and public punishments.

“[There was] someone who was very close to me, in the Cabinet for many years. Before that, he was the head of Housing and Development Board as a professional architect and CEO but he breached the rules. I mean, he had to face the music. Had I made an exception, it would have broken down. It would have collapsed because the investigators are bound to talk if I had intervened and stopped this. It would have been finished. The moral authority of the government would have dissipated.”³⁸

Lee Kuan Yew

Principle 3: Cultivate sound institutions

The institutional set-up plays a critical role in coordinating an effective planning and development process. Strong institutions with well thought-out systems and processes contribute to better decision making.

“You want as much structure and process as possible so that you are less dependent on individual judgement which may be right or wrong ... Some things can be automated but a lot of big decisions cannot be automated and that human intervention, human judgement, still comes in ... my inclination is to try and put as much structure and process in place as possible so that all the skills and competencies [available] are brought to bear. If everything depends on just the judgement of the individual, then I think you’re very subject to the vagaries of that person.”³⁹

Lim Hng Kiang

Singapore’s experience has been to use a range of structures (both formal and informal) in planning, and to allow these structures to evolve as the situation requires. Departments have merged, changed parent ministries, or been reorganised to support a more integrated and coordinated approach to planning and implementation. Another important feature of Singapore’s institutions is sound professional leadership. Many of the professional bureaucrats were technical experts as well as strategists. These professionals also worked well with the political leaders and were prepared to defend their ideas when necessary.

Aside from these formal institutions, the challenge has been to build the informal institutions—norms of governance such as a rational approach to policy, respect for sound professional competence, meritocracy, as well as the aforesaid culture of integrity, including a commitment to incorruptibility.

The separation of politics and the professional services, as embodied in Singapore's institutions, is another significant norm. According to Liu, having this demarcation was crucial for the agencies' effectiveness. While politicians focused on strategy and policy, the professional and technical issues were handled by the agencies, which ultimately led to greater accountability and responsibility.⁴⁰ This was most evident in the decade long clean up of the Singapore River which began in 1977.

“The technical engineering problems, we deal with, we don't get interference from Members of Parliament, politicians saying, “Why don't you do this?” They don't tell us how to clean up. We deal with that part. But the social and political problems, being the elected government and [having] practically all the seats in Parliament, they had the political will and political muscle to carry though all these things.”⁴¹

Lee Ek Tieng

Institutional rules and norms, both formal and informal, have enabled government agencies to work effectively together, irrespective of different or competing interests or professional opinions. Beyond the structures, one important factor has been the culture and people in the institutions. The respect between the political leadership and the bureaucracy is important for making better decisions and for clarity of action and responsibility.

“One thing I was quite clear about and that has been my philosophy wherever I have been is to recognise that people who are actually on the ground doing the work have many good ideas. But you have to be prepared to listen to them and encourage them.”⁴²

S. Dhanabalan



10 Singapore River
Once a filthy and congested river, the clean up took just a decade to complete.
Photo from the Centre for Liveable Cities (CLC)

Principle 4: Involve the community as stakeholders

Creating a liveable city is a huge and complex undertaking, and city planners need the support of the city's inhabitants for projects and policies to succeed and to be sustainable. No government has all the answers or inexhaustible resources. Creating a stake in the city for the community creates opportunities for the public, people and private sectors to work together for the long-term good of the city.

The Singapore government has involved the community in protecting the country's shared resources, as these contribute to each resident's interest. In this way, working with the government to take care of the country's water resources and greenery would come naturally to the city's residents.

“We now have a population that appreciates clean water, which they can fish in, do boating in and so on. So we are intending to clean up all our streams and our canals [to] become little rivers with dams and grow bushes on the side, boardwalks and so on. And they know that their houses will improve in price, in the value, so they are adopting — we get schools to adopt [the rivers] and residents to adopt the stretch.”⁴³

Lee Kuan Yew

The government also engaged the community by creating avenues for participation in the policy-forming processes. Even though policy and planning decisions are fundamentally undertaken by the government, the government has engaged the public increasingly to build up the legitimacy of decision making and policy outcomes. The 1990s was a point when the government first opened up land use planning to greater public participation. As it turned out, both the government and the community had to get used to the process.

“[W]e organised our own brand of public participation, quite managed, but nonetheless, it was an opening of the planning system for more consultation. So we have planners prepare the plan and then release it publicly, organise the dialogue for that draft plan with the public. Of course we invited people to come at that time. I think people were not as vocal as today and [we] had to get them to participate. But nonetheless, it was a good start.”⁴⁴

John Keung



11 Chek Jawa wetlands, on Singapore's island of Pulau Ubin
Nature lovers gather at Chek Jawa to observe wildlife.
 Photo courtesy of SengKang

When Chek Jawa, a biodiversity-rich area, was slated for development, the Nature Society (Singapore)⁴⁵ lobbied the government to preserve the area. As a result, Chek Jawa was given a reprieve in 2002 and is now a popular nature spot for Singaporeans. Success on Chek Jawa came about not only from having a strong case for its preservation, but also because the government and community stakeholders found a way to communicate and work constructively with each other.

When the government and key community stakeholders were able to work together on issues that were in the interest of a wide section of the public, the result was a collective win for the country.

“I feel that NParks and Nature Society worked very well together because of our improved relations ... We did agree not to do too much confrontational fighting with the government on Chek Jawa ... The really important thing was that the public supported it, and other groups started up spontaneously to support it.”⁴⁶

Geh Min, former President of Nature Society (Singapore)

Principle 5: Work with markets

The private sector has played a part in the provision of services which the government alone could not provide, or services which the government wanted to relinquish in order to re-direct public funds to a different priority.

“Competition is good [but] it is good up to a point. And then we have got to ask ourselves also—is private sector operation the best way to run a public utility and should a public utility be subsidised? These are important questions that need to be asked.”⁴⁷

S. Dhanabalan

A key governance approach has been to harness market forces where they would improve efficiency. This has been a matter of fiscal prudence. The government has successfully privatised power generation and some parts of public transportation. Nevertheless, there are limits to private sector involvement in the provision of public services.

As such, the government had to be clear about the kind of services that could not be outsourced or privatised. For example, the government has not privatised the provision of water. In the case of Changi Airport, Dhanabalan explained that the regulatory and policy frameworks were not right for it to be a private company then. There would have been too many regulations that would need to be tweaked, which would have been problematic.

Concerning Surbana Corporation Pte Ltd, which used to be HDB's Building and Development Division and is now an international building consultant, the issue of maintaining control was clear:

Surbana is a good positive example where the expertise we have garnered by building public housing in Singapore can now be applied elsewhere. We can sell these services but we still have to be clear that Surbana should still be controlled by us [Temasek Holdings, the Singapore government's investment vehicle] because they have a big role to play in Singapore.⁴⁸

Market forces have helped the government incentivise behaviour and improve efficiency. This approach has enabled the government to implement a wide range of programmes more effectively. However, the role of the private sector in the provision of public services is calibrated against the overall role of the government.

“If the economies don't work for the operator, they just neglect it and it becomes worse after that.”⁴⁹

Lim Siong Guan

CONCLUSION

Having learnt much from others, and in the spirit of sharing knowledge, we hope this CLC Liveability Framework can provide some useful insights to leaders of other cities as they consider the approaches best suited to their particular circumstances. The Framework has been derived from Singapore's urban development experience and, as such, is not meant to be exhaustive but is specific to Singapore's particular circumstances. However, the general principles of building an effective integrated master planning process and a dynamic urban governance approach may be worth a look by any city interested in raising and sustaining its liveability

standards, particularly small cities with limited natural resources. In particular, we hope the CLC Liveability Framework can help practitioners look at urbanisation issues from strategic, managerial and political perspectives, rather than from purely technical ones.

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ENDNOTES

1. A preliminary and condensed version of the CLC Liveability Framework by Khoo Teng Chye was published in the July 2012 issue of *Urban Solutions*.
2. Lee Kuan Yew, interview by the Centre for Liveable Cities, Singapore, August 31, 2012. Lee was Singapore's first Prime Minister. He was also Minister Mentor from 2004 to 2011.
3. Liu Thai Ker, interview by the Centre for Liveable Cities, Singapore, June 29, 2011. Liu is currently Director of RSP Architects Planners & Engineers (Pte) Ltd. He held previous appointments as Chief Executive Officer of the Housing & Development Board, and Urban Redevelopment Authority.
4. Beh Swan Gin, interview by the Centre for Liveable Cities, Singapore, February 21, 2012. Beh is currently Permanent Secretary of the Ministry of Law. He held previous appointments as Managing Director of the Economic Development Board, Executive Director of the Biomedical Research Council at the Agency for Science, Technology & Research, and Director of the Ministry of Trade and Industry's Energy Planning Division.

5. Lee Ek Tieng and Tan Gee Paw, interview by Asit Biswas and Cecilia Tortajada, Singapore, February 9, 2011.
6. Lee Kuan Yew, interview by the Centre for Liveable Cities, Singapore, August 31, 2012. See Endnote 2 for Lee's past appointments.
7. S. Dhanabalan, interview by the Centre for Liveable Cities, Singapore, December 20, 2011. Dhanabalan was former Chairman of Temasek Holdings (Pte) Ltd. He held previous appointments as Minister for Foreign Affairs, Minister for Culture, Minister for Community Development, Minister for National Development, and Minister for Trade and Industry.
8. Lee Kuan Yew, interview by the Centre for Liveable Cities, Singapore, August 31, 2012. See Endnote 2 for Lee's past appointments.
9. Mah Bow Tan, interview by the Centre for Liveable Cities, Singapore, November 30, 2011. Mah was former Minister for National Development, and also held previous appointments as Minister for Communications and Minister for the Environment.
10. Lee Kuan Yew, interview by the Centre for Liveable Cities, Singapore, August 31, 2012. See Endnote 2 for Lee's past appointments.
11. Cheong-Chua Koon Hean, interview by the Centre for Liveable Cities, Singapore, September 13, 2011. Cheong-Chua is currently Chief Executive Officer of the Housing & Development Board, and Deputy Secretary (Special Duties) of the Ministry of National Development. She held previous appointments as Chief Executive Officer of the Urban Redevelopment Authority, and is a board member of Jurong Port Pte Ltd, International Federation of Housing and Planning, NUS Board of Trustees, and the Civil Service College.
12. John Keung, interview by the Centre for Liveable Cities, Singapore, July 27, 2011. Keung is currently Chief Executive Officer of the Building and Construction Authority (BCA). He is also the Co-Executive Director of the Clean Energy Programme Office, Chairman of BCA International Pte Ltd, a board member of BCA and member of the Supervisory Board, Solar Energy Research Institute of Singapore. He held previous appointments as Deputy Chief Executive Officer (Building) of the Housing and Development Board, Director of Strategic Planning in the Ministry of National Development, Deputy Chief Planner (Planning Policies) in the Urban Redevelopment Authority and later, as its Deputy Chief Executive Officer (Development Control and Corporate Development).
13. Ministry of Information, Communications and the Arts, *Renaissance City Plan III*, 1st ed. (Singapore: Ministry of Information, Communications and the Arts, 2008).
14. Lim Hng Kiang, interview by the Centre for Liveable Cities, Singapore, April 13, 2012. Lim is currently Minister for Trade and Industry. He held previous appointments as Deputy Secretary of the Ministry of National Development, Chief Executive Officer of the Housing and Development Board, Minister for National Development, and Minister for Health.
15. Beh Swan Gin, interview by the Centre for Liveable Cities, Singapore, February 21, 2012. See Endnote 4 for Beh's current and past appointments.

16. "Waste management sector set to expand." *The Straits Times*, March 28, 2012.
17. Liu Thai Ker, interview by the Centre for Liveable Cities, Singapore, September 16, 2011. See Endnote 3 for Liu's current and past appointments.
18. Mah Bow Tan, interview by the Centre for Liveable Cities, Singapore, November 30, 2011. See Endnote 9 for Mah's past appointments.
19. Lee Kuan Yew, interview by the Centre for Liveable Cities, Singapore, August 31, 2012. See Endnote 2 for Lee's past appointments.
20. Lee Ek Tieng and Tan Gee Paw, interview by Asit Biswas and Cecilia Tortajada, Singapore, February 9, 2011.
21. Lim Siong Guan, interview by the Centre for Liveable Cities, Singapore, November 26, 2012. Lim is currently Group President of GIC Private Limited. He held previous appointments as Head of Civil Service, Permanent Secretary at the Ministry of Finance, Prime Minister's Office, Ministry of Education and the Ministry of Defence; he was also Chairman of the Economic Development Board, Accounting and Corporate Regulatory Authority, the Inland Revenue Authority of Singapore and the Central Provident Fund Board.
22. Lim Hng Kiang, interview by the Centre for Liveable Cities, Singapore, April 13, 2012. See Endnote 14 for Lim's current and past appointments.
23. Tan Chin Nam, interview by the Centre for Liveable Cities, Singapore, February 21, 2012. Tan is currently Chairman of the Media Development Authority. He held previous appointments as Managing Director of the Economic Development Board, Chief Executive of the Singapore Tourism Board, Chief Executive Officer of the Infocomm Development Authority of Singapore, and Deputy Secretary (Policy) of the Ministry of Education. "One North" refers to a cluster of world-class research facilities and business park space, built to support the growth of biomedical sciences, physical sciences, Infocomm Technology (ICT), media, and engineering.
24. S. Dhanabalan, interview by the Centre for Liveable Cities, Singapore, December 20, 2011. See Endnote 7 for Dhanabalan's current and past appointments.
25. John Keung, interview by the Centre for Liveable Cities, Singapore, July 27, 2011. See Endnote 12 for Keung's current and past appointments.
26. Liu Thai Ker, interview by the Centre for Liveable Cities, Singapore, September 16, 2011. See Endnote 3 for Liu's current and past appointments.
27. Aline Wong, interview by the Centre for Liveable Cities, Singapore, September 21, 2011. Wong is currently Academic Advisor in the President's Office of the SIM University. She held previous appointments as Chairman of the Housing & Development Board, Minister of State for Health and Education and Senior Minister of State. She was formerly Professor of Sociology at the National University of Singapore.

28. "A Pioneer Speaks", interview with Lee Ek Tieng, *ENVISION Magazine*, Issue 1, February 2012, 46–49.
29. Mah Bow Tan, interview by the Centre for Liveable Cities, Singapore, November 30, 2011. See Endnote 9 for Mah's past appointments.
30. The Deep Tunnel Sewerage System (DTSS) is conceptualised and managed by the PUB, Singapore's national water agency. It will process Singapore's used water collection, treatment, reclamation and disposal through deep tunnel pipes. For full information, visit <http://www.pub.gov.sg/dtss/Pages/default.aspx>
31. Lim Hng Kiang, interview by the Centre for Liveable Cities, Singapore, April 13, 2012. See Endnote 14 for Lim's current and past appointments.
32. Manohar Khatani, interview for the Centre for Liveable Cities, Singapore, September 8, 2011. Khatani is currently the President and Chief Executive Officer of Ascendas Pte Ltd, a wholly owned subsidiary of JTC Corporation. Prior to Ascendas, he was CEO of JTC Corporation, and Deputy Managing Director at the Economic Development Board.
33. Mah Bow Tan, interview by the Centre for Liveable Cities, Singapore, November 30, 2011. See Endnote 9 for Mah's past appointments.
34. S. Dhanabalan, interview by the Centre for Liveable Cities, Singapore, December 20, 2011. See Endnote 7 for Dhanabalan's current and past appointments.
35. Lim Hng Kiang, interview by the Centre for Liveable Cities, Singapore, April 13, 2012. See Endnote 14 for Lim's current and past appointments.
36. Lee Kuan Yew, interview by Asit Biswas and Cecilia Tortajada, February 11, 2009. See Endnote 2 for Lee's past appointments.
37. Lim Siong Guan, interview by the Centre for Liveable Cities, Singapore, November 26, 2012. See Endnote 21 for Lim's current and past appointments.
38. Lee Kuan Yew, interview by Asit Biswas and Cecilia Tortajada, February 11, 2009. See Endnote 2 for Lee's past appointments.
39. Lim Hng Kiang, interview by the Centre for Liveable Cities, Singapore, April 13, 2012. See Endnote 14 for Lim's current and past appointments.
40. Liu Thai Ker, interview by the Centre for Liveable Cities, Singapore, June 29, 2011. See Endnote 3 for Liu's current and past appointments.
41. Lee Ek Tieng and Tan Gee Paw, interview by Asit Biswas and Cecilia Tortajada, Singapore, February 9, 2011.
42. S. Dhanabalan, interview by the Centre for Liveable Cities, Singapore, December 20, 2011. See Endnote 7 for Dhanabalan's current and past appointments.

43. Lee Kuan Yew, interview by Asit Biswas and Cecilia Tortajada, February 11, 2009. See Endnote 2 for Lee's past appointments.
44. John Keung, interview by the Centre for Liveable Cities, Singapore, July 14, 2011. See Endnote 12 for Keung's current and past appointments.
45. The Nature Society (Singapore) or NSS is a non-government, non-profit organisation dedicated to the appreciation, conservation, study and enjoyment of the natural heritage in Singapore, Malaysia and the surrounding region. It was formerly known as the Singapore branch of the Malayan Nature Society. The branch was formed in 1954 and became Nature Society (Singapore) in 1991.
46. Geh Min, interview by the Centre for Liveable Cities, Singapore, March 14, 2012. Geh was former President of the Nature Society (Singapore) and a board member of The Nature Conservancy's Asia Pacific Council and the Singapore Environment Council. She was a Nominated Member of Parliament from 2005 to 2006. An ophthalmologist by profession and a committed conservationist, she received the inaugural President's Award for the Environment in 2006 for contributions towards protecting and enhancing the environment.
47. S. Dhanabalan, interview by the Centre for Liveable Cities, Singapore, December 20, 2011. See Endnote 7 for Dhanabalan's current and past appointments.
48. Ibid.
49. Lim Siong Guan, interview by the Centre for Liveable Cities, Singapore, November 26, 2012. See Endnote 21 for Lim's current and past appointments.

CHAPTER 2

Master Planning

Transforming Concepts
to Reality

Master Planning: Transforming Concepts to Reality

Phyllis TEOH



01 Marina Bay, Singapore at night
Long term planning ensured that land was set aside for developments such as Marina Bay.
Photo from the Centre for Liveable Cities (CLC)

THE CHALLENGE OF PLANNING THE CITY OF SINGAPORE

Many people harbouring hopes of improving their livelihoods have been drawn to seek economic opportunities in cities around the world. Modern Singapore began as an immigrant city in the 1800s. In recent decades, the increasing inflow of people into the city-state has brought about a growing density to the city and, with that, increasing demands on the land and infrastructure.

Planning a city well is about ensuring that it develops in a manner that achieves optimal economic, social and sustainability outcomes in spite of physical constraints, the competition for the use of each

parcel of land, and the lack of resources. This is by no means an easy task.

Almost all cities in the world would have a physical master plan that directs the way the city should grow. However, not all development takes place according to the plan. Very often, other factors influence the way development takes place, and the physical master plan remains just a plan not translated into reality.

To ensure that its plans materialise, Singapore brings together the policies and programmes of various government agencies and incorporates these in a common national urban policy document, known as the Concept Plan. The Concept Plan is a strategic land use plan that has one important feature—it takes a long-term perspective of 40 to 50 years. For instance, when Singapore's public housing authority ramped up its development programme to meet public housing demand in 2012, there was empty land in various areas of Singapore that had been safeguarded for housing development since 1991 in the Concept Plan.



02 Public flats in Tampines, Singapore

80% of the population live in public housing. Land is set aside 20 to 30 years before to ensure enough homes can be provided in the future.

Photo courtesy of Rodeo Cabillan

The emphasis towards having tight coordination among the different stakeholders in government is not just at the strategic level of the Concept Plan but also at the level of the Master Plan. The Master Plan translates the broad and long-term strategies of the Concept Plan into detailed plans for implementation over 10 to 15 years and guides the exercise of development controls. This high level of coordination has been important to Singapore, for instance, in ensuring an adequate transport network. The transportation corridors for the development of Singapore's Mass Rapid Transit (MRT) system had been identified and safeguarded since the 1971 Concept Plan, ensuring that when new housing estates are developed, they are adequately served by public transport. Singapore's experience has also shown that insisting on a high degree of coordination has another practical outcome—it allows for conflicts among different agencies to be resolved early and for trade-offs to be dealt with in constructive and innovative ways.

Singapore met the challenges of urbanisation in the past decades by relying on an integrated master planning and development approach, which also reveals the role that leadership, policies, legislation and government institutions played in the creation of a liveable and sustainable city. Singapore's style of urban planning has not only been an effective tool in managing the country's land resources optimally for development, it has also been used as a tool to manage the various social, economic and environmental issues faced by the country.

THE PRINCIPLES OF INTEGRATED MASTER PLANNING AND DEVELOPMENT

Singapore's planning and development approach took around 20 years to evolve into what it is today, where the Concept Plan, Master Plan and development control regime all form parts of an integrated system. This evolution was guided by five principles that Singapore's urban planners have consistently adhered to in order to

build some degree of resilience into Singapore's integrated master planning and development system. These principles are:

- 1 Think long term;
- 2 Fight productively;
- 3 Build in some flexibility;
- 4 Execute effectively; and
- 5 Innovate systematically.

Principle 1: Think long term

Given Singapore's limited land resources, we need to plan long term. Long-range planning helps to ensure that sufficient land is made available to cater for population growth and economic activity, not just for the present, but for the future as well. Only through careful planning has it been possible for Singaporeans to enjoy a good quality of life in one of the most densely-populated countries in the world. Singapore's planning explicitly incorporates a long-term perspective through the Concept Plan, a strategic land use and transportation plan that sets out the directions for the next 40 to 50 years, and takes into consideration all projected land use demands for housing, industry and commerce, recreation and nature areas, transport and utility infrastructure, as well as defence requirements. The Concept Plan is revised once every ten years to ensure that it keeps pace with changing demographic, social, economic and technological trends.

This principle of long-term planning did not emerge overnight. A look at how this idea evolved over time underscores why this was crucial to Singapore's planning and development process.

Singapore's historical town planning system

Statutory town planning in Singapore had its roots in 1951 when the Singapore Improvement Trust (SIT) was legally empowered to carry out a diagnostic survey for the preparation of a comprehensive plan (Master Plan) to guide the future growth of the island. The

SIT had been established in 1927 to tackle town planning and slum clearance but had not achieved much owing to inadequate statutory powers to control land use. Singapore, in the 1950s, was a city still recovering from the damage caused by the Second World War and the challenges posed by an influx of immigrants. Housing was inadequate and slums were a common sight. Squatters had sprouted out all over the central area after the war owing to the burgeoning population growth.



03 Slums in early Singapore

Living conditions were squalid and cramped. Diseases were spread easily due to unsanitary conditions.

Photo courtesy of the Housing & Development Board

“One of the few things I did at the very beginning ... was to go round to the slum area in Chinatown ... It was an eye-opener for me to see the bad conditions under which people lived ... At that time when I went ... some of the labourers were so poor they shared trousers between them ... they shared bunks. Some people will work at night and others will work during the day time. So when the one who works in the day time is out, the one who works at night sleeps in the bunk.”¹

Lim Kim San, former Minister for National Development

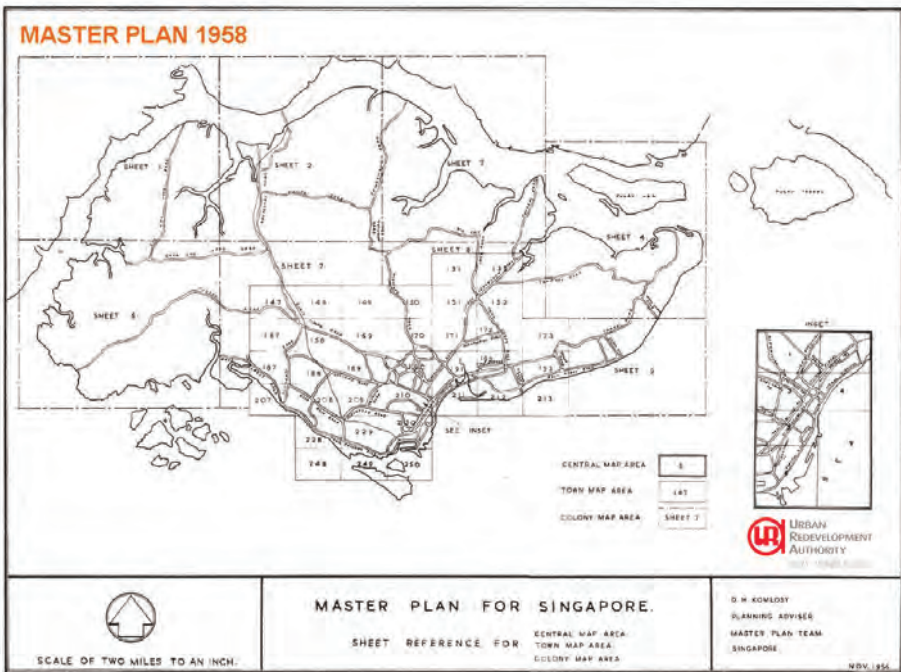
Housing needed to be provided on an unprecedented scale to overcome the acute shortage. In 1947, a Singapore Housing Committee had been established with the remit of resolving the problem. It recommended the need for a master development plan for the whole island and the decentralisation of the population in new satellite towns.²

In 1955, renowned British town planner Sir George Pepler and his survey team submitted the first Master Plan to the Singapore government, and, four years later, Singapore adopted its first statutory Master Plan in 1958. A Planning Coordination Committee chaired by the Commissioner of Lands was set up to resolve any conflicts in land use planning. Agencies such as the City Council, Rural Board, SIT and the Survey Team were all represented in the committee. This committee was the predecessor of the Master Plan Committee chaired by the Chief Planner.

The 1958 Master Plan was modelled on the Greater London Plan of 1944. In forming the plan, Pepler's team looked into population trends, building resources, industrial resources, traffic standards, and redevelopment needs and problems. The plan covered the period between 1953 and 1972, premised on a projected population of 2 million in 1972. The plan was fundamentally a static concept, providing for limited and predictable change and ultimately for a city of finite size, even if it were to be reviewed every five years. It was a form of blueprint planning. By and large, the 1958 Master Plan was considered to be unsuccessful even though it was prepared and administered in the most competent and sincere manner.³

The plan was based on three assumptions: (i) a slow and steady rate of urban growth and social change; (ii) reliance on the limited private sector for physical development of the city; and (iii) a primary objective of preserving the achievements and institutions of the past.

As history showed, many of these assumptions did not hold. For one, the population grew faster than expected. In 1947, the population was nearly 940,000, with 72.4% of the people concentrated in the city area. By 1957, the population had reached 1,445,929, of which 78.6% were living in the city area. The population was growing at an average annual rate of 5.4% between 1947 and 1957. By 1970, the population had hit 2.07 million, two years ahead of the Master Plan's target.



04 1958 Master Plan
 Modelled after the Greater London Plan of 1944, this plan covered land use from 1952 to 1972.
 © Urban Redevelopment Authority. All rights reserved.

Political changes were equally dramatic. Shortly after the Master Plan was approved in 1958, Singapore was granted full internal self-government from the British in 1959. This was followed by a merger to form Federal Malaya in 1963 and by 1965 Singapore had become an independent republic under the political leadership of Prime Minister Lee Kuan Yew.

“The top priority when the government came into power was housing the population and building up a manufacturing sector to create employment ... at the political level, it was clear that unless you solve the housing problem, you are not going to be able to solve many other problems ... Since housing was the top priority, the approach was to find a piece of land, build housing and decant people from the slum areas. Where the housing went and how the land was used was secondary.”⁴

S.Dhanabalan, former Minister for National Development

With a large growing population and high unemployment, the primary task of the new government was not only to house the population but also to create employment opportunities. The move towards rapid industrialisation did not square with the preservationist mode of the 1958 Master Plan. The United Nations' 1961 Proposed Industrialisation Programme for the State of Singapore, led by adviser Professor A. Winsemius, also identified industrialisation as a key strategy. Land would need to be used for ports, industrial estates and transport networks, for instance. The drive for growth and progress and the ambition to create a futuristic ultra-modern city was a far cry from what was envisioned by the Pepler team.

“The planners of the 1950s and 1960s believed that the concepts, methods and techniques that were developed in the West were the social equivalents of natural laws and, as such, universally applicable. They did not realise that the ideas, methods and rule of work which they learned in their universities were the result of the particular political, economic and social conditions of their countries of origins and therefore inapplicable to countries where these conditions did not apply.”⁵”

Otto Koenigsberger, Member of the UN team

The State and City Planning project—beginnings of a long-term approach

As the 1958 Master Plan was inadequate, it was clear that adjustments had to be made. The Singapore government requested the United Nations (UN) to send a team of experts to give advice on dealing effectively with the problems of urban renewal and redevelopment in the city. In 1962, Erik Lorange, a UN Town Planning Adviser, did a preliminary survey, and his recommendations highlighted the urgent need to revise the 1958 Master Plan. In 1963, the UN team consisting of Charles Abrams, Susumu Kobe and Otto Koenigsberger (referred to as the “KAK team”) visited Singapore and found people unhappy with the Master Plan.

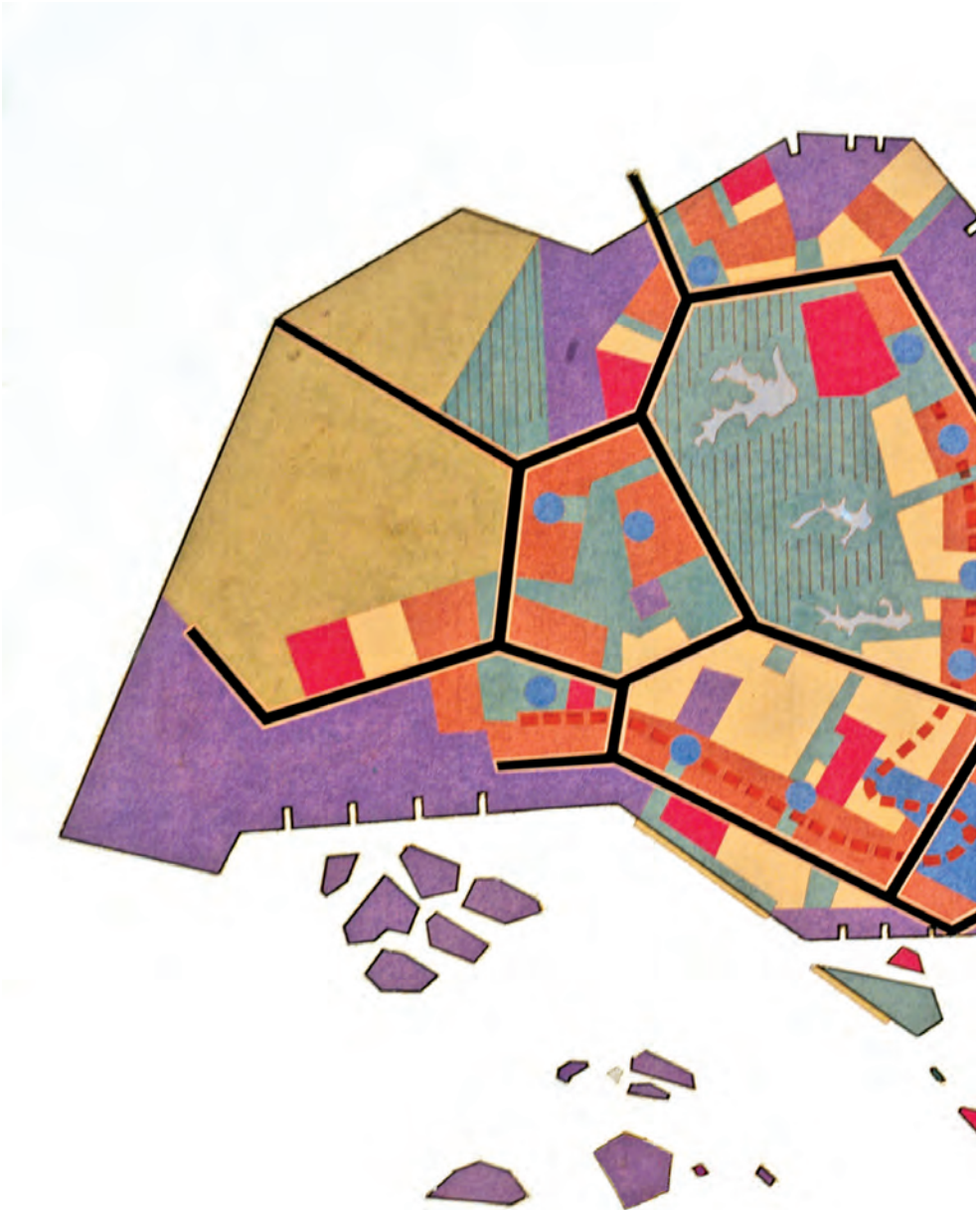
Rather than embark on comprehensive planning in the manner of the 1958 Master Plan, which would have taken too much time, a plan of operations was drawn up early in 1966, agreed to by the UN and the Government of Singapore. In 1967, the Australian firm Crooks Stewart was selected to execute the proposal. The government started to consolidate all physical planning and implementing agencies within the Ministry of National Development (MND). An ad hoc organisation called the State and City Planning (SCP) project was formed from a number of departments, with the original Planning Department as the nucleus. The SCP team of 25 senior officials and nearly 100 technical and administrative personnel served as the counterpart to the UN team. Work on the SCP project began in 1967. An international panel of experts, including local professionals, followed the project’s progress. The SCP plan eventually became the 1971 Concept Plan.

The 1971 Concept Plan—building foundations for long-term planning

The 1971 Concept Plan made provisions for a time frame of 30 to 35 years as the government realised the possible long-term negative effects that could arise from the shortcomings of a “project-by-project” planning strategy and decision-making approach. In addition, the plan reflected an understanding that urban planning policy had to be formulated within an overall framework of social and economic policies. This understanding has since informed the approach to planning and the design of the planning system in Singapore.

As they went about to create the 1971 Concept Plan, the government’s concerns at that time were to maintain Singapore’s political independence and economic viability and to build a sense of national identity among the socially and culturally fragmented society. It wanted to broaden Singapore’s economic base, reduce unemployment, slow down the rate of population growth, and improve the standards of housing and living. The SCP project made specific projections on population, schoolchildren numbers, workforce, housing needs, motor vehicle numbers, productivity growth, household income, employment and occupational structure, industrial land requirements, residential land requirements, office space demand and hotel space demand. Guiding them were policy goals, projections and planning parameters.

The resultant 1971 Concept Plan brought about greater coherence in public development, allowing the government to move ahead quickly on building public housing, industrial estates and roads. The key idea in the 1971 Concept Plan was the decision to develop Singapore along a Ring Plan which addressed both land use planning and transport system planning. Today, much of Singapore’s urban built area—particularly the ring-cum-linear shape—is because of the 1971 Concept Plan.



05 1971 Concept Plan

The first concept plan to take into account a 30 to 35 year time frame, this plan had a major influence on Singapore's urban built area.

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1971 CONCEPT PLAN STRUCTURE (SCP)



LEGEND

- LOW DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL
- INDUSTRY, HARBOURS
- COMMERCIAL CENTRES
- INSTITUTIONAL USES
- AIRPORTS
- CATCHMENT AREAS
- OPEN SPACES
- COASTAL RECREATIONAL AREAS
- RURAL AREAS
- EXPRESSWAYS
- MASS RAPID TRANSIT



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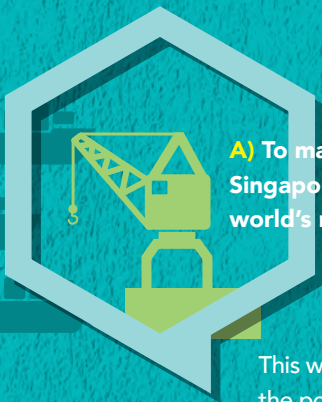
THE STATE AND CITY PLANNING (SCP) PROJECT

Planning Goals and Projections⁶

“The State and City Planning project looked into fresh areas such as sociology, which we previously had no time for that. In addition, the project also looked at integrating land use and transportation where we studied the impact of how a change in land use would react on the transportation network.”⁷

Chua Peng Chye, Singapore's second Chief Planner

The policy goals reflected the main priorities of the government—defence capability and credibility, industrial development, public housing and urban renewal, and education. These priorities were translated into the following planning goals:



A) To maintain, if not to advance, Singapore's position as one of the world's major ports.

This was to be done by fostering the expansion of the port and maritime industries.

B) To reserve sufficient areas, in suitable locations, for future growth of the manufacturing sector.

C) To reserve sufficient areas for future urban expansion, especially public housing development.

In addition, existing industrial estates must be integrated with urban expansion and their accessibility improved, or at least preserved.

The overall development plan should also be economical in terms of infrastructure requirements, taking advantage of recreational opportunities and other potentials, be practicable and flexible in implementation, and provide a coherent form and structure. Standards for housing units and provision of shops, schools, open space and other communal facilities should ensure a steady improvement in the quality of living within housing estates.

D) To set in motion the urban renewal programme, taking advantage of opportunities for comprehensive redevelopment.

E) To ensure adequate land and training grounds for the Singapore Armed Forces (SAF) when the British armed forces hand over their land.

F) To develop Singapore as a tourist centre and as Southeast Asia's regional centre for trade, commerce, banking and insurance, transportation and telecommunications, education, culture and industrial research.

In translating these broad goals into tangible estimates of likely future demands and requirements, the State and City Planning project made specific projections in the following areas: population, schoolchildren, workforce, housing needs, motor vehicles, productivity growth, household income, employment and occupational structure, industrial land requirements, residential land requirements, office space demand and hotel space demand.

These projections were then translated into the following strategic planning parameters, where:

A) The population was likely to be somewhere between 2.7 and 3.4 million by 1992, and was expected to reach 4 million from 2000 onwards.

2.7 – 3.4
MILLION BY 1992

B) A total supply of about 670,000 housing units would be needed by 1992.

670,000
HOUSING UNITS

65 SQUARE
MILES

C) A total of about 65 square miles of land would be needed for residential and associated purposes, assuming that 65% of the total population might be accommodated in housing similar to the type provided by the Housing & Development Board.

494,000
BY 1992

D) Employment in the manufacturing sector may reach 494,000 by 1992. It was estimated that about 20 square miles of land would be needed for the expansion of the manufacturing industry when the population reaches 4 million. This was five times more than the present usage which was about 4 square miles.

The requirements for the SCP plan can be summarised as follows:

ACCOMMODATE

4 MILLION

PEOPLE

- A)** The plan must accommodate a population of 4 million with scope for further growth.
- B)** It must pay strict regard to short-term needs, particularly for industrial expansion, the public housing programme and tourism.
- C)** It must allow flexibility in implementation to take advantage of unforeseen development opportunities.
- D)** The development and operating costs must be economical, particularly in the immediate future when resources were expected to be heavily strained.
- E)** It must take into account the rising standard of living of the population and the increasing importance of environmental standards and recreational facilities.
- F)** It must take into account government investment decisions and prepare measures for guiding private development.

Studies done by the government had indicated that urban development, as much as possible, should be concentrated along the southern part of the island between Jurong in the west and Changi in the east. This would produce the least distance of total work trip miles. Of the several options explored, the government decided on the Ring Plan for several reasons: *first*, it was possible to develop the urban units in stages and adapt if needed due to changing priorities and trends; *second*, it had a plan for an efficient transport system consisting of the Mass Rapid Transit (MRT) and expressways; *third*, the high density areas surrounding the Central Catchment could maximise its recreational potential; and *fourth*, the 'ring' development pattern was a highly efficient pattern for water supply and electrical power supply mains.

The Planning Department of MND used the Concept Plan as a guide in subsequent land allocation for public projects. Plans for public-sector development had to be submitted to the Master Planning Committee (MPC) for approval. The MPC, chaired by the Chief Planner, would evaluate the proposal, taking into consideration the broad planning strategies of the Concept Plan and the planning intention of the Master Plan. Proposals which are supported are then submitted to the Minister for National Development, and if necessary, the Cabinet, for final approval. The existence of the MPC enabled development to take place in a coordinated manner. Agencies such as the Housing & Development Board (HDB), Jurong Town Corporation (JTC) and Economic Development Board (EDB) could safeguard land early for their needs.

Major capital-intensive public utility and infrastructure that required sufficient lead time of up to 20 years to develop (e.g., power stations, water mains, service reservoirs, and refuse incineration plants) could be planned and phased into a development programme. The building of roads and supporting infrastructure could be timed to ensure that new developments would be adequately served.

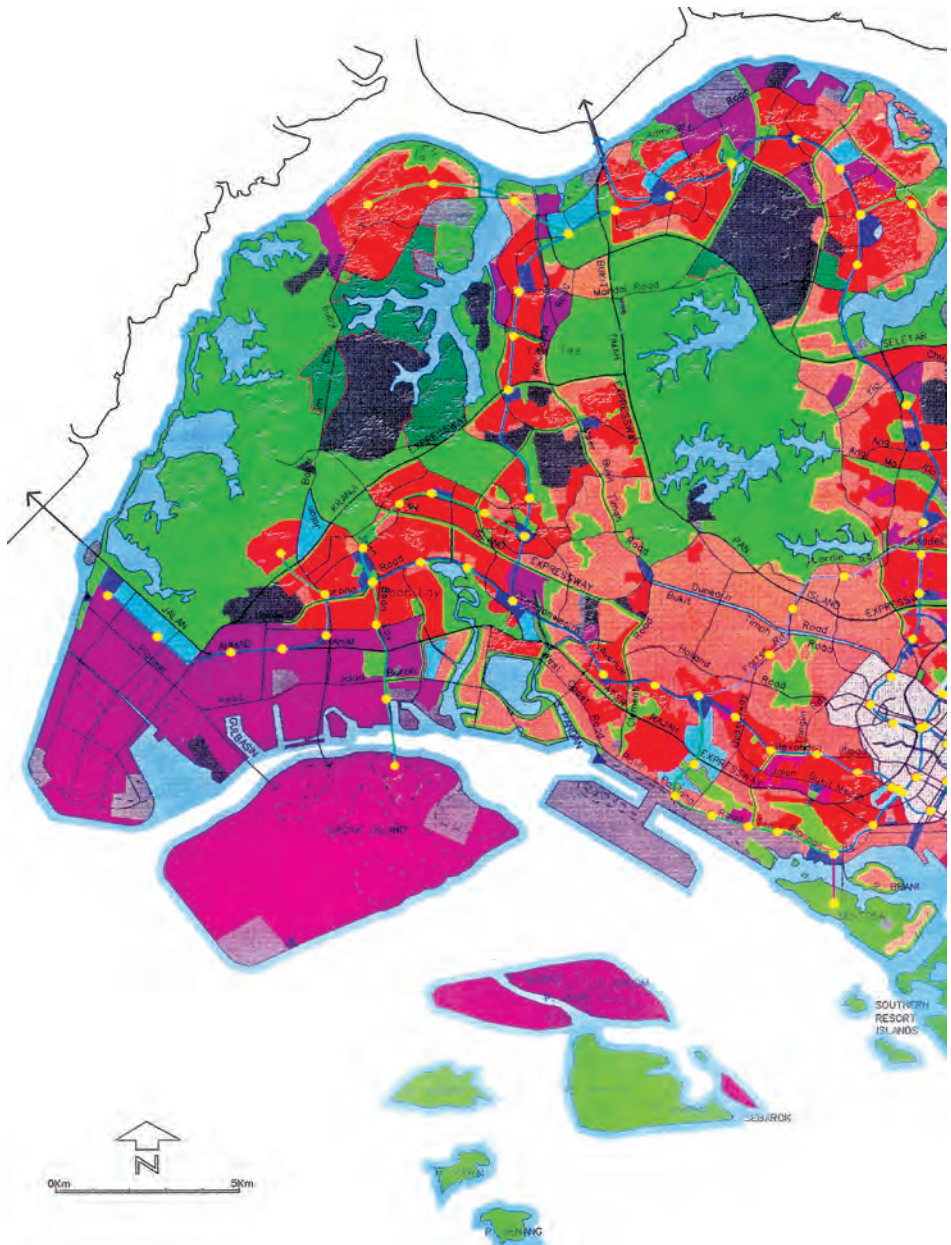
The 1991 Concept Plan—the Watershed Plan

By the mid-1980s, the system and processes for physical planning and the implementation of the plans by the various government action-oriented agencies had been put in place. However, there was a need to review the 1971 Concept Plan. In the 1970s and 1980s, there had been demographic changes, including declining fertility rates. The economy was doing well, and was moving towards high-tech and information-based industries. With the economy fast expanding, there was also a need to balance economic needs and urban development with environmental considerations. Finally, there was the need to take account the rising aspirations of an increasingly affluent population—wanting a better quality of life in terms of housing choices and recreation needs—and the need to maintain Singapore’s identity and heritage.

The preparation for the 1991 Concept Plan started in the late 1980s. It was the first time the planning authority in Singapore was drafting the Concept Plan on its own. The institutional framework and the processes which were set up to draft the 1991 Concept Plan would serve as the general basis from which the government prepared future Concept Plans. In many ways, the 1991 Concept Plan was considered Singapore’s *watershed plan*. The framework was a ‘Year X’ plan which envisioned the physical land use structure when the population reached the ultimate size of 4 million. It was to cover a period of 40 to 50 years and the review process was intense and rigorous.

The planning process (see Figure 1) comprised three main phases: a review and identification of land use requirements; the formulation and translation of development strategies and policies into a structure plan; traffic modelling, and refinement of the plan.

An Inter-Ministry committee was formed, with MND as the chair (see Figure 2). Various sub-committees were created to look into the areas of population, housing, transportation, commerce, central area planning, environment, industry and recreation, and recommend directions, specific policies, and strategies for the land use.

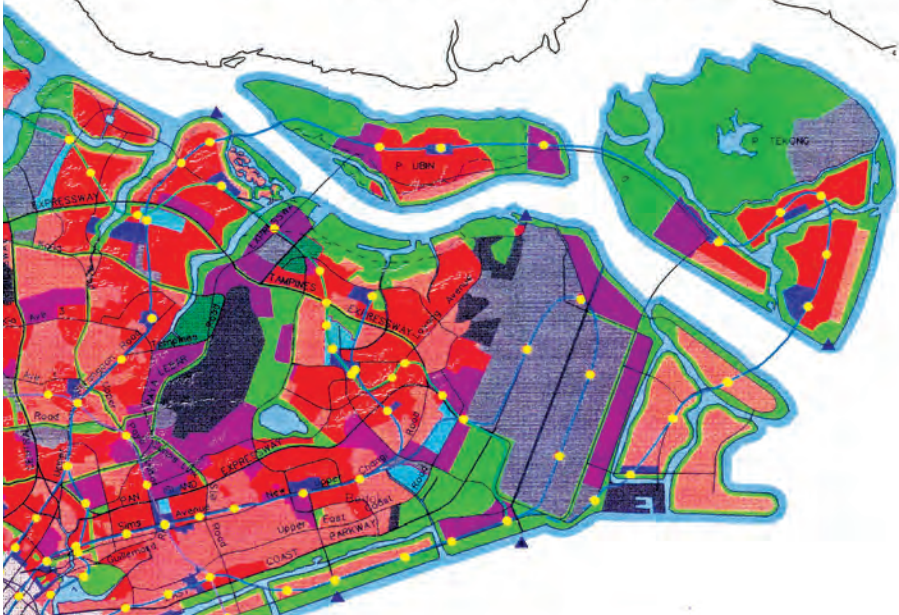


06 1991 Concept Plan

Considered the 'watershed' plan, the 1991 Concept Plan included an even longer planning period, projecting into 'Year X', and integrated various other aspects like transport use and areas set aside for environmental conservation.

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CONCEPT PLAN REVIEW 1991 - YEAR X STRUCTURE PLAN



LEGEND



















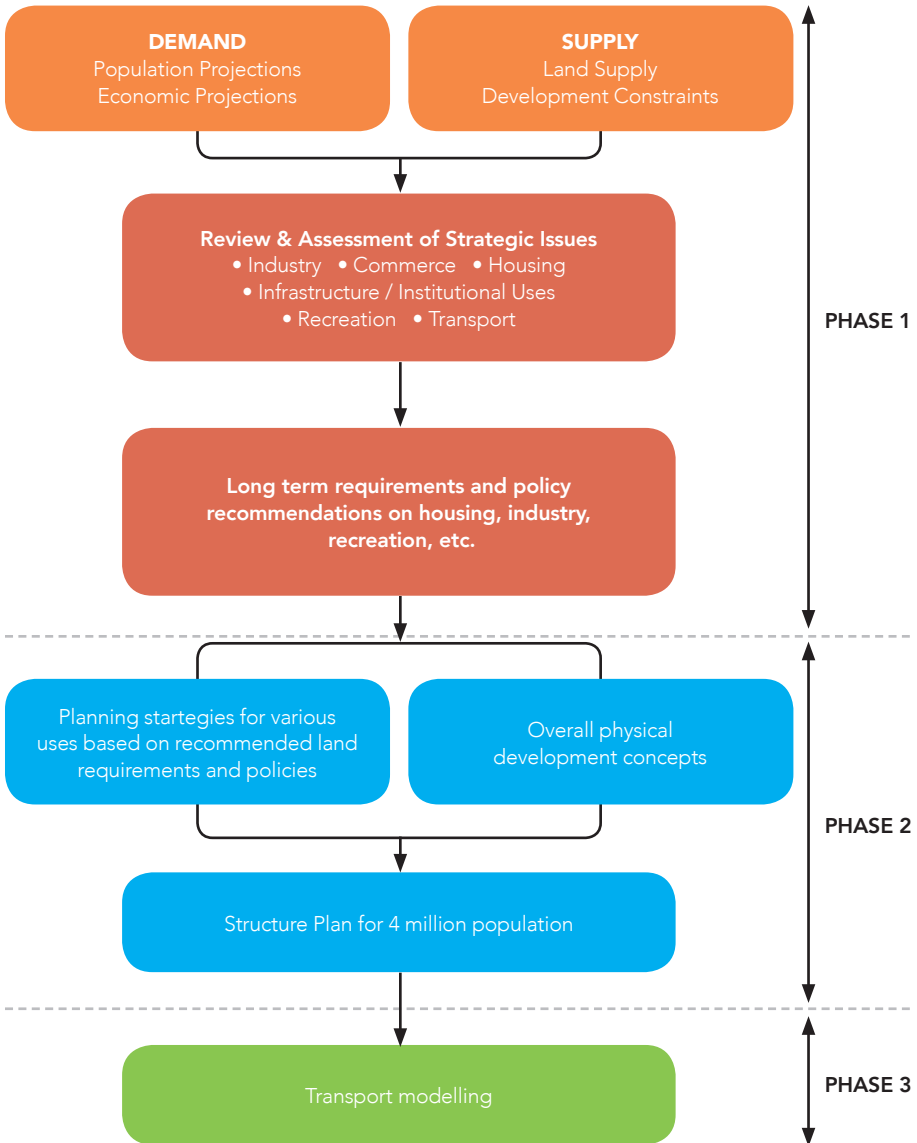
	HIGH DENSITY HOUSING		LIVE FIRING AREA
	LOW / MEDIUM DENSITY HOUSING		CENTRAL AREA
	COMMERCIAL		MRT
	INDUSTRY		LRT
	BUSINESS PARK		RESERVED CORRIDOR
	AGRICULTURE		MRT / LRT STATION
	OPEN SPACE / RECREATION		FERRY LANDING POINT (LOCAL SERVICES)
	INFRASTRUCTURE		FERRY LANDING POINT (INTERNATIONAL SERVICES)
	INSTITUTION		
	SPECIAL USE		

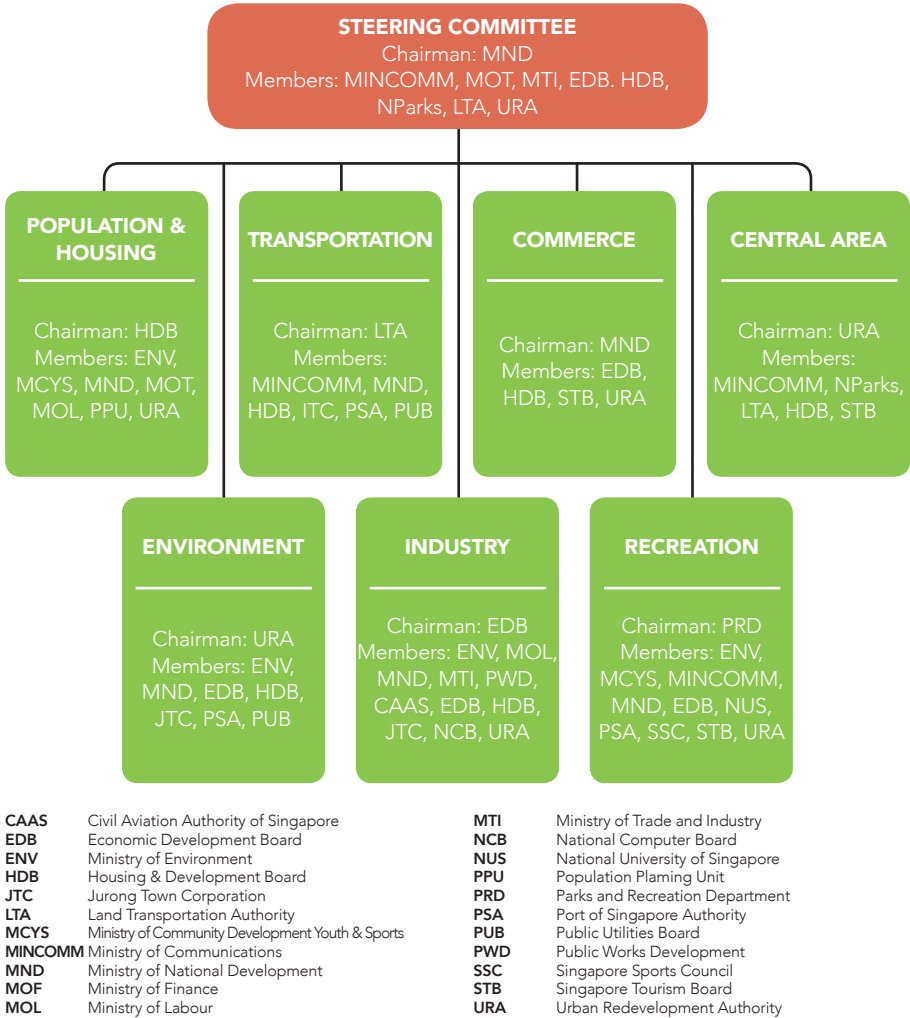
FIGURE 1: THREE PHASES OF THE 1991 CONCEPT PLAN PREPARATION



Source: Singapore-Suzhou Software Transfer Project, 1994, Urban Redevelopment Authority

The recommendations and any issues and conflicts were then discussed and considered holistically across all land uses by the steering committee. The planners also laid out their assumptions and projections.

FIGURE 2: PREPARATION OF THE 1991 CONCEPT PLAN—INTER-AGENCY STRUCTURE



Source: Singapore-Suzhou Software Transfer Project, 1994, Urban Redevelopment Authority

STRATEGIC PLANNING PARAMETERS OF THE 1991 CONCEPT PLAN

- Total land area to increase from 621 sq km to 733 sq km (17% increase) through reclamation
- Identifies “hard” and “soft” areas—85% of existing 621 sq km are considered “hard” (i.e., not amenable to changes)

POPULATION PROJECTIONS



- Assumes high fertility model land safeguarding
- Assumes migration trends
- Household size to fall from 4.7 in 1980 to 3.1 in 2030

LAND SUPPLY



INDUSTRY
 COMMERCE
 INFRASTRUCTURE
 ENVIRONMENT
 HOUSING
 RECREATION
 INSTITUTIONAL ISSUES
 TRANSPORT

DEVELOPMENT CONSTRAINTS



- Labour productivity to increase while growth of labour force to slow down.
- Projected GDP
- Restructured economy (change in GDP and employment by sector)

ECONOMIC FORECASTS



- Height controls, noise controls, land use control around pollutive uses, controls around hazardous uses, protected and unprotected water catchment, explosive safety zones, live-firing areas, etc.

Source: Extracted from Singapore-Suzhou Software Transfer Project, 1994, Urban Redevelopment Authority, compiled by the Centre for Liveable Cities

The recommendations and overarching strategic policy directions were subsequently presented to and endorsed by a committee comprising all permanent secretaries—a permanent secretary is the top-ranked bureaucrat in a government ministry—which endorsed a set of overarching strategic policy directions on land use planning. Some of these policies included controlling pollution at source through technology instead of using land as a buffer; locating pollutive installations offshore; having high quality open space instead of increasing the quantity of open space; and planning for the most probable scenario to safeguard adequate land for major uses. These policies guided the critical areas of industry, commerce, housing, transport, recreation, infrastructure, institution use and environment. The next portion highlights the new ideas that were introduced in the different critical areas, namely transport, industrial development, housing and recreation.

Transport—integrated land use planning

One of the bold ideas articulated in the 1991 Concept Plan was the integration between land use and transport planning, together with a decentralisation of commercial activities from the Central Area. This arose from Singapore's approach of planning land use and transport in an integrated manner. In general, many international cities tend to deal with land use planning and transport planning separately. However, Singapore's planners had a different approach.

“The purpose of transportation is principally to move people from home, to shopping to commercial centres, to factories, to school ... so, when you don't combine the two (i.e., land use and transportation), you get a lousy urban plan.”

Liu Thai Ker, pioneer urban planner

A key policy direction in the 1991 Concept Plan was to decentralise in order to ease traffic congestion in the city centre. John Keung, Deputy CEO of the Urban Redevelopment Authority (URA) from 1996 to 2001, explained:

The 1991 Concept Plan made it clear that Singapore's entire urban system must have public transit as the first organising principle. Therefore, the planning and allocation of the most intensive and activity-generating uses were at the most accessible locations by mass transit ... the interchange stations where two or more MRT lines would meet.⁹

This gave birth to the "constellation" concept with the decentralisation of commercial activities to designated regional, sub-regional and fringe centres at locations where MRT interchange stations were to be located. The main intention was to encourage a modal switch to public transport. As Keung noted: "This is probably the backbone of the 1991 Concept Plan that has shaped the development of our city-state till today."¹⁰

The key strategies of integration between land use and transportation were articulated in both the residential and commercial plans of the 1991 Concept Plan. High density housing would be developed around the MRT stations to optimise land use and to maximise the use of public transport. Likewise, commercial activities would be





08 Commuters alighting from the MRT. *Public transport is a key feature of urban living in Singapore, with almost 154 km of train tracks connecting the whole city-state.*
Photo from the Centre for Liveable Cities (CLC)

intensified around MRT stations. The main idea was to encourage maximum usage of the public transit systems by putting the most intensive pedestrian flow and movement around the MRT stations.

Industry development—new ideas

Industrial land use for the 1991 Concept Plan was directed by the Industry Sub-committee. By the mid-1980s, EDB was already promoting Singapore as a place to do business. The manufacturing sector focused on high value-added sectors such as biotechnology, pharmaceuticals, chemical industries and R&D. In line with this economic restructuring, older industrial estates that were low value-added and land-intensive industries were scheduled to be phased out or rejuvenated.

These in-depth studies culminated in major strategies to develop technology corridors that would have business parks located near major tertiary institutions along major transportation corridors and near regional centres. Other major strategies included reclaiming offshore areas (i.e., Jurong Island) for the co-location of pollutive industries such as the petro-chemicals/chemicals industries.

Housing strategies—quality homes

The 1970s and 1980s saw massive public housing construction by HDB. HDB was planning and developing new towns to accommodate the housing demand. With a population planning parameter of 4 million in 'Year X', and a fall in household size from 4.3 in 1988 to 3.1 by 'Year X', it was estimated that 1.35 million dwelling units would be required.

Some of the key strategies included: (i) phasing out industries and other less suitable uses within prime residential areas; (ii) safeguarding

offshore islands as a contingency land reserve to meet long-term housing demands; (iii) carrying out further land reclamation with interesting profiles to create high quality waterfront housing; and (iv) upgrading and improving the living environment of existing HDB estates.



09 Public housing in Chinatown

The government continues to upgrade housing estates to ensure high quality living.

Photo courtesy of Erwin Soo

Recreation policy—enhancing a Garden City

Since independence, Singapore has adopted a policy of greening the city. The Recreation Sub-committee, headed by the Parks and Recreation Department (PRD) (now known as NParks) in the 1991 Concept Plan review, looked into the provision of parks and recreation areas. The major objectives were to enhance Singapore as a “Garden City” and to create more of an island image. One key strategy to accomplish this was to provide a variety of open spaces that would be well distributed. These ranged from regional parks

to town parks and neighbourhood parks. Another strategy entailed developing a riverine park and beach areas along the waterfront and preserving nature reserves and ecologically important sites such as Labrador Nature Reserve Park and Bukit Timah Nature Reserve.

“We worked with NParks. We also liaised with Nature Society. We asked them to advise us regarding which areas had special flora and fauna that we had to preserve, for example, special aquatic or plan species. This was the kind of care that we took to preserve nature.”

Liu Thai Ker

Singapore's strong action-oriented government agencies had been put in place since independence to solve the various urban issues of housing, infrastructure, job creation, greening and cleaning the city. The 1991 Concept Plan integrated each of these major critical land uses at a national level, taking into account the policy directions and goals of each critical use. The review of the Concept Plan carried out in the late 1980s culminated in an exhibition in 1991 to publicise the strategic thrusts of the forthcoming 1991 Concept Plan and to explain to the public how Singapore's urban planning could affect them in the future.



10

The Southern Ridges

A 10 km trail composed of treetop walks, pedestrian bridges and town park, it passes through three residential areas, bringing nature closer to people.

Photo courtesy of Rodeo Cabillan

Integration—a key component of long-term planning

Singapore's long-term planning principle is underscored by the tight integration between policy-makers in the Concept Plan and action-orientated government agencies. Long-term plans were translated into detailed plans at the local level and implemented in a swift and effective manner, resulting in Singapore's well-planned infrastructure today. Arriving at this point was not as easy task, reflected by the many drafts and iterations which the initial 1958 Concept Plan underwent. At the same time, an exhibition in 1991 to publicise the thrust of the forthcoming 1991 Concept Plan signalled the move towards greater community engagement.

Principle 2: Fight productively

Each of the various government agencies in Singapore has a depth of technical expertise and a directive to solve specific urban issues. HDB has a mandate to provide high quality affordable housing; JTC has the mandate to develop land for industrial investments that creates jobs, while PUB is the water authority with the mandate of ensuring that the city-state has sufficient water. Given Singapore's land scarcity, it is inevitable that competing claims for land would arise.

One of the major contentious issues raised in the review of the 1991 Concept Plan was about industrial development and housing development encroaching into protected water catchment areas. A policy decision that was set in 1983 stipulated that the land area to be developed by the public and private sectors would be restricted to 34.1% of the unprotected water catchment area, covering a total area of 6,945 ha. The major concern then was that development would increase the risk of contaminating Singapore's water resources. However, Singapore was urbanising so quickly that the urbanisation ceiling of 34.1% set in 1983 had been breached by 1991.

Following a 1991 Concept Plan review, URA and HDB also estimated that an additional 1,855 ha of land in the unprotected water catchments would be required in their long-term plans. Such

tensions between development and water sufficiency prompted the need to review the 1983 water catchment policy.

While there was the need to accommodate population growth and the growth of the economy by developing more housing and industrial areas, there was also a need to ensure that growth would not compromise the quality of the city-state's water. Each agency had its interest to protect in order to fulfil their mandate.

To tackle this problem, PUB and the Ministry of the Environment (ENV) undertook, in November 1996, a study of the impact of urbanisation on unprotected catchments and the allowable urbanisation level in each water catchment. The key finding showed that Singapore's water pollution control efforts had been effective and the water quality in the reservoirs of the unprotected water catchments had not deteriorated significantly despite significant developments in the catchments over the years.



11 Public flats near MacRitchie reservoir

After much debate, development near water catchment areas was no longer curtailed, provided that pollution control measures were implemented.

Photo courtesy of tbSMITH

In 1999, following a joint proposal by MND, ENV and the Ministry of Trade and Industry (MTI), both the urbanisation cap and population density limit were lifted, subject to the continuation of stringent water pollution control measures. Future developments would no longer need to be curtailed as long as pollution control measures were implemented rigorously and effectively.

This ability of different government agencies to iron out their differences and not dig in their heels on a position has been instrumental in finding solutions. Another example of how conflicts were resolved up-front before reaching a critical stage was from the Port of Singapore Authority¹² (PSA).

Container trade was a significant contributor to Singapore's GDP in the 1980s, parallel to the global expansion of world trade. From 1982 to 1869, PSA handled 2 million TEUs (standard unit of a terminal's cargo handling capacity) of containers. There was also increasing demand from international shipping lines to help manage and distribute their containers to regional ports. In 1990, PSA's annual throughput hit 5.22 million TEUs, making Singapore the world's busiest container port.¹³

PSA's main port was located at Tanjong Pagar, right in the heart of the city. In its expansion plans in the late 1980s, PSA wanted to build a second terminal at Pasir Panjang. However, planners, with the support of MND, were of the view that the area would be better utilised for housing and recreational waterfront uses. The planners proposed an alternative location in Tuas, at the western end of Singapore and next to an industrial estate. PSA argued that the distance between the existing terminal at Tanjong Pagar and Tuas would drive up their operating costs significantly as containers needed to be transported between terminals in the transshipment process. Eventually, after much deliberation, the decision was made to locate the new terminal at Pasir Panjang.

Having in place a rigorous process to settle policy differences is critical to good urban governance. The implications of different options should be analysed by professionals and presented at different levels of government before a decision is made.

The significance of this process is not in whether the final decisions are right or wrong; it is in carefully scrutinising all the options available, with a full understanding of the implications of decisions made.

“To do planning and development well calls for best practices ... you have to have professional inputs, technical inputs, all the various perspectives put in, all your analysis and then you have the process that brings all these considerations into bear and you need people who have the experience, the competencies, the qualifications and the right capabilities to make decisions.”¹⁴

Lim Hng Kiang, Minister for Trade and Industry

Even today, plans are updated, in line with changing demographics and demands on limited space, as demonstrated by the decision to consolidate all shipping activities, including Pasir Panjang Port, in Tuas.

Principle 3: Build in some flexibility

Singapore learnt from the first 1958 Master Plan that a static blueprint plan would not be effective in the light of changing circumstances or inherent assumptions. As it is impossible to predict and anticipate trends accurately over the next few decades, the planning process has a built-in review mechanism in place. The Concept Plan is reviewed every ten years, while the Master Plan is reviewed every five years. The ability to change or adapt plans if they were not working as intended has been a critical success factor in Singapore's urban development efforts.

This flexibility was necessary in solving traffic congestion. The 1991 Concept Plan Review noted that vehicular traffic was particularly heavy during morning peak hours in the east-west direction owing to the concentration of manufacturing employment areas in the western part of the island. There was also heavy travel in the north-south direction, from residential new towns in the northern part of the island towards the city centre, where the majority of commercial, business and financial activities were located.

Planners realised that a more even distribution of housing and employment-generating activities would help to make better use of the transport infrastructure and balance transport demand in each direction.

The 1991 Concept Plan thus introduced the idea of decentralisation through the creation of commercial nodes outside the city centre, the largest being the regional centres at Tampines, Jurong, Woodlands and Seletar, together with smaller sub-regional and fringe centres. More areas for housing were allocated in and around the city centre, while employment areas such as industrial estates and commercial centres were planned in the north and north-east. The intention was to create a more even distribution of jobs by locating commercial nodes and industrial uses in suburban areas.

However, the requirements of Singapore's economic structure limited the scope for decentralisation. The petrochemicals and pharmaceuticals industries were key economic activities. Given their pollutive nature, there was little choice but to locate them in the west, on offshore islands away from housing areas. Likewise, financial sector players wanted to be located in "Grade A" offices within the more prestigious Central Business District and within a 'high contact' environment. Thus, while the development of commercial centres such as Tampines Regional Centre and Novena Fringe Centre allowed some commercial activities to be decentralised, there was still a need to plan for the majority of office space to be located in the city centre. Developing a critical mass of high quality office space in the city centre was also seen as an important factor in projecting Singapore's image as a financial hub and vibrant global city. As such, the 2001 Concept Plan refined the decentralisation strategy proposed in the 1991 Concept Plan to retain the majority of office space within the city area.

There is also flexibility within the system for considering proposals which may not comply with existing guidelines. This is done through the statutory process of ad hoc alterations to the Master Plan for major departures, or waiver of certain guidelines when a proposal merits special consideration. The key has been to strike a judicious balance between controls and flexibility.

Principle 4: Execute effectively

“A plan is only as good as how well you implement it.”¹⁵

Mah Bow Tan, former Minister for National Development

Implementing through action-oriented government agencies

Government agencies have played a pivotal role in implementing Singapore’s urban development plans. One important element has been the agencies’ bias towards action. As Keung noted: “We are very strong in implementation. Really, I mean without that, we are just like any other city.”¹⁶

Singapore at independence was faced with an acute shortage of housing and employment. The political leadership tackled these two issues through urban development. Two major action-oriented agencies were established—the HDB in 1960 and the EDB in 1961. HDB’s terms of reference under the Housing and Development Board Ordinance of 1959 were mainly for the provision of public housing and to take over the function from SIT. The Economic Development Board Ordinance of 1961 made EDB responsible for diversifying the economic base and expanding employment opportunities through industrialisation.

In June 1968, the JTC was established to take over the land and estates development and management functions of EDB. Till today, EDB and JTC continue to work in close coordination in industrial real estate requirements.¹⁷

Another major department that was also involved in development projects was the Public Works Department (PWD). Both HDB and PWD came under the purview of MND. PWD was responsible for the execution of the development projects of government departments, such as schools, hospitals and other medical facilities, roads, bridges, drainage and sewerage. In addition, PWD was responsible for the planning of the overall road network.¹⁸

The programmes of HDB, EDB and JTC were effective in developing the needs of the city. To provide an idea of the speed at which each of these agencies moved: 54,423 units of public housing were constructed between 1960 and 1965. By the end of 1965, HDB was building flats at a rate of 12,000 units per year. In 1968, nearly 0.75 million people or 36% of the population lived in public flats. "By 1985, we were the first Asian city that was free from slums and squatters as there were practically no more squatters and slums in Singapore except for a handful of odd sites," said Liu.¹⁹

EDB, together with JTC, also acted with equal speed in developing industrial estates. For the Jurong Industrial Estate, 6,000 ha of land on the south-west corner of the island was developed. By the end of 1966, more than 12,000 ha of mostly swamp-land had been cleared and major wharfage, water and sanitary facilities were completed. Closer to the city, several smaller industrial estates intended for small- and medium-sized industries were under development. The 4,000 ha Kallang Basin reclamation project, planned for mixed industries and housing, was soon under way. By the beginning of the 1970s, most of the space in these estates had been committed to industrial enterprises. Along the eastern coastline, the Bedok reclamation project created 400 ha of new land.

While the Concept Plan laid out the structure of Singapore's development, the success of translating the plan into reality lay with the various policies and programmes of government agencies and departments such as the HDB, EDB, JTC and PWD. As stressed by Lim Hng Kiang: "You need very professional agencies, whether it is HDB, URA, NParks or EDB."²⁰

Over time, other action-oriented government agencies and government departments have been formed to effectively execute the different facets of urban development within Singapore. For instance, URA was formed as an independent statutory board under MND in 1974 to redevelop the Central Area and resettle residents affected by redevelopment.

The Land Acquisition Act 1966

In a land-scarce environment, the government felt it necessary to ensure that land to implement public projects could be obtained when needed. The power to acquire land was critical in ensuring the success of the public housing programme as it allowed the government to amass the land required for the development of self-contained new towns. The development of industrial estates and major infrastructure projects such as the airport and ports was also made possible through land acquisition.

The Land Acquisition Ordinance of 1955 and the amended Land Acquisition Act in 1966 provided the government with the power to compulsorily acquire private land deemed necessary for public purposes, with monetary compensation for the land owners. This power was used more extensively in the early years of nation-building to carry out large public projects. A formal process was instituted to ensure that the act was not abused.

“The Land Acquisition Act is a powerful tool for development. But it has to be used with care. It can be abused by unscrupulous politicians. Internal safeguards are absolutely necessary to ensure that acquisition does not amount to confiscation. In Singapore, any proposal for land acquisition by an executive ministry has to be concurred to by the Ministry of Law before it can be submitted to Cabinet, for decision. The Ministry of Law has to be satisfied that the proposal for acquisition is clearly for a public purpose, such as the building of roads, schools, public hospitals, MRT systems, HDB public housing and industrial estates. Owners of land not satisfied with the rates of compensation can appeal to the Valuation Board of Appeal.”²¹

Ngiam Tong Dow, former permanent secretary of the Ministry of National Development

As Singapore became more developed, the Land Acquisition Act was used more sparingly, mostly for major road and rail schemes which were impossible to undertake without affecting private land, as well as for comprehensive redevelopment to optimise the use of land in conjunction with such schemes.

Implementing through the private sector—sale of sites and central area redevelopment

Another avenue through which urbanisation plans have been implemented is the sale of sites mechanism, executed through government agencies such as the URA and HDB. Land parcels are assembled and sold to the private sector with a set of conditions tailored to achieve the planning objectives within the framework of a free market economy. The private sector would contribute financial resources and expertise to undertake the development projects. This mechanism of materialising the planning intentions is now an established system in Singapore's urban development landscape.

In 1967, the Urban Renewal Department (URD) Sale of Sites Programme was launched. The First Sale of 13 sites was released for public tender in June 1967. The design guide and tender conditions provided specifications for overall massing control as well as the type and intensity of development. The Second Sale (14 sites) and Third Sale (19 sites) were released in November 1968 and 1969 respectively. The projects ranged from office buildings to hotels, cinemas, shopping centres, carpark buildings and apartments.

To attract developers, special concessions were given. These included easy terms for land payments (20% down payment, interest-free loans with repayment periods of over ten years and property tax concessions at one-third of the normal rate of 36% for 20 years). The sites were sold with vacant possession, with the necessary infrastructure provided.

By the mid-1970s, following large-scale resettlement and the erection of public housing and higher-income private residential blocks as well as retail and office premises outside the city centre, in line with the decentralisation process, the central area's population had declined correspondingly. Other industrial and warehouse uses were also relocated from the central area to the Jurong industrial zone and other light industrial estates adjacent to HDB new towns.

Urban renewal in the Central Area was aided by the lifting of the Rent Control Act of 1947. A new Controlled Premises (Special Provisions) Act was passed in 1969. The new Act allowed landlords to terminate tenancy and repossess their properties in areas gazetted by MND. This gave landlords the incentive to redevelop land in such areas but the landlords were required to submit their redevelopment plans for approval. Thus, the rent de-control contributed to urban renewal in the Central Area.

The most drastic changes occurred in the Golden Shoe area, where the financial and banking sector was concentrated. The results from the lifting of the Rent Control Act were positive. In 1979, the Golden Shoe area was further redeveloped in anticipation of rising demand for office space. Development took place at Raffles Place, Cecil Street, Robinson Road and Shenton Way. Landmark buildings in these areas such as the DBS Building (1975), OCBC Building (1976), Standard Chartered Bank Building (1986), Monetary Authority of Singapore Building (1985), Raffles City (1984) and Marina Centre (1984) were erected.



12 Singapore's financial district

Urbanisation plans were implemented through sale of sites to the private sector, creating a vibrant and attractive financial hub.

Photo courtesy of Hammad Ali

Between 1967 and 1989, a total of 184 ha of land was cleared, assembled and sold under the URA Sale of Sites Programme, resulting in the development of 155 projects. Through this programme, Singapore's Central Area was transformed from an area of slums and squatters into a modern financial and business hub. The Orchard Road Corridor was also transformed into the main tourist and shopping district.

In 1980, URA, supported by other government agencies, prepared a comprehensive long-term plan for the Central Area. Chief among its proposals was the development of Marina Centre and Marina South on 690 ha of reclaimed land south of Singapore. At the end of 1983, 17 ha of land at the Marina Centre was sold by URA to build an integrated development that included hotels, shops, offices, residences, convention facilities and recreational venues.

As the economy grew and the country's per capita income rose, Singapore also had to keep up with the changing times by acquiring a modern physical infrastructure. In 1983, URA completed an urban design plan for the central area. This resulted in an orderly transformation of the city skyline and the creation of an impressive environment interwoven with the historical, architectural and cultural heritage of the older parts of the city. This led to the formulation of the 1985 Central Area Structure Plan.

The sale of sites mechanism remains one of the most effective programmes to meet the demand for various types of properties to ensure the stability of the property market and to support economic growth. It also allows the private sector to participate in the development of the country to realise the planning intentions of the Master Plan. State land sites across the island are released for sale regularly for residential, commercial, hotel, industrial and mixed-use developments.

Greater transparency—reform of the Master Plan and development control system

Mobilising the private sector in urban development to materialise Master Plans is more effective when there is a transparent planning system. Today, a property developer can go to the Master Plan found on the URA website to view the *potential* use of land and the intensity of the use of land. However, this degree of transparency was not always the norm.

Between the 1960s to 1980s, to aid day-to-day development control work, the government prepared various non-statutory plans to serve as guidelines on permissible forms of development. These plans provide the basis upon which private sector planning applications were evaluated. These non-statutory plans included *micro-zoning* plans introduced in 1973 to provide firmer guidance on acceptable densities, forms of development and heights of buildings. *Sectoral* land use plans were also prepared by the URA. These plans provided a physical framework for future development in selected areas.²² Other than micro-zoning plans and sectoral plans, *envelop plans* were prepared to provide urban design guidelines on the desired scale, form and intensity of future development in any area. Design controls covered aspects such as building heights, building lines, setbacks, party walls, service lanes, carpark access, covered walkways and density. However, most of these plans were for internal development use and were known as 'bottom-drawer' plans.²³

The public and private sectors were not always aware of these plans. Keung noted that if the private sector got a piece of land and wanted to develop it in a certain way that was different from the Master Plan zoning, the authorities would assess and evaluate the application, not so much on the basis of the Master Plan but on some other guidelines or development control policy.²⁴ It was also difficult for the private sector to know the intended use of a parcel of land. This was because the exact area of a site that was affected by particular zonings could not always be determined from visual inspection of the Master Plan. The site may have been affected by multiple zones, or, while it may be shown in the map, this was in

too small a scale which did not permit the precise determination of the site's location.

This lack of transparency—in the allowable use, intensity and design considerations—led to centralised and cumbersome decision-making processes.

“Every development application submitted by the private sector required an individual decision ... there were piles and piles of development applications overwhelming the Permanent Secretary and all the officials ... Every decision had to go up and be decided by the Minister ... so we had to see how we could streamline the process.”²⁵

Lim Hng Kiang

Eventually, a number of changes were made to the planning system and the organisational set-up of the planning bureaucracy. The impetus for change came from Ngiam Tong Dow, when he became the Permanent Secretary for MND. Khoo Teng Chye, currently the Executive Director of the Centre for Liveable Cities and former CEO of URA from 1992 to 1996, recalled Ngiam had told him that “all your problems are because of your closed system, an arbitrary forest of rules.” Ngiam asked, “Why don't you work towards a planning system that is a lot more open and a lot more transparent?”²⁶

Development Guide Plans

The changes to the planning system started with a review of the 1991 Concept Plan carried out by the Planning Department. This led to the creation of forward-looking Development Guide Plans (DGPs) in the 1990s. These plans kept the public informed on the type of developments they could have for certain sites.

The planners divided the entire island into five regions (north, north-east, west, central and east) and 55 planning areas. Each area had a DGP. The DGPs translated the broad intention of the Concept Plan

to detailed local plans. These DGPs, when gazetted, collectively formed the 1998 Master Plan. They provided detailed guidelines on land use, gross plot ratio, building heights, and special urban design requirements for development at the local level. Specifically, each DGP was guided by the Concept Plan's quantum provision for various uses: housing, commercial, industrial, parks and recreation, for instance. As articulated in the 1991 Concept Plan, the entire planning principle was to integrate land use and transportation, with a decentralisation of commercial activities.

Drafting the DGPs involved having consultations with many government agencies. It was a time-intensive exercise and completing the 55 DGPs took longer than anticipated. As the plans would now have very specific details on each land parcel in terms of land use, intensity and building heights, the planners reviewed the plan at a more local level.

The government began releasing the draft DGPs to the public in the early 1990s, and by 1998, all 55 DGPs were completed and gazetted, forming the new Master Plan. These DGPs spelt out the technical and operational requirements for each planning area and became an important tool, ensuring that development in the 55 planning areas were in accordance with the long-term land use strategy mapped out in the Concept Plan.

Reviewing development controls—changes to development charge

The other major change was that the development controls were made more transparent. The development control system ensures that all properties are developed and used according to what is set out in the Master Plan, in land use zoning, gross plot ratio, building height controls, and other development control guidelines. This ensures the development fits well in its neighbourhood.

In particular, a more open system for calculating the development charge was introduced in 1989. The development charge is a tax that is levied when planning permission is granted to

THE MAKING OF DEVELOPMENT GUIDE PLANS

The preparation of each Development Guide Plan (DGP) was a vigorous process where the principles of the Concept Plan were applied within the localised context of the planning area. The first stage involved the collection and analysis of all data.

“At that time, there was hardly any data. We literally sent people out to capture what was there and we mapped out every piece of land, what was there and who it belonged to—the data was all over the place as nobody really updated the records so we had to do a major exercise.”²⁷”

*Cheong-Chua Koon Hean, former Chief Executive Officer,
Urban Redevelopment Authority*



URA gathered data on existing land uses and master plan zoning, planning decisions already approved, existing plot ratio, building heights, land ownership, transport networks, conservation and housing needs, topographical data as well as all technical height constraints on the land.

The next step was studying the strengths and opportunities as well as weaknesses and constraints of each DGP area. The process of preparing a DGP included consultations with all relevant government agencies and departments. At that time, this would have included, for example, the HDB for housing plans, JTC for industrial areas, the Ministry of Education (MOE) for schools, the National Parks Board (NParks) for neighbourhood and town parks, the Singapore Sports Council (SSC) for recreation facilities, and the Civil Aviation Authority of Singapore (CAAS) and the Ministry of Defence (MINDEF) for building height or other technical constraints. These consultations looked into specific details, for example, what the exact alignment of a proposed road or location of a rail station would be; whether the sites allocated for schools were well distributed and sufficient to cater for the projected population in new housing areas; whether the sites allocated for sports facilities were large enough; and if there was a sufficient distribution of parks throughout the planning area.

Various planning standards were used as a guide to ensure sufficient facilities such as schools, sports and recreation centres, and clinics. For example, the requirement was to have one primary school to approximately 4,300 housing units and one secondary school to approximately 5,600 housing units. Other provision standards included one swimming complex per town.

Cheong-Chua recalled that URA captured information for every parcel of land and traced the history of the site for every planning decision that might affect the land value.

“You cannot discard the history of the site because it captures a certain amount of land value. So, if you change the land use of the site and you downgrade the value, you better have a very good reason why.”²⁸

Cheong-Chua Koon Hean

carry out development projects that increase the value of the land, for instance, re-zoning to a higher value use or increasing the plot ratio. The development charge is an important tool in Singapore's development control system and was originally modelled after the British betterment levy. Previous methods of calculating the development charge payable had variations in terms of how the intensity for residential and non-residential developments was measured and had gone through different incarnations where only fixed rates or only spot valuations were used. The system was complicated and lacked transparency from the point of view of the private developer.

The revised system of calculating the development charge based on fixed rates was introduced in September 1989. This system defined Singapore by sectors and included a table which showed the values of different use categorised and classed by geographic sectors. The Chief Valuer reviewed the table every six months, taking into consideration changes in property values. As part of the revised system, applicants could also opt for spot valuation to determine the amount of development charge instead of using the prescribed fixed rates. Based on the land use and intensity of the site, and the published fixed rates, the developer could then compute the development charge payable to know the full implication of the costs to develop his land.

Having put the systems in place, there was a need for an organisation to deliver the reformed planning system. From the 1960s to the late 1980s, the planning approval process for private sector development had been assessed by the Development and Building Control Division of PWD while the Planning Department processed public sector projects. In 1989, the Urban Redevelopment Authority Act was amended to give effect to the amalgamation of the URA, established in 1974, MND's Planning Department (which included the development control function of PWD which had rejoined a year earlier) and the Research and Statistics Unit.

Explaining the amalgamation in Parliament, S. Dhanabalan, then Minister for National Development, said:

Firstly, it [the amalgamation] streamlines the planning functions. URA is currently the Conservation Authority and the planning agency for the Central Area, while the Planning Department is the planning authority for the rest of the Island. Through the amalgamation, the planning and development control functions will be centralised under a single authority. Second, it facilitates the sharing of expertise. With the amalgamation of URA's expertise in Central Area planning, particularly in urban design and the Planning Department's expertise in strategic planning, there will be better co-ordinated planning for the whole island. Third, it minimises the duplication in supporting services. Lastly, it attracts talent.²⁹

Dhanabalan also pointed out that the physical development of Singapore in the future would increasingly be undertaken by the private sector. The public sector would guide the course of Singapore's physical development rather than become involved in the direct implementation of projects.

Liu Thai Ker was appointed CEO and Chief Planner of the new URA, relinquishing his position as CEO of the HDB. The new set-up involved six major divisions—Physical Planning Division, Conservation & Urban Design Division, Project Services Division, Corporate Development Division, Land Administration Division and Development Control Division—and was staffed by planners, architects, engineers, administrative officers, system analysts, property officers, accountants, quantity surveyors and legal officers. The formation of the new organisation allowed the authority to carry out planning functions, facilitate development through the Sale of Sites Programme and regulate the built environment. "The uniqueness about the URA organisation is that we have multidisciplinary expertise," explains Lim Eng Hwee, current Chief Planner, "and when you take it further, that is, Singapore's system as a whole, we work together as a whole-of-Government."³⁰

Principle 5: Innovate systematically

Innovative thinking, coupled with engineering expertise, has been crucial in ensuring that urban policies and programmes make Singapore's 710 km² of land area liveable. For example, manufacturing investments brought in by EDB required large parcels of land. However, given the limited land available for sprawling manufacturing developments, JTC came up with the idea of developing 'stack-up factories'. These factories are designed with large ramps to allow container trucks to access factories located at the upper floors of a development. At the same time, JTC ensures that land is productively used by the industries. "Every time the lease period of the land is renewed, we ensure that the value-added per hectare of land is raised," noted Lim Hng Kiang, Minister for Trade and Industry. "Otherwise, other industries that can contribute more to the economy for the same parcel of land will be allocated the parcel of land."³¹

Another example of innovation can be seen in the use of Singapore's drainage corridors that connect a variety of open spaces. These are planned and well distributed throughout Singapore. At the conceptualising stage of the Concept Plan, the main idea was to try to optimise the use of the drainage reserves to double up as a linear connector. As Keung explained:

Almost all of the major parks in Singapore, with the exception of the Central catchment and Bishan Park, were coastal parks ... [and] were quite small. So the concept was to develop a green network linking the coastal parks to the Central Catchment ... so that residents in private and public housing have access to this green network. If they want to jog or cycle to the coastal parks, they eventually can.³²

Today, these green connectors are known to the public as park connectors and NParks is the main agency implementing the Park Connector Network.

Over the years, there have been innovative ideas for the drainage networks. PUB, together with NParks, introduced the Active Beautiful and Clean Waters (ABC Waters) programme. The main feature of this project is to convert concrete drainage canals into naturalised rivers with bio-engineered river edges by using a variety of plants and bedding materials. The rivers are designed based on a flood plain concept, whereby during dry weather the river flow will be confined to a narrow stream in the middle of the river. The gently sloped river banks would form part of a park feature and users would be able to walk along the water's edge. In the event of a storm, the water level in the river would rise and the area adjacent to the river would be used as a flood plain to contain the rainwater. These naturalised rivers would meander through parks and housing areas so that people can enjoy the water while appreciating the importance of clean water. At the same time, these rivers would help enrich the biodiversity by attracting different species of wildlife back into the city.



13 Before and after photos of canal restoration in Bishan-Ang Mo Kio Park as part of the Active, Beautiful and Clean (ABC Waters) Programme.

Photo courtesy of Atelierdreiseitl



CONCLUSION

Singapore's urban planning system has evolved over the years. To recap, the Concept Plan maps out the long-term land use and development strategy and forms the basis to guide the physical development of Singapore. The key principle of *thinking long term* fosters the discipline of considering the long-term implications of current development trends, identifying areas for concern upfront, and putting in place measures to address these concerns well ahead of time. This is critical at the broad strategic and policy decision levels.

Singapore's urban development experience speaks of the government's emphasis on implementation, or in other words, realising the plans. It has taken a degree of political will to see the implementation through and the generally stable political environment has helped. Technically competent and action-oriented government agencies have played a significant part in executing the plans effectively. In addition, effective mechanisms such as the Sale of Sites Programme have fostered government-private sector partnerships in materialising urban development.

The Master Plan translates the intentions of the Concept Plan into detailed guidelines while the development control regime ensures that development takes place in a manner that is consistent with the Master Plan. In effect, Singapore has consciously moved towards creating an integrated approach to planning and implementation by aligning the Concept Plan, Master Plan and development control system. This has improved transparency, which is important when the government wants to involve the private sector in realising the plans.

Planning principles are applied consistently at all stages of the planning process. At the Concept Plan level, various committees comprising different government agencies are set up to look into a range of strategic issues that have an impact on major land use. Essentially, these platforms allow for land use conflicts to be resolved

up-front. They also allow for the exploration of new and innovative ideas to mobilise planning initiatives. This inter-agency approach cascades to the Master Plan level as all executing agencies are consulted in drafting the plan, down to details such as alignment of roads, location of MRT stations, safeguarding land corridors proposed in the Concept Plan, and the provision of all public facilities and amenities. Even at the development control level, the technical requirements of the different government agencies are complied with.

Planners also recognise that while the plans may have been prepared with great thoroughness, things can change and there is always a need to assess the plans and implementation approach periodically. As such, the planning system has built in flexibility to deal with changes to Singapore's context and situation. These key principles have been essential in creating a resilient integrated master planning and development system for Singapore.

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10. John Keung, interview by the Centre for Liveable Cities, Singapore, June 27, 2011. See Endnote 9 for Keung’s current and past appointments.
11. Liu Thai Ker, interview by the Centre for Liveable Cities, Singapore, June 29, 2011. See Endnote 8 for Liu’s current and past appointments.
12. The Port of Singapore Authority has been known as PSA Corporation or PSA since 1997, when its operational functions were corporatised. A year earlier, its regulatory functions were taken over by a newly-established body, the Maritime and Port Authority of Singapore.

13. See the PSA website, "The Dawn of a New Era", http://www.internationalpsa.com/about/heritage_e.html (accessed January 10, 2014).
14. Lim Hng Kiang, interview by the Centre for Liveable Cities, Singapore, April 13, 2012. Lim is currently Minister for Trade and Industry. He held previous appointments as Deputy Secretary for the Ministry of National Development, Chief Executive Officer of the Housing & Development Board, Minister for National Development and Minister for Health.
15. Mah Bow Tan, interview by the Centre for Liveable Cities, Singapore, November 30, 2011. Mah was former Minister for National Development, and also held previous appointments as Minister for Communications and Minister for the Environment.
16. John Keung, interview by the Centre for Liveable Cities, Singapore, June 27, 2011. See Endnote 9 for Keung's current and past appointments.
17. Economic Development Board, *Annual Report 1968* (Singapore: Economic Development Board, 1968), 17–18.
18. Tan Jake Hooi, "Metropolitan Planning in Singapore", *Australian Planning Institute Journal* 4 (1966):111–119.
19. Liu Thai Ker, interview by the Centre for Liveable Cities, Singapore, June 29, 2011. See Endnote 8 for Liu's current and past appointments.
20. Lim Hng Kiang, interview by the Centre for Liveable Cities, Singapore, April 13, 2012. See Endnote 14 for Lim's current and past appointments.
21. Ngiam Tong Dow, *A Mandarin and the Making of Public Policy: Reflections by Ngiam Tong Dow*, ed. Simon Tay (Singapore: NUS Press, 2006), 181.
22. Planning Department, *Annual Report 1973* (Singapore: n.p., 1973), 4.
23. Leung Yew Kwong, *Development Land and Development Change in Singapore* (Singapore: Butterworths, 1987), 26.
24. John Keung, interview by the Centre for Liveable Cities, Singapore, June 27, 2011. See Endnote 9 for Keung's current and past appointments.
25. Lim Hng Kiang, interview by the Centre for Liveable Cities, Singapore, April 13, 2012. See Endnote 14 for Lim's current and past appointments.
26. Khoo Teng Chye, interview by the Centre for Liveable Cities, Singapore, September 19, 2011. Khoo is currently Executive Director of the Centre for Liveable Cities, Ministry of National Development. He held previous appointments as Chief Executive of PUB, Singapore's National Water Agency; Chief Executive Officer/Chief Planner at the Urban Redevelopment Authority; Chief Executive Officer/Group President of PSA Corporation; President and Chief Executive Officer of Mapletree Investments and Managing Director (Special Projects) of Temasek Holdings.
27. Cheong-Chua Koon Hean, interview by the Centre for Liveable Cities, Singapore, September 13, 2011. Cheong-Chua is currently Chief Executive Officer of the Housing

& Development Board, and Deputy Secretary (Special Duties) of the Ministry of National Development. She held previous appointments as Chief Executive Officer of the Urban Redevelopment Authority, and is a board member of Jurong Port Pte Ltd, International Federation of Housing and Planning, NUS Board of Trustees, and the Civil Service College.

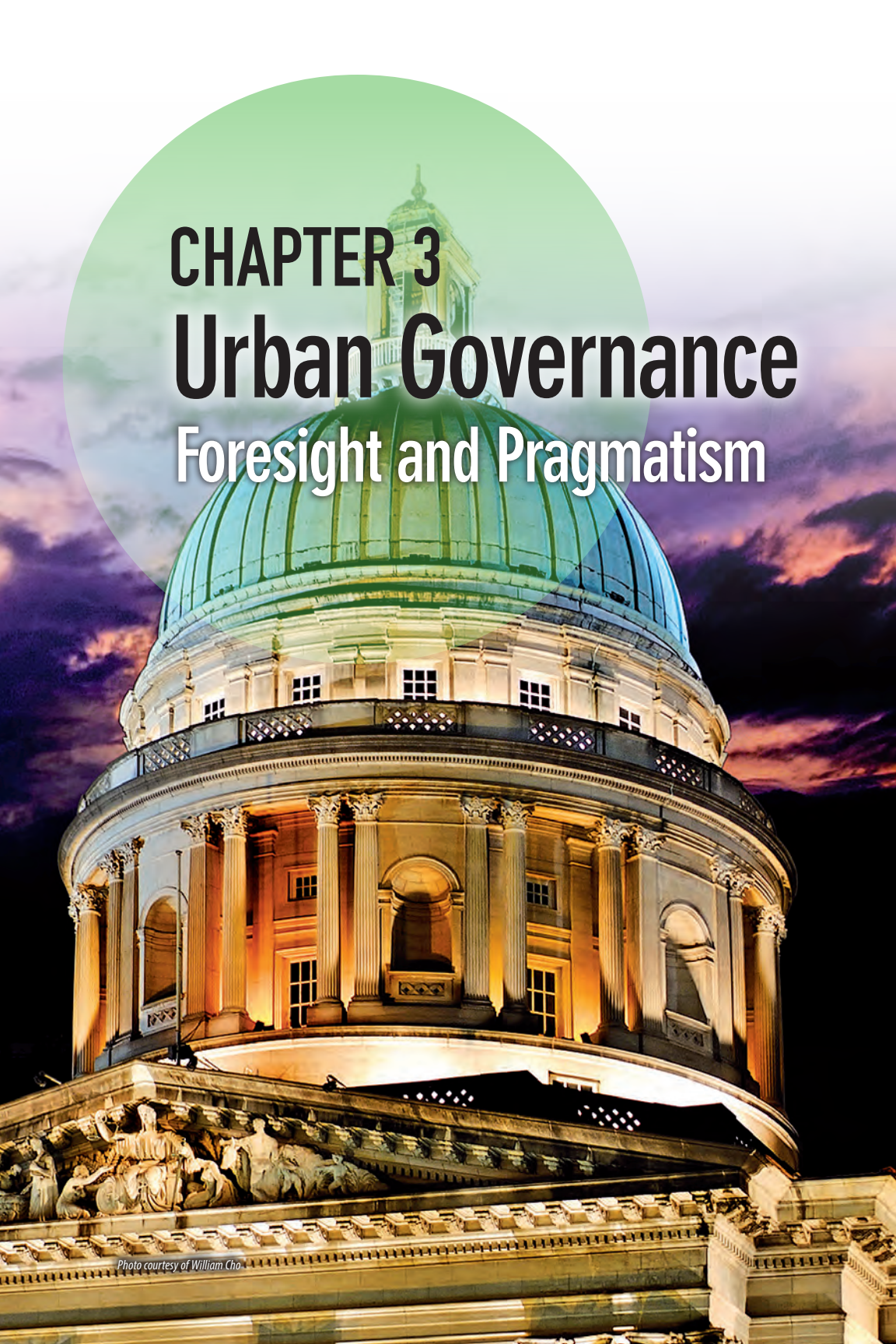
28. Ibid.

29. S. Dhanabalan, Urban Redevelopment Authority Bill, Parliament no. 7, Session 1, Vol. 54, Sitting 5, August 4, 1989.

30. Lim Eng Hwee, interview by the Centre for Liveable Cities, Singapore, June 2, 2011. Lim is currently Chief Planner and Deputy Chief Executive Officer of the Urban Redevelopment Authority. He has previously served in the Ministry of National Development and the Ministry of Trade and Industry, overseeing urban development and economic development policies and initiatives.

31. Lim Hng Kiang, interview by the Centre for Liveable Cities, Singapore, April 13, 2012. See Endnote 14 for Lim's current and past appointments.

32. John Keung, interview by the Centre for Liveable Cities, Singapore, June 27, 2011. See Endnote 9 for Keung's present and past appointments.



CHAPTER 3

Urban Governance

Foresight and Pragmatism

Photo courtesy of William Cho

Urban Governance: Foresight and Pragmatism

TOH Boon Kwan, Mark CHEN and Vernie OLIVEIRO



- 01 City Hall and Old Supreme Court
Founding principles and legislation were debated and set within this building, laying the foundations for sound governance.

Photo from the Centre for Liveable Cities (CLC)

INTRODUCTION: TRANSFORMATION OF A CITY

Singapore faced severe socio-economic problems when it gained independence in 1965. Unemployment rates among a population of 1.6 million escalated from 5% in 1957 to 14% in 1959. At the same time, the birth rate grew at an average of 4.4% annually between 1947 and 1957, the highest known in the world.¹ There was widespread poverty with one in four persons living below the minimum standards of livelihood.² Some 250,000 of this rapidly-growing population lived in badly degenerated slums in the city

centre, squeezed six to a room; a sizeable number spilled over into illegal squatter colonies surrounding the city centre.³ Public hygiene was poor—widespread littering and public spitting exacerbated the spread of diseases like malaria and tuberculosis. Street hawkers dumped food waste into the roadside drains, transforming them into open sewers.

From the outset of its ascent to power in 1959, the newly-elected People's Action Party (PAP) government was confronted not only with these immense socio-economic problems but also with significant political challenges. It was saddled with a budget deficit inherited from the previous administration led by the Labour Front government. The British had bequeathed a civil service to the PAP government that, though reasonably efficient, was rife with corruption. Within the PAP's own ranks, an intense ideological struggle between different political factions aiming to win the hearts and minds of the newly enfranchised people was being fought out.



02 General Elections, 1959

A People's Action Party (PAP) candidate speaking at a rally in Chinatown.

Photo from Ministry of Information and the Arts Collection, courtesy of National Archives of Singapore

Despite these problems, Singapore would, over the next four decades, become one of the world's most competitive economies.⁴ Its per capita gross domestic product (GDP) of US\$36,537, when adjusted for purchasing power, ranks among the top ten in the world.⁵ Unemployment rates are low, the home ownership rate is high,⁶ and the 82% of Singaporeans who live in multi-ethnic public housing estates are well served by transport links and amenities such as schools, sports complexes, and malls.⁷ Singapore is considered one of the least corrupt countries, with Transparency International ranking it fifth out of 177 countries and territories.⁸ At the same time, it has been judged to be among the most liveable cities in the world. *Monocle* named Singapore the 15th most liveable city in the world in 2013,⁹ while Mercer's 2012 Quality of Living Survey ranked Singapore the most liveable city in Asia, the 6th in the Asia-Pacific region (including Australia and New Zealand) and the 25th in the world. The same survey also ranked Singapore one of the safest cities in the world.¹⁰

“Create a sense of safety, a sense of feeling comfortable in this place. It is no use having good surroundings, if you are afraid all the time. I went to New York's Central Park, and you felt unsafe ... The police force must be effective, not visible. We have Neighbourhood Police Posts—police who know the people in that neighbourhood, so they know when strangers come in. It is easier to prevent people from going to another place where they are not recognised and committing crimes, because if you are not from the neighbourhood and you come in, you are noticed ... Today, a woman can go jogging at three o'clock in the morning, and she would not be raped. It is an essential part of a liveable city.”¹¹

Lee Kuan Yew, first Prime Minister of Singapore

This dramatic transformation of Singapore may provide useful insights to development researchers and policy-makers in the field of urban planning. An examination of the role of urban (or metropolitan) governance in managing Singapore's transformation from a politically turbulent, economically vulnerable and self-governing country in 1959 to a wealthy and globalised city-state in the present will provide key principles and insights to explain

Singapore's success. Some of the challenges Singapore faced as a developing city-state were and are not unique; other countries and cities facing the challenges of development may glean insights applicable to their contexts from Singapore's experiences in urban governance. Having delivered on security as well as economic and institutional development, the challenge for urban governance in Singapore now lies in shaping an effective and efficient government that can help Singapore society develop the capabilities to deal with an environment characterised by increasing complexity, uncertainty, and rapid change.¹²

PRINCIPLES OF DYNAMIC URBAN GOVERNANCE

The very heart of Singapore's governance paradigm is a focus on achieving long-term, enduring benefits, rather than short-term gains. This approach was critical in the early days of independence and remains the guiding paradigm today.

*“I think long-term thinking is still important. There may be certain policies or plans that we make which may not show results in the short term but will likely show results in the long term. For example, greenery is something that we've always done, taken a long-term view. People ask for the value of having parks and trees. You can only have that, you can only realise the value of these things many, many years down the road. How Singapore is so different? Why is it we are different? We are different because of what we did 20 years ago.”*¹³

Mah Bow Tan, former Minister for National Development

Undoubtedly, long-term planning had been aided by PAP dominance. These days, the Party's gradually eroding electoral majority and an increasingly competitive political sphere will challenge the government's ability to eschew populist, short-term policies.

Singapore also recognised from the outset that good urban governance requires technocratic and professional expertise, in other words, a capable public service. The role of public servants is to present all options, highlight all considerations and recommend the options to take. However, it is the politicians who must choose between policies and their associated trade-offs as it is they who must be accountable to voters' aspirations and demands.¹⁴

Of the many elements that had an impact on Singapore's governance approach, five stand out, and may be seen as operating principles of sound and dynamic urban governance.

“It is very well to talk about land use, urban governance, all the logical and rational ways of approaching the planning and building of the city. But to do that well requires a very competent and influential group of—I would say technocrats—people who really know the subject. Unfortunately, they are not the ones who will determine what the outcome is. The outcome is determined by political imperatives. At the end of the day, the politicians have to make the decision as to what is politically more important but they must know the cost of what they are doing.”¹⁵

S. Dhanabalan, former Minister for National Development

Principle 1: Lead with vision and pragmatism

Singapore's model of urban governance is derived in part from the exigencies and constraints of a severely resource-challenged and economically vulnerable polity. This is reflected in Lee Kuan Yew's candid assessment of Singapore's prospects in 1965:

[A]n island city-state in Southeast Asia could not be ordinary if it was to survive. We had to make extraordinary efforts to become a tightly knit, rugged and adaptable people who could do things better and cheaper than our neighbours, because they wanted to bypass us and render obsolete our role as the entrepôt and middleman for the trade of the region. We had to be different.¹⁶

This ethic has strongly informed the mindset of the core leadership on Singapore's governance ever since. Understandably, governance in the city-state has been overwhelmingly characterised by pragmatism, understood here to be the prioritisation of economic progress and socio-political order that the government has seen as critical components of overall development. The result was an effective translation of the priority of economic development into policies that delivered rapid rates of growth over the course of a generation.

Since it gained power in 1959, the ruling PAP has governed continuously for more than five decades. The longevity of the PAP's rule has allowed the government to adopt a future-oriented and long-term perspective in policy-making, a key strength of Singapore's urban governance model. But this model has come under increasing critical scrutiny in the wake of the failure of housing and transport policies to cater adequately to the rapid influx of new immigrants, expatriate and foreign workers to the island since 2005.

During Singapore's march to developed country status in the decades after 1965, the PAP's policies benefited mostly, though not all, citizens. This laid the foundation for good urban governance.¹⁷ The PAP's responsiveness to citizens' concerns and needs may also have been a factor in its success. *The Economist* has succinctly observed that "[t]he knack of responding to voters' complaints while sticking to its basic operating principles is what has kept the [PAP] in power ever since independence in 1962 [sic]".¹⁸

Lee was forthright in identifying the factors behind Singapore's success in building a sustainable and liveable city:

[M]y approach is a pragmatic approach. Does it work? Does it not work? If it works, then do it. If it doesn't work, change.¹⁹

Was it planned from the beginning? No! It was a process of learning, adjusting, refining and passing it on to the next generation so that they don't have to relearn the process.²⁰

His attribution of success to the pragmatic streak of formulating and adapting public policy understates the deep thinking that went into public policy processes during his time at the helm of the country. Goh Keng Swee, Singapore's first Finance Minister who eventually rose to become Deputy Prime Minister under Lee, observed: "[h]e sees problems with long-range implications and has a deeper grasp of what has to be done, both to forestall problems as well as to get things going."²¹

This ethos of *learning by doing* while keeping broader visionary objectives in sight was a hallmark of public administration during Singapore's early days. Political scientist and diplomat Chan Heng Chee characterises this period of policy-making as one of "experimentation with reactive institution-building designed to shore up support rather than as a period in which there was an effort systematically to implement a clear vision of a political or an administrative system."²² There was little time to draft master plans and follow through with dogmatism.

“It would be a mistake to say it was all planned. What is key about Singapore is that we plan a little but when the environment changes, we react very fast to seize the opportunities and then we fly.”²³

S. Dhanabalan

Principle 2: Build a culture of integrity

The public service recognised from the start the need to create a culture of integrity and to keep itself honest. The Singapore public service's reputation for incorruptibility has been achieved in two main ways.

The first is an extreme intolerance of corruption, as seen in the willingness of the Corrupt Practices Investigation Bureau to pursue all cases of corruption, no matter the sums or the prominence of the individuals involved. Singapore's intolerance for corruption is also manifest in the severe penalties attached to bribery—offenders may be imprisoned, pay a fine equivalent to the amount of the bribe, and lose assets for which they cannot adequately account. The prosecution of corruption is also eased by procedures that make it easier for prosecutors to acquire evidence.²⁴

Second, rules and processes reduce opportunities for corruption. Public officers are well remunerated in order to reduce the temptation for bribery and are held to high standards of probity: they must avoid conflicts of interests between their official positions and private interests; refuse gifts given in connection with their work, declare and surrender these gifts, or pay their value; sign an annual declaration of non-indebtedness in order to avoid acquiring compromising obligations; and declare their personal and familial assets to make transparent any properties or investments acquired beyond their means. The ability of officers to act with favour is also reduced.

Principle 3: Cultivate sound institutions

Although good leadership is key to a country's or organisation's success, leaders, like all men, are susceptible to various biases. It is therefore important to build robust institutions and processes to guard against the whimsical judgement of a few leaders at the top. Robust institutions and processes are important to ensure that all available resources and expertise within a country or organisation can be fully utilised.²⁵ Current Minister for Trade and Industry, Lim Hng Kiang, outlined the government's thinking on the importance of institutional structure:

I think basically you want as much structure and process as possible, so that you're less dependent on individual judgment. As an administrator, my inclination was to

try and put as much structure and process in place as possible so that all the skills and competencies are brought to bear. If everything depends on just the judgment of the individual, then I think you're very subject to the idiosyncrasies of that person.²⁶

From the outset, the PAP government saw the public service as a crucial element in the achievement of its objectives. Transforming the bureaucracy from a colonial service to a public service for national development involved the fostering of both human capital and institutions. Efficient and resilient institutions resulting in a capable technocracy have been seen as central to the city-state's rapid development.²⁷

The close relationship between the Singapore public service and the political leadership was seen as a means of encouraging effective and efficient implementation of policies. According to Lee, the setting up of the Political Study Centre in 1959 was meant to "re-orientate their [i.e., civil servants] thinking, so that they understood why we [i.e., PAP] felt it was urgent [that] the civil service must be politically focused before they can become effective".²⁸ A more "politically focused" public service would be one that was more aware of the national, regional, and international contexts within which policies for Singapore had to be made and implemented. As Neo Boon Siong and Geraldine Chen have argued, the Political Study Centre aimed to make civil servants "more aware of the new developments in Singapore and the rest of Asia, and to socialize them to the requirements of building a new society".²⁹

The public service was central to the development objectives for the country but lacked sufficient talented individuals in its ranks. This situation led the Singapore government to initiate and maintain, over the years, aggressive talent recruitment, development, and retention policies. Meritocracy guides the recruitment and promotion of public servants at all levels. The Public Service Commission and other public agencies in Singapore award scholarships for tertiary education to academically able students

who then serve a bond with their sponsoring organisations for a period of time. If selected to serve in the elite Administrative Service, their skills in management and knowledge of public affairs will be deepened through rotations in different agencies. The salaries of senior public servants are benchmarked to those in the private sector, ensuring that monetary reward becomes less of an issue for individuals considering careers in the public sector. Emphasis is also placed on fostering morale, promoting staff well-being, and encouraging consistent training and continuous learning.³⁰

The expertise and honesty of the public service is further leveraged in effective and efficient institutional settings. At the political level, the Cabinet led by the Prime Minister sets the general strategic policy directions. From the Cabinet, the Ministries receive policies relevant to their portfolios and administer regulations and Parliamentary orders besides running the operations of agencies and departments. The Cabinet is also the final arbiter of conflicting priorities between the different agencies and departments.³¹

*“When a policy comes up to Cabinet, among the sixteen of us, there would be at least three or four who have deep knowledge of that portfolio, compared to other countries where the system is such that there isn’t that same depth and number of people. Take health policies. In the previous Cabinet, Goh Chok Tong was a Health Minister previously, PM [i.e., current Prime Minister Lee Hsien Loong] who did the white paper on healthcare, George Yeo who was a Health Minister, myself and Khaw Boon Wan. In health policy there were five of us who understood the problems and challenges. For economic development, there was even more depth. You can think of any portfolio and you know that in the previous Cabinet or this Cabinet there will be at least three or four persons with deep knowledge of it and I think that’s a strength.”*³²

Lim Hng Kiang, Minister for Trade and Industry

Beyond the cross-sectoral expertise of the various Cabinet Ministers, the government has also ensured that ‘productive fights’

arising from policy debates result in optimal outcomes. Careful and in-depth deliberations on the merits and downsides of a policy proposal are conducted in Cabinet and despite the differences in opinions and views, a consensus usually results at the end on the basis of pragmatism.³³ This can be seen in Dhanabalan's account of the Cabinet's decision to proceed with the construction of the Bukit Timah Expressway (BKE):

When the Bukit Timah Expressway was to be built, it was being built through the water catchment area and Ministry of Environment's Ong Pang Boon, who was the minister at that time, was against it because it would pollute the water. The MND's [i.e., the Ministry of National Development] Teh Cheang Wan came with the idea that you can do enough buffers and take enough measures to make sure that the environmental impact is kept to the minimum. And of course we needed a road. So we went to Cabinet and Cabinet discussed as a whole and felt that we should take the risk of building BKE. It was not the PM [Prime Minister] who decided it, it was the Cabinet.³⁴

The National Parks Board (NParks) took further steps to mitigate the BKE's environmental impact when, in consultation with various stakeholders and through studying overseas examples, it came up with the Eco-Link@BKE proposal. This was an ecological corridor connecting the primary and secondary forests dissected by the BKE. Work started on the corridor in July 2011.³⁵

In order to achieve more effective policy implementation, the PAP government created statutory boards.³⁶ Statutory boards operate with some autonomy in implementing public policies under their purview and do so while developing expertise and efficiencies in their specific areas of focus.³⁷ The top priority given to housing and economic development is manifest in the fact that the first statutory boards created under the PAP government were the Housing &

Development Board (HDB) in 1960—to construct public housing for Singaporeans—and the Economic Development Board (EDB) in 1961, to attract job-creating direct investments to Singapore. Both these statutory boards were founded to perform the jobs of predecessor organisations (the Singapore Improvement Trust and the Singapore Industrial Promotion Board respectively) more effectively. The Central Provident Fund (CPF) Board, established by the Labour Front government in the 1950s, was developed into the central pillar of Singapore’s social security programme.

The importance to Singapore’s development of specialised public agencies can be further seen in the spinning-off, from EDB, of the Jurong Town Corporation (JTC) to develop and manage industrial estates, and the Development Bank of Singapore (DBS) to provide industrial capital. These were among some of the over 60 statutory boards that were eventually created, some of which were subsequently corporatised.

These ‘virtuous’ institutions carry with them the expectation that they have to innovate and bring about institutional change through a continuous cycle. While the limits of resources, whether natural, physical or financial, place bounds on urban development, innovation can mitigate these limits and in some cases, remove them in the long term.

Solving Singapore’s urban problems required officials to be able to see different possibilities beyond the conventional wisdom. It was this audacity that led Singapore to court investment from multinational corporations (MNCs) to generate export-led economic growth when it was unfashionable thinking to do so in the 1960s. It also introduced the world’s first road usage pricing system in 1975 to ease traffic congestion in the Central Business District (CBD), which was ahead of its time, though commonplace now. Lim Hng Kiang, emphasised the importance of policy innovations:

I think you really need a high level of administrative innovation. You don't want to be so petrified that you don't make bold responses to changing or emerging challenges. During Mr Dhanabalan's time, for example, there were several policies which were, I won't say revolutionary, but on hindsight, you would say that these were all very bold policies. The ethnic ceiling for HDB flats, if we had shirked it, you would have racial enclaves today. He was bold enough, after the '88 election to put that in place. Now, 20 years later, people accept it, but you need that political courage to put that in place at the right time before the problem becomes too big.³⁸

Principle 4: Involve the community as stakeholders

Since the 1980s, the creation of the Concept Plans and Master Plans spelling out future land use for Singapore has involved a public consultation process. The Concept Plan is a strategic land use plan with a time frame of 40 to 50 years while the statutory Master Plan translates the strategy of the Concept Plan into operational details. These development plans and guidelines are published and widely disseminated to developers, professionals and the public through the media, government gazette, dialogue sessions and public exhibitions. The Master Plan (see **Chapter 2**, page 48) is reviewed every five years and this openness in information and the presence of channels for interaction allow the public to register objections to proposed amendments to the Master Plan. More recently, beyond a straightforward public consultation, officials have been cautiously moving into new ground, canvassing ideas from the public. The example in which a civil society group persuaded the government in 2001 to defer developing Chek Jawa—a 40 ha piece of land rich in biodiversity—showed that the public can sometimes recognise opportunities missed by the government. Today, Chek Jawa is a hugely popular site for nature lovers, student learning trips and members of the public.



03 Chek Jawa wetlands, on Singapore's island of Pulau Ubin
Public interest was sparked during discussions to preserve the land, drawing large crowds to visit the area.
 Photo courtesy of Ria Tan, www.wildsingapore.com

Various campaigns such as the 1967 "Garden City" campaign, the 1968 "Keep Singapore Clean" campaign, the 1969 "Keep Singapore Clean and Mosquito-Free" campaign, the 1971 tree planting campaign and Inaugural Clean and Green Singapore, Annual Save Water Campaigns, etc., were held and promoted with the objective of inculcating a sense of ownership. More recently, programmes like community gardening, the 1997 "Adopt a Park" and the 2006 "Friends of Water" encourage the community, through participation, to take care of the environment and natural resources.

Taking into account the broader changes within Singapore society, the move from consultation to engagement had gradually become an integral part of urban governance by the end of the first decade of the 21st century. In 2009, then Permanent Secretary for Environment and Water Resources Tan Yong Soon noted: "[I]t would be costly and unsustainable if the government was to be relied upon to do everything to protect the environment. There must be engagement. People can and must want to take ownership of the environment."³⁹



04 Campaign posters for Singapore World Water Day
Community engagement is a key aspect in encouraging the general public to save water.
Photo courtesy of Singapore World Water Day, PUB

Elaborating on the themes of public engagement and citizen participation in 2010 and 2011, then Head of Civil Service, Peter Ho, and then Minister for Information, Communications and the Arts, Lui Tuck Yew, observed that in Singapore’s context, new models of service delivery—one that was based on collaboration and co-creation with the private and people sectors—would be the wave of the future. This would require a major shift from a *Government-to-You* to a *Government-with-You* mindset, based on two-way communication between the government and the people.⁴⁰ A *Government-to-You* model may have worked in the past. For the future, a *Government-with-You* model, based on an empowered citizenry participating in the policy-making process and taking joint ownership over policy outcomes, would be essential for public policy success.

Principle 5: Work with markets

A driving force behind Singapore’s urban governance approach has been the consistent emphasis on improving the efficiency of public service delivery by leveraging market forces as much as possible while avoiding the pitfalls of market failure.

This requires judicious balancing between competing demands of a diverse stakeholder community. While government remains pro-business and provides an environment for entrepreneurs to earn decent profits, it also enforces regulations on businesses to ensure that, first, the costs of externalities are not unfairly borne by society; second, sufficient competition in the marketplace exists to protect the interests of consumers; and third, the government can actively intervene where the market has failed to ensure that public interest is upheld.

Public housing is one example where the government has applied market principles to ensure effective public service delivery. Public housing is subsidised for a majority of citizens through the mechanism of pricing flats below market value. This is intended to promote the social goal of home ownership among families which increases the sense of belonging to Singapore, and ensuring the affordability of public housing. New flat buyers pay different market prices which are determined by the location, floor level, facing, design and size of their properties. This market subsidy approach is more equitable for flat buyers as it recognises the variable market values of individual properties.⁴¹

Singapore's environmental policies also benefit from the application of market principles, namely: (i) in deciding between which projects or options to implement; (ii) in setting appropriate prices or user fees; (iii) when introducing market competition; and (iv) in dealing with market failures.⁴²

For instance, sewerage services are a public good and a basic necessity. The government does not apply full-cost recovery since it serves the public interest to have a fully sewered island to promote public health. However, when it comes to treatment of used water and waste incineration services, cost recovery is applied as consumers can exercise discretion on how much refuse and used water they generate. A situation of under-pricing public services in this respect may lead to over-consumption, is unsustainable in the long run and lowers the welfare of society.⁴³

PUTTING URBAN GOVERNANCE TO WORK

The following sections detail the various strands of urban governance that made Singapore a highly liveable and sustainable global city. The first section deals with how Singapore transformed the concept of high-density public housing into a market-leading, world class innovative public good. The second, third and fourth sections examine Singapore's economic competitiveness, urban transportation framework and environmental sustainability efforts. Finally, a systems approach to governance is illustrated through the integrated urban planning process and a public engagement framework.

Public housing

Housing was a flashpoint in the 1960s to 1970s. Singapore was facing a severe housing shortage, with large numbers of Singaporeans living in overcrowded and unsanitary dwellings. An ambitious public housing programme was implemented with the creation of the HDB and the appointment of Lim Kim San as its chairman. Lim, who championed the goal of creating a just and equal society, was assisted by chief executive officer, Howe Yoon Chong, and chief architect, Teh Cheang Wan. This trio formed the core group that directed the work of HDB in its crucial early years. As former HDB chief executive officer Liu Thai Ker observed: "[T]hey were leaders, they were not managers".⁴⁴

Urban Governance in action

KEY EVENTS & MILESTONES

Public Housing

Creation of HDB



1960

Introduction of Home Ownership Programme



1964

First New Town: Toa Payoh



1968

After Lim stepped down as Chairman, HDB's leaders continued his private sector discipline—that of perpetually rationalising operations, cutting waste and improving productivity. Liu describes several instances of such efforts in the 1970s and 1980s, long after Lim had ceased to be HDB Chairman or the Minister for National Development.⁴⁵ The combination of political will, strong leadership and sound financing policies were and still remain integral to Singapore's efforts to house its population.

Housing the masses

HDB's primary mission was the rapid development of affordable housing for the masses. The flats were one- and two-bedroom units and came with modern sanitation. Although the flats were small, they were a major improvement over the dilapidated housing in which many of the first HDB dwellers had been living in. HDB was careful to provide not just housing but also amenities. Shop space was provided on the ground floors of the housing blocks, allowing shopkeepers who had been relocated from the squatter colonies to continue to run their businesses and earn a living. These businesses were mainly service-oriented, such as coffee shops, provision shops and hairdressers which provided daily conveniences to residents.⁴⁶ The HDB also planned green spaces planted with trees between the blocks of flats to reduce the harshness of what would otherwise have been a concrete jungle.

Home buyers allowed to use CPF to pay housing mortgages



1968

Initial fear of lifts



Exhibiting socially responsible behaviour



CHALLENGES IN TRANSITION



05 Toa Payoh, 1967

The first satellite new town built after Singapore's independence, Toa Payoh, served as the template for subsequent developments.

Photo courtesy of National Archives of Singapore

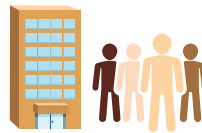
The first HDB flats were built almost haphazardly wherever land was available. It was only in the mid-1960s that integrated, fully-planned new towns were initiated. The first of these new towns was Toa Payoh, which served as the template for the other new towns that HDB would build across the island during the 1970s (beginning with Ang Mo Kio in 1973). These housing estates were built as self-contained communities, with a town centre providing amenities, community centres, schools, sports complexes, parks and light industrial estates to provide employment for residents.⁴⁷ The first new towns were built near the city centre to cut down on the cost and time residents would spend commuting to work.

Formation of Town Councils (TCs) to foster community spirit within housing estates



1989

Introduction of Ethnic Integration Policy (EIP)



1989

The Public Works Department (PWD), PUB, Ministry of the Environment (ENV), MND, and then Telecommunications Authority of Singapore, worked closely with HDB to ensure that public infrastructure works dovetailed with HDB construction programmes to achieve a seamless urban development outcome.⁴⁸

Due to the government's tight fiscal position and need for quick results, HDB developed no-frills housing blocks and flat designs that could be easily and cheaply produced. While the government subsidised flat construction and provided a strong financial commitment to the housing programme, it could not be over-generous. As the population could not afford to buy their flats, the HDB rented out the flats at an affordable rate. Although the Home Ownership Programme was introduced in 1964, home ownership only took off after amendments were made to the CPF—Singapore's social security programme—in 1968, to allow Singaporeans to draw on their CPF accounts to pay their monthly mortgages.⁴⁹

Challenges in housing and resettlement

As HDB Chairman, Lim ensured that the construction contracts awarded by HDB were subjected to competitive tenders, thereby discouraging corruption and fostering cost efficiencies. He personally rooted out corruption and criminal shenanigans. He allowed construction firms to make a small profit but not to profiteer from the government's public housing construction



programme. Apartments were distributed via a transparent and public balloting system, reducing the ability of individual officers to unfairly distribute apartments based on favour.⁵⁰

The success of HDB's early housing construction programme had led to increasing numbers of Singaporeans being resettled into HDB flats. This, together with the Land Acquisition Act in 1966, allowed the government to initiate large-scale clearing of squatter colonies at the city's fringes as well as rural housing, develop new towns on newly available land, and initiate the rejuvenation of the city centre. This certainly was not achieved without some public dissonance—that of the loss of the *kampong* spirit, or the good neighbourliness and familiarity that characterised social relations in the *kampong*, or village.

The transition from rural life to high density urban living proved difficult for some of the resettled residents, and public agencies engaged in various efforts to socialise Singaporeans into the civic habits of urbanised life. These included campaigns against 'killer litter' (the practice of throwing refuse out of apartment windows rather than down chutes), urination in lifts, the failure to flush toilets, and littering.

Building homes for the future

Over the years, HDB's comprehensive planning and execution have evolved with the planning of new towns centred around sustainability as a fundamental philosophy, with maximum facilities provided to reduce the need for commuting. Each new town was to be self-contained and HDB took on the task of master planner. In the early years, HDB not only built the residential blocks but the commercial and industrial infrastructure (e.g., roads) as well as recreational and community facilities. HDB is still the sole authority that develops new towns and it continues to coordinate with the Urban Redevelopment Authority (URA) on the physical land use planning of the towns, and manages the implementation of all services and facilities within its township with other agencies

such as the Land Transport Authority (LTA) on the transportation network; NParks on neighbourhood parks and park connectors, and the Ministry of Education (MOE) for schools. It is this key role as the centralised housing agency that has sustained HDB's success and enabled services to be delivered in a timely fashion to residents.

In land scarce Singapore, co-location of community and institutional facilities is often used as a strategy to optimise land. Frontier Community Club at Jurong West, for instance, has a public library, medical centre, community club and sports facilities within its grounds. Such co-location is only possible when different agencies like the National Library Board (NLB), Ministry of Health (MOH) and People's Association (PA) work together with HDB and URA. Co-locating multiple uses also enlarges the opportunities for different groups of residents (with different backgrounds and profiles) to meet and mingle. This potentially fosters a greater sense of community spirit. Those who choose to play a greater role in the civic and community life of their estate can do so via various committees such as the Residents' Committees (RCs) in public housing estates or the Neighbourhood Committees (NCs) in private housing estates. The RCs and NCs were set up primarily to promote neighbourly interaction and active citizenry. To achieve this, their key functions are to organise programmes and activities for the residents. The Town Council (TC) is yet another avenue through which residents can serve. Formed in 1989, the TCs empower local representatives and residents to run their own estates and decide on local management matters.

HDB's public housing programme has been highly successful, and it has been a cornerstone of the PAP's electoral performance. The PAP won re-election in 1963 in part because it had delivered on its promise of re-housing the population in modern and sanitary accommodation. Moreover, land acquisition in Singapore had clearly benefited the lower strata of society.⁵¹

“A crucial thing is not to allow clever developers to corner large pieces of land at critical areas, waiting for the development. We forestalled them to prevent exploitation of fellow men.”⁵²

Lee Kuan Yew

Housing a new era

The rising value of HDB flats has been a critical component of wealth generation for Singaporeans, and the processes associated with acquiring much sought-after flats have been transparent and fair.⁵³ The fact that about 80% of Singaporeans live in HDB flats has allowed the government to use public housing to achieve public policy results. To this day, home ownership continues to be a key pillar of Singapore’s housing policy and Singapore boasts the highest home ownership rate in the world. However, critics have argued that when the level of home ownership is artificially high, lower-income households are forced to buy when they could potentially be better off through renting instead, since there is a need to save for retirement, educational and medical needs as well. Forcing them into ownership may divert scarce funds away from social security contributions and family expenditure. Nevertheless, HDB is significantly ramping up its supply of new rental flats to meet the rising rental demand, in addition to revising the eligibility criteria for its Public Rental Scheme to reduce the waiting time for a rental flat.

The extensiveness of the public housing programme has made the housing platform a useful tool for realising longer-term social objectives, though not without costs. The Ethnic Integration Policy (EIP) is a case in point, with its aim of achieving the larger goal of national cohesion and preventing the creation of ethnic enclaves. But this may have come at the expense of breaking up ethnic minority families who could not buy a flat close to their parents’ homes. Another consequence was the lower resale flat prices for ethnic minorities due to the EIP’s in-built inflexibility.⁵⁴

The HDB Upgrading Programme has also had some controversy. HDB flats have come to be viewed as a source of security for old

age for much of the masses. The asset enhancement of HDB flats, through upgrading, has provided Singaporeans a means to monetise their flats to fund their retirement. Additionally, renovations in older HDB estates have helped to make Singapore's urban landscape more accessible to an ageing and therefore less mobile population. But critics have charged the PAP government with politicising the HDB upgrading programme by placing precincts in opposition-held wards way down on the priority list. This perceived effort to undermine the political opposition was viewed in some quarters of Singapore society as unnecessarily divisive and detrimental to nation building.

In recent years, there have been more vociferous public feedback on and criticism of the housing policy. The volatility of economic cycles and the property market have made it difficult for HDB to find an effective and timely way to reconcile demand with the supply of public housing. In the last 15 years, there had been occasional bouts of over-supply of public housing units as well as housing shortages. Rapidly rising housing prices have led to public concern over the affordability of public housing. For instance, the prices of resale HDB flats have risen steadily over the short term. In 2008, the resale price index for the first quarter was 126.2. This rose to 205.5 in the first quarter of 2013.⁵⁵

Challenges to urban governance lie not just in reconciling the policy intent of providing affordable housing with asset enhancement (i.e., price appreciation of HDB flats) but also in addressing the recent emergence of what has been dubbed the "not-in-my-backyard" syndrome in which Singaporeans object to building new community-based care facilities on vacant lots in their midst. A recent example had residents living in Toh Yi Drive vehemently objecting to the establishment of elder care centres in their district. Efforts to foster community cohesion within HDB housing estates have also taken on a new level of complexity beyond ethnic relations, namely, the burgeoning foreign communities (e.g., South Asia Indian, Filipino, mainland Chinese) that now reside there.

DESIGN, BUILD AND SELL SCHEME

Another case in point was the public outcry surrounding the high prices of HDB flats namely in Centrale 8, in Tampines, under HDB's Design, Build and Sell Scheme (DBSS). Under the DBSS, HDB outsources the design and development of public flats to private sector companies. Property developer Sim Lian Group had initially asked for some \$880,000 for the five-room flats, but reduced the price by \$102,000 after the backlash.



Following commentaries and complaints to the forum page of the Singapore daily, *The Straits Times*, MND announced in June 2011 that the DBSS housing option was under review as part of the overall review of housing policies. Moving to quell public unhappiness over skyrocketing property prices, and the inability of ordinary Singaporeans to own homes, the government also announced in 2011 an increase in the qualifying income ceiling for Build-To-Order (BTO) flats from \$8,000 to \$10,000, and \$10,000 to \$12,000 for executive condominiums.

Economic development

In tandem with tackling the housing shortage that afflicted Singapore in 1959, then Finance Minister, Goh Keng Swee, set about resolving the unemployment problem. Goh believed that Singapore, lacking an agriculture sector which could absorb workers, needed to pursue a strategy of industrialisation. He therefore sought advice from the United Nations (UN) to develop an industrialisation plan that would ameliorate the country's chronic unemployment.⁵⁶ The Dutch economist, Albert Winsemius, arrived in 1960 under the UN's auspices and proposed a ten-year development plan that encompassed new, labour-intensive, import-substitution manufacturing industries.

EDB was established to execute the plan under the chairmanship of Hon Sui Sen, who would later serve as Finance Minister. Unfortunately, infighting within the PAP and strikes that crippled firms created a climate that was not conducive towards business. Moreover, the government of Malaysia, which Singapore was under from 1963 to 1965, was unsympathetic to Singapore's industrial development: while Goh approved 43 Pioneer Certificates for investors on 14 September 1963, Kuala Lumpur did not approve a single Pioneer Certificate for Singapore during the period between 16 September 1963 and 9 August 1965,⁵⁷ which thwarted the effective implementation of the First Development Plan (1961–1964). Companies that were awarded Pioneer Certificates enjoyed certain benefits such as exemption from corporate taxes.

Full political independence did not improve things economically. The hostility displayed by Malaysia and Indonesia towards the newly-independent Singapore made regional economic cooperation difficult. To make matters worse, Britain announced plans to withdraw its military bases in Singapore by 1971. This threatened an already fragile Singapore economy since the bases were responsible for 12.7% of Singapore's GDP in 1967, and generated, both directly and indirectly, just under 40,000 jobs—a fifth of Singapore's workforce.⁵⁸

Developing an economic strategy

However, political independence did allow the Singapore government to pursue its own economic strategy. Hence, Lee Kuan Yew, building on the ideas of a UN development expert whom he had met during the early 1960s, decided to focus on export-led industrialisation, attracting MNCs to invest in Singapore, leveraging their expertise to open doors to global markets, and leapfrogging countries in the region that were hostile to Singapore's independence. Dhanabalan, who had served as a junior officer in EDB for much of the 1960s, commented that "once we came to the conclusion that there was going to be no common market [with Malaysia], then we knew the way to actually grow Singapore, Singapore's manufacturing sector, was to attract investors to come here to supply the world."⁵⁹ This strategy was born out of desperation and unpopular with developing countries at the time, but ultimately provided the conditions for Singapore's economic take-off.⁶⁰

To spearhead Singapore's industrialisation efforts in the early 1960s, Jurong—a swampy and hilly area far from the city area but with a natural deep water harbour—was chosen by EDB as the site of an industrial estate.⁶¹ Jurong's relatively distant location meant that industrial pollution could be kept far away from densely inhabited areas. Jurong Port was built to support the growth of Jurong Industrial Estate, and began operations in 1965.⁶²

Urban Governance in action

KEY EVENTS & MILESTONES

Economic Development

... First Development Plan launched



1961

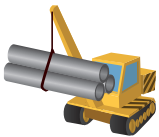
“[W]e passed a law that said that when government acquires coastal land, we compensate without taking into account that it’s by the seaside. The market was at an all-time low at that time and so we acquired large tracts of land. They were lying fallow—investors were waiting for the climate to change so they could manipulate and sell it at a big price. We just acquired as many large pieces of land as possible and claimed the right to reclaim coastal areas ... Jurong was a swamp, which we reclaimed.”⁶³

Lee Kuan Yew

At the outset, land was set aside for parks, gardens, and green spaces to make Jurong Industrial Estate an attractive place in which to work and live.⁶⁴ By 1968, EDB had grown to such a size that the Singapore government thought it wise to have EDB focus on investment promotion, and to spin-off the function of planning, developing and managing industrial parks to another statutory board, JTC.⁶⁵

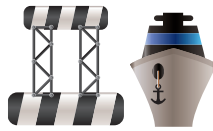
Armed with a clear mandate to attract foreign direct investment as a means of generating employment, EDB embarked on an ambitious multi-pronged strategy which combined organisational excellence with a generous package of investment incentives to woo investors. Serving as a ‘one-stop shop’ for investors, EDB was able to reach out effectively to potential investors.⁶⁶ It worked closely with other public agencies, providing industrial sites and facilities in integrated industrial estates combined with a slew of tax incentives. This proved to be a winning combination.⁶⁷

Setting up of
Jurong Industrial Estate;
EDB established



1961

Jurong Port begins
operations



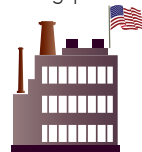
1965

JTC formed



1968

First American multinational
corporations (MNCs) set up
shop in Singapore



1969

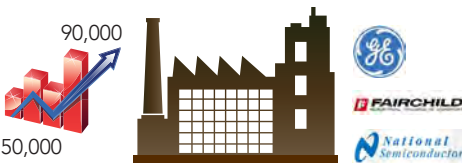
In 1969, EDB successfully attracted American MNCs to invest in Singapore and, within three years, added 20,000 more jobs to the local economy.⁶⁸



06 Jurong Industrial Estate, 1965
Prime Minister Lee Kuan Yew (third from left) with Economic Development Board Chairman Hon Sui Sen (right) and officials surveying the development of the project.

Photo from Ministry of Information and the Arts Collection, courtesy of National Archives of Singapore

More than 40,000 jobs created in 3 years owing to ability to attract MNCs to Singapore



1973

Singapore attains full employment status, with stabilised unemployment rates



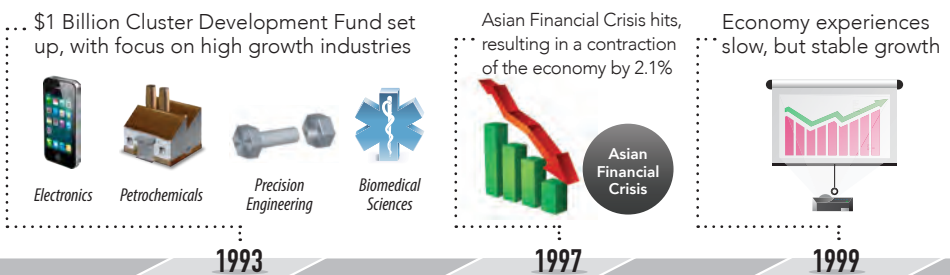
mid-1970s

By the mid-1970s, the Singapore economy had attained full employment status and the unemployment rate stabilised—between 3.5% and 4.5%—a vast improvement from the rate of 10% in 1970.⁶⁹ EDB's success in attracting pioneer manufacturing MNCs such as General Electric, National Semiconductor and Fairchild to locate their production operations in Singapore had a positive effect on job creation, with employment generated by these key companies rising from 50,000 in 1970 to 96,000 in 1973.⁷⁰

Growing amidst global uncertainty

During the 1990s, the cluster development strategy was conceived, designed to leverage synergistic benefits between mutually supporting industries. The rationale was that plans could be formulated to develop clusters based on the core capabilities that were shared by industries in the cluster, thus raising competitiveness. EDB unveiled a \$1 billion Cluster Development Fund in 1993 to “catalyse development of indigenous industries in high-growth clusters” like electronics, petrochemicals, precision engineering, and newer high-tech industries like biomedical sciences (BMS) with a strong emphasis on Research and Development (R&D).⁷¹ On the services side, Singapore started building up its capabilities as a financial, logistics and transport hub.

Since the recession of the mid-1980s, Singapore's industrial development had progressed upstream, with the economy growing

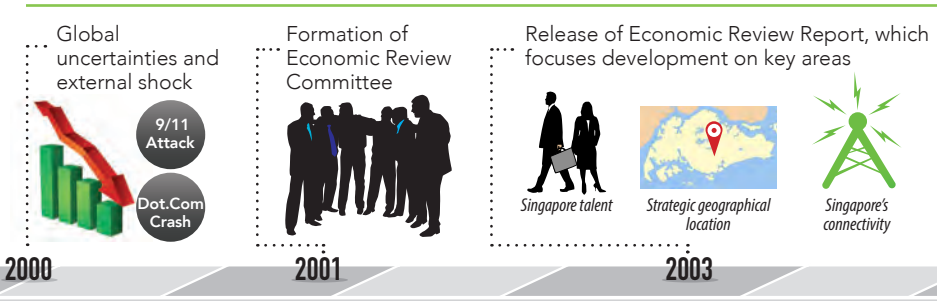


at an average rate of 8.5% per year. However, with the second recession—the Asian Financial Crisis—in 1997, stock and property markets plunged due to the widespread panic. Singapore, with its significant trade links with regional economies, inevitably suffered. The economy contracted by 2.1% due to a slowdown in both global and domestic demand, leading to significant unemployment.

Recovery started in 1999 but this was unfortunately followed by a succession of external shocks—the bursting of the dot-com bubble in 2000 and the September 11 terrorist attacks in 2001. The latter badly affected the United States and global economy, leading to Singapore’s third recession in 2001. Although the Singapore economy rebounded quickly again due to its strong fundamentals, the outbreak of the severe acute respiratory syndrome (SARS) and the Iraq War led by the United States in 2003 put a damper on already weak growth.

A people-centred strategy

In response, the Ministry of Trade and Industry (MTI) set up the Economic Review Committee in 2001, which released its report in 2003. It recognised that Singapore was at another turning point: it faced a maturing economy, globalisation, strong competition from the rise of China and India, rapid technological advances, and an increasingly unstable world. In order to remain competitive in such a complex landscape, the key recommendations were to remake Singapore into a globalised and diversified economy, and a creative and entrepreneurial nation.





07 Fusionopolis

A cluster of buildings designed to attract new industries such as information and communications technology, media, physical sciences and engineering.

Photo courtesy of yeowatzup

The strategy was to build on Singapore's good foundations—its talent, strategic geographical location, and great connectivity through its port, airport and telecommunications services—to create an enterprise ecosystem of both large companies and

... Global recession affects all economies, including Singapore's



2008

... Announcement of Resilience Package



2009

innovative start-ups that would generate, harness and exploit new knowledge and capabilities.⁷² The direction headed towards pursuing high-tech and innovation-driven industries: biomedical sciences, life sciences, information-communications and media, clean technology, and environment and water management.

Beh Swan Gin, a former managing director of EDB, emphasised the importance of three pivotal shifts for Singapore's economy during this decade.⁷³ First, the economic rise of Asia from about 2005 changed business mindsets. EDB took advantage of this by elevating the value of its Operational Headquarters strategy, wherein Singapore hosted the key functions of global companies. The new positioning was for Singapore to be a Global-Asia Home for (i) global companies looking to invest in Asia, and (ii) Asian companies aiming to go international.⁷⁴ Second, there was more recognition that hard infrastructure had to be coupled with soft infrastructure—enhancing Singapore's vibrancy and liveability—to keep talent rooted. As industrial activities became more complex and land use more constrained, soft aspects were necessary to provide a competitive edge. Third, instead of just input or capacity-driven growth, it was now about innovation, skills and productivity. Beh summarised this as “creating value with the head (knowledge), the heart (experience) and the hand (skills)”.⁷⁵ These shifts point towards advancing Singapore's extant knowledge-based economy to a higher level. Thus, much has been invested to develop R&D capabilities, to nurture both local talent as well as attract global talent.

Unfortunately, recession hit again in 2008 as a result of the Great Recession that originated in the United States. The government responded with a resilience package, aimed to preserve jobs, cushion the impact on families, enhance companies' competitiveness, and strengthen future capabilities. The contraction of the economy was contained at 0.8%, and the economy recovered the next year. For the 2013 Budget, the government had targeted economic restructuring to achieve quality growth that will provide all Singaporeans with a better quality of life. Partly in response to public resentment against the

rapid influx of foreigners, the government has also introduced measures such as quota limitations to reduce the economy's and local businesses' reliance on foreign labour. But the jury is still out on whether such measures will be able to correct the current imbalances in GDP growth, with economists pointing to Singapore's low shares of the GDP for labour incomes and consumption in view of its over-reliance on MNCs' investments.

Transport

Traffic congestion is a major problem faced by all cities. Hence, land transport issues concerning mobility and accessibility are increasingly accorded greater significance by mayors and city planners all over the world.⁷⁶ Indeed, few would dispute that a smooth and seamless journey whether by road or rail constitutes an important feature of a liveable city. An efficient and effective land transport system has allowed a land scarce city-state like Singapore to fully optimise the use of its limited land while also promoting economic growth through reducing travel times and, thus, business costs.

Today, Singapore's urban transport system comprises a comprehensive network of more than 3,300 km of roads and highways and a high-quality public transport system. The International Association of Public Transport rated Singapore's public transport system amongst the best in the world, together with those of Helsinki and Vienna. Singapore's transport infrastructure consistently ranks amongst the top ten in the World Economic Forum's Global Competitiveness Report.⁷⁷

Yet, Singapore in the 1950s experienced land transport problems that many developing cities today would find familiar. Then, one dominant bus company provided most city-bound services, while a plethora of 'pirate taxis' and smaller, Chinese-owned 'mosquito' bus companies operated in the suburbs and outskirts.⁷⁸ During the mid-1950s, riots caused by labour unrest, in which bus workers were active participants, frequently clogged up transport channels.

In 1955 alone, there were 15 stoppages of bus services, some, though not all, of which were triggered by issues pertaining to conditions of service, such as bad working conditions, low pay and long working hours.⁷⁹ Nor were the inefficiencies of public transport the sole challenge confronting urban transport in Singapore: from 1962 to 1973, the average annual growth rate of motor vehicles was 8.8%, contributing to severe traffic congestion in the central area.⁸⁰ Traffic flow among major arterials such as Kallang Road was at 85,000 vehicles per day with Anderson Bridge (linking Collyer Quay to Nicoll Highway) in the central area carrying an astonishing figure of 93,000 vehicles per day.⁸¹

The problems of urban transportation were well-documented and generated public dissatisfaction even in the early years. However, transport issues were not given a high priority when considered alongside more pressing concerns. The PAP’s manifesto for the watershed 1959 elections did not address the issue of public transport as other areas such as public housing, nation building, education and unemployment were deemed more critical and given greater priority.⁸² Even the Master Plan of 1958 did not emphasise transport.

Planning for transport


Two key developments arose in the 1960s which were to have long-term implications on transport provision and planning. First, the abolition of the City Council removed duplications and

Urban Governance in action

KEY EVENTS & MILESTONES

Transport

... Hock Lee Bus strike and riots

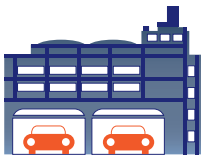


1955

inconsistencies in the regulatory powers between state and city. Hence, the Registry of Vehicles (ROV), which used to fall under the purview of the City Council, now became part of the Civil Service. Second, the PAP government commissioned a landmark State and City Planning (SCP) project in 1967 to examine urban planning in general and transport in particular.⁸³ Experts from the United Nations Development Programme (UNDP) assisted with the project, and recommended that an integrated approach was needed to manage urban renewal, industrial development and transport. The recommendations culminated in Singapore's first integrated land use and transport development plan, the Concept Plan in 1971, which was to become an important foundation for Singapore's modern land transport system.⁸⁴

From the outset, the government recognised the need to address private transport issues in tandem with the fledgling public transport system. A high-level committee comprising permanent secretaries of the ministries of Communications, National Development, Finance and Home Affairs was formed to tackle the traffic congestion problems, especially in the CBD. In a way, the PAP government's success in the two areas of job creation and public housing had the unintended effect of exerting pressures on the land transport infrastructure. A state of dynamic disequilibrium had arisen: as car ownership increased, the resulting traffic congestion on the roads made bus operations unreliable which in turn compelled people to switch to cars. In order to rectify the situation, the government moved quickly to curb car ownership and manage road usage, deploying a slew of market-based

.. Registry of Vehicles (ROV) is placed under the Civil Service.



1960s

.. The State and City Planning (SCP) project recommends an integrated approach to planning, including transport.



1967

policies such as the Area Licensing Scheme (ALS) in 1975 which levied a toll charge on motorists entering the CBD, and a Vehicle Quota System in 1990 that capped the number of vehicles added to the roads each year. The ALS would eventually be replaced by the automated Electronic Road Pricing system in 1998.⁸⁵



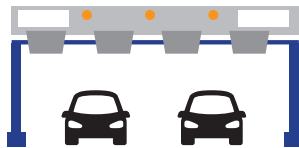
08 Area Licensing Scheme (ALS) sales booth, 1975
A toll was levied on motorists entering the Central Business District (CBD) to curb increasing traffic congestion.
Photo from Ministry of Information and the Arts Collection, courtesy of National Archives of Singapore

Singapore's first Concept Plan is produced, laying the foundations of future transport developments



1971

... Area Licensing Scheme is set up to reduce city traffic



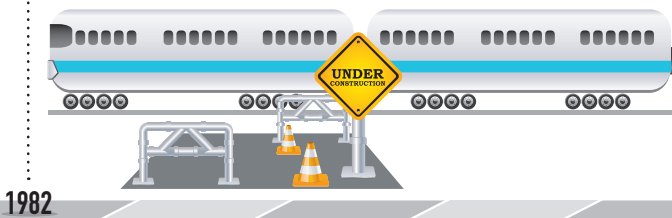
1975

Moving towards visionary planning

From the 1950s to the 1970s, changes in the transport system tended to be reactionary since motivations behind these changes were urgent problems faced both by the providers and users. There was also some degree of experimentation on the use of market forces to modify consumer behaviour. In the 1990s, changes in transportation came to be driven by the city's economic development strategy which was to make Singapore a global city with economic dynamism, a high quality of life, and a strong national identity. This was reflected in the Concept Plan of 1991 (see page 65) which projected a population of 4 million and outlined a broad view of Singapore within the next 30 to 40 years.⁸⁶ It heralded a paradigm shift in transportation planning from problem-driven to vision-driven planning. Concept Plan 1991 adopted a 'constellation concept' strategy of setting up regional centres. The aim was to decentralise commercial activities and hence reduce congestion in the city. The four regional centres planned were Tampines in the east, Seletar in the north-east, Jurong East in the west and Woodlands in the north.

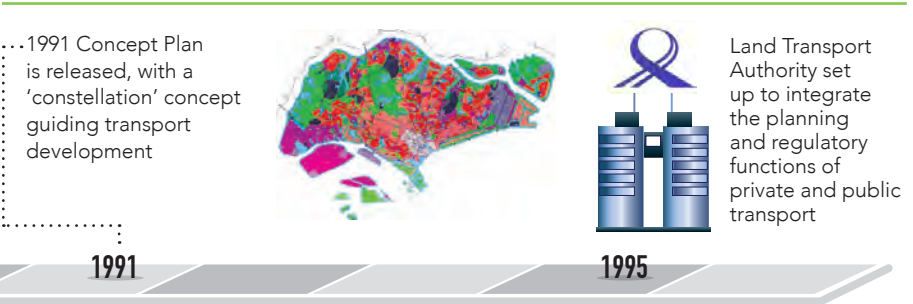
As Singapore's economy developed, transport changes moved on three key fronts: (i) development of an extensive rail network picked up in the late 1990s; (ii) more measures to curb both car ownership and usage; and (iii) institutional integration to coordinate different pieces of the transport planning and execution processes. In 1995, the government integrated the planning and regulatory functions for both private and public transport and put this under a single

... Construction for a Mass Rapid Transit (MRT) system begins



statutory board, the Land Transport Authority (LTA). This was established through the merger of the Roads and Transportation division of the PWD,⁸⁷ Registry of Vehicles (ROV),⁸⁸ Mass Rapid Transit Corporation (MRTC), and the Land Transport division of the Ministry of Communications. The integration of these public agencies into a new institution allowed the government to take a holistic approach to the transport challenges facing Singapore.⁸⁹

Nevertheless, new issues have emerged recently that pose fresh and complex challenges to policy-makers. A major MRT breakdown in December 2011 followed by a series of train disruptions has undermined public confidence in Singapore’s public transport system. The severity of the situation has been acknowledged by the government, with Transport Minister Lui Tuck Yew commissioning a public inquiry into the train disruptions to identify the problems and corrective actions required to remedy the situation. Indeed, the issue of public transport has become more complex and multifaceted. For example, population and immigration growth has been cited as a significant factor in imposing severe strain on the public transport infrastructure. When trains break down, alternative modes of transport such as buses or taxis must be mobilised to ensure that mobility is assured. The current model of public transport has worked well for Singapore over the last 25 years, with LTA as regulator and private companies such as SMRT and SBS operating the train and bus services. However, a fundamental re-think may be needed to better address the current and future realities of an increasingly complex transport environment.





09 An Electronic Road Pricing (ERP) gantry

An automated system set up to control and manage traffic, the ERP levies charges on motorists entering congested areas during peak hours.

Photo courtesy of (Guerrilla Futures | Jason Tester)

THE MASS RAPID TRANSIT VERSUS THE ALL-BUS SYSTEM



Photo courtesy of mailer_diablo

The 1971 Concept Plan pushed planners to consider the best approach with which Singapore's public transport system could meet future demand. This led to an initiation of feasibility studies, carried out between 1972 and 1981, on the necessity of building a Mass Rapid Transit (MRT) system supported by a network of buses, and the routes that this MRT system should take. Major factors relating to cost and project viability were

also studied. The debate on the development of the MRT started as former Prime Minister Lee Kuan Yew and then Minister for Communications Ong Teng Cheong faced formidable opposition in the Cabinet, led by then Minister for Finance Goh Keng Swee.⁹⁰ Lee strongly advocated for the MRT as he saw how it could support future economic and social growth in the city.⁹¹ However, Goh strenuously opposed the project because of its cost: the sum of \$5 billion was a large amount at that time.⁹² He said, "If you got to spend all this money and subsidise the system, why not spend the money and have an equally effective all-bus system? If an all-bus system is just as good as MRT, why have MRT if you have got to subsidise it?" He bolstered his argument by referring to a study led by Kenneth Hansen of Harvard University which argued that an all-bus system would be sufficient and would cost some 50% less than the MRT.⁹³ The government appointed two teams of American transport and urban planning experts to conduct independent reviews on the system proposed. They completed the Comprehensive Traffic Study in 1982 which reported that an all-bus system was not practicable since it would have to compete for road space in a land-scarce country.

In 1982, the Singapore government decided to construct the MRT system. This monumental project was significant not only for redefining Singapore's urban landscape, but also for the high degree of public information available, and the government's public revelations of its own cautious and careful deliberations before coming to a decision.⁹⁴ Lam Chuan Leong, a former permanent secretary of the Ministry of National Development, recalled that it was the idea that major public infrastructure projects such as the MRT could raise the value of land around the transit stations, especially in the newly reclaimed area of what is now Marina Bay, which ultimately persuaded the government.⁹⁵ He further observed that while Singapore had previously focused on simply finding land to build needed facilities such as housing or an airport, by the 1980s, the "first stage of complexity had crept in". Issues pertaining to noise, density and other potential negative externalities became considerations for policy-makers.⁹⁶



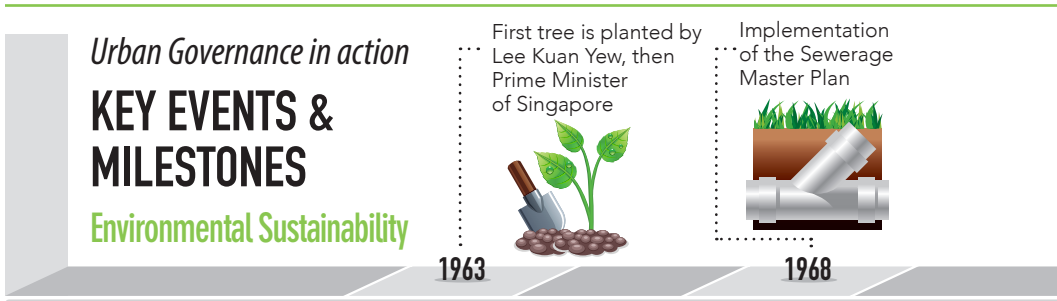
Environmental sustainability

From the outset, Singapore’s city planners were careful to minimise the pollution that often accompanied development. Much of this was due to Lee Kuan Yew’s championing of urban cleanliness and order. He personally intervened on various occasions to introduce or encourage policies to promote a clean and green city.

“I learnt from negative examples. Hong Kong has crowded, tall buildings, you seldom get sunshine in the streets, no greenery. So that’s something we must avoid. I went to Osaka and I could smell chemical factories. I said no, we mustn’t allow that. We are a small island; unless we protect ourselves by placing the right industries in the right places—taking into consideration the prevailing winds—we will despoil the city. There are thousands of other cities and we can see the mistakes they have made. We can also see what they have done right.”⁹⁷

Lee Kuan Yew

Upon learning about a regulation requiring biannual emission inspections on cars while on a visit to Boston in 1968, Lee implemented the same policy back in the city-state.⁹⁸ He also led by example and planted his first tree in 1963 and requested that 10,000 trees be planted annually.⁹⁹ Tree Planting Day was introduced in 1971. Lee’s personal interest in the urban environment ensured that public agencies took the issue seriously. Greening Singapore was, in Lee’s opinion, a “part of an overall strategy for Singapore’s development”.¹⁰⁰ As he explained at the Lee Kuan Yew World City Prize Ceremony in 2009:



The most difficult thing to do was to carry out the industrialisation, the development of services and logistics without polluting the island. Because once you pollute the island, you destroyed the living conditions. When you destroyed the living conditions, then it is not worth having this place. So every project that was put up, our first concern was anti-pollution ... And that went for every project ... The careful attention given to the environment, at the same time going for growth and industries, services and logistics, got us where we are.¹⁰¹



10 Tree Planting Day, 1973

The first Tree Planting Day was introduced in 1971, to signal the importance of maintaining Singapore's green cover.

Photo from Ministry of Information and the Arts Collection, courtesy of National Archives of Singapore

Launch of Keep Singapore Clean Campaign



1968

Expansion of Seletar Reservoir is completed, starting the journey towards water sufficiency



1969

A clean and green city

Lee would continue to stamp his vision of a clean and green city on Singapore during the 1970s. He insisted that the Japanese firm, Sumitomo, in building Singapore’s first petrochemical complex, would have to follow the highest possible pollution control standards. As a result, as Lee claimed, Singapore “did not have a petrochemical project that would pollute the whole island. And that went for every project.”¹⁰² In his National Day message in 1970, Lee stressed the need to clean up the country’s beaches and waterways. At the time, tens of thousands of small farms and industries used the nation’s rivers and drains as their sewer and dumping ground. That year, an action committee was formed to combat the indiscriminate dumping of domestic and trade refuse into the Singapore River and to clean up its banks. He envisioned: “[o]pen drains now running into the sea will go into underground sewers and end up in treatment plants ... The air we breathe will be kept clean.”¹⁰³

Indeed, far from being a mere aesthetic concern, a clean and well-maintained city was intended by city planners to help foster civic pride, keep diseases at bay, and enhance the overall quality of life in Singapore. Greenery broke the harshness of the urban landscape and reduced air pollution, while parks provided a respite from the daily grind of living in a noisy and crowded city. Lee further hoped that a “clean and green” Singapore would help to lure tourists and businessmen to the island.¹⁰⁴ Hence, the government threw its weight behind efforts to improve cleanliness

Tree Planting Day is introduced



1971

Ministry of the Environment formed; first Water Master Plan produced



1972

Expansion of Peirce Reservoir is completed



Water Pollution Control and Drainage Act is passed



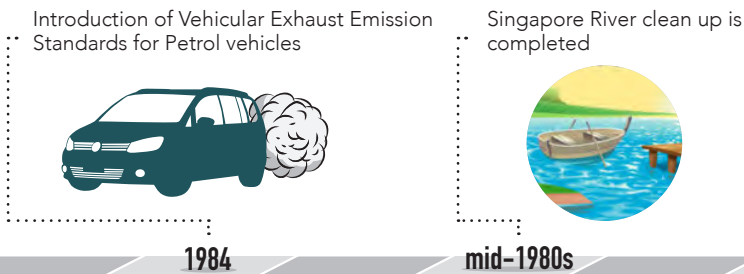
1975

and encourage greenery. The first annual public campaign to keep Singapore clean was launched in 1968, and PAP ministers regularly led constituents on street cleaning campaigns during their early years in power. These efforts were given further emphasis with the creation, in 1972, of the Ministry of the Environment (ENV).¹⁰⁵ In the same vein, the Sewerage Master Plan of the late 1960s introduced a comprehensive sewer system for the island. The coverage of modern sanitation was gradually enhanced (and achieved completely in 1997) and effluent was treated before being discharged into the sea.

Efforts to build a clean and green Singapore persist presently. Singapore first produced a blueprint for environmental sustainability in 1992; this Green Plan was subsequently updated in 2002 and 2006. The Plan identifies 19 nature sites and pledges to reserve 5% of Singapore's land area for nature conservation. The 2002 Parks and Waterbodies Plan expanded recreational space. The Leisure Plan of 2007 increased parkland, enlarged the park connector network, and enhanced other green areas. Gardens by the Bay, an ambitious waterfront development set in the heart of the prime Marina Bay area, features conservatories and gardens that offer learning experiences about Singapore's natural history.

Managing Singapore's water resources


Concerns about environmental sustainability and security dovetail in Singapore's management of water resources. In the aftermath



of independence in 1965, then Malaysian Prime Minister Tunku Abdul Rahman issued a veiled threat that he would cut off the water supply from Johor that supplied most of Singapore’s water needs under the 1961 and 1962 Water Agreements between Singapore and Malaysia. In doing so, the Tunku indicated that he was prepared to use the water supply as leverage to ensure that Singapore did not undertake any policies that were detrimental to Malaysian interests. In response, Lee Kuan Yew established a unit within the Prime Minister’s Office to frame and implement a holistic government response to this challenge.¹⁰⁶ In order to develop Singapore’s water sources and storage capacity, the government initiated a project to expand the Seletar and Peirce Reservoirs. These projects were completed in 1969 and 1975 respectively. The central nature reserve was also conserved against urban encroachment to safeguard the pristine condition of the catchment area for the local water supply. By 1972, a Water Master Plan was instituted to steer the long-term development of Singapore’s water resources.¹⁰⁷

Singapore’s water sources (termed “National Taps”) gradually became more diversified in the mid-1990s with the introduction of NEWater and Desalination (the original two were domestic reservoirs and imported water from Malaysia). The successful introduction of recycled water (or NEWater, as it came to be known) to the water supply was not only an exercise in technological innovation, but also a demonstration of effective public engagement. The NEWater technology was not unique to Singapore, as it was already carried out in places such as Orange

The Singapore Green Plan is issued



1992

Marginal Pricing for water is introduced



1997

Cabinet approves proposal to build a 30 mdg desalination plant



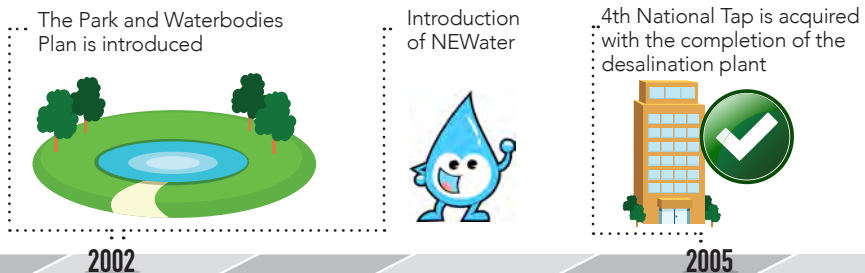
1999

County in the United States. Singapore's innovation was twofold. On the technical front, Singapore successfully scaled up NEWater production for Indirect Potable Use. On the communications front, it won public acceptance—that was crucial to remove the “yuck factor”—for NEWater as an important source of supply for both residential and industrial use.

In 2005, PUB (the national water agency) developed a fourth National Tap, usable water through desalination. Ten years earlier, a team consisting of officials from PUB, URA, MTI and the then National Science and Technology Board had visited Saudi Arabia, the United Arab Emirates and Malta to learn about desalination technology and its management. In 1999, the Cabinet approved the building of a 30 mgd desalination plant. PUB subsequently called a tender for the building of a 30 mgd Multi-Stage Flash Distillation desalination plant, with an associated 1 mgd Reverse Osmosis plant. In 2003, PUB awarded a Design-Build-Own-Operate contract to SingSpring, a wholly-owned subsidiary of the Hyflux Group.¹⁰⁸ This became one of PUB's pioneer public-private partnership projects.

Pricing water right

From the 1970s to the mid-1990s, the Singapore government managed domestic water consumption through instruments such as the pricing system, incentive schemes and regulations. In 1997, Marginal Cost Pricing was introduced to recognise the



scarcity of water: the price of water reflects the opportunity cost of consumption (price pegged to the cost of the next drop, then desalination). NEWater, introduced in 2002, was priced to encourage industries which used significant amounts of water in their production processes to switch to NEWater. However, it could not be priced too low as this would thwart PUB's efforts to reduce water consumption. NEWater was eventually priced at \$1.30/m³, based on cost recovery, in order to balance the two conflicting objectives.¹⁰⁹ Overall, Singapore's water pricing works on the principle of marginal water pricing, which is pegged to the higher cost of producing desalinated water, even though this constitutes only a small proportion of Singapore's water capacity. It is common practice in other countries for governments to price water below cost recovery. The excess fee is called the water conservation tax which brings home to customers the message to save water, thus managing both supply and demand. The pricing formula, as such, balances both the need for affordable water and the need to conserve it.

By 2011, Singapore had achieved enough water generation capacity to eschew the need to renew the 1961 Water Agreement with Malaysia. Current plans project that by 2061, Singapore will not need to renew the 1962 Agreement upon its expiry. Total self-sufficiency in water mitigates a vulnerability in national security. Through the efforts of the Ministry of the Environment and Water Resources (MEWR) and PUB, the contentious water supply issue with Malaysia has been desecuritized, removing an obstacle to warmer bilateral relations between Singapore and Malaysia. What started out as a vulnerability has also been converted into a strength—Singapore has become a leading player in the global water management industry.¹¹⁰



11 NEWater Visitor Centre

Visitors interact with the exhibits to learn about the process of reverse osmosis.

Photo courtesy of NEWater Visitor Centre, via Shaun Wong

A SYSTEMS APPROACH TO URBAN GOVERNANCE

As previously mentioned, a comprehensive nation-wide urban development plan was only instituted in 1971. The Urban Renewal Department (URD) of the HDB initiated urban redevelopment in 1964, having been given the task of “rejuvenat[ing] the old core of the city by making better economic use of land ... by rebuilding the city completely.”¹¹¹ In 1967, with assistance from the UNDP, the government established the State and City Planning Department (SCPD) to prepare a long-term comprehensive urban development plan for Singapore. The cross-disciplinary composition of the SCPD, which included a diverse mix of agencies such as the PWD and the URD, helped ensure that an overall integrated approach to urban planning would be realised in the form of the Concept Plan of 1971.

Public agencies in Singapore already had experience in working together to achieve national objectives prior to the Concept Plan. What the Plan did was to formalise the *whole-of-government approach* to addressing the country’s immediate problems, calling for the marshalling of all available and pertinent resources, and providing a structured framework that allowed government agencies to adopt an integrated approach in making and implementing public policies. The Plan considered the land use needs of relevant public agencies, mapped out the different uses of Singapore’s limited land, and put forward a strategic formulation of Singapore’s long-term land needs.

Integrating plans and execution

The integrated planning at the core of the Concept Plan accounts for the adjudication of competing priorities and the efficient allocation of land for different uses in Singapore. The Master Plan translates broad strategies of the Concept Plan into detailed implementation plans over the next 10 to 15 years. To retain

flexibility, the Master Plan is reviewed every five years. The Master Plan is similarly a whole-of-government effort representing all the different interests of the development agencies and ensures that all development is aligned to the long-term needs of the country.¹¹²

Institutional changes

There was a deliberate and comprehensive organisational overhaul of Singapore's land planning system and institutions during the 1980s. While preparation of the 1971 Concept Plan was dominated by public agencies, the formulation of the 1991 version was characterised by a concerted effort by MND and URA to solicit input from the private sector and academia. This was a feature of the former Prime Minister Goh Chok Tong's administration, which distinguished itself from that of Lee Kuan Yew's, with its more open and consultative style of government. The finished plans were then presented to the public for feedback. Then Minister for National Development S. Dhanabalan explained that this more consultative process was intended to allow the government to "tap the ideas, skills and experience of the private sector" and "ensure that the land use plan in each zone [took] into account the opinions and ideas of all interested sectors of [Singapore] society".¹¹³

During this period (1987–1992), a major organisational overhaul was also conducted. In 1989, the Urban Redevelopment Authority Act was amended to give effect to the amalgamation of URA, the MND's Planning Department, and its Research and Statistics Unit. This reorganisation allowed for a more integrated and coordinated approach to urban planning in Singapore. Until then, URA had been responsible for planning in the central area of the city, while the Planning Department had been responsible for planning in the rest of the island. The integration also eliminated the need for the duplication of support services.¹¹⁴ It also made the system more open and transparent.

In terms of the planning systems and processes, Lim Hng Kiang, who was then a deputy secretary in MND when Dhanabalan was

Minister for National Development, described the thinking that went into the changes made:

I think basically the main achievements or impact that we made in the early years, in terms of planning was to put in place a structure. It had been a very ad hoc, case-by-case approach. So I was brought in as Deputy Secretary to try and see how we could work to streamline the process. We evolved a structure by having a concept plan that sets out the long-term land use of Singapore. We got there after many meetings, compromises, changing assumptions etc. It was not a statutory plan, but it gave us the basic foundation. You know where we can be bold, and where we have to be restrained. It's the backdrop to all the other key decisions.¹¹⁵

“Tap private sector knowledge, private sector ideas as to what should be done ... As people found that I was receptive, they gave more ideas and I found the ideas good and decided to proceed.”¹¹⁶

S. Dhanabalan

Planning for urban conservation

As a result of the legislative changes, the URA was also formally appointed as the Conservation Authority. Until this time, urban conservation had not been accorded high priority due to the need to address the more pressing concerns of unemployment and public housing; the government had pursued economic growth and efficiency to the detriment of historical sites of collective memory. Lee Kuan Yew acknowledged that his government had “recklessly demolished the old run-down city centre to build anew”, and that this had sparked a sense of “disquiet over the speed at which [Singapore was] erasing [its] past”.¹¹⁷ The effort to identify historically, architecturally, or artistically significant buildings in Singapore had commenced in 1971, with the establishment of the Preservation of Monuments

Board. It was only in July 1989, however, that URA gazetted the first batch of areas for conservation. These comprised Chinatown, Little India, Kampong Glam, the Singapore River (Boat Quay and Clarke Quay), Emerald Hill and Cairnhill.

Admittedly, this shift in approach towards urban conservation resulted from utilitarian considerations in the 1980s. First, there was an oversupply of commercial facilities towards the middle of the decade; the government-appointed Property Market Consultative Committee reported in 1985 that the oversupply of office space by 1990 could range between 500,000 m² and 950,000 m².¹¹⁸ Consequently, commercial space, essential for economic growth, became less of a competing factor in land use allocation. Second, through the Land Acquisition Act and land reclamation in the Marina Bay area, the government had successfully accumulated adequate unreleased land stock that could last until the 21st century. This reduced the pressure to demolish quality old buildings for new developments.¹¹⁹ Third, the decline in tourist arrivals motivated a fundamental re-think of the government's attitudes to old buildings; conservation was now linked to efforts to promote tourism.

Conservation in the city supported Singapore's efforts to grow its tourism industry.¹²⁰ The Tourism Task Force, formed in August 1984 by MTI, argued that the conservation of historically and culturally significant sites would "provide a remarkable contrast" to the more modernised elements of Singapore's landscape, "provide a focus of attractions", and "bring to life the historical and cultural heritage" of the city.¹²¹

In 1986, the government released the Tourism Development Plan which allocated significant financial investments in a comprehensive urban conservation programme (e.g., \$187 million on building, preservation and restoration projects, \$260 million on upgrading historical areas and landmarks).¹²² This was in tandem with URA's ongoing efforts to revitalise key civic and cultural districts culminating in the release of the Master Plan for the Civic and Cultural District

in 1988. URA officials who were keen on conservation managed to persuade Dhanabalan of the wisdom of their views.

“I thought it is something that really is worth attempting to save. We can clear everything and have modern housing, modern buildings. But then [what] is the difference between Singapore and any city in the West? The architectural profession is international, they tend to design things more or less the same everywhere. Everybody wants to have an iconic structure. I mean Raffles City can be anywhere in the world. The argument that I put to Cabinet which Cabinet accepted was that what we have—that is something worth attempting to save.”

S. Dhanabalan



12 Chinatown

One of the most popular tourist spots in Singapore, the area consists of both new and conserved buildings that reflect the heritage of early Chinese immigrants.

Photo courtesy of William Cho

A new approach


The open and consultative approach incorporating the renewed emphasis on urban conservation was repeated for the formation of the 2001 Concept Plan. Focus group sessions involving private sector interests, academia, and, for the first time at the review stage, ordinary citizens, were formed as part of a public consultation exercise to review the Plan. URA sought public feedback on the Plan and incorporated it into the policy formulation process.¹²⁴ The comprehensive, integrated and inclusive approach adopted for urban planning, development and management in Singapore has ensured that a fine balance is achieved between achieving economic growth and the development of a sustainable and liveable urban environment.¹²⁵ Long-term planning ensures clarity of vision but sufficient flexibility is built into the process to review and revise plans where necessary while keeping sight of national objectives.

Engaging public stakeholders

Today, there are various means by which public agencies can collect feedback. At the grassroots, these channels include Citizens' Consultative Committees, Residents' Committees (which are formed in HDB housing estates), and ethnically-based self-help organisations. These grassroots organisations also help government officials explain policy to individuals on the ground. In addition, the Feedback Unit has brought together members of the public for consultations on policy since 1984. In 2006, the Feedback Unit was replaced by REACH (Reaching Everyone for Active Citizenry @ Home) to allow for broader engagement between public agencies and the public.

Indeed, governance in Singapore has grown increasingly adept at broadening the scope for public participation in decision making. Space for more critical engagement on policy-making was limited in the first decades of Singapore's independence. E. Kay Gillis has argued that the first years of PAP rule involved the "dismantling of civil society", when trade unions and student groups were muted, and existing organisations such as the Singapore Family Planning

INSTITUTIONALISING PUBLIC CONSULTATION



The HDB upgrading programme was the first instance of residents having a stake in the way their neighbourhood was shaped—at least 75% of residents had to vote positively in support of the upgrading programme before it could proceed. The newer Neighbourhood Renewal Programme (NRP), introduced in 2007, goes a step further and allows residents to offer their feedback and propose improvements they wish to see for their precincts. To this end, residents are involved in town hall meetings and dialogue sessions at the outset and where feasible, the proposals would be incorporated in the design works. The NRP thus reflects a move towards more active consultation of residents.

Town Councils (TCs) were formed in 1989 to empower local elected representatives and residents to run their own estates. Through the TCs, residents can participate in decision making and local estate management. Elected Members of Parliament (MPs) are empowered to lead TCs. TCs control, manage, maintain and improve the common property of HDB residential flats and commercial property within the town. Common property includes corridors, void decks, lifts, water tanks, public lighting and open spaces.



Photo courtesy of Calvin Teo

Association had their functions taken over by public agencies.¹²⁶ Chan Heng Chee has famously described Singapore as an “administrative state”, one where politics is reduced to a series of technocratic and managerial decisions; she dates the formation of this “administrative state” to the period 1965–1984.¹²⁷ Michael Barr has argued that Operation Spectrum, launched in May and June 1987 by the Internal Security Department against social activists, has had a long-lasting chilling effect on civil society in Singapore.¹²⁸

An open and consultative government

The subsequent premierships of Goh Chok Tong and Lee Hsien Loong have seen governments of a more consultative nature. Goh’s government saw the introduction of *Remaking Singapore*, an extensive effort to engage different groups of Singaporeans in dialogue about the future of Singapore. In 1997, the government launched *Singapore 21*, an effort to articulate collective solutions to the dilemmas facing Singapore. One of the dilemmas in *Singapore 21* was described as “Consultation and Consensus vs Decisiveness and Quick Action”. *Singapore 21*’s answer to this dilemma was themed “Active Citizens: Making a Difference to Society”. Lee, in a speech to the Harvard Club of Singapore prior to his appointment as Prime Minister, called for “further civic participation” and pledged that the government would “continue to progressively widen the limits of openness”.¹²⁹

Civil society in a new era

Accordingly, the 1990s and 2000s saw efforts by civil society testing the extent to which they could freely and openly speak out on issues of interest. A prominent case was the engagement between Nature Society of Singapore (NSS) and the Singapore government on issues relating to biodiversity conservation. In 1986, one of its members, Richard Hale, stumbled upon an area made up of degraded mangrove habitat and prawn ponds around Sungei Buloh that was rich in bird numbers and diversity. However, this area was also slated for

development as an agro-technology park. The Malayan Nature Society (as the NSS had been called then) rushed to document bird species that could be found there and submitted a proposal to the government on how the area could be managed to increase its educational value, with a programme of guided walks and farm tours. They also reached out to government ministers and the Chairman of the Conservation Committee personally escorted then President Wee Kim Wee, then Deputy Prime Minister Goh Chok Tong, and then Minister of National Development S. Dhanabalan to the site for a visit. This resulted in the decision to develop Sungei Buloh into a nature park in 1989. The Parks and Recreation Department (PRD) enlisted the services of Jurong Bird Park and the expertise of UK-based Wildfowl & Wetlands Trust and, in 1993, the Sungei Buloh Nature Park (see page 26) was officially opened by then Prime Minister Goh.

There currently seems to be a genuine desire on the part of the government for engagement with civil society. The extent to which the Singapore government is willing to listen to critical views depends on how it views the contestation that is an inherent component of pluralistic democracy. The Singapore government often stresses that it prefers to govern by consensus; however, such consensus must emerge from the reconciliation rather than the repression of contestation. Indeed, given the extent to which the World Wide Web has altered the media landscape in Singapore, engagement with dissenting and critical voices is arguably unavoidable, and the government no longer holds a monopoly on the ability to set the public agenda.

FUTURE CHALLENGES TO URBAN GOVERNANCE IN SINGAPORE

In the early years, the government's preoccupation with nation-building did not allow it the luxury of retrospection and codifying insights. It was only in 1979, on the 25th anniversary of the founding

of the PAP, that Lee Kuan Yew summarised his government's philosophy:

- 1 Give clear signals: don't confuse the people.
- 2 Be consistent: don't chop and change.
- 3 Stay clean: dismiss the venal.
- 4 Win respect, not popularity: reject soft options.
- 5 Spread benefits: don't deprive the people.
- 6 Strive for success: never give up.¹³⁰

Chan Heng Chee suggests that the principles emphasise the importance of political will and tough-mindedness—doing the right things, right—among other values. Strong government, judged on its efficiency and effectiveness in public service delivery to citizens, was the forte of the Lee Kuan Yew government. Decisive action coupled with efforts to build support for government policies was the order of the day.

Current Prime Minister Lee Hsien Loong further identified several reasons behind Singapore's transformation. First, the political leadership set a clear direction and rallied the people behind it. Second, various agencies cooperated to formulate and implement policies that fostered growth and improved lives. This was especially clear in Singapore's industrialisation, as agencies worked together to provide incentives, facilities, utilities, and trained labour to investors.¹³¹ Third, Singaporeans stepped up to the plate. The population was disciplined and industrious, contributing to Singapore's growth. These factors enabled Singapore to consistently deliver on promises, demonstrating consistency and reliability, and building a reputation for integrity. This fostered a virtuous cycle that boosted Singapore's credibility and reputation, helping to make Singapore a dynamic global city.¹³²

Going forward, however, Singapore has been struggling to overcome one of the key challenges for urban governance today as identified by the Organisation for Economic Cooperation and

Development (OECD)—the need for cities to reconcile their global ambitions with the interests and needs of their citizens.¹³³ The growth of the financial industry, the political decision to keep taxes and wages low, and the influx of immigrants at both ends of the socio-economic spectrum, have all contributed to a worsening of income inequality in the city. Singapore's Gini coefficient increased from 42.5 to 47.2 between 1998 and 2006.¹³⁴ While this has led the government to relax its staunch opposition to welfare and introduce "workfare", by which the incomes of the lowest earners are topped up through grants from the public purse,¹³⁵ there remain calls for the Singapore government to spend more on social transfers and reassess its reliance on market solutions to social and political problems.¹³⁶

Another source of tension deriving from Singapore's place in globalisation has been the strong and rapid influx of expatriate and migrant labour over the last half a decade. This has contributed to both record economic growth and certain dislocations that have contributed to rising anti-immigrant attitudes among citizens. Expatriate professionals are seen as a threat to the advancement of Singaporean professionals. Cheap foreign labour has depressed the wages of working class Singaporeans. The public transport system is straining to cope with the huge influx of foreigners that have been allowed to live and work on the island. *The Straits Times* opined that "[an overly] cautious investment strategy, failure to integrate transport planning better with land use, and a sudden spike in population" accounted for the overcrowded public transport facilities that clearly riled voters during the 2011 elections.¹³⁷ Indeed, the sudden explosion in Singapore's population during the 2000s has also contributed to record housing prices and rents. These developments have alienated voters against the PAP government, leading to its worst electoral showing in the 2011 elections.

While most government policies have been effective in promoting the general prosperity of the city, not all have been successful in achieving their original objectives. However, arising from this is

a revelation of the strength in government in being able to spot policy failure, and make policy U-turns as necessary. In 2013, the Prime Minister acknowledged publicly that his government's quest for economic growth led to the housing and transport crunch. His government had been blind-sided by the short and volatile economic cycles.

“So we lacked that 20/20 foresight. Next time, we will try to do better, certainly to have a bigger buffer and not to cut things so fine ... we've paid a political price. We learn from it.”¹³⁸

Lee Hsien Loong, Prime Minister

This ability to adapt to the changing environment, mount a comprehensive response, and learn from past mistakes so that they are not repeated in the future is a hallmark of Singapore's dynamic governance approach and remains a key competency of the PAP government. MND has rescinded its build-to-order (BTO) policy of waiting for sufficient demand to be generated before constructing HDB flats. Its new policy aims to provide public housing ahead of demand to satisfy the needs of aspiring home owners and provide sufficient supply of units to moderate public housing prices.¹³⁹ The Ministry of Transport (MOT) has rolled out initiatives to reduce overcrowding on the public transportation network and improve the service quality of the public transport operators.¹⁴⁰ On 6 February 2013, the government officially announced that it would henceforth, invest in infrastructure ahead of demand. Only time will tell whether this major shift in planning strategy will prove effective, or a response that is too little, too late.¹⁴¹

Singapore's principles of urban governance will continue to evolve with its political and social landscape. Whether they can be modified, and the nature of these modifications, is a matter for empirical experimentation in the future; but this study has shown that they have provided strong foundations for Singapore's developmental journey in the past.

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CHAPTER 4

In Global Practice

The CLC Liveability Framework

Photo courtesy of Adambro

In Global Practice: The CLC Liveability Framework

Pablo VAGGIONE and Elyssa LUDHER



01 Bilbao City

Winner of 2010's Lee Kuan Yew World City Prize, Bilbao demonstrates the transformative powers of effective urban planning and sound governance

Photo courtesy of Bilbao City Council (Ayuntamiento de Bilbao)

INTRODUCTION

If left to grow organically with little guidance, cities could miss critical opportunities for urban development. Land values may not be adequately captured, leading to misallocation and over-consumption of resources. Consequently, the quality of life could be compromised.

One school of thought believes that city management can be done through development controls specified in a master plan, something

that almost all cities have. But a set of indices and drawings is insufficient to maximise opportunities for urban development. Successful cities have demonstrated that formulating and applying an overarching set of values is essential to guide development and enable cities to stand out.

“While geography and history remain important to a city’s success, so is visionary leadership, strong governance, constant innovation and the relentless drive to make cities attractive places for social and economic intercourse ... In a world of rapid change, cities need to work hard to remain vibrant and liveable.”

Lee Kuan Yew, first Prime Minister of Singapore

This chapter looks at how two Lee Kuan Yew World City Prize laureate cities,² Bilbao and New York City, have throughout key moments in their histories put in practice overarching principles, both explicit and implicit, to guide their development. It demonstrates how a clear development framework, rooted in experience, provides a conceptual foundation which permeates leadership, institutions, and governance structures and facilitates effective decision-making in the face of the complex challenges that come with rapid growth. It ensures that cities employ human and physical capital to their full extent and that development is well aligned with stakeholder interests. If effective, the framework can translate into measurable guidelines that inform investment, land use, and other key aspects that shape a city.

New York City embodies many attributes that are universally associated with a city. Built out of vibrant opportunity, the City has not been immune to the difficulties associated with rapid growth and changing conditions—difficulties exacerbated in this case by New York City’s large scale. Many of the strategic decisions and resulting actions throughout its history can be bounded in a set of principles covering both the management of the physical infrastructure and governance aspects. These have helped decision makers to transform challenges of growth into opportunities, resulting in a city with a unique dynamism and innovation that has attracted people the world over.



02 New York City

One of the world's most attractive cities, New York exemplifies integrated master planning.

Photo courtesy of Sébastien Plisson

Bilbao is a foremost example of a city that has taken the lead to address the negative impact of structural changes to its economy. The city was exposed to a dramatic game change when the heavy metal and shipbuilding industries, the principal sources of economic activity, moved elsewhere in just a few short years in the 1980s. Unemployment rose consequently and disenchantment and unrest set in. But the city soon transformed risk into opportunity and achieved a remarkable recovery, one that has thrust it onto the international map. This transformation was enabled by a set of values created through the alignment of stakeholder interests and implemented by special purpose agencies.

This chapter studies the development paths taken by New York City and Bilbao. Their stories are complemented by perspectives



from selected international cities (see box stories). The objective of the study is to determine whether there are universal principles that could help guide urban development. For this purpose, we applied the Centre for Liveable Cities (CLC) Liveability Framework mentioned in **Chapter 1**. This is the compendium of principles derived from Singapore's development experience. This framework groups two sets of ten principles under major themes, namely integrated master planning and development and dynamic urban governance.

Our finding was that the markedly distinct development paths of the two cities, New York City and Bilbao, have converged, whether by design or opportunistically, on the same set of broad guiding principles captured in the CLC Liveability Framework.

The supplementary stories of several international cities, each focused on exploring one principle, served as additional validation of the principles in the CLC Liveability Framework. These findings lend to the conclusion that there are indeed some universal principles that can facilitate effective urban development.

Nonetheless, the framework is not a panacea; it may not be easy to apply in every context, given the unique circumstances of each city. However, it could serve as an impetus for cities to articulate their own visions and formulate their own principles for governance, institutional arrangements, policy implementation, and resource optimisation, which could in turn lay the groundwork for effective local planning.

PHYSICAL PLANNING PRINCIPLES FOR INTEGRATED MASTER PLANNING

1. Thinking long term enables problem solving and sustained competitiveness

Many cities that have applied long-term thinking into their actionable frameworks have gained a competitive edge over those that are entrapped in a short-term mode. In the latter, a piecemeal approach to problem-solving is adopted, which does not allow for issues to be tackled at the root; solutions provide only short-term respite, and opportunities do not trickle down to the broader society. Long-term thinking is a key asset for cities as it allows them to anticipate challenges before they arise and to make the necessary adjustments to stay on track to their desired direction.

New York City

In the early 19th century, rapid and unplanned growth in New York City created suboptimal conditions. Its population was growing at almost 6% annually, and had tripled to reach 100,000 inhabitants in 1810. The southern tip of Manhattan was densely populated, with irregular

plot sizes and a disorderly street network. Congestion and chaos compromised the city's ability to develop economically, and overpopulation and poor ventilation hindered the quality of life of its residents. Furthermore, the uncertainty of rules limited land development and construction, which could have served as employment and wealth generating industries.

Thinking long term was the means by which the city's decision makers overcame growth challenges. The Common Council, the city's authority, concurred that a long-term framework was indispensable to manage growth, and appointed a multi-disciplinary commission of three experts with a significant track record in governance, law and surveying to prepare a plan to address poor street layout and lack of air circulation. The Commission worked for four years in the preparation of the document, which became known as the Commissioner's Plan. Approved in 1811, the plan was visionary in its size and design. It covered most of the island of Manhattan, about four times the size of the existing urban core located in the southern tip, rationally subdividing land in a modular system of plots that could be sold individually or in groups, thus easing land transactions. Many grid plans have been drawn up, but in the case of New York City, it was the city council's ability to relentlessly implement it through various political cycles that created clear rules of the game, one that allowed land markets to soar and gave the city its distinctive structure and physical attributes.



03 The Commissioner's Plan of 1811—provisional map of New York City, released in 1807

With increasing population, planners realised the need to integrate planning with governance. Bringing together experts in all areas, the Commissioner's Plan was considered to be visionary when released in 1811.

Photo courtesy of Jleon

Two centuries later, the principle of long-term thinking continues. The Mayor's Office of Long-Term Planning and Sustainability, created in 2006 by Mayor Michael Bloomberg, released PlaNYC in 2007. This was an action-oriented agenda to address the challenges of population growth, climate change, economic performance and quality of life. Stakeholder input, through non-governmental organisations (NGOs) and experts in the various fields, was central to the preparation of PlaNYC. Such public engagement and civic ownership of the plan are dynamics that would ensure continuity over changing mayoral administrations.

Some of the projects that have stemmed from this agenda and the Office's coordinating capacity include redesigning Times Square and Broadway, where the Department of Transportation modified public space to feature cycle and pedestrian lanes; and the Brooklyn Bridge waterfront, where the Department of City Planning changed land use from industrial to public use, allowing the Department of Parks and Recreation to create the Brooklyn Bridge Park. The plan's clearly-defined goals and associated indicators triggered such initiatives.



04 Brooklyn Bridge Park

To ensure long-term sustainability of plans, PlaNYC incorporates public engagement and civic engagement to ensure continuity over changing mayoral administrations.

Photo courtesy of Marcin Wichary

Bilbao

For Bilbao, industrial transformation policies in Western Europe in the 1980s, after the 1973 oil crisis, had dramatic consequences. The delocalisation of traditional sectors, including heavy steel industries and shipbuilding, to more competitive locations elsewhere meant the loss of 50% of existing industrial jobs. Unemployment, almost non-existent in the early 1970s, climbed to a record 25% in the first half of the 1980s. Structural changes were met by long years of industrial union action and outbursts of violent labour conflict. From the early 1980s, Bilbao suffered serious population decline. Such severe social problems were mirrored in the city's intense physical decay.

Recognising the urgent need to reverse the downward trend, the national, regional, provincial and municipal governments and civil stakeholders created a space for dialogue which drove the development of a strategy for urban regeneration. This resulted in the Strategic Plan for the Revitalisation of Metropolitan Bilbao, which promoted an integrated approach through eight long-term pillars. The plan was adopted in 1991, and a dedicated agency, the Association for the Revitalisation of Metropolitan Bilbao, or Bilbao Metropoli-30 (BM-30), was founded in the same year to facilitate the regeneration process. The framework for the design of tools and action plans was based on the 1989 physical plan for Bilbao, and extended to the metropolitan area in 1994.

Bilbao's Eight Long-Term Pillars

- 1** Developing human capital;
 - 2** Creating the conditions for an advanced services sector within an industrial region;
 - 3** A coordinated, multi-modal mobility system;
 - 4** Environmental regeneration to improve quality of life and economic opportunity;
 - 5** Infrastructure updating and urban renewal;
 - 6** Facilities to make culture a symbol of the city;
 - 7** Public-private alignment for quality, effectiveness and efficiency in management of public services; and
 - 8** Social inclusion and the involvement of citizens in the effort.
-

MELBOURNE

Liveability by Design



Melbourne in Australia's state of Victoria did not arrive at its high liveability by chance, but by design. The city is a product of nearly two centuries of planning, beginning with its distinctive grid pattern designed by Robert Hoddle in 1837. Hoddle created a dense cityscape with a regular street layout and public spaces. Beyond physical improvement, planning schemes introduced since Melbourne's first strategic plan in 1929 aimed to protect property values, prevent misuse of land, control traffic congestion and distribute recreational spaces.

Over the next 40 years, Melbourne continued producing various planning documents, each building on the experience of its predecessor. Its plans, however, were not always a success. By the 1970s, Melbourne's city centre was in decline, attributed to the City Council's laissez-faire approach to new development. In an article in 1978, the inner city was described as "an empty, useless city centre"³ which had lost the charm and attraction it once had. People came to the city to work but retreated to the suburbs after office hours, leaving the central area uninvitingly empty.

Against this context, the city council was tasked to bring life back to the city. Two programmes were introduced: *Places for People* and *Postcode 3000*.



PLACES FOR PEOPLE



In 1994, the council collaborated with architect Jan Gehl and initiated *Places for People* to attract more life to the city. The programme recommended that the city be built around strong communities and liveable public spaces, through the upgrading of promenades, walkways and meeting points. A ten-year goal was set to increase the city's liveability and to establish benchmarks to measure its progress.

Postcode 3000 focused on the redevelopment of key sites, including the redesign of Swanston Street as a pedestrian-friendly street, the development of Queen Victoria urban village, and the creation of a new riverfront park from under-used rail sidings.⁴



POSTCODE 3000



The benefits of both programmes were significant. Melbourne saw detailed bluestone paving installed across the city, laneways opened up for retail use, the Yarra River's frontage redesigned to include walkways and pedestrian bridges, and street furniture, art, new lighting, signage and greenery installed. The initiatives became an integral part of Melbourne's urban design and residential densification programme.



FROM 1,600
TO **15,000**

The projects were a success: inner city residents increased from 1,600 in 1991 to 15,000 by 2006.⁵ The number of pedestrians in the city on weekday evenings doubled.⁶

The city's revival as a place to live and work led to a boom in inner-city apartment developments, increasing from approximately 3,000 in 1997 to 15,000 by 2010.⁷ Laneways and arcades have now become some of Melbourne's most iconic elements.



FROM 3,000
TO **15,000**



05 Street artist along Swanston Street, Melbourne
Successful redesign has resulted in the installation of a tram system and bike friendly lanes, rejuvenating the city.
Photo courtesy of bram_souffreau

The city continues to plan for its long-term liveability. To accommodate a population that is expected to grow to around 6.5 million by 2050,⁸ the Victoria Government released its vision for 2050 in 2013. It is expected that “Plan Melbourne” will meet the challenges of population growth, driving economic prosperity and liveability, while protecting the city’s environment and heritage. The new Metropolitan Planning Authority was created solely to carry out the Plan and to coordinate between the numerous councils, ensuring that it is able to take on the weighty challenge of safeguarding Melbourne’s liveability into the future.

2. The integration of agencies empowers transformative solutions

The complexity of planning and managing a city is such that it would be unrealistic to think that one municipal department, or one technical skill, or one budget resource could magically solve all issues. Integrated thinking does not happen naturally in most operational settings; instead, it must be nurtured. Since their performance is evaluated individually, city departments tend to work in silos. When dealing with complex situations, successful cities of all sizes have demonstrated that integrated thinking and action are necessary; moreover, overcoming the obstacles to integration requires acting with special determination.

New York City

Managing New York City requires an intricate administrative set-up that includes a number of agencies and departments. The city's challenges cut across these agencies and departments, and the limits of competencies are frequently blurred. The Office of Long-Term Planning and Sustainability is a vehicle for coordinated thinking and action across city agencies, the City Council, and stakeholders, and embedding sustainability goals and practices into planning to ensure they are implementable.

Executing a strategic agenda for a city with the complexity of New York City would not have been possible without extensive coordination between agencies that are responsible for long-term goals and short-term milestones. Transparency is an essential asset for creating the conditions of multi-stakeholder alignment. A methodical, transparent, and inclusive planning process establishes an atmosphere of coordination that allows setting commonly accepted goals and a distribution of tasks to fulfil them. For example, the acclaimed High Line, a park created over an unused elevated rail line, was initiated by a civil society group, Friends of the Highline. The project was enabled by the combined work of the departments of City Planning and Parks which created favourable conditions through zoning changes and incentives, further capitalised upon by public-private deals by the Economic Development Corporation. The clear allocation of responsibilities among agencies and partners, and the sense of common direction, were critical components of efficient delivery.

Bilbao

During Bilbao's critical period in the 1980s, political consensus was essential for generating and implementing a strategy, requiring effective alignment between agencies. Stakeholders, including all municipalities in the Bilbao Metropolitan area, collaborated on the 1991 Strategic Plan. Early coordination was indispensable in creating the institutional alignment, including polity tools and budgets, which helped to ground long-term strategic pillars into a project-oriented approach that was implementable in the short term. In many cases, these projects spanned various contiguous municipal areas.

Even more complex was the establishment of Bilbao Ria 2000, an agency, created as a not-for-profit publicly sponsored partnership that operated as a private entity. The national and regional governments each owned 50% of the shares, but Bilbao Ria 2000 involved all four tiers of government—including provincial and municipal—in its work. Its daily work required aligning agendas and balancing decision-making powers that were spread across these tiers. For example, urban planning was a local government competency; fiscal spending was vested at the provincial level; and most of the land, which was the agency's capital, was owned by the national government.



06 Members of the Bilbao Ria 2000

Comprising members from different administrations, Bilbao 2000 has the collective goal of transforming Bilbao.

Photo courtesy of Bilbao Ria 2000

TIANJIN ECO-CITY

*Government-to-Government Collaboration on
New City Development*



If integration and collaboration between local government departments are challenging, imagine collaborating across borders. This is what the Sino-Singapore Tianjin Eco-city project achieved; it is one of the world's first cross-border collaborative city development efforts that involved two national governments. When completed, the Chinese city will house 350,000 residents on 30 km², or about one-third the size of Manhattan island, on land that was saline and polluted.



“Even the best of friends need to have common hobbies, common projects to work on. Likewise between Singapore and China. It is useful to have projects to work on together to continue to build on [our] bilateral relationship.”

*Ho Tong Yen, Chief Executive Officer,
Sino-Singapore Tianjin Eco-city Investment
and Development Co. Ltd*

The idea for a joint collaboration was seeded in April 2007 by Goh Chok Tong, Singapore’s then Senior Minister, during a visit to China. The idea quickly gained traction, and in November 2007, Singapore’s Prime Minister Lee Hsien Loong and China’s then Premier Wen Jiabao officially signed the bilateral agreement.

A special purpose vehicle, the Sino-Singapore Tianjin Eco-City Investment and Development Co. Ltd. (SSTEC), involving the two countries on a 50-50 basis, was formed to ensure that the project had private sector participation and was commercially viable. Under the joint venture agreement, the initial registered capital of approximately US\$660 million was contributed by both sides, in cash or in kind.



**US\$660
MILLION**

The collaboration went beyond funding and high-level political commitment; working groups were formed horizontally, at every level of government, from head of state to local levels, and “diagonally”, where various Chinese agencies and corporations worked collaboratively with their Singapore counterparts.

MULTI-TIER COLLABORATION STRUCTURE FOR TEC

Joint Council for Bilateral Corporation / Joint Steering Committee

(Co-chaired by Singapore Deputy
Prime Minister and
China Vice-Premier)

Joint Working Committee

(Co-chaired by Singapore's
Minister for National Development
and China's Minister for
Construction /
Housing and Urban-Rural
Development)

Sub-Committees under TBNA

(Sub-committees include:
Urban Planning and Transport;
Public Housing; Economic
Promotion; Water Management,
Environmental Management;
Social Development; Green
Building Research and
Development)


A crucial joint decision that had to be taken was the choice of the site from four alternatives considered; equally important decisions were the auspicious naming of the city, the economic development strategy, and integrated master-planning.

The last is an example of the complex collaboration between the two governments. Producing one cohesive master plan involved the agencies for urban planning, water, environment, housing, and transport from both countries. The master plan principle, which was the outcome of this collaborative effort, can be summarised as "1 axis-3 centres-4 districts, 1 island-3 waters-6 corridors" (一軸三心四片, 一島三水六廊).

Beyond the complex multi-agency collaboration, multi-tier government engagement platforms were essential to resolve issues where differences arose. For example, a concern surfaced when the Tianjin Binhai New Area (TBNA) regional authority revised the regional rail transport plan. The plan realigned the high speed rail, which resulted in reduced connectivity from Tianjin Eco-city to Tianjin Central Business District and the airport. The issue was raised at higher government engagement platforms, and a mutually beneficial compromise was reached—the TBNA authority added several light rail stations to connect Tianjin Eco-City to the high speed line.



6,000
RESIDENTS
IN 2013



The first residents moved to Tianjin Eco-City in 2012. By 2013, it had 6,000 residents.¹⁰ The city is lauded for its comprehensive key performance indicators (KPIs) which the World Bank assessed to be broader in scope compared to existing Chinese standards, as well as more advanced, particularly in the areas of carbon emissions, proportion of green buildings, proportion of green trips, renewable energy use, solid waste recycling, and use of non-conventional water resources. These KPIs leapfrog China's current urban development model, and provide a comprehensive model for future cities in China. Essentially, despite the complexity of multi-country collaboration, the agencies were able to coordinate well enough to bring about superior outcomes than if they had acted alone.

3. Adaptability to changing conditions is essential

Economic activity is a principal influencer of land use in cities. But, business models change, new activities emerge and others fade away, and when this happens, what was once valuable land may go into inexorable decay as productive activities are relocated or disappear. The ability of governments to foresee such negative turns and take pre-emptive measures is essential. Policy-makers need to shed their linear modes of thinking and be prepared for constant change.

New York City

To stay competitive, New York City continuously adapted and reinvented itself. For example, in the 1970s and 1980s, 42nd Street and the Times Square area were considered seedy red light districts, where severe social marginalisation and economic underutilisation symbolised a period of decline for the city. A long-term development plan was created under mayors Ed Koch and David Dinkins. Measures to discourage undesirable uses were followed by the public acquisition of theatres on 42nd Street. A special non-profit organisation was created to oversee their restoration or conversion and release to the market. The area received an influx of corporate investment in media facilities and tourist-friendly attractions as well as branded establishments. Recently, the partial pedestrianisation of Broadway, a key vehicular artery, signals how land use policy for the area constantly adapts to evolving public demands.

The city's flexible grid also allows for the intensity of land use to evolve. The buildings around Columbus Circle, for example, have been replaced three times since the early 1900s. The Majestic Theatre, built in 1903, was demolished in 1954. It was replaced by the New York Coliseum, a 30,000 m² convention centre and a 26-storey office tower developed by the Triborough Bridge and Tunnel Authority. In 2000, this was demolished to give way to the Time Warner Center, a building that is ten times bigger. Covering 260,000 m², the 55-storey mixed-use complex has added residential use, where previously the land was used only as an office and commercial space.



07 Times Square, New York City

After recent improvements and changing demands, roads were closed off to make way for pedestrian friendly areas.

Photo courtesy of Payton Chung

As PlaNYC is not a statutory document, subsequent city administrations are not legally bound to apply it. However, the New York City government has established regulations by which the plan should be updated every four years, thus creating conditions that would enable continuity.

Bilbao

Bilbao's economic model is in transition from heavy industries and shipbuilding—the sustenance of the region until the 1980s—to services. Such transformational change cannot be completed

overnight. The comprehensive physical transformation of Bilbao has taken over 20 years to materialise. However, other aspects of this economic transformation will take longer to materialise than this visible physical transformation. Notably, the results of policies for the creation of a suitable business climate, the development of needed human capital, and establishing a market reputation for advanced service sectors to develop and thrive will take much longer to materialise.

For this reason, the acclaimed revitalisation strategy of Bilbao has evolved, switching focus from establishing the infrastructure

CAPE TOWN

Adapting Programmes to Upgrade Communities



building blocks to developing the conditions to attract and retain talent through policies that have people and values at the centre. In its 2010 Strategic Reflection document, BM-30 defines Bilbao's values as innovation, professionalism, identity, community and openness. These values would be reflected in such policies as the development of champion companies, especially in the fields of energy and Information and Communications Technology (ICT); the internationalisation of small and medium enterprises; and an emphasis on research, development and innovation (R+D+I). Strengthening the city's productive competitiveness through human capital development is believed to be essential in achieving the strategic objectives.

The city of Cape Town in South Africa successfully adapted local resources to address one of the most basic priorities of urban policy: personal safety. The incidence of murder in South Africa is highest in Cape Town's Khayelitsha township (or informal settlement in the South African context). One is ten times more likely to be murdered in that township than in the rest of South Africa. In 2006, the City Council, the German Development Bank (KfW) and AHT Group AG & SUN Development Pty Ltd set up a partnership to undertake a project named Violence Prevention through Urban Upgrading (VPUU).¹¹ Its purpose was to create safe and sustainable neighbourhoods by reducing social, cultural, economic and institutional exclusions.

From the outset, the group recognised that simple urban upgrading would not suffice:

“There are two ways you can go ... You can either take the traditional route of city improvement districts, that is through the privatisation of public space to increase public safety, or you go the other route, we call this communalisation.”¹²

Michael Krause, Director, SUN Pte. Ltd.



The team chose the latter approach highlighted in Krause's comments above, based on the local concept of "Ubuntu", or multilateral solidarity.¹³ It recognised that for the initiative to be sustainable, it had to be rooted in community engagement. A five-step community involvement methodology resulted.




FIRST, it held extensive consultations to build in mature local leadership involvement.




SECOND, community members were actively involved in creating the Community Action Plan.



THIRD, community members had to commit to assisting in the implementation of interventions.



This galvanised the community around ideas and interventions.



FOURTH, members of the community were mobilised to manage and maintain the initiatives.

This often required equipping participants with the necessary skills, for example, in landscaping, construction or mosaic-making.



FIFTH, regular monitoring and evaluation are conducted by the partnership as well as partner universities to ensure that the aims of each initiative are met.

Approximately 200 people volunteer for all initiatives weekly.

The benefits were multi-fold, not only in the physical upgrading of the environment, but also in community empowerment, funding retention and local socio-economic improvement.

Flexibility was implicit in the programme. A continuous cycle of learning, action, monitoring and reflection naturally led to further improvements, and it was necessary that the project could integrate them.

“[The plan] started with a fairly modest intention: to reduce crime through improving the urban environment, but, in order to achieve this, [it] recognized that wide-ranging intervention is necessary; that crime must be tackled through spatial means, socially and institutionally.”¹⁴

*Julian Cooke, Emeritus Professor,
University of Cape Town*



08 Khayelitsha, Cape Town, South Africa
Community briefings are held to facilitate participation in programmes that address issues like personal safety.
Photo courtesy of Iris Taani, Sun Development, VPUU

The physical changes were apparent—20 public facilities were built, including a House of Learning with a library, an early childhood centre and hall, and Live-Work units (businesses below, homes above) that were introduced to improve “eyes on street”.¹⁵ In addition, numerous social initiatives resulted. For example, policemen were renamed “community safety officers” and institutions such as business advice centres, legal aid clinics, and anti-gender violence centres were established. Some 250 local businesses have benefited from the business advice centres, and 50,000 people have benefited from anti gender-based violence initiatives, an exceptional achievement given its short time-frame and modest funding.¹⁶

VPUU’s success can be attributed to planning that went beyond traditional upgrading; it had factored local needs, conditions and resources in its planning. Without such a focus, the programme may have shared the same fate as the countless unsuccessful urban upgrading projects in informal settlements. The VPUU programme has been recognised for its exceptional achievements and was singled out for Special Mention in 2012’s Lee Kuan Yew World City Prize. Its lessons have been adopted widely: Cape Town’s urban design policies were largely built on knowledge gained from the VPUU programme, and its community institutions are being introduced in other informal settlements in Cape Town and other South African metropolitan regions.

4. Plans are effective only if execution is embedded in the planning process

Plans that are not executed effectively or enforced thoroughly are a waste of public resources and may damage a city's reputation as they signal an inability to implement. To ensure that the objectives of strategic plans are transformed into actions, plans need to consider implementation from the onset. This involves bringing the agencies that execute plans upstream to the plan's inception stages; including clear and measurable performance indicators; and setting the right incentives and disincentives. In addition, successful planning requires involving the intended beneficiaries in the process of selecting various options. If these steps are incorporated into the planning process, the likelihood of plans being implemented effectively increases significantly.

New York City

PlaNYC's goal of achieving a "greener, greater New York City"¹⁷ is structured in ten categories, including (1) Housing and Neighbourhoods, (2) Parks and Public Space, (3) Brownfields, (4) Waterways, (5) Water Supply, (6) Transportation, (7) Energy, (8) Air Quality, (9) Solid Waste, and (10) Climate Change. Each category contains clearly described metrics to assess progress. Over 97% of the 127 initiatives¹⁸ were launched within a year of the plan's inception in 2007 and almost two-thirds of the milestones have been achieved in 2009.

An example of achieved milestones, in the category of Housing and Neighbourhoods, is that of planning regulations that have been adopted for more than 20 transit-oriented schemes, with the aim of having, by 2030, 87% of new housing units built within 400 m from a public transport stop. For Parks and Public Space, the target is to have 85% of New Yorkers living within 400 m from a park. To meet this target, more than 200 ac of parkland was created, and over 74% of residents now live within a ten-minute walk of a park.¹⁹ In addition, new public spaces for pedestrians have been created, including one in Times Square, which has attracted tourists and

residents and reduced pedestrian fatalities. The Office for Long Term Planning and Sustainability collects data from city agencies, for example the Department of Transportation, the Department of Environmental Protection, and the Metropolitan Transit Authority, among many others. Indicators are obtained directly from existing agency reports or by composite estimates based on multiple data sources. For example, annual total greenhouse gas emissions are calculated by adding estimates of carbon dioxide equivalents from transportation data, building energy consumption and fuel combustion, and electricity used in infrastructure components such as wastewater treatment, streetlights, and traffic signals.

Bilbao

The Strategic Plan for the Revitalisation of Metropolitan Bilbao was based on eight pillars or action programmes but did not determine implementation steps or targets per action area. Instead of an empirical evaluation by specific components, the plan considered an overall assessment of how conditions were changing through the observation of cross-cutting themes.

In collaboration with a local university, BM-30 developed, in 1998, a revitalisation indicator framework that looked at four cross-cutting themes, namely: (i) the quality of human resources, to assess how human capacity is contributing to well-being and competitiveness; (ii) internationalisation, the degree of integration of Bilbao with global economic networks; (iii) knowledge society, evaluating the penetration of technologies and especially information and communication; and (iv) sustainable development, looking at how the benefits and costs of growth are balanced. This is the basis of BM-30's annual reports, which serve as evaluation tools and are used to give focus to the strategic dialogue between partners. Data on measurable outcomes in economic activity, employment, demographics, infrastructure, environment, education and tourism, with key areas requiring priority attention identified, are presented in the annual statistics book prepared by the Bilbao Observatory. Since 2012, the observatory has been part of Bilbao Ekinzta, the municipal government's development agency.

AHMEDABAD

Building a Reputation in Project Delivery through Effective Execution



The Indian city of Ahmedabad, known as Gandhi's home city and the commercial centre of Gujarat, has won numerous local and global awards for its ability to strategically plan and deliver high quality projects. Previously one of three most "critically polluted" cities in India, Ahmedabad was named the most liveable city in India in 2012, owing in part to its Bus Rapid Transit System and the Sabarmati Riverfront Project.

The Ahmedabad Municipal Corporation (AMC) benefited from the considerable autonomy granted by the state government. This allowed the AMC to undertake novel initiatives including issuing municipal bonds, introducing e-government tools, implementing property tax reforms, and structuring effective public-private partnership models. Crucially, AMC's City Development Strategy was coupled with an investment plan.

The results have been far reaching. In the case of the Sabarmati Riverfront project, 185 ha of land was developed on both sides of the Sabarmati River, with the reimaged public waterfront giving a new lease of life to the city. By leveraging property and land value gains, 86% of land was retained for public utility, including walkways, community centres, an informal market and a cultural mile—a precinct for culture, art and entertainment. The project not only revitalised the historic city centre, but improved the environment through the installation of a water management system, which doubled up to manage floods. In 2012, KPMG named the project as one of 100 most innovative projects globally.



09 Sabarmati Waterfront, Ahmedabad, India
Redesigning the waterfront has opened up the surrounding area to residents, allowing them to enjoy the city's shared spaces.
Photo courtesy of Manjil Purohit



BUS RAPID
TRANSIT SYSTEM

BRTS

Ahmedabad's liveability was boosted further with the delivery of the Bus Rapid Transit System (BRTS). AMC set up Ahmedabad Janmarg Ltd to implement a comprehensive set of public-private partnerships for building, maintenance and operations. Notably, the planning and monitoring of the BRTS involved strong academic participation through its premier university, Centre for Environmental Planning and Technology University. Ahmedabad Janmarg was able to install a 39.5 km busway without significantly impacting day-to-day traffic, and could also procure 220 environmentally-friendly CNG (compressed natural gas) buses, leading to a 33% reduction in AMC's operating costs. Within 4 months, public transport ridership doubled.

“For a city which is 600 years old, change is generally slow-paced and not quite visible. But the BRTS ... made a major difference in the way the residents move. It is not just about making [the] life of [the] people comfortable and easy, but helping the city air remain clean, as BRTS reduces pollution in the city ... This is the only project of its scale in this country which has been received so well by the locals. The most remarkable feature of the project ... is that it was executed very quickly and without paralysing the movement in the city.”²⁰

Shyam Parekh, Resident Editor, Daily News Analysis

Ahmedabad's efficiency is being rewarded. Investor confidence is apparent: the state received foreign direct investment of US\$398 million²¹ from 2011 to 2012.

US\$398
MILLION
FOREIGN DIRECT
INVESTMENT FROM
2011 TO 2012

GUJARAT
INTERNATIONAL
FINANCE TEC-CITY
GIFT CITY

When Tata, an industrial conglomerate, urgently needed to identify a location for its Nano automobile plant, it quickly shortlisted Ahmedabad. A thriving automotive cluster has since sprung up; both Ford's and Suzuki's plants will come online in 2014 and 2017 respectively.

A new compact city with special economic zone status, Gujarat International Finance Tec-City (GIFT City), is being built outside of Ahmedabad as a public-private joint venture. A high speed railway, named MEGA (Metrolink Express for Gandhinagar and Ahmedabad) is also being planned to connect Ahmedabad with the capital of Gujarat, Gandhinagar. These projects and others have led to Gujarat's GDP growth of an average 10.5% per annum between 2001 and 2010.

METROLINK EXPRESS
FOR GANDHINAGAR AND
AHMEDABAD

MEGA

5. Innovation is a requisite to stay ahead

Not only is creativity essential for addressing the challenges arising from growth or changing conditions, it is also needed to transform challenges into opportunities. Without innovation, cities will only fall behind.

Although many policy-makers associate innovation mainly with new technology, even systems and processes can benefit from innovative thinking. A systemic approach to urban development can yield innovative solutions. All stakeholders, including civil society, political leaders, government and non-government agencies, and industry have a part to play in adapting innovatively to constantly changing conditions.

New York City

In 2010, New York City launched the Applied Sciences NYC initiative in Roosevelt Island, a central location within the city. Innovation and economic diversification were the drivers behind this initiative. The establishment of the research and development node aimed to propel job creation in economic sectors of interest, such as media, medicine, and urban systems and design. The government of New York City incentivised the location of leading academic institutions, earmarked support funds for infrastructure and set nominal rents for the occupation of city-owned land.

An example of process innovation in urban development is the acclaimed High Line. A linear park built on an unused elevated railroad in the lower west side of Manhattan, the High Line began as a community-based initiative started by two local residents in 1999. The historic structure was under threat of demolition. The line had been closed since 1980, and local property owners were in favour of tearing it down for redevelopment. "Friends of the High Line", an interest group with influential members, began advocating the preservation and use of the elevated structure as a park. The initiative called for re-using the derelict infrastructure

in an imaginative way, generating a green zone in a densely-knit urban area. The group lobbied politicians and the general public, organised ideas, competitions and exhibitions, and effectively reframed the project as an economic opportunity. The High Line opened in June 2009 and has been a public success since, both in terms of visits and as a stimulus for real estate development in the area.



10 High Line Park, New York City

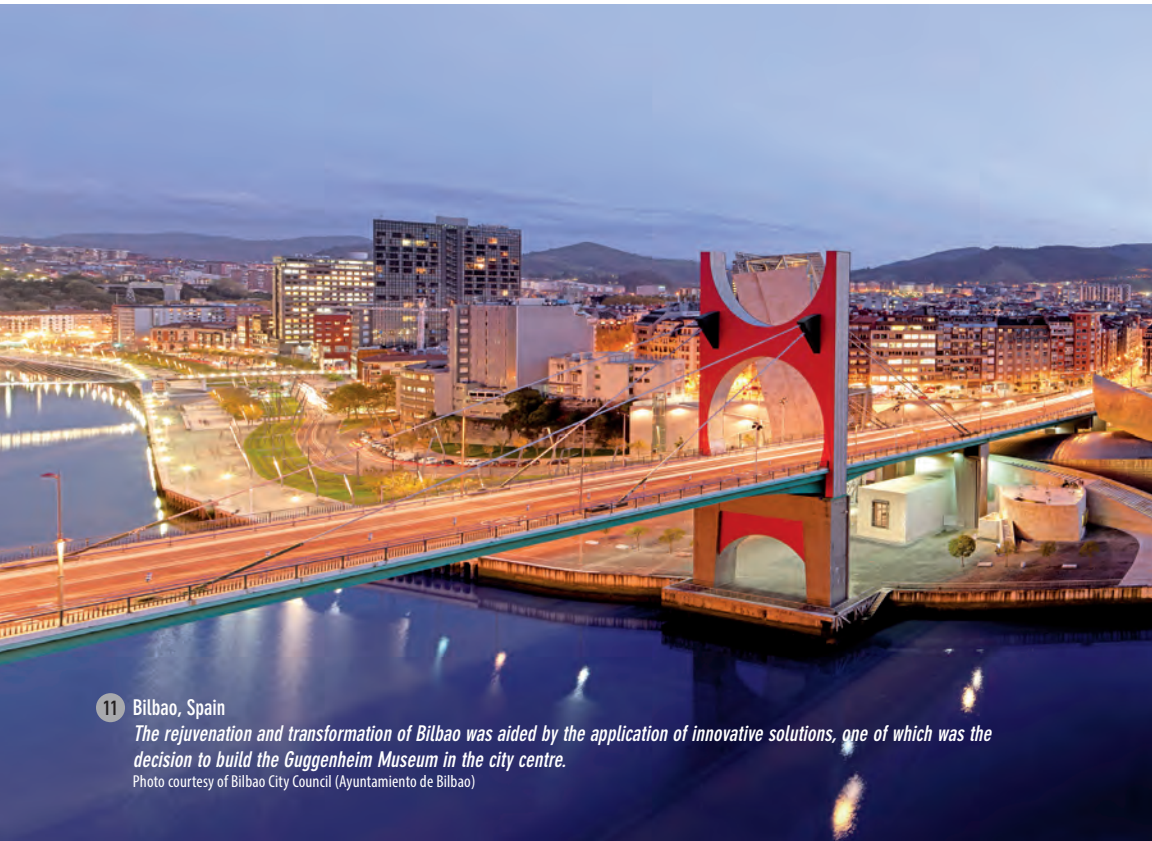
The park demonstrates innovative reuse of a derelict rail line, transforming the area into a multi-use park.

Photo courtesy of David Berkowitz

Bilbao

In Bilbao's most critical moment, innovation in governance created the conditions to build consensus around an alternative future for the city. Thinking laterally and from the bottom up, the government was able to turn the ideas of a broad stakeholder group into policy.

In the 1990s, BM-30 conducted strategic scenario planning exercises with municipalities within the Bilbao metropolitan area, universities, the private sector, and sector associations. For example, the Chamber of Commerce anticipated the requirements needed to position Bilbao as a leading retail centre in the region. These scenarios established a vision for Bilbao's future with a horizon of five to 20 years. That vision allowed stakeholders to identify pressing challenges and plan possible interventions. This collective perspective is an innovation in the strategic planning system and allows specific needs on the ground to be better interwoven with policies and action plans.



A key outcome of strategic planning was Bilbao's transition towards a knowledge-based economy. The cultural dimension was identified as a key factor in this transition. The 1991 Strategic Plan envisaged that Bilbao's competitive advantage would lie in its ability to position itself as a cultural centre of international dimensions. The plan concluded that an influential cultural industry with recognisable cultural assets, and an image associated with art and culture would be an advantage in shaping the future Metropolitan Bilbao. Such intent, however, needed an investment in assets and infrastructure. Against this backdrop, the Guggenheim Museum was constructed, a project which has now become the symbol of Bilbao's transformation. The museum, a daring architectural challenge in the mid-1990s, demanded constructive solutions that had never been attempted before. Bilbao and its companies took pride in solving these challenges. However, the museum is by no means the originator of Bilbao's cultural transformation but rather a tangible icon that served to catalyse other transformation efforts.



COPENHAGEN

A Pioneer in Innovative Urban Development



While the Danish capital, Copenhagen, is sometimes referred to as the Design Capital of Europe, one of its greatest accomplishments lies in its urban development. In this regard, Copenhagen is a city before its time.

Copenhagen's 1947 Finger Plan established a pioneer approach to regional urban growth through a concept now regarded as the predecessor of *transit oriented development*. First tabled in 1928, the plan zoned urban growth along five 'fingers', with the base of the palm representing Copenhagen's historical city.²²

COPENHAGEN'S 1947

FINGER PLAN

A train network formed the spine of each finger, with townships built at each station. The 'wedges' between the fingers were allocated for farmland, forests and recreation; this ensured residents had easy access to green spaces. Although the 'wedges' subsequently faced strong pressure for new housing, industrial and transport needs through the years, growth was maintained close to the original boundaries. The Finger Plan was able to adapt to change: an example was the sixth urban development region (the sixth finger) that was adopted to revitalise the waterfront in the Ørestad region.²³

In the 1990s, Copenhagen, as well as its surrounding region, was in economic decline. To revitalise the region and provide a stronger economic base, Copenhagen and Malmö in Sweden took regional planning to the next level—across national borders.

“We work closely together, the two cities, in city planning, infrastructure, promotion and in attracting new business as well as events to the area. We are Europe’s largest university region and strive to be Scandinavia’s business hub providing optimal conditions for the international business sector and attracting international head offices as well as small, innovative entrepreneurs. Copenhagen is seeing rapid growth these years and we will see it in the future as well.”²⁴

*Pia Allerslev, Mayor of Culture and Leisure,
Copenhagen City Council*



12 The Øresund Bridge
Linking Copenhagen, Denmark and Malmö, Sweden together, the bridge symbolises aggregation of a greater economic base for revitalisation of the city’s economy.

Photo courtesy of Håkan Dahlström

Copenhagen continues to remain at the forefront of innovation. The Copenhagen Climate Plan highlights the city’s ambitious goal to be carbon-neutral by 2025. Copenhagen has introduced Denmark’s first district cooling network—the Adelgade cooling plant—which will help decrease carbon emissions and electricity consumption by 70% and 80% respectively, in contrast to conventional air-conditioning.²⁵ Also, coal burned by combined heat and power stations will be replaced by wood chips and straw.²⁶ For its innovative green solutions, Copenhagen was named the 2014 European Green Capital.

GOVERNANCE PRINCIPLES

1. Leadership connects vision with pragmatism

Managing cities is a complex balancing act that demands from local leaders a unique combination of long-term thinking and the ability to achieve tangible results in the short term. Given the magnitude of the challenges that cities face, it is unlikely that these are addressed in one administrative cycle. Setting a collective direction and establishing the conditions for policy continuity are crucial to realising transformative and relentless progress towards desired conditions. Such continuity largely depends on political will, for which “local statesmanship”—the kind of leadership that puts the interest of a city over partisan agendas—is indispensable. But, as city administration is the level of government closest to citizens, local leaders must put their skills at the service of the community—showing that their social contract with the people is not only about the decades to come but about positive changes on a day-to-day basis.

New York and Bilbao have had many mayors throughout their histories, 109 since 1665 and 89 since 1835 respectively. Thus, it would be imprudent to consider that one person alone could have brought about unparalleled change in the tiny window that is open in a local government mandate. Nonetheless, in recent times, two mayors, Mayor Michael Bloomberg of New York City (2002–2013) and Mayor Iñaki Azkuna of Bilbao (1999–2014), have exercised the type of leadership that has had a lasting, positive impact on their cities. Both mayors had in common the characteristics of successful local leadership: a fondness for attainable agendas and concrete projects and the strong ability to deliver.

New York City

Bloomberg came into office believing that mayors are key agents of change. With great insight, he understood that city centres were again becoming desirable places to live in, especially when

suburban sprawl was beginning to be associated with many of the externalities that harmed sustainable growth. His predecessors had laid some basic foundations for urban living—Mayor Edward Koch (1978–1989) had steered the city out of near-bankruptcy in the 1970s and Mayor Rudolph Giuliani (1994–2001) had laid an agenda for public safety, delivering significant results.



13 Michael Bloomberg (far left), C40 summit on climate change.

Credited as one of the key leaders in the continued transformation of New York City, Bloomberg is known for his business acumen and results-based management approach.

Photo courtesy of Gobierno de la Ciudad de...

Bloomberg can be best defined by his innovative character. A successful entrepreneur, he sought to apply some of the techniques that had made him a business magnate to running the city council. These included a results-based approach to management. He tackled many cross-cutting issues in education, transportation, public health and public spaces by using a combination of direction, metrics and results. Under his term, New York City became a hyperactive node for talent, creativity and innovation that makes the city thrive economically across all sectors. A maxim he often quoted was: “If you can’t measure it, you can’t manage it.” Through PlaNYC, he laid out the city’s sustainability programme and, in his style, left it armed with easy to measure, concrete indicators in a number of areas considered critical today, such as resilience, climate change, and energy. He took this agenda further through his leadership of C40—a network of the world’s megacities for sustainable action on climate change. He leads the network by focusing on research and data collection necessary for assessing progress in reducing greenhouse gas emissions.

Bilbao

Azkuna (1943–2014) was largely believed to be the indispensable driving force behind the city’s turnaround from 1999 to 2014. Although the basis of the transformation, including the broad civic compromise around the Strategic Plan for the Revitalisation of Metropolitan Bilbao, had been laid under Mayor Josu Ortuondo (1991–1999), it was Azkuna, who was able to follow up by building on the consensus and delivering tangible results against initial public scepticism on the proliferation of grand architectural models. That he was able to win three successive mayoral elections after his first term attests to his success.

A medical doctor by training, Azkuna brought a problem solving approach to local politics. His experience in managing local hospitals was complemented with a political role in the regional government—before winning the 1999 mayoral elections.

Azkuna had an innate ability to create consensus; his willingness to negotiate common ground with other parties, including the political opposition, other levels of government and the private sector, turned reticence into partnerships. Above all, Azkuna was able to generate the credibility in public administration that is needed to mobilise resources and elevate the self-esteem of Bilbao's citizens. Azkuna's achievements won him the World Mayor of the Year award in 2012.



14 Mayor Iñaki Azkuna (far right)

The transformation of Bilbao has been credited to Azkuna, with his efforts recognised when he was awarded the World Mayor of the Year in 2012.

Photo courtesy of EAJ-PNV

SURABAYA

Visionary Hands-on Mayor Transforms the City into “Sparkling Surabaya”



Indonesia's decentralisation process since 1998 has thrown up a few exemplary leaders who have transformed cities into thriving urban centres through clear vision and pragmatic action. Among the most renowned is Tri Rismaharini, elected in 2010 as Mayor of Surabaya, a port city in East Java. She is one of the few women leaders in Southeast Asia.

Well known for her hands-on approach, Rishmarharini is often seen picking up litter from the streets. She has helped to transform Indonesia's second largest city, with a population of 3 million, from a dirty city into a green and clean city through the revitalisation of its public open spaces. Today, the city boasts of some 30 ha of gardens, 50 ha of parks, 31 ha of protected forests and 2,500 ha of mangrove areas. In total, about 20% of Surabaya's 33,000 ha are classified as green areas.²⁷

Rishmarharini's passion for parks stems from her time as a former head of the City Parks Department. She was a Surabaya City government employee for more than 20 years, serving successively in various portfolios, including Land and Zoning, and Municipal Environment and Sanitation.

One of her early successes came in 2003, when, as head of the Surabaya Programme Controlling Division, she launched the country's first e-procurement system, persisting through death threats to her and her family. According to an independent study commissioned in 2007 by the Corruption Eradication Commission of Indonesia, the e-procurement system has reduced opportunities for corruption by both the private and public sectors and improved public trust in government procurement processes.²⁸ The e-procurement systems saved Surabaya between 13% and 24% of the estimated cost of procurements.

COUNTRY'S FIRST E-PROCUREMENT SYSTEM



Led by Rismaharini, the Surabaya City government also actively engages the public to improve the environment, starting with sorting waste for compost or "waste banks". At the latter, waste is sorted, recycled or sold, providing formalised income for the sorters. It is so successful that one waste bank, Bina Mandiri, has a turnover of US\$7,000 per month.

BINA MANDIRI
TURNS OVER

US\$7,000
PER MONTH

Local schools have gotten into the act; one kindergarten allows students to pay for tuition in garbage. The city also recruits "environment cadres" from the local *kampung* (villages) to promote environmental awareness. Thus far, the city has over 28,000 environment cadres. For its efforts in engaging the community in its environmental initiatives, Surabaya was awarded the "CityNet C2C" award for public participation in 2012.

SURABAYA WAS AWARDED THE

CITYNET C2C

AWARD FOR PUBLIC PARTICIPATION IN 2012



SURABAYA HAS RECEIVED NUMEROUS OTHER NATIONAL AND INTERNATIONAL AWARDS

Under Rismaharini's dynamic leadership, Surabaya has received numerous other national and international awards, including Adipura Kencana (Indonesia's highest environmental award), ASEAN Environment Sustainable City, and Smart City Award 2011. Most recently, in 2013, the city won two FutureGov awards (for public sector innovation) and the Parahita Ekabpraya Award (for fostering gender equality and child protection). In addition, Rismaharini's low-key but effective approach has won her local and international admiration. She was awarded Globe Asia's Women Leader Award in 2012 and was listed as one of 10 Inspiring Women in 2013 by *Forbes Indonesia*.

2. Integrity is the foundation of sustained value creation

The trustworthiness of the administration system is a principal asset for a local government such as a city. Key words such as accountability, transparency, reliability and legitimacy spell opportunity for long-term value creation. An environment of biased decision making, cronyism and opaque procurement processes compromises a community's trust in its leaders and is not conducive to economic competitiveness. Such conditions are possibly the biggest enemy of urban development. On the other hand, clear rules of the game allow for equality of opportunity and spur competition, which in turn would help increase investments and job creation. Integrity also entails governments being able to respond to citizens' requests in an open and direct manner, which further fosters trust and should be a priority strategic objective for local governments.

New York City

New York City's Data Transparency Law requires each government agency to post a compliance plan that describes all of the public data each agency owns and to update it every year. The intended outcome of this open-data inventory is a unified web portal containing all agency datasets by 2018. This is an example of locally-passed legislation that enables a climate of trust and certainty, one that supports the values of forward-thinking, flexibility and pragmatism. Data openness and data sharing with stakeholders is a means of creating such a climate; at the same time, such transparency allows for accountability.

New York City's 311 is a call centre and online resource that provides government information and non-emergency services. It was established in 2003 and by 2010, had reached its 100 millionth call, with an average of more than 50,000 calls a day. The system, costing about US\$46 million a year to run, has changed the way citizens interact with the government. It enables citizens to provide information on street and sidewalk conditions and maintenance of infrastructure such as water supply and sewer networks; report

issues on noise levels, taxi services, illegal building uses and make general consumer complaints; and obtain information on cultural events, school operations, and recycling procedures. The system is managed by the Department of Information, Technology and Telecommunications, which allocates tasks to the appropriate department. Previously, citizen requests and queries were processed by 40 different agency help lines and the Mayor's Action Center. The buy-in of the agencies for this one-stop call centre and online resource is primarily attributed to the strong mayoral drive to overcome the initial concerns that 311 operators would be unable to answer complex service requests.²⁹ Feedback provided by citizens through 311 serves as a real-time indicator of public concerns and enables the delivery of more targeted services in New York City. The intensive use of technology enables the city to provide the public with clearer information online, and gives the public a clearer idea of how public funds are being spent.

Bilbao

Transparency International has consistently ranked Bilbao as Spain's most transparent local government for five consecutive years from 2008 to 2012. A transition to public accountability and data openness needs to be complemented by specific programmes that support broader mindset shifts in public administration. This was the case with Bilbao, which undertook an initiative to strengthen creativity in public administration, promoted by BM-30 and the economic development agency of Biscay province, of which Bilbao is a part. As part of the initiative, barriers to efficiency were identified that could potentially affect accountability. These included tight departmental compartmentalisation, which limits open sharing across departments, and a traditional approach to hiring that resulted in junior positions being taken up by young graduates lacking in drive and commitment and more concerned about job security.

HONG KONG

Achieving the Impossible by Eliminating Corruption



15 Hong Kong night skyline

Once rife with corruption, Hong Kong has managed to tackle this challenge with strong governance and transparency.

Photo courtesy of Base64, retouched by CarolSpears

In cities today, corruption is so entrenched that it is perceived as nearly impossible to root out. Corruption erodes trust in public institutions, stifles competition and prevents growth from reaching its full potential, and thereby erodes liveability. Hong Kong has proven that rooting out corruption is possible.

In the 1960s and 1970s, Hong Kong was said to be one of the most corrupt cities in the world. Corruption was said to exist from “womb to tomb”,³⁰ in every industry and level of society. The then anti-corruption branch in the police force proved ineffective in suppressing corruption, which was also pervasive in the ranks of the force.

“Police corruption, especially, was syndicated. Nearly all types of organized crime: vice, gambling and drugs, [was] protected. As a taxi-driver, you could even buy a monthly label stuck on your taxi and it would guarantee you from any traffic prosecution ... some junior police officers, whilst their official salary was just a few hundred dollars, openly lived in a million dollar worth luxurious apartment and drove a Cadillac.”³¹

Kwok Man Wai, former Deputy Commissioner and Head of Operations, Independent Commission Against Corruption

In 1974, the Hong Kong Government initiated the Independent Commission Against Corruption (ICAC) to address rampant corruption. At the beginning, people had little confidence in its success. Nevertheless, within three years, the ICAC eliminated all government syndicates and prosecuted 247 government officers, including 143 police officers.³²

Its structure, legal mandate and approach are at the centre of ICAC's effectiveness. First, unlike its predecessor, ICAC reports directly to the Chief Executive of Hong Kong and is independent of the Hong Kong civil service. Second, ICAC is given legal powers to investigate and book suspects according to three specific ordinances: the Independent Commission Against Corruption Ordinance, the Prevention of Bribery Ordinance and the Elections (Corrupt and Illegal Conduct) Ordinance.

These give the ICAC the powers of arrest, specify the offences of bribery involving civil servants, public and private sector employees, and ensure that public elections are conducted fairly, respectively. Third, ICAC adopted a three-pronged approach of deterrence, education and prevention. The three departments under the Commission reflect this approach. The Operations department has a thousand staff, and is dedicated to responding to allegations within 48 hours,³³ investigating, and prosecuting offenders. The Community Relations Department educates departments, corporations and the public on the harms of corruption; it also works with schools on an anti-corruption curriculum, and collaborates with the media industry to produce movies and TV mini-series that are based on actual corruption cases. Ren Liao, Senior Programme Coordinator of Transparency International, notes that "Punishment means you have committed the misconduct. Prevention is very important."³⁴ The Corruption Prevention Department examines, reviews and advises organisations and departments on systems and procedures to eliminate loopholes.

Nonetheless, the recent scandal involving Timothy Tong, former chief of the ICAC, who had spent lavishly on official entertainment and accepted gifts from Mainland Chinese officials during his tenure, has undermined Hong Kong's reputation. But this dent to Hong Kong's credibility has been redeemed by public disclosure and criminal investigation.³⁵



The ICAC has become one of Hong Kong's indispensable institutions, continuing its effectiveness even after the return of Hong Kong to Chinese rule. In 2013, despite the scandal, Transparency International ranked Hong Kong 15th among 177 countries and territories in the Corruptions Perception Index,³⁶ ahead of the United States and Japan. Hong Kong's high level of transparency continues to contribute to its competitiveness and liveability.

3. A city works as well as its institutions

Organisational structures that ensure that the best possible options are chosen to address key issues, and are able to implement them effectively, are another key trait of successful cities. An institutional structure conducive to good decision making would be based on agencies that provide neutral, independent advice and technical know-how to complement and inform political decisions. The work of such agencies goes beyond political cycles and their human resources and organisational behaviour are characterised by professional competence, meritocracy, and proficient management. In many cases, cities create agencies with specific mandates, commonly known as “special implementation vehicles”, to accelerate the execution of complex projects.

New York City

The Department of City Planning is the agency responsible for the macro-level development of the city. As adviser to the Mayor of New York City, borough presidents, the New York City Council, community boards and other local government bodies, it sets the framework of physical planning for the city and is responsible for land use and environmental review, preparing plans and policies, as well as conducting research and analysis and outreach activities.

Outside government, one entity that has played a crucial role in providing a strategic perspective to the city’s planning process is the Regional Plan Association (RPA), an independent, not-for-profit urban research and advocacy organisation dedicated to improving the quality of life and economic competitiveness of the New York-New Jersey-Connecticut metropolitan region. Set up in 1922, RPA has been a source of ideas and plans for policy-makers and opinion shapers. Its value lies in its ability to go beyond election cycles and partisan thinking to make far-reaching policy and investment recommendations. RPA’s work demonstrates that civic groups can play a significant role in developing long-range visions for cities.

RPA has written three regional plans to guide the region’s growth that have benefited New York City. The first plan, issued in 1929, was the first to recognise a New York metropolitan region comprising the city and several cities in the neighbouring

states of New Jersey and Connecticut. The 1969 plan identified and quantified the externalities caused by urban sprawl and emphasised the importance of developing a robust public transportation network for urban centres to thrive—a principle that was reflected by investment in later decades. The third plan, issued in 1976, supported new initiatives to revitalise parks and streetscapes, especially the underutilised urban waterfronts. It set the basis for the creation and conservation of open spaces, and suggested closing Broadway in midtown Manhattan to traffic. Decades later, this proposal was crystallised in Times Square's pedestrian makeover which was completed in 2009. The plan advanced the idea of developing regional centres linked by public transport. RPA is currently working on a fourth plan that will address urgent issues such as climate change, fiscal uncertainty and declining economic opportunity.

Bilbao

Two key institutions have been instrumental in articulating the strategy and implementing projects for the revitalisation of Bilbao.

At the strategic level, the key institution was BM-30—formed in 1991 by municipal, provincial and regional governments, 2 universities, 51 companies of varying sizes, 22 not-for-profit organisations, and 26 civil society associations. BM-30 carries out planning, research and promotion activities centred on the revitalisation of Metropolitan Bilbao. Its main aim is to set the framework for implementing the Strategic Plan for the Revitalisation of Metropolitan Bilbao. It achieves this by conducting knowledge activities, comparative studies and research projects; undertaking promotional activities to increase awareness and strengthen the image of Metropolitan Bilbao; and fostering cooperation between the public and private sectors with the aim of finding collective solutions to problems affecting Metropolitan Bilbao.

At the execution level, the key agency was Bilbao Ria 2000. Set up in 1992, its specific mission was to develop enabling policy, funding streams and technical projects to support the implementation of the strategic plan for revitalising Bilbao. Bilbao Ria 2000 had the mandate to manage the transformation of large and strategically located plots of land previously occupied by

harbours, rail yards and heavy industries—mostly controlled by the national government—into areas of opportunity. The agency cleared and prepared underutilised land before releasing it to the market. The market value of the re-zoned land allowed Bilbao

Bogotá

Oversight of Government from the Ground Up



Transparent governance may be driven entirely by the grassroots as well. The *Cómo Vamos* programme of Colombia's capital city, Bogotá, is a prime example. This citizen-based mechanism has strengthened accountability and transparency processes across the administration.

Bogotá *Cómo Vamos* (BCV) or "Bogotá how are we doing" is the result of an alliance between El Tiempo Publishing House, the Bogotá Chamber of Commerce, and the Corona Foundation.³⁷ It was formed in 1997, driven by concerns that there should be accountability for election campaign promises. Backed by the 1991 Political Constitution, BCV calls for citizens to exercise social oversight of public administration and budgeting.³⁸

Ria 2000 to self-finance its activities. Profits were re-invested in the regeneration of public space, roads, and other infrastructure improvements. Owing to its responsibility in carrying out the main redevelopment, Bilbao Ria 2000 became the de facto planning and development entity in Bilbao.



16 *Cómo Vamos* workshop, Bogotá, Colombia
Public workshops are held regularly with citizens, where checks on the government and political party holders are done to ensure accountability.
Photo courtesy of Bogotá *Cómo Vamos*

BCV aims to improve citizens' quality of life through holistic evaluations of areas such as health, education, housing and utilities, and public finances. It gathers data from public and other sources to formulate indicators. These indicators form the basis for an annual BCV survey, which, measures citizens' perceptions of the city's service delivery. Conducted annually since 2008, the survey is administered to 1,500 citizens, chosen to achieve a balance of geography, age and gender.³⁹ Findings, along with proposed solutions are fed back to policy-makers and experts, as well

as disseminated to the public. BCV thus ensures its contributions are constructive. In addition, BCV holds forums and roundtables with the Bogotá district governments to monitor the development, implementation and execution of the Bogotá Development Plan.

The outcomes have been positive. Bogotá's district agencies and entities now collaborate with BCV to diffuse knowledge on the performance of each successive mayor and his administration. Government agencies provide coordinated reporting on outcomes related to overall quality of life, rather than piecemeal reporting on their respective accomplishments. For example, social housing stock changes are now reported, whereas in the past, only total housing numbers were reported. The success of Bogotá *Cómo Vamos* led to the launch in 2002 of *Concejo Cómo Vamos* or "Council How Are We Doing", which evaluates the annual performance of the Bogotá City Council.⁴⁰ BCV has also been replicated in other cities in Colombia, including Medellín, Cali, Barranquilla and Bucaramanga, and internationally in Lima, Peru, and Mexico City.⁴¹ The organisation has received numerous awards, including Best Citizen Practices for Improving Quality of Life (2000) and Dubai International Award for Best Practices (2002).⁴²

4. Empowering the community multiplies policy impact

Engaging residents in shaping the future of their cities is a powerful tool to build government legitimacy. It gives residents a sense of belonging and civic pride and helps to obtain their buy-in, which is critical for the successful implementation of projects. It also allows governments to benefit from the wisdom of the crowds in the planning and budgeting process.

On the other hand, ignoring the community increases the risk of project failure as citizens may not identify with some projects or may not have wanted them in the first place. There are many examples across the world of governments developing grandiose showcase projects that ended up as white elephants. Such inefficient use of public resources could alienate the public from its leaders, decision-makers and public institutions.

New York City

In New York City, the engagement of stakeholders in urban development begins at the community board level. The city is divided into 59 community districts, each represented by a board. Community-based planning activities range from information sessions to the preparation of local plans for official adoption. Such plans address local issues including preserving neighbourhood character, promoting affordable housing, facilitating new development and/or encouraging local employment. The city's Department of City Planning provides technical assistance and advice to individuals and community-based organisations. It makes data—including land use, population, housing, and community facilities—openly available online. This resource also provides guidance on zoning and descriptions about land use and environmental review processes. To address broader issues, community-based organisations can collaborate with the Department to develop local zoning proposals and participate in inter-agency and community task forces made up of local representatives, city agencies and elected officials.

Private developers must submit plans under the Uniform Land Use Review Procedure (ULURP), a standardised process where applications which affect the city's land use are publicly reviewed. The New York City Charter establishes time frames within which application reviews must take place. Key participants in the ULURP process are the Department of City Planning, the City Planning Commission, community boards, the borough presidents, the borough boards, the city council and the mayor.

A broader vehicle to engage residents is NYC Service, a regional volunteer centre that has connected over 9 million individuals since its launch in 2009. NYC Service drives volunteer resources to address ongoing challenges in education, environmental sustainability, public health, disaster preparedness, helping neighbourhoods and strengthening communities. In 2013, NYC Service engaged 5.4 million volunteers⁴³ in more than 38 initiatives. An example is Love Your Block, which invites volunteer-led neighbourhood groups from across New York City to run projects that will transform their own blocks, thus helping to beautify the city at large. Resident-led volunteer groups receive grants of up to US\$1,000 and project-planning and community-building assistance, as well as access to city services from the Departments of Transportation, Parks and Recreation, and Sanitation. These include cleaning vacant lots, planting trees and creating new tree beds, removing graffiti, repairing street signage and providing trash collection points. In 2013, about 50 blocks had been beautified throughout the city boroughs.

Bilbao

The municipal area of Bilbao is divided into eight districts, each comprising a population of approximately 50,000. District councils were created in the mid-1980s to facilitate community involvement and to serve as a communication channel for the community to voice specific concerns. Councils have two commissions, one on planning, municipal services and public works, and another focusing on social and cultural issues. At the request of the community,

PORTO ALEGRE AND SEOUL

Involving the Community through Participatory Budgeting



PORTO ALEGRE



SEOUL

One exemplary model of community involvement in urban development can be found in Porto Alegre, in southern Brazil. Upon being elected into office in 1989, its new government prioritised the nurturing of an active civil society. It introduced a unique participatory budgeting process which has been hailed as a successful model of participatory democracy by many international institutions, including the World Bank and the United Nations. Since its inception, participation levels have been rising. Currently, some 50,000 citizens—approximately 3.5% of Porto Alegre’s total population of 1.49 million—take part in the annual exercise.⁴⁴



50,000
CITIZENS



3.5%

**OF PORTO ALEGRE'S TOTAL POPULATION TAKE
PART IN PARTICIPATORY BUDGETING**

Porto Alegre’s participatory budgeting process is being continually assessed and improved. Every year, before the start of the process, assemblies from Porto Alegre’s 16 administrative regions convene to review the previous year’s exercise and look into improvements. In March, citizens from all 16 districts convene to discuss and share their views on five main themes: Transportation; Education, Leisure and Culture; Health and Social Welfare; Economic Development and Taxation; and City Organisation and Urban Development.⁴⁵ These preparatory meetings are conducted without the presence of government officials so that citizens can feel free to air their views. Citizens also select delegates, who serve as representatives in meetings with municipal authorities. As a sign of increasing citizen participation over the years, one delegate is selected for every 80 or so participants (for meetings of over 1000 participants), compared to one delegate for every 5 participants in 1989.⁴⁶

Positive results are apparent: since implementation, 99% and 85% of households have access to treated water and piped sewage respectively.⁴⁷ Greater transparency in budget allocation processes has drastically reduced tax evasions. Over a 15-year period from 1989 to 2004, total tax receipts increased by 269%.⁴⁸



PARTICIPATORY BUDGETING SCHEME

Participatory budgeting schemes have spread to other cities. Amongst these is the South Korean capital of Seoul, which implemented a participatory budgeting exercise for the first time in 2013. Participatory budgeting in the country was first encouraged by President Roh Moo Hyun's administration in 2000, as part of the push for a broader participatory democracy. While drawing lessons from the experience of Porto Alegre, Seoul introduced modifications to suit the Korean context.⁴⁹

To form the Seoul Participatory Budgeting Council, 250 citizens of Seoul were selected through a balloting process. They were to decide on budgets for local projects worth 47 billion won (US\$ 44.7 million).⁵⁰ The ballot was open to individuals from all walks of life—so as to allow the Seoul Metropolitan Government to obtain a range of feedback and opinions. The youngest and oldest participants were 13 and 73 years old respectively.⁵¹



To promote redistributive justice and equity, priority was given to citizens from lower-income groups, the elderly, as well as the disabled.⁵² Besides fostering civic engagement among its citizens, Seoul is committed to empowering the disadvantaged and the underprivileged in decision-making processes.



Public engagement exercises in Seoul are not limited to the annual participatory budgeting exercise. In June 2012, the Seoul Metropolitan Government held a public contest to select city projects which citizens wanted to see implemented. Out of the 402 proposals that were received, 132 proposals were selected through public voting.⁵³ These were included in the municipal budget for 2013.

the district council can establish thematic working groups. While district council meetings are held monthly, the community can call for extraordinary meetings if a petition is signed by at least 5% of the voters in the district.

In addition to district councils, Bilbao has established Sector Councils, which are thematic advisory bodies set up to address topics as and when they become relevant to the community. Sector councils bring together relevant stakeholders, including the city administration, public and private entities, and independent experts. Most sector councils were created in the 1990s and allow the community to participate in discussions of broader, city-wide topics.

The rehabilitation in 1995 of specific areas of Bilbao, such as the historic core known as Bilbao La Vieja, prompted the setting up of the Rehabilitation Roundtable. This was intended as a space for broad neighbourhood participation, where political, institutional and civil society actors identified not only future needs but also short-term improvements in social integration and public space. This initiative was the predecessor of the current participatory planning process, which has been applied and used in several upgrading projects, for example, the Plan of Barrios Altos, or in plans to improve public spaces and accessibility to neighbourhoods. Through community inputs, Bilbao adjusted its planning to better and more efficiently meet neighbourhood needs.

In 2012, the city took advantage of district and sector councils in addition to a Planning Advisory Board to obtain public input for the General Urban Plan—the city's main urban development instrument. Online participation, open to all citizens, was introduced for the four-month public consultation period for the plan. To build consensus and to ensure transparency, a feedback form gave citizens the opportunity to express their views on 100 key points in the plan—ranging from the executive summary, diagnosis and proposed urban structure to demographics, social development,

mobility, public space, and heritage. Finally, thematic roundtables were organised during the public hearing period, covering social, economic and physical issues. These roundtables involved experts, institutions not represented in the district councils, and individual citizens chosen randomly from among those who had responded to the online feedback form.

5. The right development policies enable partnerships with the market

For some local governments, the private sector is short-term oriented but a necessary evil. On the other side of the coin, entrepreneurs in the fields such as land development, civil works and construction, infrastructure, and housing, generally view the public sector as slow, obstructing the development of a competitive market that would thrive with its own rules. An effective local government establishes a broad strategic thrust for development and then creates the conditions needed to leverage the attributes of the private sector in realising that strategy. Such a government would not assume the role of the private sector or, conversely, relinquish public responsibility to the private sector; instead it would ensure that there is certainty of rules and generate an environment of trust that allows the public and private sectors to jointly design a roadmap of development policies for the long-term common good.

New York City

Historically, New York City has had a fluid working partnership with markets. For example, the real estate industry soared, enabled in large part by the conditions that the 1811 plan created, and, by 1870, the assessed value had increased 50-fold from 1807 values. A century later, in the 1970s, the long-nurtured familiarity in working with markets facilitated the government's reach to private and non-profit interests to participate in the revitalisation of New York, and, especially, in one of its key assets—public space. The city conducted major park and public space privatisations, the

largest being the Central Park Conservancy—founded in 1980 by a group of civic leaders to end Central Park’s dramatic deterioration in the 1970s. In 1998, the Conservancy and the City of New York signed a management agreement, formalising their then 18-year public-private partnership. The relationship was reaffirmed in 2006 when the agreement was renewed for an additional eight years. As the official manager of Central Park, the Conservancy is responsible for the day-to-day maintenance and operation of the park and provides 75% of the park’s annual expense budget,⁵⁴ including employing 90% of the park’s maintenance staff,⁵⁵ through fundraising and investment revenue. New York City funds lighting, maintenance of park roads and enforcement. Retaining policy control and discretion over all user permits and events is essential for the City to avoid relinquishing control of public goods to the highest bidder. Had this not been done, it could have led to over commercialisation as corporate interests might have prioritised certain parks over others.

The City hosts 69 Business Improvement Districts (BIDs), which levy assessments on local businesses and landlords and uses the revenue to revitalise neighbourhoods and catalyse economic development. BIDs are non-profit and provide free public goods. BIDs annually invest over US\$100 million worth of programmes and services in neighbourhoods across the five boroughs of New York City. The Department of Small Business Services is responsible for managing the City’s relationship with each BID and works to ensure BIDs carry out services efficiently. These include street cleaning, providing security, collecting waste, maintaining planting, installing street furniture and public art, and creating over 1,000 jobs.

Bilbao

Bilbao successfully tapped management, finance and technical expertise from the private sector in the formulation of the city’s strategic plan and its follow-up through BM-30. Expertise was co-opted from the chambers of commerce as well as a wide range

of business sectors, including banking and financial services, insurance, utilities, engineering, publishing and media, telecommunications, and large consumer goods sectors. The private sector's views and experiences have contributed to enabling a rapid and efficient transition from strategy to implementable projects.

One of the key success factors behind Bilbao's revitalisation plan was the city's capacity to work alongside the market. Bilbao Ria 2000 prepared underutilised industrial land—which was its seed capital—by, among other things, providing basic infrastructure, before releasing plots to the market. An example of such collaboration with the market is the area of Abandoibarra, where the Guggenheim Museum is located. Once a rail yard, it is now a vibrant mixed-use destination, with corporate towers, shopping facilities, residential buildings, and hotels surrounding it.

The ability to relate to the market is evident in the projects undertaken by Bilbao Ria 2000, which were conceived as construction cum financial projects. Its work comprised defining land use schedules, modelling financial options, conducting the procurement process for technical and construction services, aligning public sector resources and delivering infrastructure, and managing the relation with private developers, including incentives for early entry in ventures to alleviate public financing.

NEW TAIPEI

Building Social Cohesion and Liveability through Partnerships



Public-private partnerships often involve infrastructure provision. However, New Taipei City has focused on delivering social services through such collaborations. With special municipality status since 2010, the New Taipei City government has worked closely with businesses and community organisations to push forward innovative programmes to improve social cohesion and liveability.

“I would say, don’t spend any public budget if you can get any support and any help from the private sector. That’s my philosophy.”⁵⁶

Eric Chu, First Mayor, New Taipei City



GOVERNMENT SET UP

26 & 77

PUBLIC

PRIVATE

INFANT DAY CARE CENTRES
WITHIN TWO YEARS

New Taipei City's strength lies in recognising that the community is mature enough to participate in the urban development of the city. Two of its most unique and innovative programmes are its Infant Day Care Centres and the Eat with Love programme.

Taiwan has achieved great strides in providing childcare facilities, in both the public and private sectors, and often within workplaces. The Taiwanese birth rate is low, at only 0.89 in 2010.⁵⁷ The government has recognised the need to assist overburdened parents. Companies, too, recognise that providing child care services give them an edge in attracting and retaining talent.

New Taipei City has gone further, introducing infant day care centres for new born babies and infants up to two years old. Within two years, the government set up 26 public⁵⁸ and 77 private infant day care centres. Parents pay only approximately US\$200 per month.⁵⁹ This is possible because the Council acts as a facilitator for the development of these centres, a coordinator for resource training, as well as guarantor for the operations. Unused public spaces in schools and elsewhere are renovated for use as such centres, thus saving public funds.

“We can be very efficient to get [unused public] space, we can collaborate with [the] private sector or with the universities ... Get those personnel, those people to work for us ... we use our budget mainly [for renovation], then we outsource the space to the private sector. The private sector [doesn't] cover any fixed cost, only variable, personnel cost.”⁶⁰


Eric Chu

In 2012, the city recorded the highest number of babies born (38,705)⁶¹ and Taiwan's fertility rate rebounded to 1.26 the same year.⁶² This increase may have been due in part to the infant day care initiative.



38,705

**NEW BORN BABIES
IN 2012**



The Eat with Love (幸福保衛站) programme provides food for would-be youth shoplifters who are faced with familial financial stress but do not receive benefits under the social security system. The programme is entirely funded by the private sector and donations. In total, 1,970 convenience stores, including Family Mart, 7-11, Hi-Life and OK Mart, participated in this programme. The programme gained positive response in the form of donations and has successfully reduced delinquency and theft among the youth.



17 New Taipei City, Taiwan

The Eat with Love programme collaborates with convenience stores to provide youths-at-risk with free meals.

Photo courtesy of Mayor Eric Chu

“So after ... this policy accomplished ... the leader of [the] convenience store [came] to my office, I [gave] them a prize and I [said] “Thank you” to them and everybody was very happy ... you should pay back to them. But not [with] money but some respect.”⁶³”

Eric Chu

Through such public-private collaborations, the New Taipei government successfully reduced its expenditure by US\$67,000 from 2012 to 2013 while upgrading social services. More importantly, New Taipei has built resilience and social cohesion within the community, ensuring that the city is equipped to meet challenges ahead.

CONCLUSION

By 2030, 5 billion people will live in cities, up from 3.6 billion in 2011.⁶⁴ The challenge of accommodating the thousands that move to cities every day and providing reliable services that citizens and businesses need is acute. As the pressure on space and demand for services increases, urban agglomerations can become hotbeds of social inequality and fragmentation, dis-economies of scale, and environmental degradation.

“I’d like to suggest that we face up to these challenges not tomorrow, not in the future, not when it’s too late but right now. This is our opportunity to make the type of history that future generations will recognise.”⁶⁵

Michael Bloomberg, former Mayor of New York

Historically, cities that have successfully overcome periods of decline have had a key tool in common—some broad principles that guided their development. These principles allowed them to plan with purpose and develop the systems needed to implement such plans and function efficiently. Singapore, which managed to transform itself from a struggling city-state to a highly liveable economic engine in just a few decades, is one such city. Singapore’s Centre for Liveable Cities (CLC) has distilled the explicit and implicit principles that guided the country’s development over the years into the CLC Liveability Framework. This chapter finds that other successful cities have adhered, to a greater or lesser extent, to the same principles embodied in the Framework, which suggests that there are some broad universal principles that are critical to urban governance.

CLC offers this Framework as a lens through which city leaders can view their cities and analyse the actions or approaches open to them to achieve high liveability and sustainability. Naturally, how these principles can be applied must take account of each city’s unique governance structures, priorities and resources.

Disconnected initiatives, especially those adapted piecemeal from other cities, may not bring long-term results as long as systemic principles are absent.

Adopting a sound framework, customised to each city's unique circumstances, is the first step. Local governments would then need to create the conditions for balanced development outcomes so that the private and community sectors would be incentivised to proactively participate in the task of determining and achieving those outcomes.

Such conditions involve laying down a clear and consistent set of rules and building politically neutral institutions to facilitate decision making, which would allow for certainty and predictability: the private and community sectors must have the assurance that decisions are made in a transparent manner and are based on facts, not distorted by vested interests. Only then can cities productively and creatively bring together the strengths of political leaders, institutions, civil society, businesses and citizens to undertake complex and far-reaching initiatives towards achieving a development model that balances economic prosperity, environmental sustainability and quality of life.

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EPILOGUE

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INTRODUCTION

The Holy Grail for urban planners is the creation of highly liveable cities where residents enjoy a high quality of life. In the context of this study based on Singapore's urban planning and development experience, liveability has been envisioned along three lines. First, a competitive economy that attracts investments and provides jobs. Second, a sustainable environment. Third, a high quality of life for the urban population. An integrated master planning system has been a major reason for Singapore's transformation within a generation from a third world city into a first world and modern metropolis. Through good governance, Singapore has been able to find and make the trade-offs necessary to combine a competitive economy with a sustainable environment and a high quality of life. As a result, it is one of the few high density cities in the world that also has high liveability standards.

GOOD GOVERNANCE, INTEGRATED MASTER PLANNING AND DEVELOPMENT

Singapore's approach to urban planning is rooted in basic principles of good governance. The principles of "think long term" and "lead with vision and pragmatism" require urban planners to adopt a future-oriented and long-

term perspective in policy formulation. This avoids the pitfall of making decisions that might be expedient in the short term but prove costly later on. “Build in some flexibility” is a principle fully aligned with “pragmatism”. Instead of acting dogmatically and following plans blindly, Singapore’s urban planners are expected to question planning assumptions, and even to reverse earlier decisions if warranted by changing circumstances in a volatile and uncertain environment.

It took decades and a lot of effort and resources for Singapore to develop a well-designed and sophisticated drainage system to eliminate the widespread and prolonged floods that plagued the country. But the intensity of rainfall has increased in recent years. Combined with the relentless pressures of urbanisation, the capacity of the drainage system has come under stress. The lesson from this experience is that the assumptions underpinning the solutions adopted in the past must be revisited regularly to keep pace with changes in the operating environment.

“Cultivate sound institutions”, “fight productively”, “execute effectively” and “involve the community as stakeholders” are all principles that necessitate the development of professional bodies, public organisations and civic groups that are flexible, responsive, and technically competent. They must be able to anticipate future challenges, and then to formulate and execute plans in an unbiased approach that maximises the public good.

Decisions made should be the outcome of robust debates among all stakeholders. They should be the result of a consensus that is forged not from fulfilling *all* the desires of *all* the stakeholders, but from finding compromises among all stakeholders. This approach facilitates buy-in from all affected parties and minimises stakeholder disenfranchisement. Translating decisions into action requires highly efficient and effective institutions that prize action over maintaining the status quo.

Doing things the same way without casting an eye to rapidly changing circumstances will surely lead to problems down the road.

Focusing on policy design, but downplaying stakeholder engagement and neglecting policy implementation is a clear path to failure. As we often say in the Singapore public service, “policy is implementation, and implementation is policy”. “Build a culture of integrity” ensures that decisions are made for the public good rather than to further private interests at public expense. This requires honest officials and incorruptible institutions that resist the temptation of corruption and confront influence peddling. Where failures of integrity occur, swift and decisive action to punish wrong-doers ensures accountability as well as deters others from following their path. “Work with markets” illustrates the importance of leveraging open market forces to allocate scarce resources, rather than relying on closed administrative systems that increase the discretionary powers of city officials, which in turn increases the risk of corruption and regulatory capture. Applying market principles to urban planning and development facilitates the effective delivery of public services and offers more efficient allocation of scarce resources. But city officials should also bear in mind that markets work *most* of the time, though not *all* the time.

Finally, “innovate systematically” is a cost-effective solution to stretching limited budgets and maximising the effectiveness of scarce resources. Experimenting with creative solutions to pressing urban challenges requires a nurturing environment that welcomes innovation and encourages policy entrepreneurship. A willingness to experiment, to “safe-fail” rather than to “fail-safe”, improves the resilience of cities in a complex operating environment.

In Singapore, we take this approach in addressing the problem of congestion on public transport systems. Traditional approaches of alleviating congestion in public transportation systems often involve supply side measures such as increasing the frequency of train and bus services, growing fleet sizes, using vehicles with larger capacities or building new routes. However, new strategies are also needed, given the complexity arising from the rise in ridership and expansion of rail networks, as well as diverse citizen expectations. Singapore’s Land Transport Authority is currently experimenting with a palette of behavioural levers to

encourage commuters to make changes to their travel patterns to help reduce transportation demand during peak hours. These include providing free early morning rail trips into the city on weekdays, working with various organisations to pilot flexible work arrangements that stagger reporting hours or enable working off-site, and cash rewards for making morning off-peak trips on the rail system. These experiments carry relatively little risk, but enable us to try out new ways to address the congestion problem. This governing style of “learning by doing” accords with Lee Kuan Yew’s advice quoted in an earlier chapter of this book, “If it works, then do it. If it doesn’t work, change.”

These ten principles of urban governance, integrated master planning and development provide a guide to action that city officials facing urban planning and development challenges may find useful in formulating solutions.

SINGAPORE: CITY, STATE, ISLAND

Singapore’s success in surmounting its spatial and resource constraints to become a developed state within a generation makes it an attractive case study for both scholars and policy-makers. Any study of Singapore, however, needs to take into account three unique attributes. Singapore is a city. But it is also a state, and an island. Each of these attributes brings challenges that need to be managed. Combined, they make Singapore a very special case in urban planning.

City

Singapore is a city that is powered by a highly competitive, globalised economy. It is a major global communications hub—air, sea and telecommunications—not just for the Southeast Asian region, but also beyond. It serves as the regional headquarters for many international corporations. It is also a global

financial services centre. But it faces urban challenges typical of all cities, such as keeping municipal services running smoothly even as the population grows. Over the past decade, providing adequate and affordable housing for Singapore's residents and ensuring functioning transport systems that keep people moving seamlessly have proved challenging. Singapore's economy has also been changing. During the 1960s–1980s, Singapore served as a highly cost-efficient export manufacturing hub for multinational companies. Rising costs, however, led to a regionalisation strategy of relocating manufacturing facilities into the surrounding lower cost region from the late 1980s onwards. Regionalisation was complemented by a strategy to attract higher value-added, technology-intensive manufacturing to Singapore, for example, in pharmaceuticals. The government also invested heavily in research and development across diverse fields, including water and environment technologies, and biomedical science. The services share of the local economy also began to grow. By the 2000s, Singapore had grown into a major wealth management hub for the region, while retaining its traditional strengths in logistics management and trade financing.

However, in recent years, the changes in Singapore's economy have been accompanied by rising income inequality. The wealthy and a highly paid, internationally mobile professional class are attracted to Singapore's plentiful jobs, low taxes and safe streets. Low wage workers have also arrived on our shores to do jobs that Singaporeans shun, for example in the cleaning and construction industries. Singaporeans, caught between both groups—aspiring to but sometimes not qualifying for the higher paying professional and management jobs, and priced out at the bottom by lowly paid foreign workers—are feeling squeezed in the middle. Singaporeans' rising aspirations towards, as well as anxiety over their ability to maintain, a middle class lifestyle, their higher educational levels, and the ability to communicate instantly through social media, all contribute to growing demands and rising expectations of government in delivering public services and correcting for market failures.

State

As a state, Singapore needs to allocate resources to building and maintaining defence capabilities, conduct foreign relations with countries, and institute immigration controls to manage talent inflows and outflows at its borders. Singapore is also highly dependent on external trade, given its small and open economy. Singapore's trade is more than 3 times the Gross Domestic Product.

Island

As a small island surrounded by much larger neighbours and without direct access to the high seas, Singapore is in a category of geographically disadvantaged states. It has no natural hinterland that it can call its own. There is limited air space. Its seas are hemmed in by its neighbours' territorial waters. Singapore cannot increase its land area except through land reclamation. But this option is gradually reaching its limits. Singapore can build more densely upwards, but this option is capped by civil aviation height restrictions. A recent innovation is building downwards through the excavation of underground rock caverns, first for the storage of ammunition, and more recently for oil storage. The use of underground space promises to release valuable surface land for other uses. So the urban master planning effort will be extended into underground space.

IMPLICATIONS

This overview of Singapore's three unique attributes highlights that the demands placed on its government go beyond the normal demands that municipal governments in larger countries have to face. Every single decision that the Singapore government makes has impact on multiple fronts. For example, expanding recreational land use may affect military training areas that are needed for developing a credible defence capability. Building roads and highways takes away scarce land for planting trees.

The challenge for urban planners is to find a consensus on the trade-offs between competing needs and requirements. There are no perfect solutions, as every decision carries downstream implications.

Given these complexities, a whole-of-government approach is essential. Instead of sub-optimising at the level of individual agencies, a whole-of-government approach emphasises coordination and cooperation among agencies to find policies and plans that optimise at the national level. But beyond whole-of-government, there is also whole-of-nation. This involves co-creation, in which the public, private and people sectors work together to formulate public policy. Singapore's Master Plan, outlined in an earlier chapter, is an example of co-creating policy through public engagement. The planning authority, the Urban Redevelopment Authority, depends on public feedback for the Master Plan. Urban planners produce a draft Master Plan, and then seek public feedback to further refine it in an iterative process through public exhibitions and the use of social media. The government also recently completed a massive public engagement exercise, Our Singapore Conversation. The Conversation drew out Singaporeans' views and ideas on the kind of Singapore they want in the future. The feedback collected has since been used to design public policies that better reflect Singaporeans' needs and expectations.

The complexity of governing Singapore, however, is balanced by the unitary tier of public administration. Being both a city and a state, there is little need for the complex systems of larger countries with municipal levels under state and federal levels of government. Without having to navigate layers of byzantine bureaucracies to secure permission to plan and build, planning and execution cycles in Singapore are considerably shorter than in most countries. In this respect, the advantage conferred on Singapore as a city, state, and island is the ability to be nimble, responsive and decisive.

MANAGING FUTURE CHALLENGES

Singapore faces many challenges in the future. The operating environment is changing fast. Singapore's economy has evolved rapidly through the decades in order to be competitive globally. Starting with a labour-intensive export oriented economy in the 1960s, it transitioned to a more skills intensive economy in the 1970s, evolving into a capital intensive economy during the 1980s. From the 1990s onwards, the economy became more technology intensive. During the 2000s, Singapore repositioned itself as a knowledge and innovation economy. What about the 2010s and beyond? What are the new economic trajectories that Singapore should embark on to stay relevant to the global economy and remain competitive?

Singapore's society has also been evolving. Our population is increasingly well educated and affluent. But Singaporeans are ageing rapidly. Their expectations of government's performance are high, and demands for government to do more are growing.

Singapore's government has recognised that it does not have a monopoly on wisdom. It has improved its sensemaking efforts through greater public outreach and engagement. It is re-examining long-held policy assumptions, experimenting with new policies, and fine-tuning existing ones. This spirit of openness, willingness to listen, and readiness to try new ways of doing things will strengthen good governance in Singapore.

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Abbreviations

ABC Waters	Active Beautiful and Clean Waters	HDB	Housing & Development Board
ALS	Area Licensing Scheme	ICAC	Independent Commission Against Corruption
AMC	Ahmedabad Municipal Corporation	JTC	Jurong Town Corporation
BCV	Bogotá Cómo Vamos	KPI	Key Performance Indicator
BIDs	Business Improvement Districts	LTA	Land Transport Authority
BKE	Bukit Timah Expressway	MEGA	Metrolink Express for Ghandinagar and Ahmedabad
BM-30	Bilbao Metropoli-30	MEWR	Ministry of the Environment and Water Resources
BRTS	Bus Rapid Transit System	MINDEF	Ministry of Defence
BTO	Build-to-Order	MNC	Multinational Corporation
CAAS	Civil Aviation Authority of Singapore	MND	Ministry of National Development
CBD	Central Business District	MOE	Ministry of Education
CLC	Centre for Liveable Cities	MOH	Ministry of Health
CPF	Central Provident Fund	MOT	Ministry of Transport
CPFB	Central Provident Fund Board	MP	Member of Parliament
DBS	Development Bank of Singapore	MPC	Master Planning Committee
DBSS	Design, Build and Sell Scheme	MRT	Mass Rapid Transit
DGP	Development Guide Plan	MRTC	Mass Rapid Transit Corporation
EDB	Economic Development Board	MTI	Ministry of Trade and Industry
EIP	Ethnic Integration Policy		
ENV	Ministry of the Environment		

NAC	National Arts Council
NCs	Neighbourhood Committees
NGO	Non-governmental organisation
NHB	National Heritage Board
NLB	National Library Board
NParks	National Parks Board
NRP	Neighbourhood Renewal Programme
NSS	Nature Society of Singapore
OECD	Organisation for Economic Cooperation and Development
PA	People's Association
PAP	People's Action Party
PSA	Port of Singapore Authority
PSI	Pollutant Standards Index
PRD	Parks and Recreation Department
PUB	PUB, Singapore's National Water Agency
PWD	Public Works Department
RCs	Residents' Committees
REACH	Reaching Everyone for Active Citizenry @ Home
ROV	Registry of Vehicles
RPA	Regional Plan Association
SAF	Singapore Armed Forces

SARS	Severe Acute Respiratory Syndrome
SCP	State and City Planning
SCPD	State and City Planning Department
SIT	Singapore Improvement Trust
SSC	Singapore Sports Council
SSTEC	Sino-Singapore Tianjin Eco-City Investment and Development Co. Ltd.
TBNA	Tianjin Binhai New Area
TC	Town Council
ULURP	Uniform Land Use Review Procedure
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
URA	Urban Redevelopment Authority
URD	Urban Renewal Department
VPUU	Violence Prevention through Urban Upgrading

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About the Centre for Liveable Cities

Set up in 2008 by the Ministry of National Development and the Ministry of the Environment and Water Resources, the Centre for Liveable Cities (CLC) has as its mission “to distil, create and share knowledge on liveable and sustainable cities”. CLC’s work spans three main areas—Research, Capability Development and Promotion. Through these activities, CLC hopes to provide urban leaders and practitioners with the knowledge and support needed to make our cities better.

www.clc.gov.sg

About the Civil Service College

The mission of the Civil Service College Singapore (CSC) is to develop people for a first-class Public Service. CSC was inaugurated as a statutory board under the Public Service Division, Prime Minister's Office, in October 2001. As the public sector's core institution for training, learning, research and staff development, CSC provides officers from across the Public Service with opportunities to learn and share knowledge; network, dialogue and exchange views; and develop a service-wide ethos and shared perspectives. CSC's wide range of activities builds strategic capacity in governance, leadership, public administration and management for a networked government in Singapore.

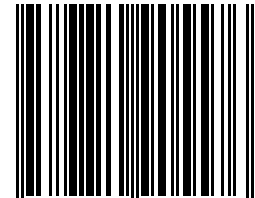
In the space of just four decades, Singapore made the leap from an urban slum to a thriving global city-state. Today, it is a densely populated metropolis, with more than 5 million people inhabiting 710 km² of land. In most liveable city surveys, it is rated one of the few high-density cities that are able to achieve high liveability standards.

How did Singapore achieve this transformation and balance of density and liveability? What did it learn in the process?

Liveable and Sustainable Cities: A Framework examines the roles of Singapore's pioneering leaders and their innovative policies and enabling processes with a view to discerning the broad principles that contributed to their ability to achieve successful transformation and balanced development. Beyond discussing Singapore's experience, this book takes a comparative look at the development journeys of selected international cities and concludes that there are broad universal principles of integrated master planning and dynamic urban governance which underlie successful cities.



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