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# Global city making in Singapore: a real estate perspective

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## CHAPTER 1

### Introduction

‘Global city’ is a notion popularly cited among planning academics and practitioners in describing some strategic places in the world economy. Pioneer researchers in this area define global cities as basing points of capital in a world economy (Friedmann, 1986: 71); production centres of specialized information services such as financial services, media services, educational and health services, and centres of tourism (Hall, 1998: 24); and centres for servicing and financing international trade, investment and headquarters operations (Sassen, 2004: 171). Summarizing those perspectives and recognizing the influence of a new economy, which can be characterized as informational, global and networked (Castells, 2000: 27), global cities can be seen as the urban nodes where globalization materializes so that they are (1) highly concentrated command points in the organization of the world economy; (2) key locations for finance and specialized service firms; (3) sites of production of innovation; (4) markets for the products and innovations produced (Sassen, 2001: 3 and 4). Taylor (2004) has argued that these perspectives involve understanding just the attributes of cities and suggests that the key roles of global city are shaped by the relationships and connections they have with the rest of the world. He illustrates a hierarchy of cities reflecting such relationships by analyzing the location of advanced producer service firms and produces. Olds and Yeung (2004) provide a comprehensive coverage of other literature in global city research, showing it has followed three tracks, i.e. characteristics of global/world cities, especially their internal structures; processes creating global/world cities, especially those associated with operation, relations

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### Abbreviations

A*STAR	The Agency for Science, Technology and Research
ALPS	Airport Logistic Park of Singapore
BHQ	Business Headquarter
C&B	Central and Bayfront
CA	Central Area
CAPT	Central Area Planning Team
CBD	Central Business District
CBP	Changi Business Park
CC	Community Centre/Club
CCC	Citizen's Consultative Committee
CCMC	Community Centre Management Committee
CPA	Central Planning Area
CPD	Central Planning District
CPF	Central Provident Fund
DBS	Development Bank of Singapore
DGP	Development Guide Plan
EBR	En-Bloc Redevelopment
ECP	East Coast Parkway
EDB	Economic Development Board
GDP	Gross Domestic Product
GFA	Gross Floor Area
GLC	Government Linked Company
GRC	Group Representative Constituency
GRO	Grass Roots Organization
HDB	Housing and Development Board
HUDC	Housing and Urban Development Company
IBM	International Business Machine
IBP	International Business Park
ICT	Information and Communication Technology
IUP	Interim Upgrading Program
JLL	Jones Lane Laselle
JTC	Jurong Town Corporation
LO	Land Office
LRT	Light Rail Transit
LTA	Land and Transportation Authority
MND	Ministry of National Development
MPA	Marine and Port Authority
MRT	Mass Rapid Transit
MS	Marina South
MUP	Main Upgrading Program
NTU	Nanyang Technological University

NTUC	National Trades Union Congress
NUH	National University Hospital
NUS	National University of Singapore
NWC	National Wage Committee
OECD	Organization for Economic Corporation and Development
OHQ	Operational Headquarter
P&M	Plant and Machinery
PA	People's Association
PAP	People's Action Party
PMS	People's Mover System
PSA	Port Singapore Authority
R&D	Research and Development
RC	Residents' Committee
REL	Return of Excess Land
RPA	Rural Planning Area
SARS	Severe Acute Aspiratory Syndrome
SERS	Selected En-Bloc Redevelopment Scheme
SIPL	Suntec Investment Pte Ltd
SIT	Singapore Improvement Trust
SLA	Singapore Land Authority
SSP	Singapore Science Park
SV	Straits View
TC	Town Council
UPA	Urban Planning Area
URA	Urban Redevelopment Authority

and networks of transnational corporations; and governance issues and implications, including the role of the state.

Even with this substantial research heritage, the idea of 'global' cities remains speculative (Douglass, 2000: 44; Taylor, 2000; Short, 2004). However, that has not stopped it from becoming a meaningful issue for many city governments, and municipal officials often take it as a primary task to attract of the production, financial and consumption flows associated with globalization into their cities (Harvey, 1989: 11). This task is addressed because it is believed that success in attracting global activity may signify the importance of a city in the global economic network (as a control node), the high level of development it has accomplished (seen in its advanced economy, and a heavy presence of R&D), and also the quality of life it can offer (high income, large market and variety of commodity supply). Being ranked as a global city may also be helpful towards building up a competitive advantage which could generate further development.

Though many policies and programs in numerous cities around the world are framed by goals to acquire or reinforce some form of global city status, much of the literature on global cities has paid little attention to global city making. These points are echoed in

the writings of several authors, such as Douglass (2000: 45 and 46) and Robinson (2002: 548). Notwithstanding, due to lack of clarity, many cities have allocated tremendous resources to some mega projects such as world class airports, high-speed tram lines, convention centres and sites for world spectacles (Douglass, 2000: 45) to maintain or enhance global city roles. The Multimedia Corridor Project in Malaysia, the Pudong mega urban development in Shanghai, the new Hong Kong Airport and the expansion of the CBD in Singapore are examples in Pacific-Asia (Bunnell, 1999; Wu, 2000).

The pressures created by these aspirations have posed a new challenge to urban planners. This is largely because there is no ready-to-use model available for what could be called global city making. In approaching global city making, urban planners are presented with three sets of challenges: the redefinition of a global hierarchy of cities resulting from competition among global rivals for economic development; the impact of economic globalization within the world cities and the creation of a 'new spatial order', leading to the creation of new zones, and economic and spatial polarization (which may or may not favor the city); and finally the environmental consequences associated with the sustainability of concentrating development in a few world cities (Newman and Thornley, 2002: 22). It is worth recognizing that the old agenda of cities such as economic inequality, social exclusion, and poor quality local environment remain a concern and a global city role may in fact exacerbate some of these basic problems (Thornley and Rydin, 2002: 6). Finally, the management and delivery of policy (along with the connections between the public and private sector) is not well understood in this new global city context, as outlined in Olds and Yeung (2004) review cited earlier. On that perspective, Short (2004: 28) has recently observed 'while...much of the early work on regime theory was concerned with the internal dynamics of power sharing amongst disparate groups in the city, it is important to reconstruct urban regime theories to account for globalization effects' and signals major contribution made by Lauria (1997). Hence, cities are dealing with a complex concept that has been expressed in a variety of ways in local political pressure and concern and at the same time, there is a lack of understanding of the appropriate actions to take. This monograph is designed to provide some insight on those circumstances by exploring the actions that have been taken in shaping the built environment of Singapore, one city that most analysis awards global city status.

This monograph is about the planning and development of Singapore's built environment associated with the goal of reinforcing its global city role. Over the last 40 years, Singapore was transformed successfully from a colonial port city dominated by dilapidated housing and crowded commercial streets, into a global metropolis with glittering office towers, modern industrial estates and high standard housing blocks and neighborhoods. The notion of being global has been a part of Singapore's development strategy over this period, beginning with its early years of industrialization (Marshall, 2003: 154). From the outset, Singapore positioned itself a gateway between Southeast Asia and the international economy (Perry *et al.*, 1997: 102). A strategy of export-oriented growth through the attraction of foreign investment was adopted in the mid-1960s. In 1972, the general development strategy was established within the concept of 'Singapore—the global city' (Lim, 1990: 150). In 1988, the Economic Development Board set an explicit goal for Singapore to become an important strategic node of global companies for the Asia-Pacific region (EDB, 1988: 12). The Concept Plan 1991 spelt clearly a vision for Singapore to become a *global city of tropical excellence* (URA, 1991).

This vision continued in the Concept Plan 2001, targeting at the creation of a world-class city in the 21st century (Concept Plan 2001, [www.ura.gov.sg](http://www.ura.gov.sg) accessed on 23 July 2004). Consistent efforts in grasping global opportunities for economic development earned Singapore well ranked positions among international business centres.

Today, Singapore is widely acknowledged as a global city by many authors (Friedmann and Wolff, 1982; Dicken, 1992; Taylor, 2000). Its successful urban development also earned Singapore various titles such as the ‘garden city’ and the ‘intelligent island’. Some planners refer Singapore as a best practice in planned development (Ooi, 2000). As a global city, Singapore is a main regional command centre, where a large number of production service firms and headquarters of multinational corporations reside in its modern Downtown (Ho, 1998). Within the island nation, its Downtown hosted more than 96% of the head offices of offshore and merchant banks in the island state, and more than 80% of those commercial banks were located in the Golden Shoe—Singapore’s Central Business District (Chua, 1989: 95), illustrating in vivid terms one of the internal structural features of a global city. Singapore is also an innovation centre where its industries and the economy have experienced continuous restructuring, reflected in the evolution on the planning, development and management of industrial and business parks. Singapore’s housing system provides a variety of housing forms to cater to different housing needs, such as those for expatriates working for multinational corporations and those for low-income groups. Yet, the system allows free upward moving from one housing form to another in order to meet peoples’ aspiration of raising their living standards. Especially, interesting in the housing system is public housing development, which is interwoven into local politics, income redistribution and nation-building (Phang, 1996; Chua, 2000; Kong, 2000; Kong and Yeoh, 2003; Sim *et al.*, 2003).

In policy formulation and application, Singapore’s success in global city making is linked to what Khan’s (1997: 95 and 96) review of models (explaining the success of the newly industrialized economies in East Asia) labeled as the ‘governed market’. A fundamental component in this model is a set of policies, which enable the government to guide or govern the process of resource allocation. These policies are found in several areas such as population control, housing, education, medical and health services, compulsory savings, industrial relations, wage policy, and so on. In addition, Khan (1997) argued that it was not the intervention from the state but the *effectiveness* of the intervention that differentiated Singapore from other developing countries. The factors that contributed to the effectiveness included autonomy of the state from interest groups; stability of state apparatus and the society; and the administrative capability of the government leaders. This approach means that the management of the nation’s interest in a wide array of concerns like macro level processes and institutions such as international politics, global and regional trade blocs and incentives for transnational corporations are critical to its global city making.

However, the research reported here explores the ‘governed market’ as it has been expressed in operational know-how centred on issues associated with land use changes, planning and plan implementations. The analysis emphasizes the making of the Downtown, the industrial estates and the housing landscape, which are directly associated with business control and services, innovations and manufacturing, and social geography of the built environment. It recognizes but takes as given, the importance of

the technical management of urban sub-systems such as infrastructure (e.g. transportation network, water and power supplies, drains), amenities (e.g. parks and open spaces) and services (e.g. the commercial hierarchies). Though essential and significant to the functioning of modern cities, they are excluded from this monograph in the interest of simplicity.

The core questions the research addresses are: How has Singapore's business core, which was crowded with dilapidated shop-houses, been transformed into a modern Downtown? What type of industrial spaces have been built and why? How has the housing system contributed to global city making in Singapore? The above questions are explored from a real estate perspective by emphasizing the tangible and intangible aspects associated with the built environment. [Ling and Archer \(2005: 3\)](#) list three fundamental ways that the real estate intersects the issues we are dealing with here: (1) to identify the tangible assets of land and buildings; (2) to denote the 'bundle' of rights that are associated with the ownership and use of the physical assets; (3) to refer to the industry or business activities related to the acquisition, operation, and disposition of the physical assets. In Singapore, discussions on the tangible assets of land and buildings in global city making involved the physical forms and the values of the built environment, including the areal extent and evolution of the Downtown; the types of industrial parks; and the variety of housing forms. The discussions on the bundle of rights that are associated with the ownership and use of the physical assets emphasize on land ownership control; the planning framework; and the main organizations dealing with land. The various real estate activities such as land acquisition, planning and asset management are the components of the transformation processes, being the development of a modern Downtown, or the industrial estates, or the residential blocks, neighborhoods and new towns.

Studies on the real estate development processes in city wide urban dynamics have used four models: Equilibrium Models; Event Sequence Models; Agency Models; Structure Models ([Healey, 1991](#)). This monograph adopts the Event Sequence Model, which focuses on the management of stages in the development processes. These sequences can be generalized into a few simple stages or involve a comprehensive list of activities, as outlined by [Ratcliffe \*et al.\* \(2003: 252 and 253\)](#). In the research carried out on projects in this monograph, the event sequence includes concept and initial considerations; planning; implementation issues; and management issues. In addition, financing will be discussed where appropriate, e.g. financing housing construction and purchase.

There are six chapters in this monograph. Chapter 2 discusses the institutions associated with land acquisition and planning. These are the intangible aspects of the built environment, dealing with the bundle of rights in real estate. By reading this chapter readers get a background of the institutional setup, which serves as a context for understanding the transformations of the Downtown, the industrial parks and the housing, which are following. Chapter 3 examines the planning and development of Singapore's Downtown where head offices of banks and other financial institutions, regional headquarters of transnational corporations, government organs, and international convention facilities have located. Chapter 4 focuses on the development of the various industrial estates. The different types of estates and the reasons for creating them

are discussed in relation to Singapore's industrialization policies. Chapter 5 explores the housing system, the development of the various housing forms, sociopolitical engineering in public housing estates, and the role of housing in the global city making. Chapter 6 concludes by over-viewing the Singapore way of global city making; the progress and innovations in urban planning and development in the urban development process; and the possible lessons that Singapore can offer to other cities in global city making.

## CHAPTER 2

### Institutional fundamentals

The conception of real estate as a bundle of rights (Ling and Archer, 2005) points to the role of institutions in the provision of the built environment and the operation of the property market (Han and Wang, 2003: 93). According to North (1990), institutions are composed of formal and informal rules, and the effectiveness of enforcement. Formal rules include political rules, economic rules and contracts; while informal rules include conventions and code of behavior. This chapter discusses some crucial formal and informal rules regulating urban land use and planning in Singapore. These include formal rules on compulsory land acquisition; the planning framework; and the main public agencies dealing with land and its development; as well as informal rules practiced in the civil service sector (e.g. non-corruption culture; elites and their interactions; stability of leadership in government agencies). In a land scarce city-state where the land area only amounts to 682 km<sup>2</sup> ([www.ur.gov.sg](http://www.ur.gov.sg) accessed on 23 July 2004), an efficient and non-corrupt institutional setup is key to global city making.

#### 2.1. *Compulsory land acquisition*

##### 2.1.1. *Background*

Land size constraint was and continues to be a major problem in Singapore's development. Though Singapore's land area grew about 100 km<sup>2</sup> in the last four decades, and will continue to increase through land reclamation from the sea for another 15% in the foreseeable future, it was calculated that there would be 4000 ha short of land supply when Singapore's population reaches 5.5 million (Tan, 2002). Given the scarce land resource, it is a major concern in governance as how to maximize Singapore's land use. Under the leadership of the People's Action Party (PAP), the answers to this challenge include proper planning and strict government control on land use.

Land use planning in the city-state began in as early as the late 19th century, when Sir Stamford Raffles sketched the first town development plan for Singapore (Fig. 1). This plan laid down the residential areas for the various racial groups and urban functions, and guided the development of Singapore's built environment over 100 years. In 1951, as development momentum was picking up after World War II, the colonial government endorsed the Planning Act (1951), which consequently led to the formulation of the Master Plan 1958. The Land Acquisition Ordinance (1955) was endorsed to lay down the rules for land acquisition. The main purpose of introducing these formal rules was to control private land use and development. Over 60% of the land was in the hand of private owners in the 1950s.

In 1959, Singapore achieved internal self-government under the leadership of the PAP. One of the urgent tasks for the PAP government was to resolve the severe problems in housing and unemployment. This required large-scale development of new towns and industrial estates. However, large-scale developments were hindered by lack of publicly owned land. At that time, land acquisition was slow and difficult, often challenged by



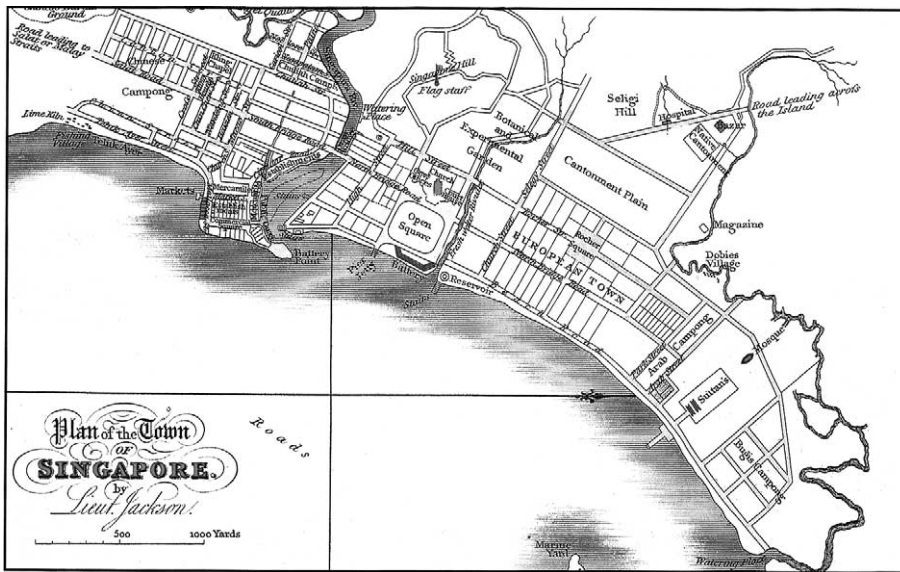


Fig. 1. Singapore's first town plan, 1828. Source: Reproduced by author based on the map in [URA \(1995: 12\)](#).

residents and their supporting organizations. In the Kallang Basin project, which was one of the earliest large-scale developments aiming at industrial and housing developments, land acquisition and residents' resettlement were encountered by objections from over 4000 families who lived in the area ([Gamer, 1972](#)). Political organizations intervened against the resettlement, adding to the delay of the project caused by political uncertainties (i.e. joining and separating from Malaysia).

### 2.1.2. The Land Acquisition Act

*The Act.* Singapore's experience in urban development during the early 1960s clearly showed that private land ownership was a hindrance to rapid industrialization and public housing construction. In order to speed up land acquisition and development processes, the Land Acquisition Act (referred to as the Act) which 'conferred powers on the state and its agencies to acquire land for any public purpose, or for any work or undertaking which is of public benefit, public utility or public interest, or for any residential, commercial or industrial purpose' ([Phang, 1996: 492](#)) was endorsed in 1966.

The Act made a clear break from the past in the power of compulsory land acquisition. Before the Act was endorsed, negotiations were conducted between the state and the private landowners on the terms (mainly on the size of the parcel to be acquired, the time to surrender and the rate of compensation) until both sides accept. The Land Acquisition Ordinance (1955), which was the main guidance before Singapore joined the Federation of Malaysia in 1963, did not grant the state the power to compulsorily acquire land without first attempting to negotiate purchases by private treaty. The Singapore Improvement Trust (SIT) which was the housing agency established by the British colonial government, could invoke compulsory acquisition powers only after attempts at private treaty

purchases had failed, or, when a legal or practical impediment existed to purchases by private treaty (Lim, 1990: 80). This compulsory acquisition did not happen; especially, resettlement was a sensitive matter during the turmoil years in the mid-1960s, though there were tactics (such as drove bulldozers to the site and thus created a threat to those residents reluctant to be relocated) used in the negotiations, as described in the Kallang Basin project by Gamer (1972). During the 2 years when Singapore was a part of the Federation of Malaysia (1963–1965), Article 13 of the Constitution of Malaysia provided that no person should be deprived of property except as specified by the law, and that no law shall provide for compulsory acquisition without adequate compensation (Phang, 1996: 492).

Lim (1990: 81–83) summarizes a number of major changes initiated by the Act:

- (1) The powers of land acquisition were widened to enable private development beneficial to the community. The government could now acquire small land parcels, clear them, and after integrating them into larger sites, alienate them to private individuals or corporations for development in accordance with an overall urban renewal plan;
- (2) Landowners were now prevented from appropriating to themselves any benefit of enhanced values of their properties resulting from developments executed at public expense within 7 years of the Gazette notification;
- (3) A more expeditious procedure was provided for taking possession of land in cases of urgency. At the direction of the Minister, possession could be effected on the expiration of 7 days after service of notice on the owners of land gazetted as so needed. In extreme urgency, possession could even be taken before the land has been gazetted but the Gazette notification must follow within 7 days after the date of possession; and
- (4) Appeals or disputes pertaining to such acquisitions were to be heard by an Appeals Board instead of by the courts of law. Provisions were also made for a less formal and more expeditious procedure for settling compensation claims. These were in line with precedents in the UK and Australia where questions of this nature were placed before administrative tribunals rather than the courts of law.

*The land acquisition process.* A typical land acquisition process includes eight steps: (1) planning and preliminary survey of site; (2) declaration/notice; (3) inquiry; (4) service of awards; (5) appeal by owner; (6) payment of compensation; (7) taking possession of the land; (8) notice to registry of titles and deeds. In the initial stage, the agency that acquires the land selects the site and find out the ownership status. A report will be prepared on the basis of the preliminary survey, and submitted to the Permanent Secretary of the Ministry of National Development to seek for his concurrence on the acquisition. Upon receiving a green light to go ahead with the acquisition, a declaration that the subject lands are to be compulsorily acquired has to be published in the government gazette. The measurements and value of the land and the respective interests of the claimants for compensation will be assessed in step three, i.e. inquiry. The result of step three is the award, which includes the true area of the land, the compensation allowed for the land, and the apportionment of the said compensation among all the interested persons. This award will be forwarded to all persons interested. A statement will be included in the award that any person interested who is not satisfied with his award has a right of appeal. Any appeal must be registered within a specified period (usually 14 days from receiving the award) with the Registrar of

the Appeal Board. Upon examining the details submitted by both parties, the Board makes a decision, which is final, on compensation. The compensation money is paid on or before the acquiring organization (i.e. the collector) taking possession of the land, but after the serving of award and the surrender of all title deeds to the collector. This may happen before the appeals, if any, because according to the Act, the state can proceed to take possession of the land whether or not the award has been accepted by the interested parties. In operation, the Land Bailiff is directed to take possession of the land on the collector's behalf and to serve a copy of a Notice of Possession on the owner(s) of the land. The notice to registry of titles and deeds will be given immediately on taking possession of the land so that the land is registered as State Land.

*The principles of compensation.* The Act was amended in 1973. In the amendment, the market value of a land parcel on 30 November 1973 or at the date of gazette notification, whichever was lower, was set as a base for compensation. Any increase in market value due to any improvements within 2 years of the declaration was disregarded, unless it could be proved that such improvement was not done in contemplation of the acquisition. In addition, the seven-year rule was provided, which stated that any increase in value due to development in the neighborhood by the provision of roads, drains, electricity, water, gas or sewerage or social, educational, or recreational facilities within 7 years preceding the date of notice/declaration would not be taken into account. This was to safeguard the government to acquire land at a reasonably low cost. As the property price changed over the years, the statutory dates were readjusted several times. For properties acquired on or after November 30, 1987, but before January 18, 1993, January 1, 1986 was fixed as the statutory date. For properties acquired on or after January 18, 1993 but before September 27, 1995, the statutory date was set at January 1, 1992. For properties acquired on or after September 27, 1995, the statutory date was selected at January 1, 1995.

Fairness of compensation in the Act can be questioned by two considerations. First, land acquisition is enforced on a selective basis, thus violating the principle of horizontal equity (Phang, 1996: 493). Second, the compensation value is far below the owners' expectations. It is the second consideration of the fairness that generates appeals. According to the Act, the compensation rate is determined by a market value which is calculated on the basis of its existing use or the use designated in the Master Plan whichever being the lower, after taking into account zoning, density requirements and other restrictions imposed under the Planning Act. The potential for use of any enhanced value is to be ignored. This is for the purpose of putting an end to arguments by owners of lands such as public open spaces and green belt or catchment areas that their properties could be rezoned for higher value use (Lim, 1990: 82).

### 2.1.3. *An acquisition example*

The acquisition of a land parcel in Yew Tee Industrial Estate (Fig. 2) by the Jurong Town Corporation (JTC) is used as an example to illustrate the acquisition process and the gaps between the collector's award and landowners' expectation. This acquisition involved about 60 acres of land mainly vacant but also uses for junk yard storage and some pre-war single-storey brick-wall and tile-roof shop-houses erected in 1941. The whole acquisition process took slightly over 2 years from mid-1974 to late 1976 (Tan, 1979).



was prepared on the basis that (1) the compensation should be based on existing use or its Master Plan zoning which ever is the lower; (2) the two lots were a liability to the owners, one being an access road and the other being subject to an easement of a right for a drain to run through.

There was a high percentage (i.e. 25 out of 29 lots) of owners who filed notices of appeal within 14 days of the awards. Twenty-one out of the 25 appeals withdrew after supplementary awards. Two appeals were settled by the Appeals Board and two went to the Court for settlement. None of the shop-house owners went to the Appeals Board or the Court for hearing, as all was settled by supplementary awards. These supplementary awards varied lot by lot. For the shop-houses, an additional \$1500 was awarded to each owner so that the total compensation was \$16 500 instead of \$15 000 as originally awarded. The \$1 nominal award to the lot used for a drain was settled with a supplementary award of \$479, or, a compensation rate at 15 cents/ft<sup>2</sup>, but the lot for road use remained at \$1. Some lots got 30% increase from the original awards (Tan, 1979: 51). It was observed that the initial awards by JTC were on the low side. Those poor and ignorant might choose not to appeal against the government as they had little legal and financial resources to support such a process, and more importantly, there was a deep belief among the population that there was only a slim possibility to win over the government. As such the law might have penalized those rural small-holders who could not afford to hire experienced valuers and solicitors to fight their claims (Tan, 1979: 51).

Hearings before the Appeals Board continued for about a year from the date of petition of appeal. The Court hearings took about 3 years due to court congestions. In early 1977, resettlement was started, and this was completed by the end of 1978. Most of the population affected was resettled in the Teck Whye Housing Estate which is a part of the Choa Chu Kang new town next to the Yew Tee Industrial Estate.

#### *2.1.4. Further development*

In 1982, the ex-gratia ruling was introduced as a result of the Government's awareness that compensation payable under the Act to owner-occupiers of houses or flats might be inadequate to allow them to obtain suitable alternative accommodation (The Straits Times, 23 November 1982). Thus, for properties acquired by the government on or after 1st January 1981, ex-gratia payments could be granted on top of the compensation payable under the Land Acquisition Act. Three criteria applied: (1) the ex-gratia payment is only payable to private individual owner-occupiers, not company owners; (2) these private individual owner-occupiers must not own any other non rent-controlled or vacant rent-controlled houses or flats; (3) the quantum of payment is decided by the Chief Valuer (The Straits Times, 23 November 1982).

Table 1 shows the proportions of state and private ownership of land in Singapore for the period 1949–1992. The increase of state ownership of land from 31 to 44% in the period 1949–1960 shows the demand of land for state projects, reflecting rapid urban growth in Singapore in the period after the Second World War. In 1965, when Singapore separated from Malaysia, about half of the land was owned by the state. In the 20 years between 1965 and 1985, state land ownership increased further to 76%. The pace of land acquisition slowed down after the mid-1980s as major development projects such as Downtown redevelopment, public housing estates and industrial estates were in shape.

Table 1  
Structure of land ownership in Singapore, 1949–1992

Year	State ownership (%)	Private ownership (%)
1949	31	69
1952	37	63
1960	44	56
1965	49	51
1970	57	43
1975	66	34
1980	70	30
1985	76	24
1992	80	20

Source: Data for 1992 is from [Von Alten \(1995\)](#); the rest of the data are from [The Straits Times \(18 October 1986\)](#).

Only a small proportion of private land was acquired for road and infrastructure development since 1985, e.g. the construction and the Mass Rapid Transit lines and its stations.

[Table 2](#) reports the main authorities which acquired the private land. The Housing and Development Board and the Land Office are the main statutory boards (refer to Chapter 2.3.2 for a definition) acquiring land on the government behalf. The land acquired by the above two statutory boards accounted for over 90% of the total. JTC was the third largest land acquisition agency, which handled almost 6% of the total acquisitions in the period 1959–1984.

Compulsory land acquisition continues in the new millennium. The Singapore Land Authority (SLA), as the main administrative agent for state land, acquired two pieces of land (i.e. parking lots from the Faith Assembly of God Church and the Chuan Park) in 2003. These acquisitions were well publicized for the \$1 compensation awarded. In one of the two cases, seven parking lots owned by the Faith Assembly of God church, with a freehold registration status, were acquired by the SLA for road widening. One Singapore dollar was awarded for record purpose, because the acquired land was zoned as road in 1998 and therefore, had no market value according to SLA ([www.channelnewsasia.com](http://www.channelnewsasia.com) accessed on 4 July 2004). In the Chuan Park Condominium case, 17 parking lots on a 99 years leasehold parcel were acquired. SLA awarded also \$1 because the proposed

Table 2  
Agencies and land acquired: 1959–1984

Government agency	Land area (ha)	%
Housing and Development Board	8297	46.9
Jurong Town Corporation	1043	5.9
Singapore Port Authority	128	0.7
Urban Redevelopment Authority	99	0.6
Land Office	8124	45.9
Total	17 691	100.0

Source: Compiled by author, according to Low (1997). Note. Refer to Chapter 2.3.3 for a discussion of the agencies.



construction of a MRT station on the land acquired would increase the land value in that area. This was supported by property analysts and consultants who said that “...private property near MRT stations typically commands a 5–10 per cent premium” ([The Straits Times, 18 June 2003](#)). The Senior Minister of State also emphasized that ‘...Chuan Park’s value will be enhanced by an estimated \$18 million from having an MRT station at its doorstep’ ([The Straits Times, 16 August 2003](#)). According to SLA, the ‘increase in the land values rising from the public development should not benefit the land owner, but should benefit the community at large’ ([www.channelnewsasia.com](http://www.channelnewsasia.com) accessed on 4 July 2004). Thus, the \$1 award is fair according to the SLA reasoning. This amount, when shared among the 446 strata unit owners, worked out to 0.22 cents each.

Disagreements on the two \$1 compensation cases point to the principle of *Pointe Gourde*, which was set up by the British Privy Council in 1947, and was widely used in Commonwealth countries. This principle says that compensation for land acquired by the government should not take into account how the value of land is affected by the acquisition. However, in Singapore, only half of the principle that put the government at an advantage over the landowners was adopted into the Land Acquisition Act. This allows SLA to ignore value changes that raise prices, but take into consideration those that lower them ([www.channelnewsasia.com](http://www.channelnewsasia.com) accessed on 4 July 2003). In other words, owners of the Chuan park condominium were not compensated because of the positive externalities of the MRT station on property values in the area. In this case, the *Pointe Gourde* principle was not observed. The Owner of the Faith Assembly of God Church, however, was not compensated because the negative externality of road widening on the surrounding properties was not considered. In this case, the *Pointe Gourde* principle was observed. As to the latest development, the Church will receive an *ex-gratia* payment for the seven parking lots ([The Straits Times, 16 August 2003](#)).

## 2.2. *Land use planning*

A two-tier planning hierarchy defines the land development and control policies in Singapore. This includes the Concept Plan and the Master Plan ([Fig. 3](#)). The first Concept Plan was made public in 1971, which was non-statutory and a response to the inadequacy of the Master Plan in guiding large-scale or long-term public development ([Khublall and Yuen, 1991](#)). Major revisions were done in the 1991 Concept Plan and the latest was the Concept Plan 2001. The Master Plan was introduced earlier than the Concept Plan, with its first version formulated during 1952–1955 and approved by the government in 1958. The latest is the Master Plan 2003 ([Singapore Government, 2003: i](#)). It is a statutory plan aiming at private sector development control.

### 2.2.1. *The Concept Plan*

Singapore’s first Concept Plan grew out of a 1967 State and City Planning Project aiming at long-range plans for land use and transportation ([Perry et al., 1997: 193](#)). The Plan provides a coordination framework among statutory boards and public agencies, with flexibility to accommodate uncertainties and changes. The first Concept Plan, which is also known as the Ring Plan ([Fig. 4](#)), envisaged the development of a ring-cum-linear urban form, with the water catchments area at the centre of the island. Key features

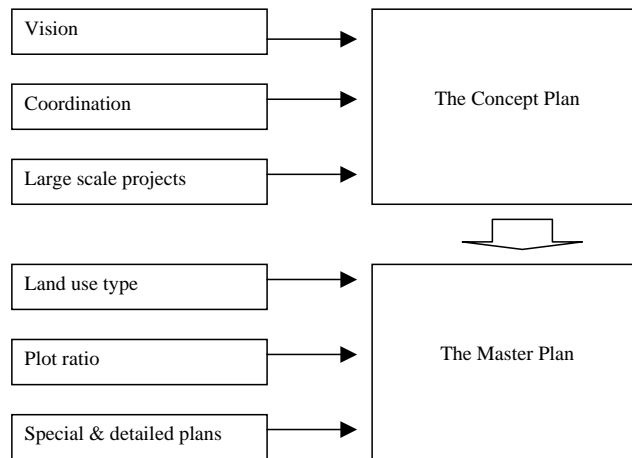
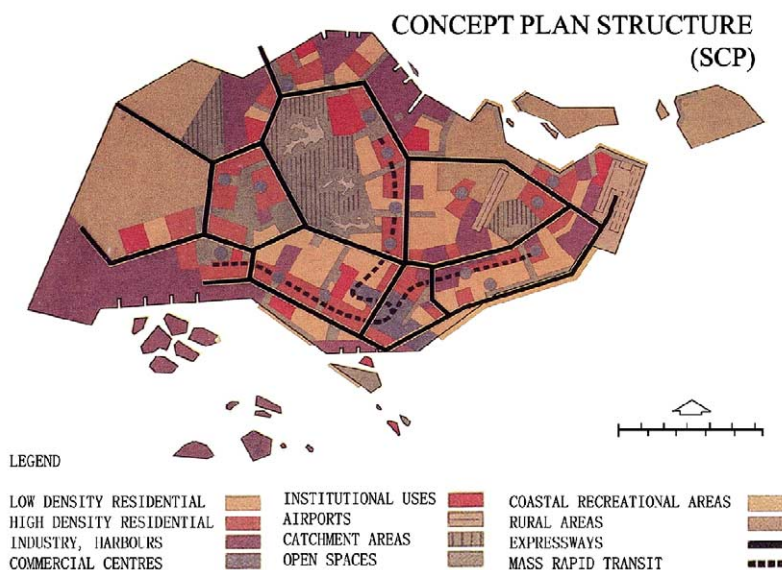


Fig. 3. The two tiers planning hierarchy.

included some large-scale infrastructures (e.g. the Changi International Airport and the MRT system) and high-density public housing in locations close to high capacity transportation routes and at the same time within easy reach of employment centres. Residential population was to relocate away from the city centre, so that a new core area featured by international financial functions, commercial and tourist activities would develop.

Fig. 4. Concept Plan 1971. *Source:* Reproduced by author based on a map in [URA \(1992: 6\)](#).



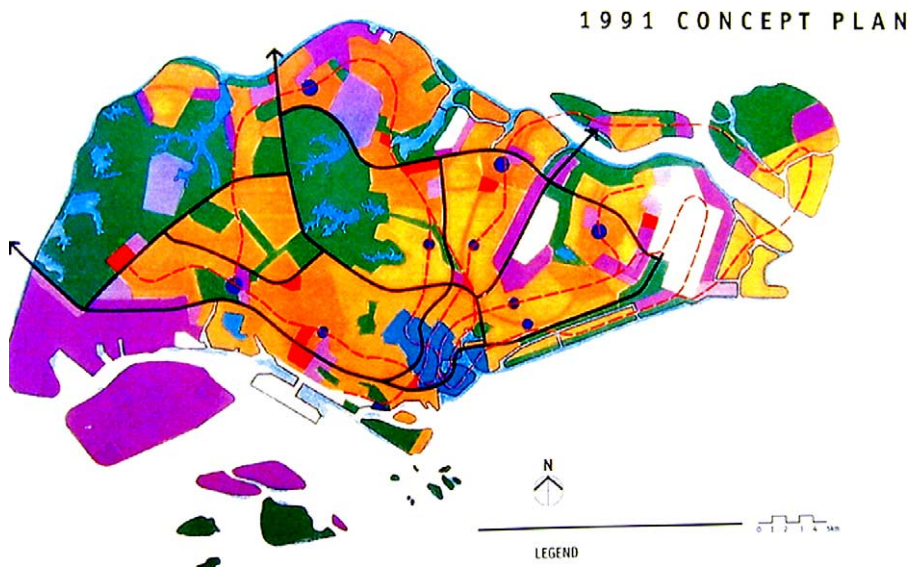


Fig. 5. Concept Plan 1991.

The second Concept Plan was released in 1991, envisaging Singapore to develop into a tropical city of excellence, and mapping out the vision for Singapore's land use and long-term development in three stages, i.e. Year 2000, Year 2010 and Year X when Singapore's population is expected to reach 4 million (Fig. 5). Three strands of thought, which have become increasingly evident in post-independence planning principles were capsulated in the Concept Plan 1991. They included the vision of Singapore as a global city; the issue of Singapore's national survival in the light of its physical limitations and economic and political viability; and the articulation of national goals as a strategy for energizing individual and national efforts (Perry *et al.*, 1997: 197). Main features of this version of the Concept Plan included the hopes of a better quality of life in general as Singapore achieves developed country status; the development of four regional centres at Woodlands, Jurong East, Seletar and Tempines (Fig. 6); a new world-class Downtown area around Marina Bay; better transportation system with new expressways, semi-expressways, an extended MRT network, a new light rail system, a new ferry system, and more cycle-ways and walkways; better housing and a widening of leisure and recreational facilities (URA, 1991 *Living the next lap* 1991).

By late 1990s, many of the ideas proposed in the Concept Plan 1991 became part of Singapore's landscape. Thus, Concept Plan 2001 was adopted to guide Singapore's development to the next higher level with a projected population of 5.5 million (Fig. 7). A larger population size (from 4 to 5 million) is believed by URA planners a key factor to make Singapore vibrant in socioeconomic development. The Concept Plan 2001 shifted the emphasis of development from sustaining economic growth and providing a good quality of life (in terms of higher income) to creating a thriving, world-class city in the 21st century. These development goals are compatible, though the emphasis is now more on

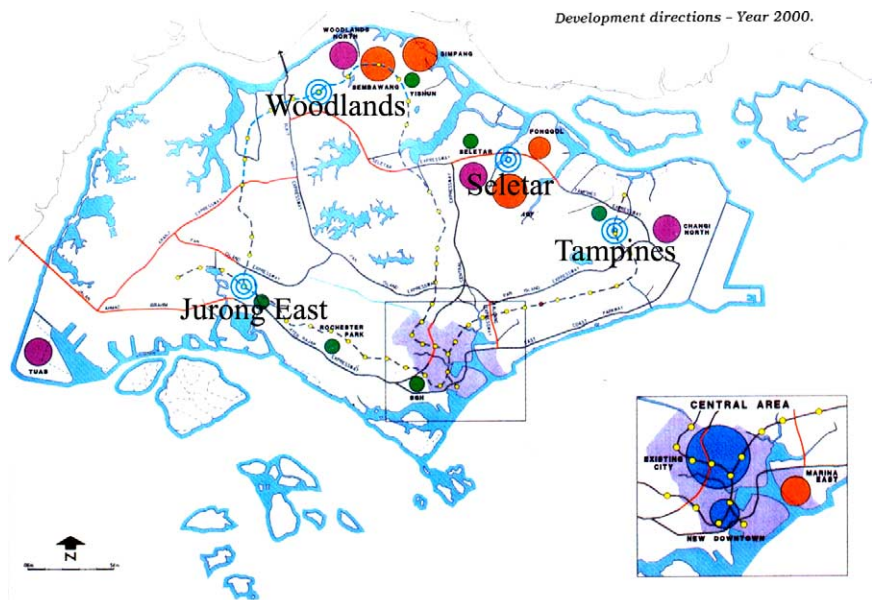


Fig. 6. Planned regional centres in the 1990s. *Source:* Reproduced by author based on a map in [URA \(1991: 13\)](#).

the diversity of cultural activities, identity of places, etc. The New Downtown Core and the new business parks, which are discussed in the following chapters, are examples of projects implementing the world-class city vision. With vision, it promises new homes in familiar places, high-rise city living, more recreation choices, greater flexibility for

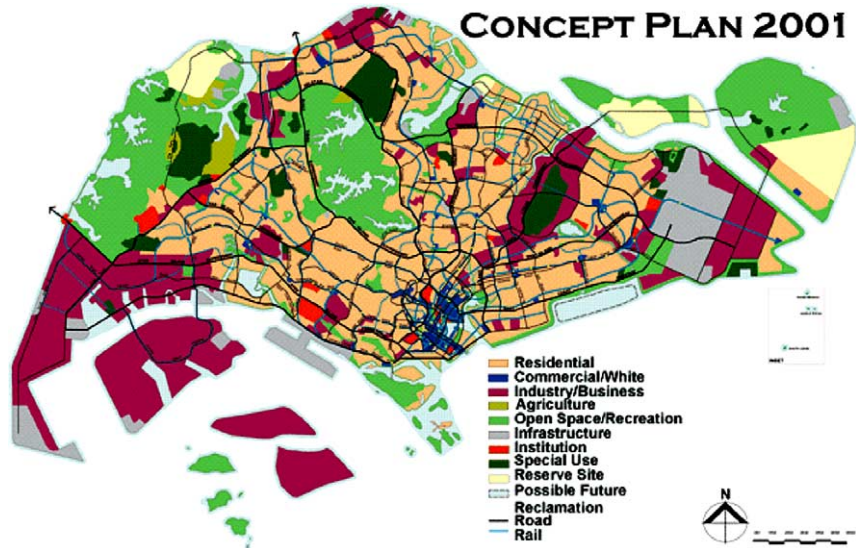


Fig. 7. Concept Plan 2001. *Source:* [www.ura.gov.sg](http://www.ura.gov.sg).

businesses, a global business centre, an extensive rail network, and a sense of identity (Tan, 2002).

### 2.2.2. *The Master Plan*

Singapore's Master Plan originates from the British planning tradition. It began in the early 19th century when Sir Stamford Raffles drew a plan for the settlement's development with distinctive residential districts for different ethnic groups of the population (Fig. 1). The British notion of order, regularity, and new towns was built into the Master Plan 1958 (Yuen, 1998: 2).

The Master Plan is revised every 5 years. This was done regularly until 1985, thus five revisions were done up to then (i.e. in 1965, 1970, 1975, 1980 and 1985). Each revision updated the changes in the period under revision, as these early Master Plans only depicted what had happened in the past but did not indicate future development possibility (Khublall and Yuen, 1991: 42).

A comprehensive review of the Master Plan 1985 was carried out between 1993 and 1998, following the development guidelines set up in the 1991 Concept Plan. Fifty-five planning areas were defined and a Development Guide Plan (DGP) was prepared for each planning area. The DGP proposals, unlike the previous Master Plans, went through a public exhibition and feedback process. Relevant feedback from the public and professional bodies was subsequently incorporated by ways of amendments to the Master Plan to form the Master Plan 1998.

The adoption of the DGP was described by the URA, a new approach of planning (Urban Redevelopment Authority 1993, I-PP 40). In this new approach, the Concept Plan maps out the long-term land use and development strategy whilst the DGPs translate the intentions of the Concept Plan to guide development at the local level area by area, using the DGP as the basic unit (Fig. 8).

In the latest Master Plan 2003, the boundaries of the five planning areas and the 55 DGPs continue to show. New zoning categories—the new business zones (B1 and B2), the new utility zone, and the new white zone were introduced (Fig. 9). Under the current zoning system, business uses such as industries, warehouses, utilities and telecommunication uses are developed in separate, distinct land use zones. The new land use zoning categories are grouped according to their impact on the surrounding environment, with B1 for non-pollutive uses and B2 for pollutive uses. As such, the new zoning approach is known as 'impact-based' zoning. This allows businesses to house different uses under one roof and change activities easily without reasoning.

Business uses which impose nuisance buffers no greater than 50 m can be allowed within the B1 zone, whereas all business uses, including B1 uses and those which impose nuisance buffer more than 50 m, will be allowed within the B2 zone. The B1 and B2 zones replace the existing Warehouse, Light Industry, General Industry zones in Master Plan 1998.

The existing Utility and Telecommunication zones are merged as one 'Utility' zone in the Master Plan 2003. This is to cater to the convergence of utilities and telecommunications as technology progresses and is intended for utility and telecommunication infrastructure which cannot be integrated with other uses.

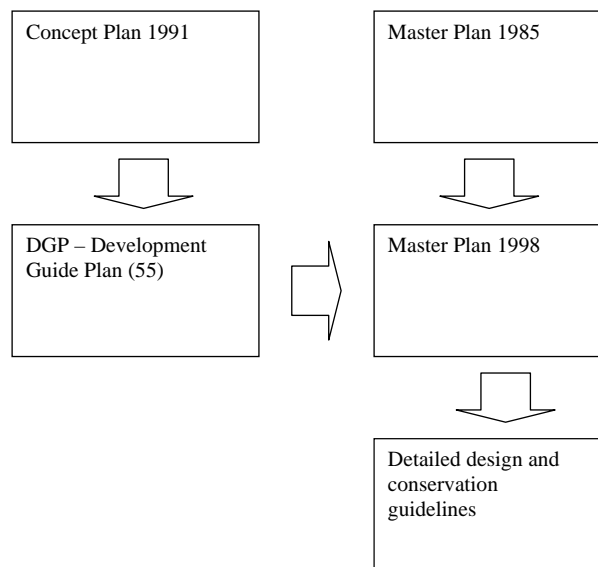


Fig. 8. URA's planning approach in the 1990s.

White sites were first introduced in 1995 to give developers greater flexibility in development options on certain land parcels sold by the state ([URA Press Release, 25 October 1995](#)). Developers are given the flexibility to decide the mix of uses and respective quantum of floor space for each use as long as the total permissible Gross Floor

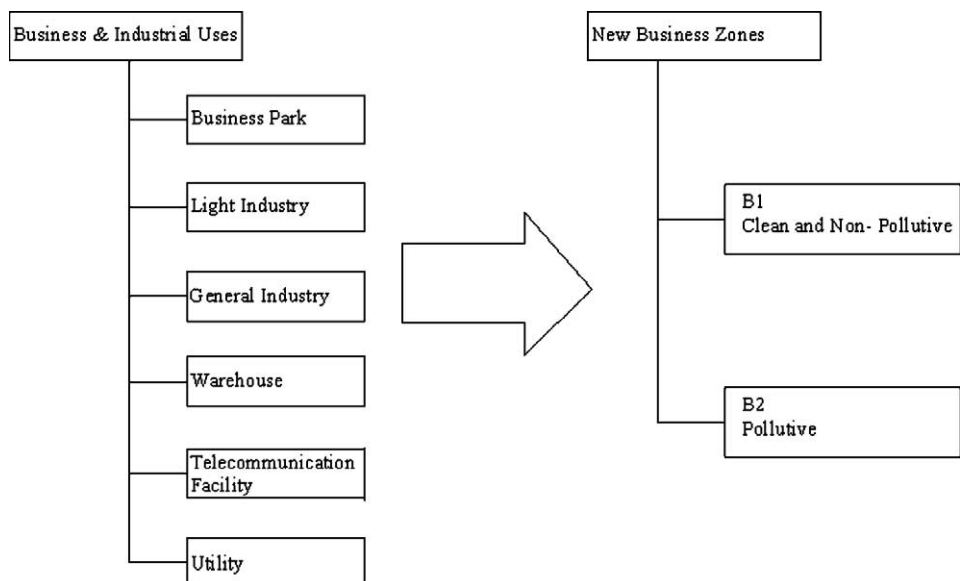


Fig. 9. New business zones.

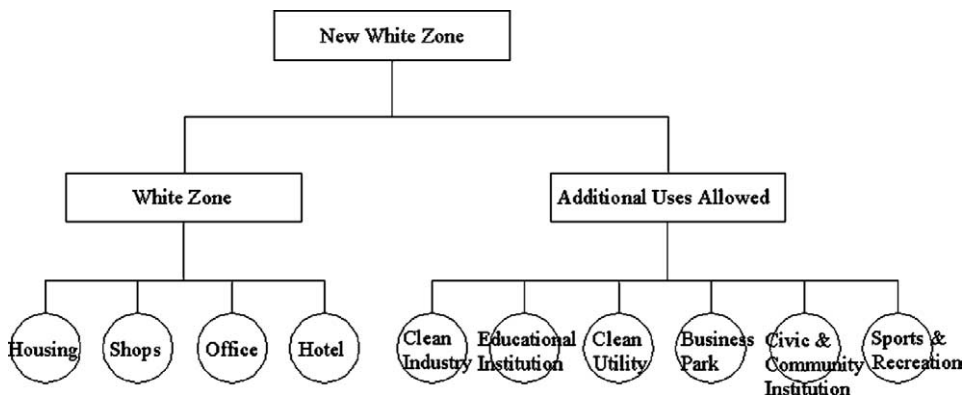


Fig. 10. New white zone.

Area for the whole development is not exceeded. Further, developers are allowed to change the mix of use or quantum of each use during the lease periods without the need to pay different premium. The uses allowed in ‘white sites’ include commercial, residential, hotel or any mix of these uses. In 2003, the ‘new white zone’ was introduced, which extends the list of allowable uses to all land use categories except the pollutive ones. This means that a building in the new white zone can have housing, offices, shops, clean industries, R&D facilities, recreational facilities as well as community spaces. The creation of this new zoning category will create the potential for mixed-use buildings and work–live–learn–play environments (Fig. 10).

### 2.2.3. Plan implementation

Though land use zoning, plot ratio, and infrastructure sites were defined in the Master Plan, any development or change in its physical form is subject to development control. A written permission (i.e. the planning approval) from the planning authority must be obtained before any development or subdivision of land, from both public and private sectors, to carry out. The latest Master Plan Written Statement states that:

The contents and provisions of the Master Plan are applied to guide physical development through development control. These contents and provisions, and in particular any upgrading or change of zoning or plot ratio, do not confer development rights nor should they be taken as the basis for determining the liability for payment of government charge. Each application is subject to detailed development control, conservation and preservation requirements, which if applicable must be complied with. In addition, a development charge may be payable pursuant to the provisions of Part V of the Planning Act and the applicable subsidiary legislation (Singapore Government, 2003: i).

On average, URA processes 9000 development applications each year. These applications include new development and change of use of land and buildings. According to the Planning Act (cap 232, 1998 ed.), ‘development’ is defined as the making of any material change in the use of any building or land. The new development is clear,

while the change of use is carefully defined. Sixteen land use categories are defined under the Planning Rules. Any change of use from one use class to another or the change of use involves uses which do not fall into any use class are subject to URA approval. Only in the situation where the change of use is between uses under the same use class there is no need to apply for planning permission.

Allocation of land through the ‘sales of site’ program for planned development is another main means for plan implementation. Under this program, URA releases a steady supply of state land, which was acquired through compulsory land acquisition for residential, commercial, hotel and industrial developments to meet demand and to achieve national development objectives. A total of 1360 land parcels has released through this sale of sites program over the last three decades. The properties built on these land parcels contributed 35% of Singapore’s total commercial space, 39% of the total stock of hotel rooms and 26% of private housing ([www.ura.gov.sg](http://www.ura.gov.sg) accessed on 23 July 2004).

Development control gave enormous discretionary powers to the government, which proved flexible enough to accommodate the new policy preferences of the PAP government and at the same time enabled development to go ahead despite the rapid outdated-ness of the Master Plan’s zoning proposals (Bristow, 1992: 28). Strict regulations on anti-corruption and the informal civil service culture towards a clean government helped to minimize abusing these discretionary powers. We turn into this in Section 2.3.

### *2.3. The civil service culture and the institutions dealing with land*

#### *2.3.1. The civil service culture*

As enormous discretionary powers were assigned to the government in land acquisition, planning and development control, there were ample opportunities to produce corrupted officials and organizations. In Singapore, however, corruption was very much contained, and the organizations are efficient.

Phang (2000: 161) argues that Singapore’s ability to pursue effective planning stems from a network of competent, non-corrupt institutions that together provide rich public sector capacity. The Prevention of Corruption Act 1960 gives powers to the Corrupt Practices Investigation Bureau to deal with corruption allegations, and the Corruption (Confiscation of Benefits) Act of 1989 provides for the confiscation of benefits derived from corruption. There is a civil service culture developed, where corruption is viewed as a ‘high risk, low reward’ activity. In addition to the strict legal means, the government has developed a rigorous recruitment system. The nation’s best and brightest have been spotted and sponsored to attend top universities in the United Kingdom and the United States. They then return to become public officials. The salary levels of senior civil servants are benchmarked against the private sector salaries, producing the most highly paid bureaucrats in the world. High salary is believed helpful in not only minimizing corruption, but also recruiting and retaining the talents including mid-career officials from the private sector. Further, recruitment and promotion are based on merit rather than seniority, kinship or ethnic tie. The extensive computerization also contributed to enhance public employees’ productivity.



### 2.3.2. *Statutory boards and government linked companies*

Statutory boards are important agencies implementing government plans and policies for economic development (Chen, 1983). They are responsible for setting up policies and standards in their respective sectors (e.g. JTC in industrial land use and development), and involved directly in the market operations. Each statutory board has specific terms of references and duties. The chairman and board members are appointed by the minister. Staff members of the statutory boards, however, are not civil servants. This allows the statutory boards to be removed from direct accountability to the legislature and free of government procedures and centralized control. Thus, efficiency and expediency can be achieved in carrying out their functions, ‘without loss of ultimate responsibility to the appropriate cabinet minister’ (Chen, 1983: 7).

Government linked companies (GLC) are economic entities directly operating in the market. According to von Alten (1995: 208), the government had an ownership interest in over 500 companies, comprising over half of the 500 largest businesses in the city-state. The 15 largest statutory boards and the 47 largest GLCs amounted to \$167.4 billion in 1993, equivalent to two thirds of Singapore-owned assets. ‘The origins of this investment are in the early period of industrialization when government investment in joint ventures was used to attract strategic industries. Most of the early projects in the Jurong industrial estate arose in this way, such as National Iron and Steel Mills, Jurong Shipyard, National Grain elevator and Sugar Industries of Singapore. This motive for government enterprise continues to be used to bring new technologies to Singapore’ (Perry *et al.*, 1997: 126).

The statutory boards and three holding companies—Temasek Holdings, Singapore Technology Holdings and Health Corporation Holdings—administer the GLCs. Senior civil servants loyal to the government are usually appointed to the boards of the GLCs, and thus, strong government influence can be maintained. The holding companies usually own the whole or part of other companies, which in turn own the whole or part of the subsidiaries. The tiers of ownership can go down the chain to six layers. A wide spread network of government linked companies is thus formulated and in operation.

Top management personnel in government departments, statutory boards, and the government linked companies usually serve the respective organization for a long time. Thus, they are known to each other at the personal level (Chua, 1996a: 215). This facilitates the negotiations and resolutions necessary when conflicting claims are made by different parties on the limited land resources. This elite group tends to deal with planning problems entirely as technical and professional solutions, which is ideologically intentional in system design, because it serves to depoliticize them (Chua, 1996a).

### 2.3.3. *Main statutory boards dealing with land*

Among the main agencies that acquired land on the government behalf, two (HDB and URA) are under the purview of the Ministry of National Development, one (SLA) is under the Ministry of Law, another (JTC) is under the Ministry of Trade and Industry, and the PSA was under the Ministry of Transportation. Three of the above (i.e. HDB, JTC and PSA) acquired land for their respective developments, such as public housing, industrial estates and ports. Paragraphs below, outline these main players in land acquisition.

The government ministry in charge of land use planning and development is the Ministry of National Development (MND), with a mission statement ‘to create the best

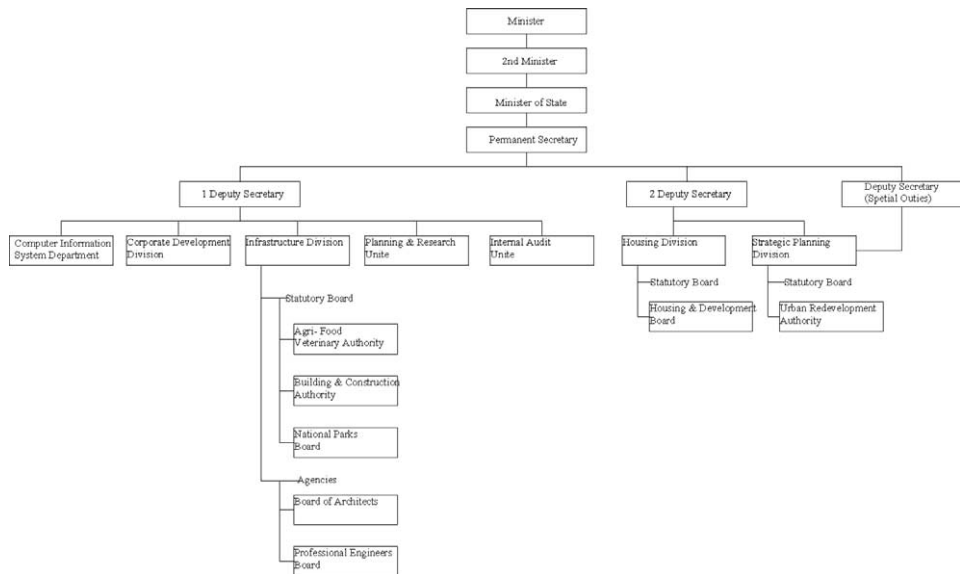


Fig. 11. Organization chart of MND. *Source:* Redraw based on a diagram posted at URL [www.mnd.gov.sg](http://www.mnd.gov.sg).

physical and living environment for building a robust economy, a vibrant city and cohesive communities' ([www.mnd.gov.sg](http://www.mnd.gov.sg) accessed on 23 July 2004). Fig. 11 shows the organization chart of MND. Note that under each of the three Deputy Secretaries, there are divisions in charge of infrastructure, housing and planning. One of the three Deputy Secretaries is posted for special duties dealing with the planning division. Within the division, statutory boards carry out the relevant works. Thus, housing development in Singapore is under the Housing and Development Board (HDB) in the Housing Division; and the land use planning and development is charged by the Urban Redevelopment Authority (URA) which is under the Strategic Planning Division. The Infrastructure Division includes three statutory boards (i.e. Agri-Food Veterinary Authority, Building and Construction Authority, and National Parks Board) and two agencies (viz. Board of Architects and Professional Engineers Board).

The HDB is Singapore's public housing authority which took over its predecessor, the Singapore Improvement Trust, in 1960. It was tasked to solve the nations housing crisis. To date, over 800 000 housing flats in 25 new towns were built by HDB, accommodating 84% of Singaporeans. One of the critical factors in HDB's operation was its ability to secure land for large-scale development. Compulsory land acquisition made it possible for HDB to plan and allocate resources effectively. In addition, the total approach adopted by HDB (i.e. to view the housing task as a seamless whole including from planning and design to land assembly and construction, and through allocation, management and maintenance) and government support in the form of political and financial commitment contributed to HDB's success ([www.hdb.gov.sg](http://www.hdb.gov.sg) accessed on 2 August 2004).

URA is the national land use planning authority in charge of long-term strategic planning and detailed local area planning for physical development. Its responsibilities



also include plan implementation, by coordinating and guiding the efforts which bring the plans to reality. The predecessor of URA was the Urban Renewal Department (URD), which was set up in 1967 under the HDB. URD's primary concern was the physical, social and economic regeneration of the Central Area. URA inherited from its predecessor and worked on the planning and development of the Central Area. In 1980, URA prepared a comprehensive long-term plan for the Central Area, including the development of Marina City on 690 ha reclaimed land south of Singapore into an integrated hotel, shopping, office, residential and recreational development. In 1983, 1985 and 1989, an urban design plan, a structure plan and a conservation plan for the Central Area were carried out. As the Central Area was almost fully developed, and the infrastructure planned in the first Strategic Plan in 1971 was implemented by the late 1980s, URA's mandate changed. In 1989, the URA merged with the Planning Department and the Research and Statistic Unit of the Ministry of National Development, and became the national planning and conservation authority guiding the physical development of Singapore.

The Land Office was under the Ministry of Law until 2001, when the Singapore Land Authority (SLA) was founded. SLA brought out the Land Office, together with the Singapore Land Registry, the Survey Department and Land System Support Unit, from the Ministry of Law and became a statutory board under the purview of the Ministry of Law in 2001. SLA's mandate is to work with the government and industry to optimize land resources, to ensure the best use of state land and buildings, to create value through new and innovative uses of land and to offer a wide range of integrated land services to bring about better land management (<http://notesapp.internet.gov.sg> accessed on 2 August 2004).

JTC is another major owner and manager of state land, focusing on industrial estates. Incorporated in 1968, JTC was given the mandate of providing industrial space solutions, in order to facilitate the industrialization programs. Over the last 36 years, JTC has put up a track record of developing 7000 ha of industrial land and over 4 million m<sup>2</sup> of ready built factory space. There are 38 industrial and specialized parks under the management of JTC island-wide currently ([www.mti.gov.sg](http://www.mti.gov.sg) accessed on 5 August 2004). These industrial and specialized facilities are further discussed in Chapter 4.

Land acquisition by the PSA accounted for a small percentage of the total land acquired, but by no means that the port is insignificant in Singapore's economy. Indeed, modern Singapore traces back to the arrival of Sir Stamford Raffles who intended to establish a trading station for the East India Company. Singapore was selected because it was the main shipping channel between the Indian Ocean and the South China Sea. A number of private companies dealt with port development until the late 19th century, when the companies amalgamated. In 1905, the government took over the facilities and subsequently passed over these facilities to the Singapore Harbor Board, which was constituted under the Straits Settlement Port Ordinance of 1912. In 1964, the Port of Singapore Authority (PSA) was formed to take over the functions, assets and liabilities of the Singapore Harbor Board. In the 1960s, the PSA managed facilities of some 5 km of wharves, 160 000 m<sup>2</sup> of transit sheds and warehouses at Telok Ayer and Keppel Harbour. Major development took place in 1972, when a container berth was opened at Tanjong Pagar. This made Singapore the first port in Southeast Asia to accommodate a third

generation container vessel, and an important link in the new chain of global container ports.

In 1996, the Maritime and Port Authority of Singapore (MPA) was formed as a statutory board under the purview of the Ministry of Transportation, by merging the Marine Department, the National Marine Board and the regulatory departments of the PSA. The departments dealing with port business functions in the PSA turned into a company—the PSA Corporation Limited. The corporate PSA is now a global leader in the ports and terminals businesses with investment in 17 port projects in 11 countries. In 2003, PSA handled 28.7 m TEUs of containers at all its ports around the world, including 18.1 million TEUs in Singapore ([www.internationalpsa.com](http://www.internationalpsa.com) accessed on 6 August 2004).

#### 2.4. Summary

This chapter provides a systematic review of the institutional fundamentals underlying Singapore's global city making. As a part of the developmental state approach in managing the various aspects of the society and the economy of the island city-state, which is widely recognized in the literature (Khan, 1997; Perry *et al.*, 1997), the use of land resources is tightly controlled by the state through formal and informal rules. These include land acquisition law, statutory and non-statutory plans, and civil service culture that is corruption free. The absolute control and effective allocation of the land resources is a guarantee to implement government policies on urban redevelopment, industrialization, and public housing programs, which are discussed in the forthcoming chapters.

The law for compulsory land acquisition (i.e. the Land Acquisition Act 1966) was introduced immediately after Singapore became an independent state. This Act gives the government power to acquire land from private owners for the purpose of infrastructure, commercial and residential developments. In comparison to the past, implementation of the Act made it possible for timely provision of land for large development projects, especially, the development of the much needed public housing and industrial estates. Further, the Act guaranteed the lowest land cost payable to private owners for compulsory acquisition. Land parcels acquired at low cost have not only saved investment for the government to buy over the land, but also minimized the cost of production of public housing and industrial estates. Low production cost of public housing has in turn benefited the ordinary Singaporeans who purchase HDB flats at a subsidized price (though the amount of government subsidy is disagreed between the government and some researchers; see Chapter 5 for further discussions). Similarly, low cost industrial estates and ready-built factories has become one attraction to multinational corporations to locate their operations in Singapore (Pereira, 2000). No other countries in the region seem to have enabled the government power for fast and cheap land acquisition as Singapore does. In Malaysia, for example, the constitution prevents against taking away land from private owners without the owners' consent (Phang, 1996).

The two-tier planning system ensures that Singapore's land use and development has guided by strategic vision and careful Master Plans. At the strategic level, the Concept Plan sets up the long-term vision (such as the tropical city of excellence in the Concept Plan 1991 and the world-class city in the 21st century in the Concept Plan 2001), sectoral goals of development (such as those for high-rise living; rail network; identity),

and large-scale projects (such as Changi Airport; new towns; industrial parks; and the transportation networks). At the master plan level, land parcels are zoned to reflect the strategic vision and goals as well as the planned projects. Flexibility of land use is built into land use zoning categories (i.e. new business zones, new utility zones and the white zones), allowing timely adjustment of land use according to economic dynamics. Nevertheless, tight development control is implemented to carry out the plans. Under the planning and development control policies, the government planners determine what to develop and when to develop.

Land use plans are implemented by various actors including both public and private players. Public sector agencies dealing with land include the Urban Redevelopment Authority, the Housing and Development Board, the Jurong Town Corporation, the Singapore Land Authority, the Land and Transportation Authority, and the Marine and Port Authority of Singapore. All the above, except the MPA, are under the purview of the ministry of National Development. These agencies act as the state and have the power to acquire land through compulsory acquisition. Private developers range from those developing large projects such as commercial and residential properties to those upgrading the backyard of their own residence. In between the public agencies and the private actors, are the government linked companies (GLC) which are owned partially or wholly by the government, an administered by senior officials loyal to the government. GLCs are important agents to implement government policies in economic development. Among the government agencies and the GLCs, there is a stable group of elites who are heads of organizations and/or board directors, and who are known to each other, to ensure maximum coordination of policies and actions. In civil services, an honest and corruption free culture has developed. This is largely attributable to the People's Action party Leaders who take corruption free as one of the core party principles ([The Straits Times, 26 November 2004](#)). Strict anti-corruption laws and law reinforcement, aided by other institutional means in recruitment and rewarding minimized corruption practices ([Phang, 1996](#)).

There are both continuities and changes in institutions discussed in this chapter. Among the main continuities are the principle of compulsory land acquisition; planning guidance in development; and a corruption free civil service. Especially, interesting is the continuous use of the elite approach adopted in planning and implementations. Singapore's overall spatial structure was laid down by foreign experts sponsored by the United Nations. In the subsequent planning exercises, government planners made use of advanced cities, such as New York, as references to model Singapore's built environment ([Marshall, 2003](#)). Compensation in land acquisition was determined by the state, with little influence from the land-owners who partitioned for higher rate. Public involvement has remained minimal, though public participation in planning is a recent addition in the planning process. Nevertheless, the extent of public participation is limited to feedbacks through plan exhibitions and organized groups. Major changes include the increases in the rate of compensation and the planning systems. Higher compensation rate was given by not only revising the base for calculation, but also introducing the ex-gratia payment. The planning system has progressed from a combination of strategic plan and action plans, to a system with Concept Plan and Master Plan. In the 1990s, further change was introduced to make Development Guide Plans island-wide. Flexible zoning designations such as white

site were also introduced to Master Plans. The latest Master Plan 2003 is no longer an updated record of the past development, but a guide to future land use changes.

Many planners from the region and beyond look at Singapore for lessons and experiences to learn from, though whether and how the Singapore approach in managing the bundle of rights associated with land is transferable to other countries remains an interesting question merit future research (Han, 2004). Basic land laws may differ because of the different political systems, so do the planning systems and the development control practices. Competitive public-sector pay and large-scale computerization incur high costs economically and politically (Phang, 2000: 161). Cities under other political, economic and governance systems need to be studied for what can be learnt.

## CHAPTER 3

### The Downtown

Downtown Singapore not only gives a modern image to the city-state, but also accommodates financial and corporate headquarters (Fig. 12). In the last 40 years or so, the skyline of Singapore's Downtown was transformed from one with a few multi-storey buildings to a new looking with several clusters of skyscrapers (Skyline, 2002). Statistics in 1989 shows that the Shenton Way area, which is also known as Singapore's Central Business District, accommodated more than 96% of the head offices of offshore and merchant banks, and more than 80% of those of commercial banks (Chua, 1989: 95). This chapter discusses Singapore's Downtown making—increases of its functions and area coverage, development plans and guidelines, and implementation issues.

#### 3.1. The Downtown concept and area extent

Singapore's Downtown is a dynamic spatial entity, which received special attention in planning in order to ensure that it has a 'complete image' in each stage of its development.



Fig. 12. The changing skylines of Singapore's Downtown. Source: Skyline (2002).

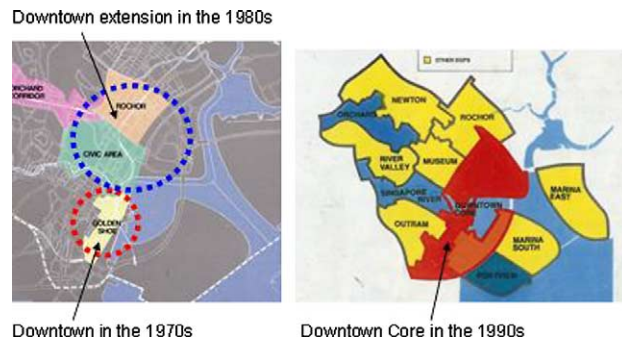


Fig. 13. Geographic extension of the Downtown. *Source:* Compiled by author based on maps from Chua (1989) and [www.ura.gov.sg](http://www.ura.gov.sg).

Over the years, the Downtown was depicted by changing definitions and area extents. It grew out from the Commercial Square designated by Sir Stamford Raffles in the early 19th century (refer to Fig. 1), and its functions, including commercial, administrative and cultural, developed in a small area around the Singapore River mouth. During the large-scale urban renewal in the 1970s, the term *Downtown* was used to refer to the Golden Shoe, which was and still is known as the Central Business District. Parallel renewal and development of the near-by areas, such as the Civic District and the Marina Centre extended the geographic coverage of the Downtown, and these areas combined to form the *New Downtown* of the 1980s or the *Existing Downtown* of the 1990s. These terms were used by planners in the planning documents. The *New Downtown Core* is a term used in the Concept Plan 1991 and 2001, extending the existing Downtown to include the Marina Bay area (Fig. 13).

A related concept is the *Central Area* (CA), another term popularly used in the planning documents but changed its geographic coverage over the years. As the forgoing discussions will show, CA extended from the town area drawn in the 1828 plan to include the Orchard Road area in the 1970s, and the newly reclaimed lands in Marina Centre, Marina East and Marina South in the 1980s and the 1990s (Fig. 14).

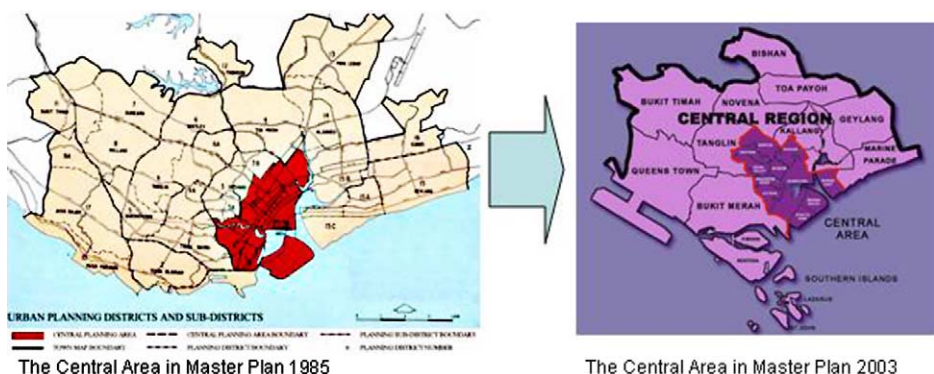


Fig. 14. Geographic extension of the CA. *Source:* Compiled by author based on maps from Master Plan 1985 and [www.ura.gov.sg](http://www.ura.gov.sg).



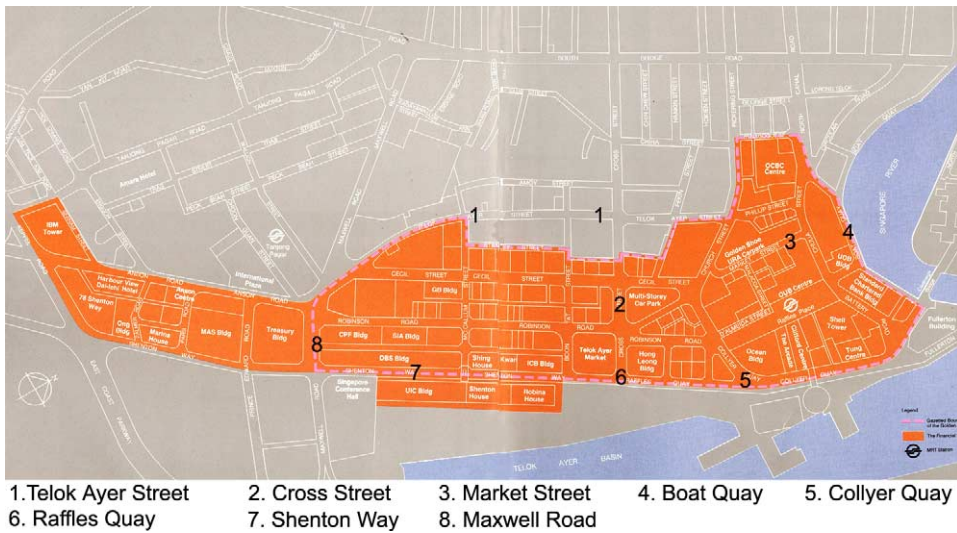


Fig. 15. Singapore's Downtown in the 1970s—the Golden Shoe. *Source:* Reproduced by author according to map in Chua (1989).

### 3.1.1. The Downtown

Singapore's Downtown in the 1970s was designated in the area encompassing the traditional commercial heart of the island, i.e. the Raffles Place. This early Downtown was bounded by Telok Ayer Street, Maxwell Road, Shenton Way, Cross Street, Raffles Quay, Collyer Quay, Boat Quay, and Market Street (Fig. 15). As the area is shaped like an upturned shoe, and hosted the most expensive real estate in Singapore, it is known as the 'Golden Shoe' (Chua, 1989).

In 1981, planning began on an extension to the Downtown so that four zones, namely: the Golden Shoe, City Hall, Bugis, and Marina Centre were enclosed (URA, 1995: Downtown Core (Part) Planning Area). This extended Downtown was known as the New Downtown of the 1980s, or, the Existing Downtown in the latest planning documents. The Golden Shoe served as the financial and business district in Singapore, symbolized by the soaring modern skyscrapers at Raffles Place and Shenton Way. The City Hall zone is within the Civic District, and home to a wealth of historic monuments such as the Parliament House, Supreme Court and City Hall. It bears the significance of Singapore's nationhood. The Bugis zone shares similar characteristics with neighboring Rochor area. Low-rise shop-houses with traditional trades and businesses dominate the streetscape. It is a living museum depicting the evolution of trading in Singapore. Finally, the Marina Centre zone offers modern shopping malls, hotels and convention facilities. The buildings are much larger-scale and the focus is within individual developments.

A new Downtown extension around the Marina Bay was planned in the 1990s. This extension, together with the New/Existing Downtown of the 1980s, formed the present Downtown Core. According to URA (1992: 18), '[t]he New Downtown Core will have three distinct areas—the Central and Bayside subzones and the existing Downtown

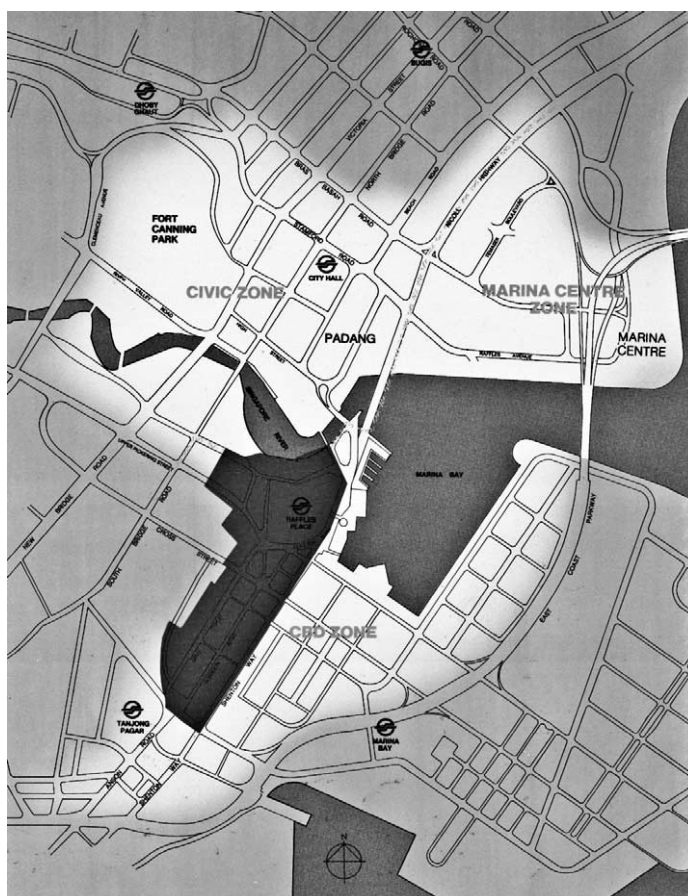


Fig. 16. The New Downtown Core in the early 1990s. *Source:* Reproduced by author according to a map in [Chua \(1989\)](#).

(Fig. 16)...These three areas will be the very heart of the new Downtown'. As used in the above statement, the terms Downtown is used interchangeably with the Downtown Core.

### 3.1.2. The Central Area

The area immediately surrounding and extending from the Downtown, where high density historic, symbolic and functional buildings are accommodated, is the Central Area (CA). CA was a term first used in the Master Plan 1958. It roughly covered the town area drawn in the 1828 plan (refer to [Fig. 1](#)). This area included the town centre, the colonial administrative heart and separate areas for the Chinese, Malay and Indian ethnic groups. For 130 years from 1820 to 1950s, this 1828 plan had guided Singapore's physical development ([URA, 1992](#)).

The Central Area served as Singapore's administrative, business, cultural, entertainment, educational and transportation centre. Within this area, there were also the main



port, the residential centre and the slums. Living conditions in the CA was poor, as about 15% of the total population lived in this area, which occupied only 1.2% of the total land area. Choe (1969: 37 and 38) claims that in the CA: '[T]here was an acute shortage of housing immediately after the War, and many of the buildings which were originally designed to house only the merchant and his family became subdivided into cubicles by the chief tenants. Many of these rooms have no natural ventilation and sunlight... The road then becomes a dining area, a store, even a sleeping area! The whole area then becomes a potential breeding place for crime, delinquency, disease and mental disorders. This is the kind of gloomy environment we find in many sections of our Central Area'. These were the conditions similar several global cities a century ago, such as London, Paris and New York, as discussed by Hall (2002) in his book *Cities of Tomorrow*.

Overcrowding was a major obstacle in resettlement for urban renewal in the CA. 'From Singapore's experience, it is found that for each demolition of a shop-house in the Central Area a minimum of five to eight units of public housing flats would be required to re-house the families affected' (Chew, 1973: 35). In operation, this meant that a considerable amount of housing flats must be constructed in order to remove the residents from the CA for redevelopment.

In examining the geographic extension of the CA, there are two sets of maps available: one from the Master Plans and the other set is from the URA annual reports. Interestingly, these two sets of maps do not agree with each other. First, the Orchard Road area was included in the CA presented in the URA annual reports (URA Annual Report 1974/1975: 24–27; Fig. 17) but not the Master Plans. Second, the areas of Marina Centre and Marina South were included in the CA sometimes (as in the URA Annual Report

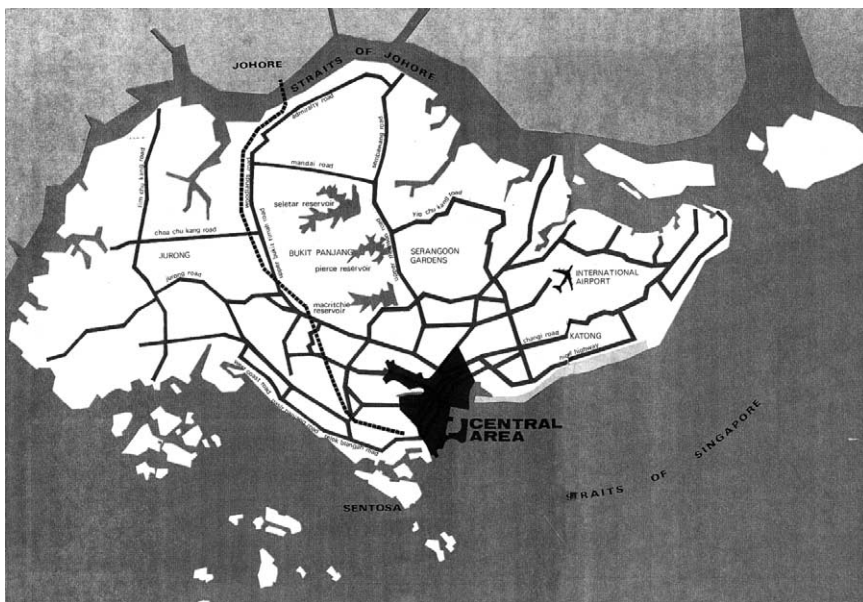


Fig. 17. The Central Area in the 1970s. Source: Reproduced by author based on a map in URA (1975/1976).

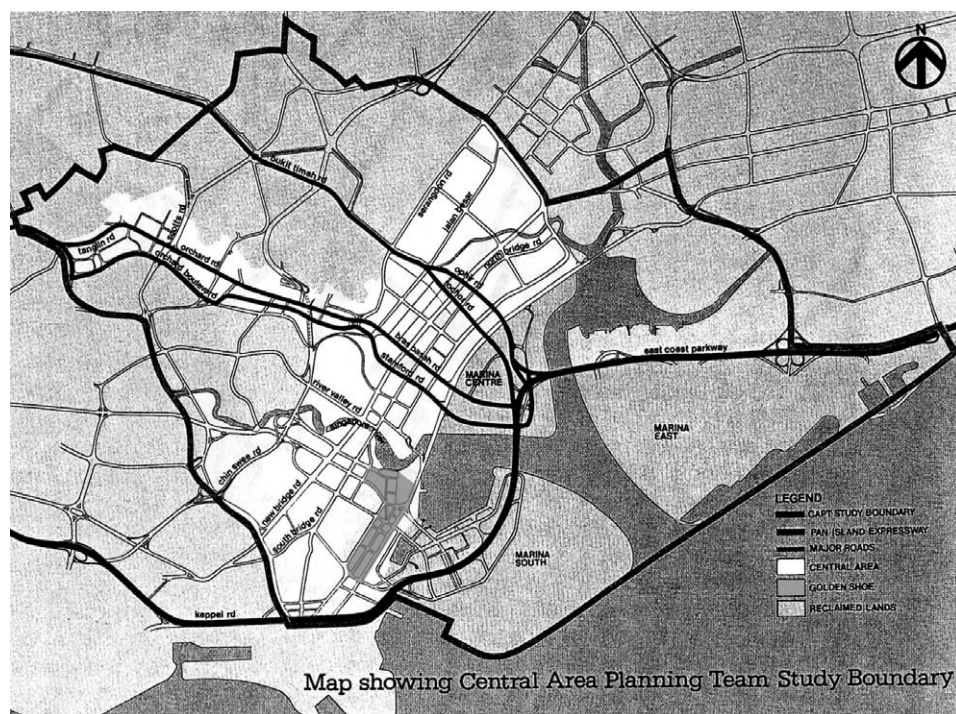


Fig. 18. CA defined by CAPT. *Source:* Reproduced by author based on a map in [URA \(1981/1982: 8\)](#).

1974/1975–1979/1980 but not in the Central Area Planning Team’s working map—see [Fig. 18](#)), though they had appeared in all the Master Plans since the 1970s.

The main reason for the inconsistency in the CA boundaries may stem from the practical needs for urban renewal and redevelopment. CA was defined for redevelopment purpose. Thus, Orchard Road was included in study reports of the 1970s because the area was under major redevelopment. Areas such as Marina South and Marina Centre were excluded from the Central Area Study Team’s working map because these newly reclaimed land parcels were not subject to immediate development in the 1970s. The Master Plans were supposed to update the changes, but what appeared within the CA had no importance to the development programs—so that Orchard Road remained not a part of the CA in the Master Plans until 1991.

With the completion of the Central Area redevelopment programs in the late 1980s, and the consequent restructuring of the planning area boundaries, the Concept Plan 1991 designated a new Central Area which included 11 Development Guide Plan areas (viz. Newton, Orchard, River Valley, Singapore River, Meseum, Rochor, Outram, Downtown Core, Marina East, Marina South and Marina South Corridor. [Fig. 19](#)). As these are DGPs, the CA is the same with CPA. These DGPs and the CA continued in the Master Plan 1998, Concept Plan 2001, and Master Plan 2003, except that Marina South Corridor has renamed to Straits View since 1998.

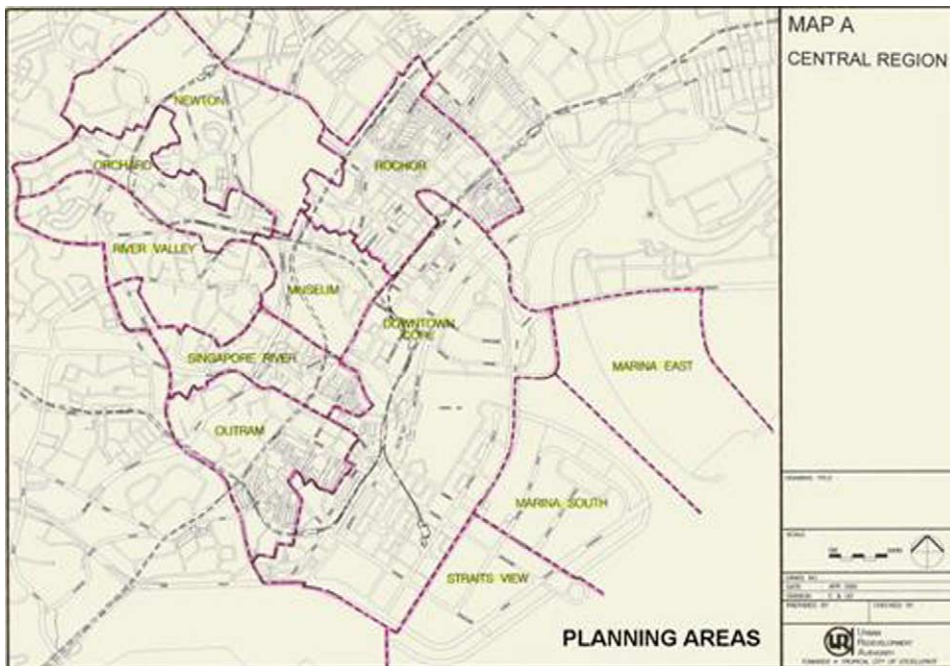


Fig. 19. CA in Concept Plan 1991. Note. Marina South Corridor was renamed Straits View in 1998.

### 3.1.3. The urban planning area

Embracing the Central Planning Area is the Urban Planning Area, which was traditionally used in Singapore's planning documents till Master Plan 1985. The Master Plan 1958 clearly demonstrates the division of the island into Rural Planning Area (RPA) and Urban Planning Area (UPA), in which the Central Planning Area (CPA) was a part of the UPA. According to Master Plan 1958, Singapore was organized with a central core known as the town area and an outer ring known as the rural area. These two were linked by a web of ring and radial roads.

Planning districts were defined, so that planning districts fall in the RPA were called Rural Planning Districts (RPD); those fall inside the UPA were known as the Urban Planning Districts (UPD); and those fall inside the CPA were known as the Central Planning Districts (CPD). The CPDs were further divided into precincts for detailed planning and development control purposes.

Corresponding to the rural–urban division of the island were the different maps: the Island Map, the Town Map and the Central Area Map. These terms 'Island Map', 'Town Map', and 'Central Area Map' have the meanings assigned to them under the Master Plan Rules 1962 (MND, 1975: 10). The Master Plan 1965 used three areas—Central Area; Urban Area; Rural Area; both Master Plan 1970 and Master Plan 1975 used the terms Island Map; Town Map; Central Area Map. The Master Plans 1980 and 1985 used the Central Planning Area, Urban Planning Area and Island Map Area. The Island Map focused on the rural planning area, while the Town Map Area was for the Urban Planning



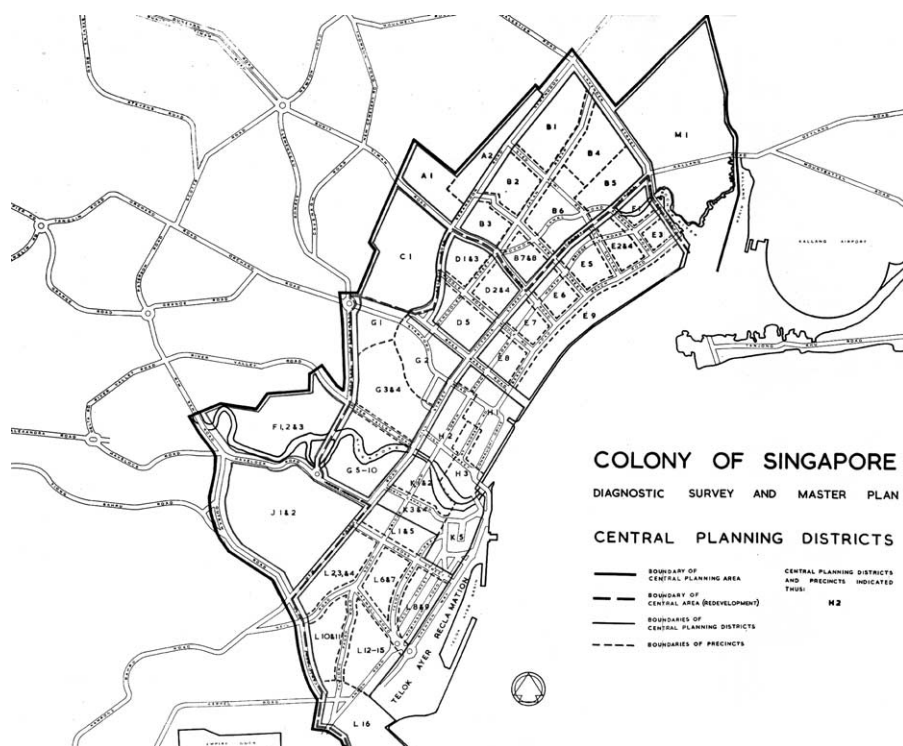


Fig. 20. CPA and CA. Source: Reproduced by author based on [MND \(1980\)](#).

Area. The Central Planning Area showed both the CPA and the CA which was due for redevelopment (Fig. 20).

In the Concept Plan 1991, Singapore was organized into five Planning Regions (URA, 1991). These are the Central Region, the North Region, the North-East Region, the West Region and the East Region. The central catchments area in the centre and the live-firing area in the west are excluded from the five regions. This transformed the Rural Planning Area used in the previous Master Plans prior to 1985 into the four non-central regions. The Central Region retained the boundary of the Urban Planning Area. Within the boundary of the planning regions are the 55 Development Guide Plan (DGP) areas. Planning districts are no longer used as they were replaced by the DGPs.

Planning reports were published for each of the 55 DGPs in the late half of the 1990s, and these DGP plans added up to make the Master Plan 1998. In the Master Plan 2003, however, no updates were published and disseminated in the form of DGP. Instead, DGP boundaries became an internal reference for URA planners (Interview of an URA planner on 10 December 2004). This may signal the end of using DGP as a planning instrument on the Master Plan making. The five planning regions stay, though the central catchments area is now incorporated into the North Region, and the live-firing area is a part of the West Region.

### 3.2. Downtown planning

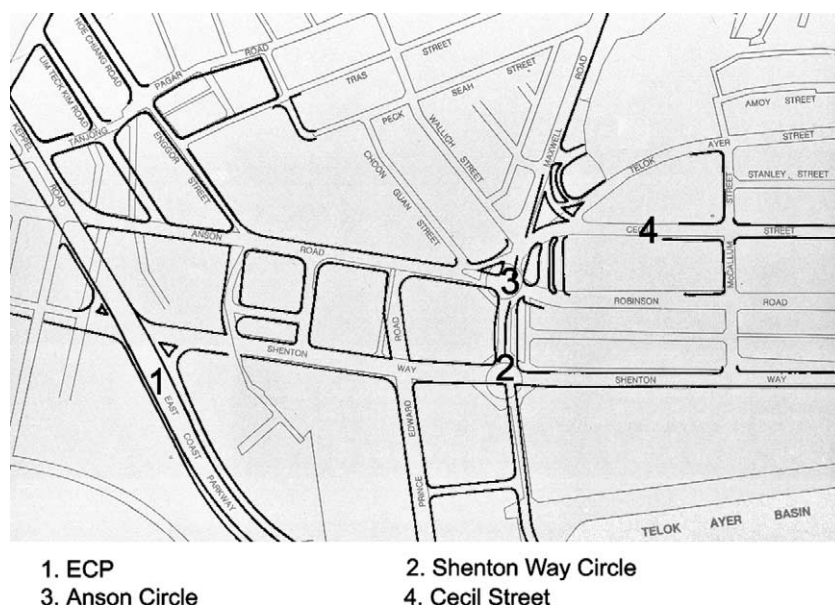
The internal self-government began with Master Plan 1958, which planned Singapore into a medium-sized town being able to expand radially in all directions and served by a network of ring and radial roads. The island was organized into three areas: an ‘inner city’, a ‘town area’, and a ‘rural ring’. There was no Downtown envisaged by the planners at that time, but it was assumed that Singapore would grow at a slow and steady rate in social and economic terms; the government would play a passive role in the economy as providing welfare relief to the distressed; and the preservation of the achievements and institutions of the past should be a main objective of all planning (Chua, 1989: 13). Soon it became clear that the assumptions in Master Plan 1958 were invalid. Singapore was facing rapid population growth. The then newly elected government, instead of maintaining a passive welfare role, was ready to provide the necessary initiative and leadership for economic endeavors. Its vision for Singapore was forward-looking and modern rather than bent on conserving the colonial institutions of the past (Chua, 1989: 13).

The UN planning team suggested that the Master Plan be superseded by two other instruments of planning: namely a ‘program of action’ approach within a ‘guiding concept’ for the entire island. The program of action included a series of linked activities such as land acquisition, capital investment, housing construction and resettlement, and redeployment of employment facilities, which were all carefully coordinated and timed so as to smoothly complete a designated development project. The advantage of this approach was that several projects, each with its own action program, could be initiated at the same time. The eventual outcome would be to replace the Master Plan with a mosaic of such development (Chua, 1989).

Thus, the ring Concept Plan was worked out, which consequently refined and detailed to become the Concept Plan 1971 (refer to Fig. 4). An area including the Singapore River mouth and extending to the Orchard Road was designated as the main commercial centre. Under this guiding concept, Singapore’s Downtown was carved out as the Central Business District. The redevelopment of the Golden Shoe area provides an example of the planning guidelines—the road network, sales of site programs and design guidelines.

Fig. 21 shows the existing road lines and the proposed improvements. New highways (e.g. the East Coast Parkway which is commonly known as the ECP) were planned as a part of the island transportation network under the guidance of the ring concept. Existing roads were widened, straightened, and one-way traffic was designed for a number of streets. For example, Cecil Street, Cross Street, Collyer Quay near Finlayson Green; Battery Road and Bonham Street junction were all widened and converted to one-way streets. Some street patterns were rationalized, e.g. Shenton Circle and Anson Circle. These were eliminated as they were deemed ineffective in handling the anticipated increase of vehicular traffic generated by the new Shenton Way developments (Chua, 1989: 59).

‘Sales of site’ programs followed the guiding Concept Plan and the road network improvement plan. A simulation plan with a model was provided for each of the sites, and became an integrated part of the tendering documents. Fig. 22 shows an example of the site plan and a building model for development guidance. The tenders were, however, free to develop their own designs, subject to compliance with certain conditions stated by



1. ECP  
3. Anson Circle

2. Shenton Way Circle  
4. Cecil Street

Fig. 21. Road network plan. *Source:* Reproduced by author based on a map in [Chua \(1989\)](#).

the URD ([Chua, 1989: 18](#)). Awards were granted on the basis of a set of criteria—the premium offered, the level of capital investment involved, the number of jobs generated, the revenue potential and the architectural merits of the development proposed.

Detailed design guidelines were provided. For example, in Shenton Way, the plot ratio, which is defined as the ratio between the total building area and the site area, was fixed at 5. This was designated according to the capacity of the road network and the volume of pedestrian and vehicular traffic generated post-development. Podium and tower guideline were given, with the podium height controlled at 4-storeys in order to provide visual uniformity and human scale. All towers were planned to have waterfront views. A sum amounting to 2% of the total development costs was to be spent on landscaping around the development ([Chua, 1989: 74](#)).

The guidance and action approach of planning provided the flexibility of introducing new planning ideas. One example was to have mixed development in the Downtown area to include residential so that the Downtown would not be empty at night. Developers were thus encouraged to include residential units in their commercial projects. But this failed because these residential units were too marginal to form a critical mass. They were not viable economically but affected the project return negatively. As a rectifying measure, in 1980, developers were granted permission to convert them into office space without penalty.

Since the late 1980s new plans were introduced to the development of the Downtown. At that time, the URA planners ‘...are about to embark on a plan...[to] give Singapore a showcase Downtown of the 21 century...it will be one of the world’s prominent financial centres and the finely-tuned nerve centre of Singapore’s economy’ ([URA, 1992: 3](#)).



Fig. 22. An example of a site plan and a building model. Source: URA sale of site program.

Major changes were outlined in the Concept Plan 1991, which provided a structure plan for the Central Area (CA) for year 2000, year 2010 and year X when Singapore's population hit 4 million (URA, 1991). According to Fig. 19, the major development from the year 2000 onwards in the CA would be the Marina South and the Marina East areas. These included the new Downtown extension to the Marina South and residential development in both Marina South and Marina East. In comparison to the extensive development in these newly reclaimed lands, the rest of the CA would have little changes. Nevertheless, some land parcels in the temporary open space, one of the many land use categories, would be converted to commercial use, or, some institutional land use would be redeveloped to cater the needs of commercial activities.

Detailed planning was done in the mid-1990s under the DGP planning framework. The plan composed of the Existing Downtown (i.e. the CBD, Bugis, Civic District and Marina Centre) and the Central and Bayfront sub-zones. In addition, Straits View and Marina South (now the term refers to a scaled down portion of the entire Marina South area) were included in the plan. In total the Downtown Core covers 638 ha of land, with 266 in the *Existing Downtown*; 372 ha in the Central and Bayfront sub-zones (139 ha), the Straits View (105 ha) and Marina South (128 ha). Land use in the *Existing Downtown* was mainly for commercial (35%) and road and infrastructures (35%). Institutional and open space

and recreational land use took 8% of the total land area each. The waterbody accounted for 2%; and 12% of the land was used for other purposes (e.g. industrial, warehouse). No land was used for residential in the *Existing Downtown*. Land reclamation work in the Central and Bayfront (C&B) sub-zones and the Straits View (SV) and Marina South (MS) was completed in 1995.

In terms of land ownership, 67% of the land in the *Existing Downtown* was state land, and 33% was private land. While in the C&B, SV and MS area land is under state ownership.

A number of strength and opportunities were identified for the *Existing Downtown*. These included (1) its function as a financial and commercial hub; (2) its central location and easy access to the Civic District, the commercial corridors at Singapore River and Orchard Road area; (3) its accessibility by major roads and public transport; (4) its diversity of established nodes; (5) redevelopment opportunities at Rochor/Ophir Road, Beach Road and Tanjong Pagar/Anson area; and (6) its attractive skyline and its service as the main venue for major celebrations and national events. The lack of live-in population, traffic congestion around Stamford Road/Memorial Park, and the weak pedestrian linkages between Beach Road and the Marina Centre, and between Raffles Place and Clifford Pier were identified as the main weaknesses faced by the *Existing Downtown* (URA, 1995).

The strengths and opportunities associated with the C&B, SV and MS area included: (1) its capability to provide natural and seamless extension to the existing CBD; (2) its potential to be a physical asset in provision of a focal point for the Downtown extension; (3) its easy accessibility to MRT; (4) its absence of constraints for developing into a pedestrian friendly environment, with integrated public transport system, as the land is largely vacant; and (5) its potential to build a new road system to divert vehicular traffic away from the city centre. The main weakness and constraint is that the area is separated from the *Existing Downtown* by the East Coast Parkway (ECP). There are only two points of entry to the area, one from the east along the ECP and the other from Maxwell Road. No direct access is available from the west via the ECP. The existing MRT tunnel alignment from Raffles Place MRT Station to Marina Bay MRT Station also poses a technical constraint on future development. Finally, building heights are subject to technical height constraints (URA, 1997).

The vision for the *Downtown Core* was '[t]he economic and cultural pulse of Singapore and a leading business hub of Asia-Pacific with excellent infrastructure, world-class cultural and entertainment facilities, and unique urban landscape for quality working and living environment' (URA, 1995: 22). For the Central and Bayfront subzones, it is envisioned that this area will 'offer a variety of living and working environments and will be well served by public transport. Pedestrians will be able to move around in all weather comfort' (URA, 1997: 14).

In order to accomplish the above, planning strategies were worked out. These included (1) to introduce a variety of commercial uses; (2) to strengthen Bras Basah/Beach Road as a hotel belt; (3) to inject more live-in population; and (4) to introduce more waterfront activities in the existing Downtown (URA, 1995: 23); and to allow maximum flexibility to cater to market needs; to encourage a larger live-in population and to develop a continuous activity corridor along the one-way pair extension in the C&B, SV and MS area (URA, 1997: 15). Table 3 shows the land use categories and the proposed changes.



Table 3  
Existing and proposed land use in the existing Downtown, 1995

Land use	Existing		Proposed		Change in %
	ha	%	ha	%	
Commercial	92	35	100	38	3
Residential	0	0	5	2	2
Institutional	22	8	17	6	–2
Open space and recreational	22	8	21	8	0
Road and infrastructure	93	35	96	36	1
Waterbody	6	2	5	2	0
Others	31	12	22	8	–4
Total	266	100	266	100	0

Source: Combined from data in [URA \(1995: 16 and 24\)](#).

A relatively large proportion of the land use was designated as ‘white site’, which is a land use category in zoning discussed in Chapter 2.3.2. Almost half of the land was on the reserve (46%), and 22% was for road use ([Table 4](#)). Open space took 16% of the land. Clearly, a cautious approach has been taken in developing the new Downtown extension, allowing the market to decide the land use mix.

High density development is encouraged, with plot ratio ranging between 5.6 and 12.5 in the *Existing Downtown* and from 9 to 15 in the Central and Bayfront sub-zones. URA’s model of the new Downtown extension exhibits a large number of skyscrapers which will dwarf the tall buildings in the CBD. [Marshall \(2003: 156–158\)](#) examined the urban design of the new Downtown extension, and registered a number of concerns. First, the building form which extends vertically and horizontally into greater size may not be appropriate to meet the contemporary requirements of space from corporations. Older office building models may not be relevant to the reality of the global city; so does the concept of the Downtown. Second, the new Downtown lacks a sense of difference from other global cities, especially New York that serves as the model for Singapore’s Downtown planning. It is not clear what the ‘tropical’ characteristics to be developed are. Third, the elements of ‘urban design’ that govern

Table 4  
Proposed land use in the C&B, SV and MS Area 1997

Land use type	Land area	
	ha	%
White site	50.3	13
Residential	9.6	3
Open space	58.6	16
Reserve	169.8	46
Utilities	0.5	0
Roads	83.2	22
Total	372.0	100

Source: [URA \(1997: 16\)](#).

its creation seem weak and superfluous to the overall object quality of the project. Compositional plan derived from axial arrangement and geometry cannot deal with the dynamics of incompleteness and ‘in process’ nature of urban space.

The goals of transportation development included increasing the accessibility to Nicoll Highway and Marina Centre, minimizing the number of roads in the area, and reducing the number of cars entering the new Downtown. Pedestrian access from Bugis to Marina Centre Zone and access to the water-front were to be improved. In the new Downtown, a comprehensive network of covered linkages connecting all public transport nodes and the surrounding developments was envisaged. An inter-linked system of open space and a distinctive garden city image were to be created.

### *3.3. Preparation and implementation*

Though the ‘Ring Development Concept Plan’ made in the 1960s marked the genesis of the Downtown and, in particular, the Golden Shoe area, development of Singapore’s Downtown did not start until 1970. The 1960s can be viewed as a decade when planners prepared for the exciting project of Downtown making. They experimented with urban renewal projects and learned the obstacles faced and the lessons in redevelopment. These included the political economy involved in urban development (Gamer, 1972) and the renewal of two precincts in the vicinity of the Central Area (Chua, 1989). They also tested the ‘sales of site’ programs in renewal projects near-by the Downtown. The Rent Control was lifted for the designated redevelopment areas.

#### *3.3.1. Preparation*

Development in the Kallang Basin was one example of the projects carried out in the early 1960s, dealing with development planning, land acquisition, residents’ resistance, and resettlement operations (Gamer, 1972). This project was initiated by the government in 1960 and was carried out using a top-down approach. There was no public participation involved in the planning and implementation of the projects. Indeed, public participation in planning is a very recent undertaking by means of exhibitions and group feedbacks. The Kallang Basin project moved slowly in its first 5 years. Political uncertainties and social instabilities set up the context against a rapid clearance of the site, as resettlement of the residents was a sensitive political issue and could be a cause of riots. Similarly, changes of the land acquisition law were put into hold. In addition, many lessons were to be learnt regarding the coordination among government agencies; land acquisition techniques; negotiation with residents and organizations (e.g. the Rural Dwellers’ Association, the Malay Action Committee).

The great majority of the 4072 families were resettled by the end of 1966, and the site was made ready for construction soon after. This timing was just right, as many manufacturing firms in Europe, US and Japan were looking for relocation sites to reduce labor costs. The Economic Development Board (EDB) was active to campaign and advertise Singapore’s progress and her many incentives to foreign investors. As such, ‘[d]uring 1966 and 1967, the HDB and Economic Development Board constructed six

flatted factories (i.e. 1-storey factories—author's note), to join two others already operating... By the end of 1969, an additional flatted factory had been completed in the Basin, and two others were nearing completion. Forty-seven industries were housed in the flatted factories. Four large warehouse-type single-storey factories were constructed above the Kallang River, housing an additional twelve factories. In addition, four fabricated factories just north of Geylang Road housed some 76 industries resettled from urban redevelopment areas. Altogether, the 135 light industries occupying these 11 new structures employed approximately 6000 persons as the decade of the 1960s drew to a close' (Gamer, 1972: 113).

Urban renewal first began with precincts North 1 and South 1, which were known as the pilot cases recommended by the United Nations planning team. These two renewal projects were carefully selected from an island-wide planning analysis. The timing of these renewal projects was also considered, as '[b]y 1964, the Housing and Development Board had already completed about 45 000 units of public housing, providing permanent shelter for nearly one-quarter of the population' (Chua, 1989: 14). The renewal projects were thus integrated with housing, trade, and industrial development programs. The three men UN planning team produced a sketch plan for Central Area redevelopment from which detailed plans were developed.

The two projects were selected in the north and in the south, rather than in the core of the Central Area because '...large portions of the land therein were state land and would, therefore, be easier to clear and reparcel. Conversely, the central core—Chinatown—had a very high proportion of private land. Furthermore, the large number of households that had to be rehoused would overtax the nascent construction industry'. In addition, a substantial portion of the existing shop-houses were assessed as ripe for demolition (Chua, 1989: 13 and 18).

'Sales of site' programs were first tested in these renewal projects. In order to ascertain that these sales would work well, incentives were given to all investors. The most significant was an easy payment scheme for the land premium: 20% down payment and the rest 80% could be paid in 10 years interest free. A property tax reduction from the normal charge from 36 to 12% for a period of 20 years after a project was completed was also granted to developers. As the investors' confidence with the Singapore economy grew, the incentives were gradually removed. In 1979, the 20-year property tax concession was removed. In 1987, the down payment and the installment system were abolished. From then, a successful tender had to pay 25% upon securing the site with the remaining 75% due within 3 months.

There were 13 sites released for redevelopment island-wide, seven of which were in these two precincts. These sites were for the development of hotels, shopping and entertainment centres, and better-class apartments. At the close of the sale, half of the 13, including all the seven in the two precincts, were successfully leased.

In 1968, there was the second sale of sites. This time the focus was on office and shopping centre developments. As a reflection of the high demand of development opportunities, the sales of site programs received unexpected responses. Fifty-six tenders bid for 12 out of the 14 sites. This compared favorably with 14 tenders for eight of the 13 sites in the first sale in 1967. The market signal seemed clear—it was the right time to renew the core commercial area and start building the Downtown.

The last preparation for urban renewal in the core was to remove the rent control in the Central Area. Rent control served as a hindrance to urban renewal as its purpose was to protect tenants from unreasonable rent increase and eviction. Implemented in 1947, the Rent Control Act was amended in 1953 and 1961. According to the Act, a low rent must be retained—not to increase beyond the 1939 level; repossession was restricted—only for non-payment cases, serious breach of obligations by tenants, owners' own use without other alternatives (this required 1-year notice); rent control continue to be in effect even when the premises are vacated. The 1961 amendment prohibits repossession for the purpose of demolition or the erection of a new building; no incentive thus to owners to maintain the property. As such, the Central Area properties were deteriorated. Further, redevelopment was hindered by the fragmentation of land into small parcels, i.e. narrow shop-houses did not provide land parcels big enough for comprehensive development.

Gradual decontrol process was designed in four clusters/stages: Victoria Street, Rochor Road, North Bridge Road, Middle Road; Prinsep Street, Albert Street, Ben Coolen Street, Middle Road; Armenian Street, Hill Street, North Boat Quay, North Bridge Road, Stamford Road; Telok Ayer Street, Maxwell Road, Shenton Way, Cross Street, Raffles Quay, Collyer Quay, Boat Quay, Market Street (Chua, 1989: 25). The selected area was gazetted. Once gazetted, the tenancy would be terminated, and the property would be repossessed. No subletting is allowed, nor selling of the property without prior consent from the relevant government authority.

In order to ensure development, landowners were given up to 1 year from the day of gazette to submit to the authorities plans for redevelopment and up to 3 years to begin work on approved plans. They were given 6 months to notify the authorities of their inability to redevelop. Any landlord failing to comply with these provisions faced the possibility of having his property acquired by the state.

### 3.3.2. Implementation

By 1970, the government was ready to act. At that time, Singapore achieved remarkable success in her industrialization program; there were international and domestic capitals available for investment; and demand for office and commercial space was strong.

*The Golden Shoe.* On 27 February 1970, the Control Premises (Special Provision) Act 1969 was gazetted in Parliament. The fourth cluster of the areas selected for the decontrol process was chosen to begin with. This first area for rent decontrol generated much excitement and speculation. Two characteristics were especially widely discussed in the media (1) the area of 34.84 ha would contain Singapore's most expensive real estate after decontrol; (2) the area is shaped like an upturned shoe. The term 'Golden Shoe' was used in the headlines. This area was especially attractive because it had vacant state land that was immediately available for development and encompassed the traditional commercial heart of Singapore (Chua, 1989: 25). The timing for beginning the renewal process was also just right, because first, there was ample domestic and foreign capital seeking investment opportunities; and second, the demand for office and commercial spaces were climbing corresponding to successful industrialization.

In 5 years between 1970 and 1975, a total of 13 projects were completed. Another 14 were under construction; nine were approved and waiting to begin work; and seven proposals were under consideration. Twelve proposals were rejected because of the size of

development did not meet the expectations. These developments transformed the skyline of the Downtown. In the eyes of the government, however, changes were not fast enough. There remained a substantial amount of rundown properties which were small in lot size and fragmented all over the area. Owners of these small sites could not reach an agreement to amalgamate their holdings into suitable size for comprehensive development (Chua, 1989: 57 and 58). Dale (1999: 144) outlined two reasons for this. First, landownership is recognized by the Chinese, a source of privilege and authority, and complete control of a piece of land is associated with family identity. In addition, there is also a corollary desire for individual profits and higher incomes. 'Hence, even though amalgamation of land may represent corporate profits, these land owners would rather make do with what they have than participate jointly in a viable but corporate scheme' (Dale, 1999: 144).

In order to speed up the redevelopment process and to force the hands of owners of small parcels, the government started using compulsory acquisition as a means. In November 1975, a total of 215 lots, amounting to 31 700 m<sup>2</sup>, were gazetted for acquisition. All but three of the lots were less than 372 m<sup>2</sup> (4000 ft<sup>2</sup>), as this was used as the cut-off point below which independent redevelopment was deemed not viable. These lots were under different ownership, and majority of the lots were less than 186 m<sup>2</sup> (2000 ft<sup>2</sup>).

Nevertheless, with the threat of compulsory acquisition, some hasty amalgamation and redevelopment proposals were submitted along with the appeals. Three of the submissions and appeals were approved as the plans were conceived prior to the gazetting. The rest of the appeals were rejected. In mid-1976, the actual acquisition and clearance of the gazetted plots by the Land Office commenced. By 1980, the land was ready for development and the assembled parcels were sold in the URA's eighth and ninth sales of sites in 1980 and 1981, respectively (Chua, 1989: 58).

By early 1979, 20 projects had been completed. However, the momentum of development seemed to have been lost, partly because the general demand/supply condition. The government decided to give it another push (Dale, 1999: 146). In July 1979, the Minister for National Development called for owners of small lots to amalgamate with adjoining plots in order to achieve bigger and more comprehensive development. He announced that if owners of old private properties in the Golden Shoe failed to respond to the government's encouragement, the URA might have to step in to ensure comprehensive redevelopment. Thus, in December the same year, the ministry of National Development issued policy guidelines on the size of each development:

1. Any proposed development smaller than 8000 ft<sup>2</sup> (748 m<sup>2</sup>) should not be approved unless the adjoining site had already been developed and there was no possibility of enlarging the site;
2. For any proposed development with adjoining state land of a smaller size, the developer should be asked to purchase the state land for a larger development;
3. If the proposed development was smaller than 8000 ft<sup>2</sup> and adjoining another piece of private land, both parties should be advised to combine their land. If agreement could not be reached, then the government would acquire both pieces of land;
4. If there was any private land smaller than 8000 ft<sup>2</sup> adjoining a large piece of state land, then the private land should be acquired to be amalgamated with the state land for future development.

A second warning was issued by MND in January 1980, stating that if plans were not submitted within 3 months, compulsory acquisition would be considered. The result of this warning was 13 new proposals received, of which eight were approved and five were rejected. All the lots belonging to owners who did not comply with the request to submit plans or whose proposals were refused were compulsorily acquired (Dale, 1999: 146).

As of August 1989, 27 projects resulting from URA's sales of sites program completed in Golden Shoe and its vicinity. A total of \$1.4 billion were invested in these properties providing half a million square meters commercial space (Chua, 1989: 59). It was particularly phenomenal that Shenton Way was transformed from a car park and hawker centre to a prestigious banking and finance address. Chua (1989: 99) asserted that "the success of the Golden Shoe is much greater than the renewal of the area itself...the redevelopment momentum has spilled over into the adjacent areas". This spillover refers to the southward extension between Maxwell Road and Keppel Road and bounded by Shenton Way and Anson Road. Development extended further along Keppel Road westward towards Cantonment Road.

*Other areas.* The 1970s and the 1980s were also the decades for rapid transition of other areas in Singapore. The development of Orchard Road and the Marina Centre were especially remarkable. Orchard Road, for example, was transformed into an area with high concentration of hotel and shopping activities, primarily through private enterprises. This area was a suburban residential neighborhood during the early 20th century. After the War, many terraces, semi-detached and bungalows were built in the area. As the area was occupied by upper-class residents, the lower part of the Road in the vicinity of Dhoby Ghaut became the motor vehicle distribution centre in Singapore. High-rise apartment buildings were constructed in the early 1960s. The mid-1960s marked the drastic transformation of the area towards a hotel and shopping strip.

The main reasons for selecting Orchard Road for hotel and shopping centre development included: (1) the availability of large lots of land free from encumbrances; (2) the advantage of shopping and entertainment facilities. The first Cold Storage in Singapore was opened on Orchard Road in the 1940s; (3) the pleasant green surroundings; (4) the fact that hotel and other commercial development were permitted according to Master Plan zoning (Dale, 1999: 140). By the mid-1980s, Orchard Road has turned into Singapore's most accessible, intensive, and specialized shopping street with a national catchment area. Moreover, the area also has the largest concentration of office space outside the Golden Shoe.

The Development of the Marina Centre began in the mid-1980s, when the Suntec Investment Pte Ltd (SIPL) was incorporated in 1985 with an authorized capital of \$100 million. The formation of SIPL was believed a result of active promotion of Singapore's development by senior government officials, especially, the relationships that Lee Kuan Yew has built with the Hong Kong Business tycoons. A number of business elites from Hong Kong were invited by Lee for the 1984 National Day celebration, during which the elites were asked to invest in Singapore (Porter, 1997: 75). In the first annual general meeting in 1986, high-ranking government officials attended the lunch and evening cocktail hosted by the Hong Kong businessmen, further revealing the high level political connections of the investors (Pow, 2002a,b: 172). In 1988, URA awarded to SIPL 11.7 ha



plot of land paid for \$208 million which was the highest among the tenders participated in the sale of site program. With loans from local banks amounting to \$1.4 billion which were borne by the project developers, Suntec City developed into a world class city-within-a-city and the largest private commercial development in Singapore (Pow, 2002a,b: 155). Suntec City comprises a mega-size convention and exhibition centre, and five state-of-the-art office towers and a giant retail mall and a entertainment centre. In 1997, the Suntec investors sold off three of its office towers and re-coup an estimated \$2 billion. Rental income from office and commercial spaces, as well as income from exhibitions generate millions of turnover since its operation. This development, as argued by (Pow, 2002a,b: 154), demonstrates clearly urban entrepreneurialism and URA's pro-business planning to position Singapore as an international business hub through building new urban spaces at the Downtown core.

The completion of renewal projects in the late 1980s prompted URA planners for an adjustment of the boundary for the Downtown. Major considerations included the inclusion of historical and functional components in the New Downtown. Given that the Rochor area and Orchard Road were stand-alone areas with mixed characters with high proportion of residential buildings in Rochor area, and concentration of hotel and shopping centres along Orchard Road, it was natural to merge the government area with the Golden Shoe. The Marina Centre was added as development began in the mid-1980s. Together, a New Downtown Core was formed with functional and symbolic significance. Besides, the merged area covers about 400 ha, which was the size of the Downtown cores in Boston and Sydney.

Since the mid-1990s, the latest development focus of Singapore's Downtown Core has turned to the Marina Bay area. However, due to the economic downturn beginning from the Asian Financial Crisis in 1997, and the dramatic hit of the economy by SARS, 911 and the Iraq War associated with it, there was little progress in the late 1990s. Slow actions were taken in the new century, when the first site sale was awarded in November 2000. This was followed by the second sale of site in the area in March 2002. The first sale involved about 1.14 ha of land with a plot ratio of 13. The successful bidding price was \$461 816 000. The second site of sale was smaller than the first one, with about 0.9 ha and also a plot ratio of 13. The land cost for the second site was \$288 900 000. Both sites were zoned as 'white site', meaning that they can be developed for a variety of commercial, hotel and residential uses. As discussed earlier, the white site is a new category in Singapore's zoning plan which departed from the usual tight plan approach of prescribing the development mix and quantum in a land sale. This new zone signals the recognition of the market ability to decide on the highest and best use of the site. It also helps to mitigate unnecessary cost and impediment to future change of use in a project's life cycle.

In March 2004, the government announced a \$300 million initial investment in key infrastructure and facilities to open up the area to private and public investors (Skyline, 2004: 12). Design consultancy studies were also initiated in March and May 2004 in order to ensure that the new Downtown will be built into a distinctive area. Depending on the economic perspective in the immediate future, momentum of the Downtown development is awaiting to pick up.

### 3.4. Summary

A significant attribute of global cities is the presence of command and control functions that are vital to global economic activities (Friedmann, 1986; Hall, 1998; Sassen, 2001). In Singapore, the Downtown area hosts financial headquarters operating regionally and globally, and government organs that regulate the economy and own interest in enterprises extending their operations worldwide. In addition, Singapore's Downtown enclose major tourist hotels and convention facilities. Urban planners envisage that Downtown Singapore is the nerve centre of the island city-state (URA, 1992). This chapter examines the evolution of this nerve centre from a dilapidated commercial market to a modern Downtown hosting command and control functions of a global city.

The starting point of Singapore's Downtown development was similar to other global cities in the late 19th century where crowded housing and commercial establishments dominated a small but commercially significant area (Chew, 1973; Hall, 2002). Singapore succeeded in carving out a modern Downtown and transformed the dilapidated urban image into one with modern skyscrapers. How was this transformation carried out?

At least three observations capture the main features of the creation of a Downtown in Singapore's global city making. First, there has been a consistent long-term vision of the Downtown development; detailed transportation and land use plans; and flexibility in its evolution to accommodate changes in the global economy. The Concept Plan 1971 set up the direction for building a new Downtown to accommodate the financial control functions, and the implementation of the vision focused on the Golden Shoe area. In the Concept Plan 1991, planners spelt clearly that the Downtown would be the nerve centre of the economy including headquarters of transnational corporations, government offices, and conventional facilities that have global significance. The Concept Plan 2001 continued with the vision put out in Concept Plan 1991, but further emphasized the development of a new Downtown extension to cater to the need of more office spaces, recreational and sports activities in making Singapore a world city of the 21st century. Under the guidance of these visions, detailed plans were drafted and followed in agglomerating and subdividing the land parcels. Density and volume of building development were defined using plot ratio and indicative models to guide the creation of the built environment. Note that the geographic extension of the Downtown was defined according to the needs of a specific time, rather than to have the whole area designated as Downtown and to have the overall plan implemented in phases. The Singapore government is farsighted in directing the economic fortune of the city-state. This farsightedness is reflected in Downtown creation by the flexibility built in to the planning and development processes.

Second, there have been consistent government pushes towards the formation of the Downtown. In the Golden Shoe project, the government panned details of the circulation network and the image of the Downtown (Chua, 1989). Implementation schedule was defined, so that projects had to start and complete within the time frame given. Any deviation from the given schedule, to begin a project would result in compulsory acquisition of the land. Private developers and landowners found their own sources of capital for their projects. Public spending on infrastructure was limited to the roads and car park facilities. As an incentive to developers, incremental payment for purchasing from the government's 'sales of site' program was used. This, though rather unnecessary

because finance was hardly a problem to the developers, tended to ease the capital flow of the developers who were encouraged to participate in the ‘sales of site’ program. The Marina Centre project is another example demonstrating state determination in Singapore’s Downtown making. In this project, a vacant land recently reclaimed was transformed into a cluster of hotels and a convention centre. Overseas capital formed the main part of the investment. In accomplishing this, top government officials such as Mr Lee Kuan Yew promoted the project actively by networking Hong Kong business tycoons and convinced them to invest in the Marina Centre project (Pow, 2002a,b). This project not only increased the diversity of the Downtown functions, but also enhanced Singapore’s link to the world economy by directly engaging Hong Kong investors.

Third, a group of mechanisms in land acquisition, control of project timing, and land allocation have been developed and used in Downtown creation. The Golden Shoe development began in the early 1970s only after several redevelopment programs were completed in other areas (such as the North 1 and the South 1 projects). This allowed the planners to understand thoroughly the problems encountered in land acquisition and redevelopment, and equipped with mechanisms dealing with the land acquisition problems. The endorsement of rules regarding the project commencement date and completion date was used to control the timing of the project implementations. In land allocation, the state land sales program was introduced. The ‘sales of site’ program ensures that development meets market demand, and that the monetary return from land sale is maximized.

Over the past 30 years, Singapore’s Downtown evolved dynamically in area extent and functional diversity. The geographic area extended from the Golden Shoe in the 1970s, to include the Civic District, Bugis and Marina Centre in the 1980s, and further extended to the marina Bay area which is the current focus of development. The Golden Shoe was and still is a concentration of financial institutions. Government offices and convention facilities became a part in the 1980s. The recent plan is to further diversify the area by introducing more shopping and recreation activities to the area, and to have some large-scale residential development next door. Functionally, the Downtown extended to include not only financial headquarters, but also government offices and convention facilities, as well as shopping, recreational and residential setups in the new extension.

Singapore’s Downtown development was modeled after other advanced cities, such as New York. Though the emphasis of creating a tropical urban image was spelt in the planning documents, it is questionable as whether this tropical urban image was realized in development. Moreover, it is debatable as how useful are the urban images of other cities, which are a reflection of the socioeconomic conditions of a particular time period, to Singapore’s current global city making (Marshall, 2003). Last but not least, the success of the new Downtown extension will depend upon the economic and demographic development. The demand for shopping and recreation facilities, as well as for office space will be determined by the ability to attract a greater number of transnational corporations, immigrants and tourists to the island city-state.

## CHAPTER 4

### Industrial and business parks

Since the mid-1960s, Singapore has embarked an industrialization program which increased the contribution of manufacturing to the GDP from 16.3% in 1966 to 22.5% in 1973 (Perry *et al.*, 1997: 106). During the 1990s, the manufacturing sector maintained its contribution to the GDP between 26 and 28% (Perry *et al.*, 1997: 116); and the latest contribution was 25.7% in quarter three of 2004 ([www.singstat.gov.sg](http://www.singstat.gov.sg) accessed on 7 December 2004). Rapid industrial development not only provided a solution to the severe unemployment problem in the 1960s, but also established Singapore a regional centre of manufacturing production and distribution. This chapter discusses the planning and development of industrial parks that facilitated Singapore's global city making towards a regional centre of manufacturing and innovation.

#### *4.1. Type and evolution of industrial estates*

##### *4.1.1. General types*

Industrial properties in Singapore can be found in either one of the two groups: prepared industrial land and ready-to-use industrial buildings. The former is ready for construction of industrial facilities with the provision of infrastructure such as road, power, water, etc. These can be available from the Jurong Town Corporation (JTC), the Land Office, the Singapore Science Park (SSP), the Housing and Development Board (HDB), and the Urban Redevelopment Authority (URA). The ready-to-use industrial buildings include a variety of physical forms for different industries, and can be supplied by JTC, SSP, HDB and private developers.

JTC, as the largest industrial landowner, planner and manager looks after the majority of the industrial estates (33 industrial/business parks). Fig. 23 shows the various types of industrial parks built and maintained by JTC, organized into high-end industrial estates and industrial clusters. Fig. 24 shows the location of JTC industrial estates. Each of the two broad groups includes sub categories which are discussed in the following sections.

##### *4.1.2. JTC's high-end industrial/business parks*

The newest industrial parks include iPark 21 and One-North, which are recently conceptualized, and being developed as new millennium industrial parks to host not only industrial activities, but also activities associated with live and play. Rather than an isolated industrial estate, iPark 21 is a blueprint for transforming the existing industrial parks to suit the changing requirements of industrial firms by creating a work–live–play environment. Emphasis of iPark 21 are the provision and improvement of amenities, such as food centres, and high quality landscaping. One-North was designed Singapore's icon of the knowledge economy ([www.jtc.gov.sg](http://www.jtc.gov.sg) accessed on 10 July 2004). Conceptually, One-North is to be built into a place 'where the talents gravitate and ideas thrive'. It will be developed into a hotspot where 'entrepreneurs, scientists and researchers mix and mingle



data processing/financial backroom operations, software development; industrial training and central distribution centre. In addition to the predominant activities, according to the rules set by the Urban Redevelopment Authority, ancillary activities are allowed to operate in the parks. These include offices; leisure facilities, maintenance office stores; security facilities; showrooms and warehouses/storages. However, ancillary activities cannot occupy a space exceeding 40% of the total floor area.

There are currently three business parks available: the International Business Park (IBP) in the East, the Changi Business Park (CBP) in the west, and iHUB in Jurong East. IBP covers 33 ha of land, with two ready-built facilities (Fig. 25). Companies in IBP can either lease land (for 30 years with an option for another 30 years) to custom build their facilities or rent ready-built facilities from JTC. There are more than 200 companies operating in IBP at the time of this writing, including some big firms such as Creative Technology, Mobile One, Sony Electronics, and German Centre for Industry and Trade. CBP is twice as big as IBP, with 66.5 ha land subdivided into 62 parcels (IBP is subdivided into 20 parcels). Land lease for 30 years with an option to another 30 years is offered. Rentals of ready-built facilities ranging from 131 to 2623 m<sup>2</sup> are available. An additional feature in CBP is the District Cooling System that produces and distributes chilled water to meet the air-conditioning needs of customers. Some large firms, such as Honeywell, IBM, Invensys and Ultron Technologies operate in CBP. iHUB is the smallest BP among the three, with 11.9 ha of land. It is a refurbished development, and locates next to the IBP. JTC is currently marketing iHUB to multinational companies wishing to establish their headquarters next to IBP.

Technopreneur Spaces are developed for high-tech quick start-ups. Main features of this type of industrial parks include affordability and convenience. Small units are available for lease at a low rate. For example, the rental rate at Phase Z.Ro is \$41.64/m<sup>2</sup> inclusive of IT charges and service charges. In other words, a start-up firm renting 30 m<sup>2</sup> needs to pay only about \$1200 per month. And, the lease term is 12 months. Some start-up spaces can be rented at still a lower rate. In the Technopreneur Centre @ Ayer Rajah, for example, a 15% discount can be applied to a standard rate which is already lower than that in Phase Z.Ro for those firms qualify (e.g. at least 30% local equity in addition to satisfy other criteria). Thus, for a non-window unit, the rate can be as low as \$19.54/m<sup>2</sup> per month for the first 2 years and \$22.10/m<sup>2</sup> per month for the third year. Low rental rate does not mean low standard of facility provisions. Instead, rental spaces come with broadband connectivity, meeting/conference rooms, business centres and cafes or pantries. Value-add services such as dedicated portal and networking activities are organized by JTC in order to help the start-ups.

Not all firms qualify to rent as start-ups as the initiative was in response to the Economic Development Board's program to promote Singapore's overall attraction as a strategic business location ([www.jtc.gov.sg](http://www.jtc.gov.sg) accessed on 10 July 2004). JTC's selection criteria for the start-up include: (1) annual business turnover less than \$1 million Singapore dollars; (2) company being less than 3-years old; (3) a credible business plan; (4) the product or business is new to the company and related companies; (5) involvement in the following areas of technology: information technology and software development for industrial applications; electronics, microelectronics, telecommunications, electrical systems; manufacturing technology; food and flavoring technology; materials technology;



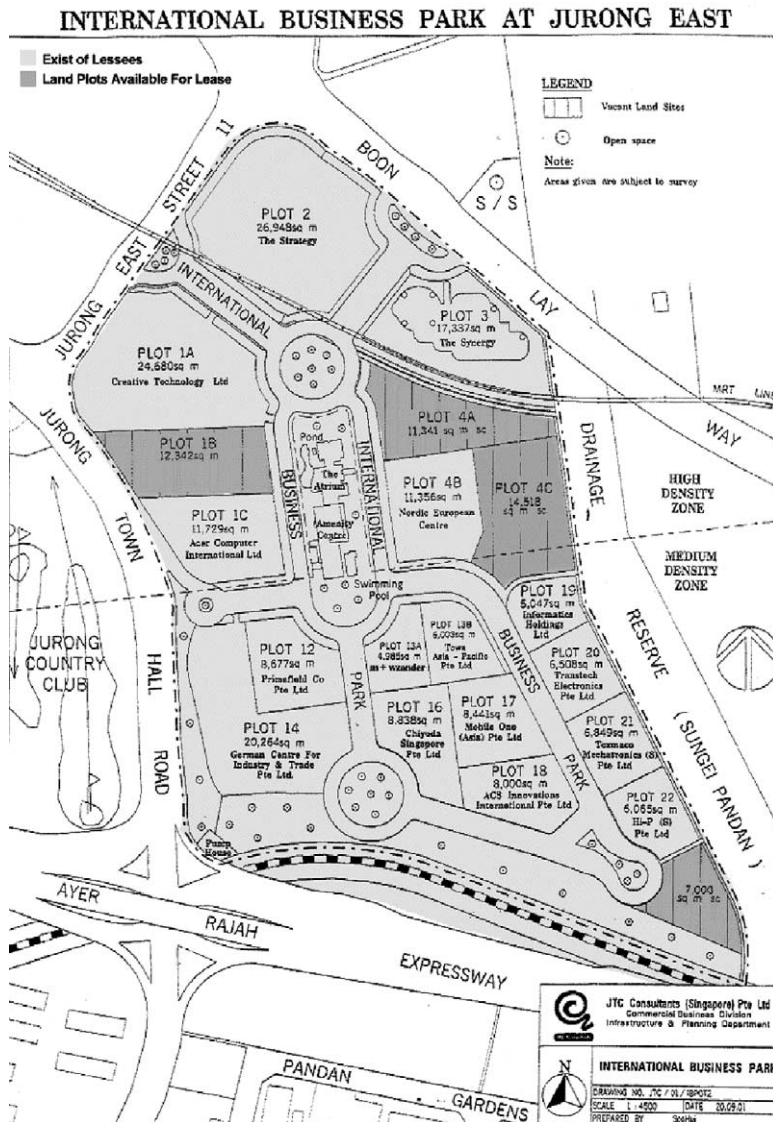


Fig. 25. International Business Park. Source: [www.jtc.gov.sg](http://www.jtc.gov.sg).

and non-hazardous chemical and life sciences technology. One hundred percent foreign-owned businesses can also apply to take up the facilities.

There are four start-up technopreneur parks in Singapore: Phase Z.Ro Technopreneur Park; Technopreneur Centre @ bukit merah; Technopreneur Centre @ ayer rajah; and The Enterprise. Phase Z.Ro locates in the latest business park—One-North. It began with 27 units in February 2001, and now has 60 units. The Technopreneur Centre @ bukit merah has 38 units; the Technopreneur Centre @ ayer rajah has 93 units; and The Enterprise has

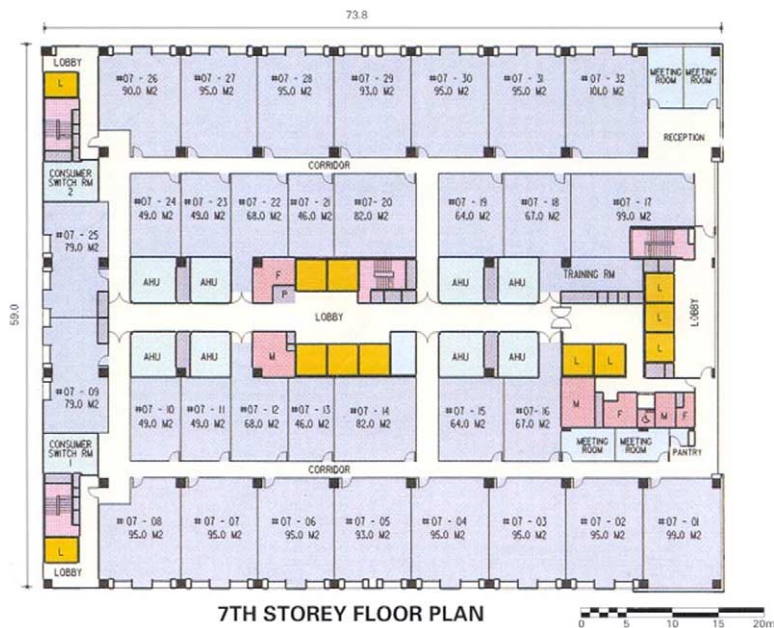


Fig. 26. Floor plan of the Technopreneur Centre @ ayer rajah. Source: [www.jtc.gov.sg](http://www.jtc.gov.sg).

60 units. Fig. 26 shows the floor plan of the Technopreneur Centre @ ayer rajah. Unit size ranges between 46 and 101 m<sup>2</sup> with broadband connectivity, light fittings, carpet floor finishes, individual electrical distribution box, powerpoints and telephone points. There are also shared facilities such as reception/waiting area, meeting rooms, business centre, training room, product display area, lounge, Alfresco café and pantries. The amenities provided include air-conditioned food court, multi-storey carpark, bus service to Buona Vista MRT station, clinic, minimart, and childcare centre. The take up rate shows that start-up office spaces are popular. By mid-2004, 90% of the units available in Phase Z.Ro was rented; 74% was rented out in the Bukit Merah Centre, and 60% was rented out in The Enterprise.

#### 4.1.3. JTC's industrial clusters

The specialized industrial clusters are developed for specific industries such as oil refinery, wafer manufacturing, and biomedical production. By clustering similar or related industries, it is hoped that companies will gain synergy and save cost by sharing essential services/facilities and through convenient outsourcing. At the present, there are two biomedical parks, four wafer fabrication parks, one advanced display park, one chemical hub, and three logistics parks. Most of these parks are in operation, but a few are under planning or construction.

The two biomedical parks are designed to accommodate bulk active pharmaceutical and bio-pharmaceutical manufacturers. One of the parks, i.e. Tuas Biomedical Park I is in operation (Fig. 27). It hosts global biomedical companies such as Merck Sharp



Three of the four wafer fabrication parks are in operation at Pasir Ris, Tampines and Woodlands, respectively. They are developed to support Singapore's vision to become a world-class semiconductor hub. For the fourth wafer fabrication park, the Master Plan was completed in 2003 and the park was expected to be in operation by 2006.

The Advanced Display Park was developed to support Singapore's strategic initiative to promote the TFT-LCD industry. The first of its kind was built at Tampines, occupying 35 ha of land (Fig. 28). The park's first plant was a Toshiba Matsushita Display Technology Company's subsidiary—AFPD. AFPD's liquid crystal display facility cost \$1.8 billion and was officially opened in November 2002. It utilizes fully-automated production technology to produce 14-in. Low-Temperature Polysilicon (LTPS) TFT-LCDs.

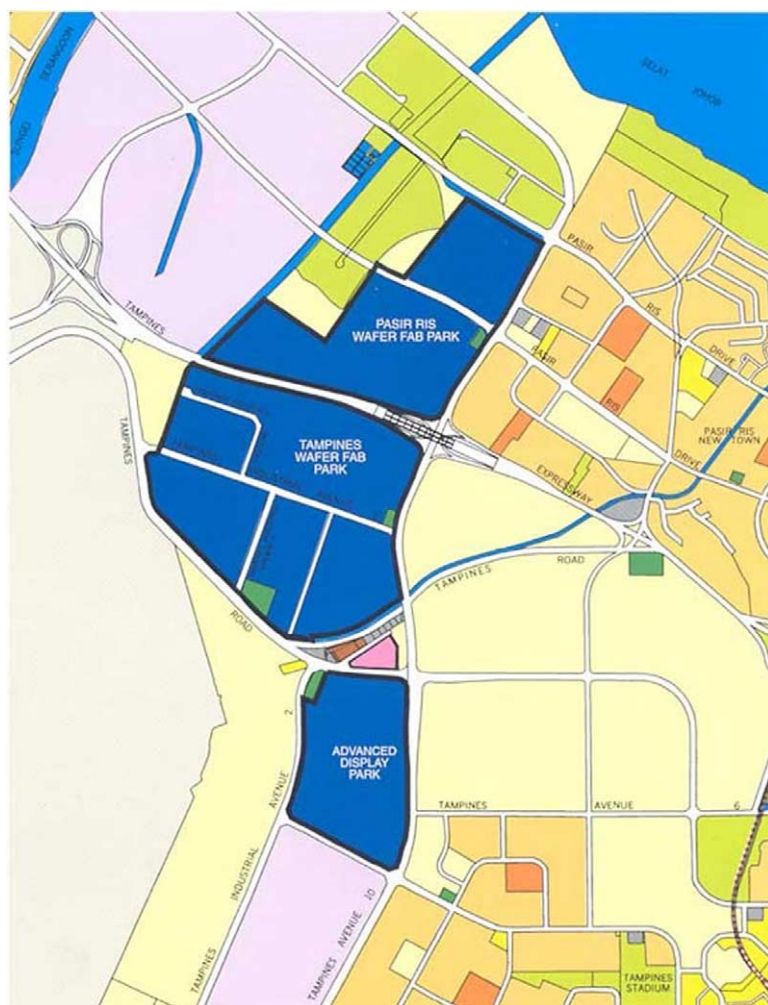


Fig. 28. The Advanced Display Park and Wafer Fab Park. Source: [www.jtc.gov.sg](http://www.jtc.gov.sg).



Jurong Island hosts the chemical hub, one of the largest ethylene production centres and the third largest oil refining centre in the world. There are 72 lessees including 53 international chemical giants operating on the island. These companies invested close to \$22 billion on the island. Jurong Island was developed from a few isles in the 1970s, when three oil companies decided to house their facilities on the islands—Esso in Pulau Ayer Chawan, Singapore Refinery Company in Pulau Merlimau and Mobil Oil in Pulau Pesek ([www.jurongisland.com](http://www.jurongisland.com) accessed on 8 December 2004). These isles, together with another four in the area, were amalgamated in the 1980s for the development of a chemical industrial hub. JTC has been appointed the agent of the Jurong Island project since 1991 to coordinate with various government agencies in preparing the necessary infrastructure and services such as land reclamation, roads, and drains.

The logistics parks are developed to strengthen Singapore's position as a leading integrated logistics hub in the Asia-Pacific region. The Airport Logistics Park of Singapore (ALPS) is a 26 ha Free Trade Zone leveraging on the excellent connectivity and efficiency of Changi Airport to facilitate third party service providers to undertake time sensitive and value adding logistics ([www.jtc.gov.sg](http://www.jtc.gov.sg) accessed on 10 July 2004). Banyan LogisPark is an 80 ha development on Jurong Island to serve the chemicals logistics needs of companies there. A number of other LogisParks all over the island, e.g. Toh Guan LogisPark, Toh Tuck LogisPark, Clementi West LogisPark, and Changi International LogisPark.

#### 4.1.4. *Non-JTC industrial estates*

Among the industrial parks managed outside JTC, the Science Park is the largest. The development of Singapore Science Park (SSP) was perceived in the late 1970s, for the purpose of upgrading the technology and research contents in the manufacturing sector (Pereira, 2000). Actual physical implementation of the SSP began in the early 1980s (See-Toh, 1993: 124). In 1982, its first tenant moved in ([www.sciencepark.com.sg](http://www.sciencepark.com.sg) accessed on 20 July 2004). About 30 ha of land with 245 000 m<sup>2</sup> built-up area were developed. There are in total 13 multi-tenanted buildings, six land lessees buildings (i.e. buildings developed and owned by land lessees) and one amenity building. In 1993, the second phase began its construction, with 20 ha of land and a built-up area of 52 600 m<sup>2</sup>. This is known as the SSP II (Fig. 29). The SSP II was completed in 2001, with five multi-tenanted high-tech buildings and three lessees buildings. The third phase of the SSP, known as the SSP III, is being developed. It is about 4 ha in land area, and its first multi-tenanted building was completed in 2002. The SSP is currently under the management of Ascendas, a JTC subsidiary established in 2001 through merger between JTC's International Business Parks and Facilities Group and Arcasia which were both also JTC subsidiaries. Arcasia was set up in 1990 to look after all the high-tech industrial parks under the purview of JTC. The purpose of establishing the subsidiaries is to introduce commercial operations in high-tech industrial parks development, which is especially important for Singapore's 'go regional' policy. Regional industrial parks such as those in India, the Philippines, China, etc. are under the management of JTC's subsidiaries.

HDB industrial parks are small pocket sites for clean and light industries. These include building blocks for food processing, motor workshops, warehouses, and wood-working workshops ([www.hdb.gov.sg](http://www.hdb.gov.sg) accessed on 16 July 2004). There are only about five building blocks for warehouse use, and about 15 building blocks for food processing.

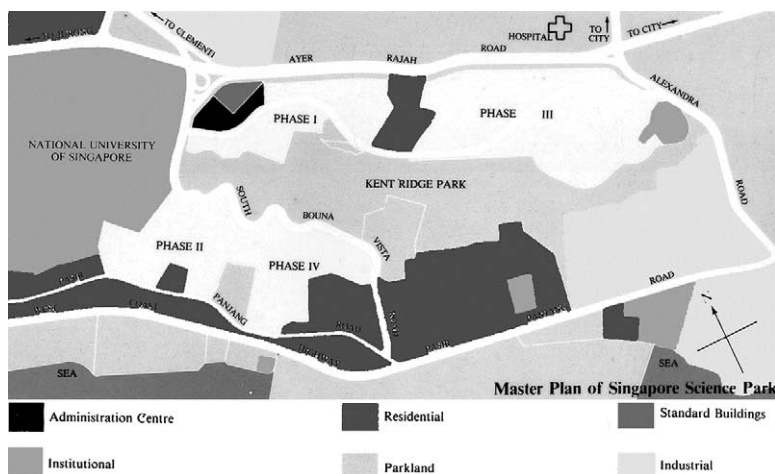


Fig. 29. Singapore Science Park.

The number of buildings for motor workshops and wood-working workshops make the majority of the industrial building blocks, with 65 and 30 building blocks, respectively. Island wise, these building blocks are distributed in 33 industrial clusters, with six for food processing; 11 for motor workshops; two for warehouses; and 14 for wood-working workshops. About 13 small industrial land parcels are also available for lease.

#### 4.1.5. Evolution of industrial estates

Singapore's industrial landscape has constantly changed over the last four decades, along two main dimensions: conceptual and institutional. Conceptually, industrial estates changed from a cluster of job locations to a place where work–live–play are integrated. This change did not happen overnight though. Up to the late 1970s, industrial estates were mainly developed for manufacturing activities. Industrialists either rented ready-built facilities which were mostly 1-storey or low-rise factory buildings, or leased land plot to build their own. JTC's service provision focused on infrastructures such as road, power and drain, with amenities provided in a larger area of considerations. Thus, the Jurong industrial area has the Japanese and the Chinese gardens as remarkable amenities in this large industrial estate, and housing development in the area under the purview of JTC. It was only in the 1980s, when the Singapore Science Park was developed, considerable services and amenities became available to the industrial estate. Needless, to say, SSP is different in concept and functions from traditional industrial estates dedicated to manufacturing production. Most of the tenants in SSP engaged in high-tech industries, with R&D functions and associated manufacturing as their main activities. Thus, lush landscaping, food courts, cafes, shops, childcare and swimming pool became integrated parts of the high-tech oriented industrial estate. The latest development of the One-North, further emphasized the importance of 'live' and 'play' in order to create an inductive environment for new ideas and innovations in the realm of 'work'.



In terms of institutional arrangement, there has been a trend of detaching the development and management of industrial estate from government agencies. The Economic Development Board began Singapore's industrialization process and the construction of industrial parks. This was transferred to the hands of JTC, which is a statutory board free from legislative procedures (refer to Chapter 2 on discussions about statutory boards). Business subsidiaries were introduced in the 1990s to commercialize the development and management operations. This arrangement using statutory board and its business subsidiaries allowed heavy reliance on the market in decision making, such as service qualities and rental levels. At the same time, it is guaranteed that government initiatives and policy direction can be followed—such as the restructuring of industries in the new economy and the provision of related industrial facilities.

Changes in industrial estates and facilities reflect industrial restructuring in Singapore. The construction of the ready-built factories was to attract foreign investment in manufacturing mainly involved in routine productions. These were labor-intensive industries exploiting the advantage of low labor cost. At this juncture, the interests of the Singapore government in job provision to resolve the unemployment problem matched with the search for cost reduction in production by multinational firms. As the industrialization program shifted towards upgrading of the technology contents during the 1980s, research and laboratories became important parts of the industrial parks, and the science park was born (Pereira, 2000). Newly constructed industrial parks were designed to meet the demand from high-tech industries such as biomedical engineering and wafer manufacturing which were identified the niches in the world economy. The need for being innovative led to the creation of One-North where work–live–play is integrated in the newest generation industrial park.

## *4.2. Strategies and planning*

### *4.2.1. Industrialization strategies*

Since the establishment of the internal self government in 1959, industrialization has become the major means to develop Singapore's economy. The manufacturing sector's share of the Gross Domestic Product (GDP) increased from 11% in 1960 to 24% in 1978, and 25.7% in 2004. A strong manufacturing sector not only contributed to the rapid growth of the GDP, but also helped to maintain a high employment rate.

A remarkable characteristic in Singapore's development is that the island city-state has been integrated into the external economies since its early days of industrialization. During the period 1960–1964, Singapore implemented an import substitution industrialization policy which was in line with the traditional role that Singapore served as a regional entrepot, and consistent with the national industrialization strategy that Malaysia adopted (Singapore was a part of the Malay Federation for the period 1963–1965). The separation of Singapore from Malaysia in 1965, and the confrontations with Indonesia, however, threatened Singapore's traditional role as a trading post of the region. This led to the abortion of the import substitution strategy, and the consequent introduction of the export oriented industrialization strategy. Under the export oriented policy, the development focus was to attract foreign investors to the manufacturing and financial sectors in Singapore.

There were major policy adjustments under the broad export oriented industrialization strategy. In the 1960s, there was an emphasis on labor-intensive industries. This was to resolve the high unemployment problem (estimated at about 10%) which was, at that time, aggravated by the planned withdrawal of British bases that employed around 40 000 workers. From 1967 to 1973, textiles and garments and the production of electronics and electrical goods generated about half the manufacturing employment growth (Perry *et al.*, 1997: 105). In terms of technology content, however, it seemed that other competing economies, i.e. South Korea, Hong Kong and Taiwan, had intensified the use of capital and skills. This led the government to embark on a 'second industrial revolution'. A high wage high value-added policy was introduced in 1979 in order to further increase the technology and skill levels in the industries. A 'wage correction policy' was engineered by the National Wage Council resulting in a 40% increase in unit labor costs from 1979 to 1984 (Perry *et al.*, 1997: 108). This was to force the pace of technological upgrading, by raising the direct labor costs. The contributions made by employers and employees to the Central Provident Fund (CPF) were raised simultaneously in order to prevent possible inflation which might be fuelled by higher wages.

A number of incentives were introduced in order to develop technology intensive industries. Examples of these included granting pioneering status to priority industries; giving special attention to R&D capacity and technical skills; increasing government expenditure on education and technical skills training; and the launch of the Singapore Science Park.

In 1985, Singapore's economy contracted for the first time in its modern history. This changed was sounded out by then the Prime Minister Lee Kwan Yew in his national day address (Dale, 1999: 42). A ministerial committee was set up by the government to study the cause of the economic downturn and to identify new directions for growth. The committee did not view production costs as the fundamental cause of the economic downturn. Rather, it was suggested that the 'slowdown marks a transition from one stage of development to another, characterized by the following turning points: (a) a more competitive international market due to slow world economic growth; (b) our having reached or approached the limits of some key resources, such as labor and land; (c) satisfaction of domestic infrastructure demand such as housing, commercial building, etc.; (d) a standard of living where we are no longer cheap' (Economic Committee, 1986: 163—check original). Nevertheless, the Committee suggested for a wage freeze and a cost cutting program, which was consequently implemented by the government. Thus, the employer CPF contribution was reduced from 25 to 10% of wages; corporate taxes were reduced from 40 to 33%.

In addition to the cost cutting measures introduced from 1986 to 1988, the Committee proposed various diversification strategies (Perry *et al.*, 1997: 110 and 111). These included continued expansion of the R&D base; promotion of service sector development; incentives to attract the regional operational headquarters (OHQs) of multinational companies; and reduction of government business ownership. A new goal was set for Singapore to become 'an important strategic node of global companies for the Asia-Pacific region' (EDB, 1988: 12). Thus, companies in Singapore would do more than production. They would integrate backwards into activities such as production engineering, product design, research and development; and forwards into marketing, technical support, after

sales services and ultimately regional management—a total business hub and a global city as stated in the Strategic Economic Plan by the Ministry of Trade and Industries (1991).

Industrial development strategies adopted for the 1990s included (1) deepen technology base; (2) cluster development; (3) promoting manufacturing and services as twin pillars of the economy; (4) regionalization. The Government took the lead in pushing forward the development of technology. JTC committed \$2 billion from 1991 to 1995 under the National Technology Plan and another \$4 billion under the National Science and Technology Plan from 1996 to 2000. Cluster development shows the influence of the America business guru Michael Porter, who suggested dividing the industries into clusters of related activities, and each cluster has different strength and opportunities for growth. Industrial strategy was refined to leverage on synergies at the firm and industry levels. Mutually supporting industries were identified and developed to entrench entire clusters niche areas, e.g. electronics, petrochemical and engineering. By competing, on the basis of clusters, cluster development plans could be formulated with emphasis on core capabilities that were common to industries within the cluster. In order to diversify the sectoral and market dependency, reduce vulnerability, and promote a broader base for the economy, services were promoted together with manufacturing as twin pillars of the economy. For this purpose, many incentives offered for manufacturing investments, e.g. pioneer status, investment allowances, were also extended to investments in service sectors. The Government encouraged leveraging on the potential of the Asian markets in order to overcome local resource/market constraints and complement Singapore's established links to the OECD countries.

From 1998 onwards, the main challenges include: (1) the Singapore economy was hit by the regional crisis that started with the devaluation of the Thai Baht in July 1997. Although Singapore's financial and economic fundamentals were sound, the rapidly deteriorating external environment adversely affected Singapore due to her close linkages with the regional economies. The Singapore economy contracted 0.9% in 1998, after achieving 8.6% growth in 1997; (2) after picking up in 1999–2000, Singapore was hit by another recession in 2001. The synchronised downturns in the major developed economies as well as the global electronics industry led to a sharp deceleration in global growth. The terrorist attacks on 11th September further aggravated the slowdown. As a result, the Singapore economy fell by 1.9%, down from 9.7% growth in 2000; (3) the rise of large new players like China and India brings both challenges and opportunities.

Main Developmental Strategies include: (1) Singapore aims to become a globalized, entrepreneurial and diversified economy, with economic growth of 3–5% p.a. over the medium term. The key strategies are: (a) expanding external ties—embracing globalization through the multilateral trading framework of the WTO, regional co-operation as well as bilateral Free Trade Agreements; (b) Maintaining competitiveness and flexibility—keeping the burden of taxes and the Central Provident Fund on the economy as low as possible, reviewing the labor market and wage system to make them more flexible, and pricing factors of production competitively; (c) promoting entrepreneurship and domestic companies—encouraging people to be innovative and improving the ability of firms to develop new ideas and businesses, tap new export markets and broaden the economic base; (d) growing manufacturing and services—upgrading these sectors by improving cost competitiveness, equipping the labor force with relevant skills,

and developing new capabilities and industries; (2) developing human capital—investing in education, helping workers train and upgrade, and welcoming global talent to augment the indigenous talent pool.

Singapore's industrialization strategies were formulated in reaction to three factors: domestic reality of employment situation; regional comparisons against other tiger economies; and a vision towards dynamic industrial restructuring. Labor-intensive industries were emphasized in early industrialization programs in the late 1960s and early 1970s in order to provide jobs for the unemployed. An industrial restructuring program was introduced in the 1970s in order to increase the capital and technology contents in the manufacturing sector. This was largely a result of referencing to the economic structures in Hong Kong, Taiwan and South Korea. Further, integration into the global economic network by attracting operational headquarters of multinational corporations, and consequently developing further the service economy, have been focused since the mid-1980s. This trend in emphasizing high-end manufacturing, innovative capacities in research and development, and producers services has continued for the last decade and half, aiming at making Singapore a thriving world-class city in the 21st century.

#### *4.2.2. Industrial estate planning*

The Concept Plan 1971 provided a framework for the industrial land use pattern in Singapore. This pattern can be described as with a main concentration of industrial land use in the west of the island—the Jurong area, with smaller industrial estates in the east and north, and still smaller parcels close to residential areas. The western region (i.e. Jurong) was planned for heavy and noxious industries. This is a location away from residential centres. Light, clean and labor-intensive industries area encouraged to locate close to residential areas, in order to tap the large pool of female workforce living in the new towns. This pattern continued in the Concept Plan 1991 and the latest 2001 Concept Plan. A technology corridor was planned in the Concept Plan 2001, linking the Science Park to the Tuas area along the Ayer Rajah Expressway (Fig. 30).

Jurong was selected the main industrial area because: (1) its natural deep-water harbor accessible to large ocean-going vessels; (2) the relative ease of land acquisition as the bulk of the land was state-owned and rural in character; (3) the easy relocation of its sparse population, predominantly rural workers; (4) the availability of low-lying hills for the swamp filling and reclamation works; (5) easier accessibility by road and rail transportation; (6) the availability of industrial water supply from Jurong catchments, Johor Strait, or from treated sewerage effluent in Jurong; (7) its proximity to the former Nanyang University which could help promote industrial research through collaboration with the academics (Khan, 1991: 249).

Other sizable industrial estates are mainly specialized industrial clusters such as aircraft and aviation-related industries concentrating in Loyang industrial estate close to Changi International Airport. The estate has a total land area of 168 ha with about 30 companies operating. The Loyang industrial estate is close to high-density residential areas, such as Tampines, Pasir Ris and Bedok New Town. The Chnagi Business Park locates in the same area. Other examples include the Sungei Kadut estate where wood processing industries and furniture workshops concentrate; and Woodlands industrial estate in the north (refer to Fig. 24).

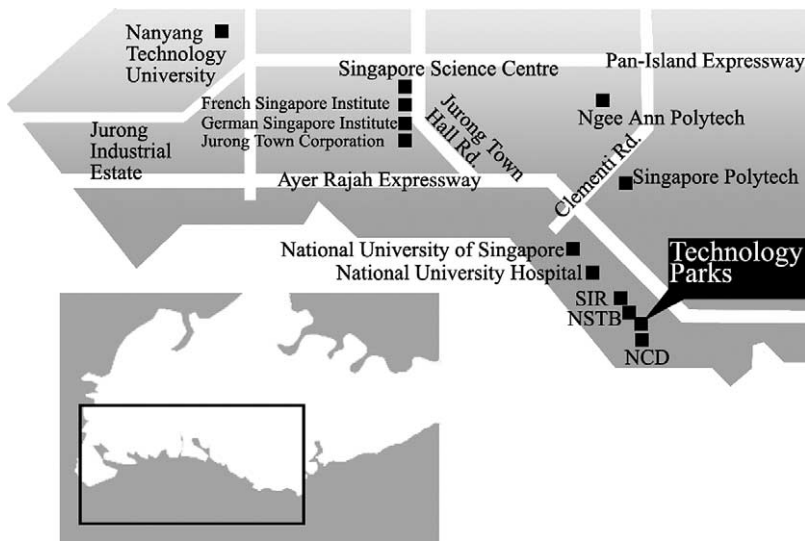


Fig. 30. The technology corridor.

Industrial estates adjacent to urban housing areas are usually very small in size. These industries are mainly labor-intensive operations, such as electronic assemblage, manufacture of optical and precision instruments, and fashion garments. The industrial estates under the management of HDB are similar to this category of JTC estates. Since 1987, HDB has maintained 3527 units of industrial workshops, 2633 workshops, 3806 terrace workshops, 750 motor workshops, 98 warehouses, and 471 special industries under its management.

Not all land plots planned for industrial development were used for factory use. Of the 6478 ha of land allocated in the original Jurong New Town Plan of 1961, about 23% was used for industrial development, while the remaining land was for residential, commercial, recreational and infrastructures. Three types of industries were planned for the 23% industrial land—heavy, semi-heavy and general industries (13%); light industries (7%); and special industries (3%). The heavy, semi-heavy and general industrial zone included such industries as iron and steel, shipbuilding and ship-repair, oil-rag construction, petroleum refinery, timber processing, rubber and latex processing, paper milling and others. The light industrial zone was for industries producing light and packaged products. Food and beverages, leather products, textile and garments, and assemblage of electronic components are popular examples of such industries. The special industries referred to those which required special location because of their special nature and needs, including: (1) those which need bulk handling of dry raw materials or conveyor systems, e.g. cereal importers, flour mills, animal feed mills, and phosphate grinders; (2) industries which import or export liquid raw materials in bulk and special services, such as pipelines, e.g. petrochemicals, oil blenders, and palm oil and edible oil improvers, and so forth; (3) those which produce unpleasant fumes, smells, exceptional noise, or undesirable wastes, and therefore need to be separated from other industries (e.g. food processing, production of

chemicals, and pharmaceutical products); (4) other industries which require direct water frontage, such as sawmills, plywood factories, and small boat builders (Khan, 1991: 154–251). These industries were located along the Jurong Wharf area and along the Jurong River.

In finalizing a particular site for industrial estate development, the following factors are considered: (1) land and development costs, including land price and costs for providing infrastructures required. High cost will negatively affect the competitive edge of the estate; (2) topography, in terms of its suitability for drainage system and discharge of waste water. Flat sites or those require minimum investment for leveling off the land is preferred; (3) physical aspects, such as the size, shape, and depth of the land, soil properties such as load bearing capacity, availability of cut and fill materials, and the elevation level of the sites; (4) transportation, in terms of accessibility to main urban roads; (5) availability of infrastructure and utilities, such as electricity, telecommunication network, water, gas, and industrial water for cooling; (6) availability of liquid and solid waste disposal system; (7) availability of labor, in terms of distances to housing estates (See-Toh, 1993: 131–133).

Further, planning considerations include parcellation; zoning; traffic arrangement; utilities requirement and social amenities. Parcellation of plots is dependent upon the type of industries to be accommodated. Heavy industries such as shipyards and petrochemical plants require larger lots ranging from 3 to 10 ha. Larger multinational oil refineries may need at least 100 ha for their operations. The plot size can be determined when the industries are known at the time of parcellation. If the industries to be accommodated were unknown at the time of parcellation, it would be important to allow flexibility for further subdivision into smaller plots or amalgamation into larger plots. A rectangular plot is preferred with aspect ratios determined for various industrial groups. Setbacks from the front vary with the number of storeys. Low-rise factories of less than 4-storeys have a buffer abutting a minor public road of six with 3 m green area.

Zoning is to ensure that industries within an industrial estate are compatible, not only in juxtaposition with themselves, but also with national environmental policies. Some industries may generate dangerous fumes or significant vibration, while others may require clean air and vibration-free environment. Shipyards are dependent on a large engineering support base; aviation-related industries have to be close to the airport; food processing industries should be located away from residential areas.

Traffic planning needs to consider freight and passenger traffic, parking, loading and unloading, and circulation. Industrial roads should have wider turning radius and widths to cater to all forms of industrial heavy and light vehicles. Container traffic in terms of turning radius, together with the future traffic volumes with expansion of the estate in phases are also among the principles of traffic planning. The minimum widths for local industrial roads in Singapore are 15.4 m for roads and are 26.4 m for collectors to allow for a four-lane road. The industrial road network should link directly with the national arterial road network and should be planned for future growth. Adequate public transport links from bus interchanges, MRT stations, and major residential areas to the industrial estate should be provided. Or, otherwise to persuade companies concerned to provide company transport if they are located in remote areas. For plots within walking distance but are away from the main bus routes, footpaths should be provided for easy short-cuts to bus stops. Within each parcel, there must be adequate circulation for cars and lorries;



and adequate space for container parks where necessary. The car parking standard of one parking lot per 250 m<sup>2</sup> of gross floor area is applied. In multi-user and multi-tenanted high-rise flatted factory developments, unloading and loading bays are of particular significance.

Utilities for waste disposal are considered for both liquid and solid wastes. For liquid waste, provision of secondary or tertiary sewage treatment before disposing of the effluent into the sewage system is desired. In some situations, pre-treatment facilities have to be installed. For solid waste, consideration must be given to the type of waste permitted, and the methods of collection, sorting and treatment. In Singapore, solid wastes are either incinerated, used for landfill, or transported to approved dumping grounds.

Larger industrial estates need to have amenity centres with services such as food outlets, clinics, postal agencies, childcare centres, etc. Food outlets and canteens have to be close to the industries as workers are given limited time for the lunch hour. In some industrial estates, mosques and prayer rooms are provided where Muslim workers need to pray five times a day. Greenery and landscaping within the industrial estate should be provided. These can be a buffer strip at the front varying 3–5 m and planting at side and rear. Buffers between different categories of industries are wider, ranging from 100 to 1000 m depending on the type of industries.

Last but not least, phasing of development is an important consideration in industrial estate planning. Development phases are determined by market demand, and the expectations of investment returns. The phases of Singapore Science Park and the latest business park—One-North—provide examples for phasing plans.

At the design level, JTC has detailed standards to guide the orientation of buildings; circulation within the site; elevator provision; floor loading capacity; air conditioning provision; corridor widths and height of buildings; communication; fire protection; and security.

#### *4.2.3. Land intensification program*

En-Bloc Redevelopment (EBR) launched in 1997. This includes two schemes—the buy back scheme and the return-of-excess-land scheme. The first is to buy back of land and factories from companies located in older industrial areas with poor land utilization and inadequate infrastructure. The total areas bought back since the launch of the scheme in 1997 was 127 ha, accounting for 95% of the targeted land for buying-back (134 ha). All companies affected are given assistance in relocating to alternative facilities, and many have taken the opportunity to upgrade and expand their operations ([www.jtc.gov.sg](http://www.jtc.gov.sg) accessed on 20 July 2004) The Return-of-Excess-Land (REL) scheme is for companies who do not use up all the land allocated to them. Since 1997, there have been a total of 10.6 ha of excess land returned. These land plots are then to be used for independent development.

#### *4.2.4. Planning for the 21st century parks*

One-North is the latest industrial estate that JTC is developing in the new century. With an area of about 200 ha, One-North is to be built into ‘an exceptional place of vision and inspiration’ within the next 15–20 years. This new industrial estate will be an environment facilitating the creation of new ideas and innovations; a vibrant place and a life style

choice for the most creative minds of the new economy. Three spaces are to be created in this new environment: (1) the real space which refers to the material resources available in One-North; (2) the virtual space which refers to the community connecting people, organizations and the world; (3) the imaginative space which denotes the limitless possibilities and opportunities of the human imagination and endeavor. Within these three spaces is the creation of a thriving community for ‘knowledge workers, residents, students, artists, entrepreneurs, venture capitalists and creative people’ to live, work, play and learn ([www.one-north.com](http://www.one-north.com) accessed on 29 October 2004).

The area selected to host this new business space sits immediately next to a number of existing research facilities. These include the National University of Singapore, the National University Hospital, and the Singapore Science Park. The site is about 10 min away from the city centre, and about 20 min to the biomedical park in Tuas westward. Ease access to the existing research establishments is important as the new business space is mainly used for biomedical, information and communication technologies (ICT) and media industries. It is hoped by the government officials that collocation of these industries will generate synergies, and create new breakthroughs and new growth areas.

Land use of the area is zoned into business parks, mixed use, residential, commercial, live/work, institutional and education, white site, parks, open space and water bodies, and areas subject to detailed planning. Fig. 31 shows the land use pattern. It is hoped that flexible zoning will enable innovation and organic growth to occur. Fine grain mixed use will create dynamic interactions among the building blocks of one-north that are living, working, relaxation and discovery.

Three focal points are planned to organize the activities in space: Central Xchange; Vista Xchange; and Life Xchange. Central Xchange is planned a mix of media and entertainment, with Fusionpolis Phase 1, a 120 000 m<sup>2</sup> infocomm and media building to seed the ICT and media industries. Vista Xchange is planned a dynamic retail and services hotspot with high rise offices, business services, hotels and convention facilities as well as a major transportation hub. The Life Xchange includes the Biopolis Phase 1, a 185 000 m<sup>2</sup> facility housing a dynamic mix of public research institutes and private companies.

The various elements in the area are linked by a People’s Mover System (PMS) and a well designed pedestrian system. The proposed PMS will connect the Xchanges, NUS, NUH, and Science Park 1. Within 300 m of any point in one-north, it is planned that one can hop on to the PMS and get anywhere within one-north, to NUS, NUH and connect to the MRT network which links to other parts of Singapore. The pedestrian systems are designed to facilitate interactions among people. Walkways are planned to connect the main activity centres and are built in the forms of shaded paths and sheltered galleries. Pocket gardens and sky gardens will be used as the main design elements for the provision of interaction and exchange points.

Three phases are planned for the implementation: phase 1 from 2001 to 2010; phase 2 from 2008 to 2015; and phase 3 from 2012 onwards (Fig. 32). All the three Xchanges (i.e. the Central Xchange, the Vista Xchange, the Life Xchange), the Biopolis, the Fusionpolis and the NTU city campus are to be carried out in the first phase. Future Xchanges will be built in the second phase. The third phase is to be detailed in the course of development. Similarly, a roll-out strategy is used in project implementation within the phases.

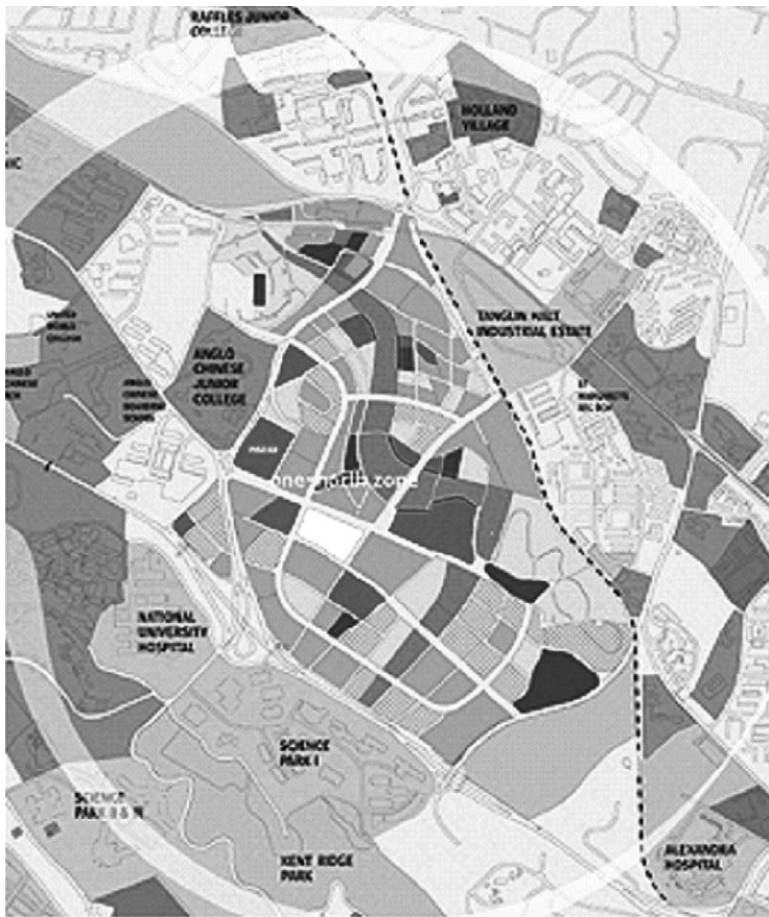


Fig. 31. Land use in One-North. Source: [www.one-north.com.sg](http://www.one-north.com.sg).

The Biopolis and the Fusionopolis which are being constructed and will complete soon are the seeding platforms for the formation of the Lif and the central Xchanges, respectively.

#### 4.3. Implementation

##### 4.3.1. Initial funding and tenants

The starting fund was arranged between the government and the implementing organizations (i.e. EDB or JTC) in the form of commercial operations. For example, EDB obtained an initial capital of \$100 million in the 1961–1964 period, in order for it to accomplish two objectives: (1) to increase national income to match the size of the growing population; (2) to create employment for the yearly growth of the labor market. When JTC set up in 1968, it obtained loan from the government at an interest rate of 5.75% per annum, payable over 20 years on a half yearly annuity basis (Khan, 1991: 245).

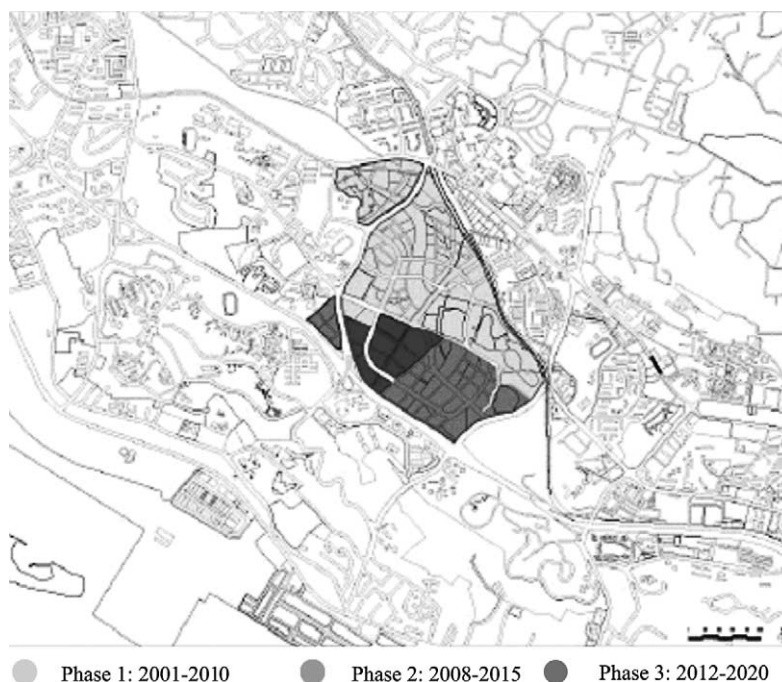


Fig. 32. Implementation phases of One-North. Source: [www.one-north.com.sg](http://www.one-north.com.sg).

Pioneer tenants of the new industrial estate showed strong government presence. Government linked companies (refer to Chapter 2 for details) and/or government agencies served as jump-starter for the development of the estates. For example, in the One-North project, the first phase of the implementation, i.e. the Biopolis, has seven building blocks. Five out of the seven are to host government institutions, including the Bioprocessing Technology Centre, the Bioinformatics Institute, the Genome Institute of Singapore, the Institute of Molecular and Cell Biology, and the institute of Bioengineering. These five institutes are government research institutes under the Biomedical Research Council of the Agency for Science, Technology and Research (A\*STAR), a statutory board under the purview of the Ministry of Trade and Industries. The other two building blocks are to accommodate private companies.

#### 4.3.2. Initiatives and institutional support

*Tax incentives* and subsidies have been used in order to attract and to keep the investors in the industrial estates. The earliest of this kind were the 1959 Pioneer Industries Ordinance (Relief from Income Tax) and the 1959 Industrial Expansion Ordinance (Relief from Income Tax). The former grant those qualified companies a tax holiday of up to 5 years. The latter gave firms tax concessions on their expansion in capital investment. In 1967, the two ordinances were amended and consolidated into a new Act—the Economic Expansion Incentives Act 1967. The new Act provided incentives for establishment of pioneer industries and for economic expansion through tax relief, and introduced new

inducements to encourage export production, the application of science and technology to industrial operations, and accelerated inflow of foreign capital (Khan, 1991: 246 and 247).

Incentives for pioneering status and investment expansion continue in practice. The eligibility requirements for the pioneer status include: (1) the project is above current average levels of industry technology, skills or know-how; (2) no companies in Singapore perform a similar activity without being awarded pioneer status. If qualified, the company can get an exemption of 31% tax on profits arising from pioneer activity. Tax relief period is 5–10 years with possible ‘post-pioneer’ extension at 15% for another 5 years. For the expansion incentive, the minimum investment is set up at \$10 million in new machinery and production equipment. Companies that qualify can be awarded exemption of 31% tax on profits rising in excess of pre-expansion level. The tax relief period is 5 years.

Other tax incentives were introduced to facilitate the various development policies. The call from the government to attract regional operational headquarters in the mid-1980s, for example, was supported by the Operation headquarters (OHQ) incentive and Business headquarters incentive (BHQ). For the OHQ scheme, companies have to meet minimum qualifications set in terms of office expenditure, employment and regional subsidiaries supported. Companies qualified for this scheme will be taxed at 10% on income arising from the provision in Singapore of approved services; other income from overseas subsidiaries or associated companies may be eligible for similar tax relief for 5–10 years. For the BHQ scheme, tax concession on approved business income from regional operations is granted. This is supported through tax incentives from the Economic Expansion Incentives Act.

Though continuously practiced by the government, it is doubtful whether tax incentives and subsidies contributed to location decision making for companies to establish and stay in Singapore. Hughes’ survey of 119 large firms in manufacturing revealed that foreign investors disregarded a significant role played by tax concessions and pioneer status, though majority of the firms qualified and took the advantage of the scheme (Hughes, 1969). Similar findings were yielded in surveys conducted in the 1990s (Perry, 1992, 1994). It is true, perhaps, that tax incentives were a contributing factor to location decision making, but not significant at all compared with other considerations, such as the business environment, market potential, etc. Pereira (2000: 43) listed four main factors for the location consideration of multinational corporations: familiarity, reciprocity, credibility and trust. These all contribute to cost reduction and control, but not necessarily incentives from the government.

*Agencies and rules.* EDB was created on 1 August 1961 to take charge of the country’s industrialization program. EDB was given enormous powers such as underwriting the issue of stocks, shares, bonds or debentures, granting loans or advances to industrial enterprises, acquiring, selling or lease land for the purpose of industrial sites, and providing technical advice or assistance to industrial enterprises. There were four divisions: Investment Promotion; Finance; Projects and Technical Consultation Services; and Industrial Facilities. The Investment Promotion Division emphasized on publicity, taking care of potential foreign and local investors. The Finance Division acted as an industrial bank, financing industries through loans and guaranteeing industrial loans. Its lending function was later shifted to the Development Bank of Singapore (DBS) which was created in 1968. The Project Division was responsible for project evaluations



(e.g. feasibility studies) and implementation (e.g. recommending incentives), while the Technical Consultation Services Division monitored the quality of the final products. Development of industrial estates was the responsibility assigned to the Industrial Facilities Division.

In 1968, JTC was created to take over the responsibilities of managing and developing Singapore's industrial estates. JTC was organized into five divisions: Technical, Lands and Estates; Finance and Administration; Jurong Port and Marine Base; and Corporate Services. The Technical Division had four departments: engineering, architectural/planning, survey and contracts. Lands and Estates Division had two departments: lands for allocation of industrial land and factory buildings, management of leases and tenancies, land acquisition, and valuation of land and buildings; and Estates to maintain and manage residential, commercial and industrial properties. The Finance and Administration Division was responsible for all sorts of fiscal matters, such as financial policy, budgetary control and accounting, and for providing centralized administrative services including staff management. The Jurong Port and Marine Base Division looked after the various types of activities such as port operations, docking, and warehousing. The Corporate Services Division is mainly concerned with information collection, research, computer services, and public relations (Khan, 1991: 244–246).

In addition to the 1959 ordinances and their amendment in 1967, the Employment Act and the Industrial Relations (Amendment) Act were endorsed in 1968. These Acts tried to reduce labor cost and problems associated with labor by increasing working hours from 39 to 44; reducing public holidays from 15 to 11; and reducing the influence of trade unions by removing rights to negotiation over redundancies and job organization. The National Wage Council was established in 1969 to make recommendations on wage increases and the structure of payments. The Industrial Relations Act 1972 allowed the Industrial Arbitration Court to enforce the NWC's recommendations. In 1979, the Skills Development Fund was established through a compulsory levy on wages to provide centralized training for lower-income workers (Perry *et al.*, 1997: 109). The Cluster Development Fund was set up to promote development within clusters in 1993.

Initially, EDB was to promote the following types of industries which (1) provide basic servicing, such as tool-making, foundry, electropolating, and machine tools; (2) supply raw materials or semi-finished products, such as steel rolling mill, wire drawing plant, and forging plant; (3) give quick employment creation opportunities, such as ship-breaking and shipbuilding; (4) can be quickly established to supply the home market, particularly for the building and construction program, such as building hardware, fixtures, lighting fittings, and electrical switchgear; (5) with some tariff protection, can substitute imports and expand markets, such as electrical appliances; (6) introduce special skills in the labor force by starting assembling or production of simpler parts and quickly advancing to more complicated products for supplying neighboring countries, such as automobiles, motorcycles, pumps, and motors; (7) promote new products in the consumer durable goods and the simpler type of producer goods which will not be readily produced by neighboring countries in their industrial development programs; (8) make use of local raw materials and by-products, such as plywood and chipboard; (9) seek joint ventures with local manufacturers to bring in industrial capital and know-how; (10) have a natural advantage in Singapore in the freight cost of raw materials and transportation of



manufacturing products with special reference to markets in neighboring countries; (11) adopt two- or three-shift system and utilize off-peak power load; (12) manufacture goods which have a comparatively high labor content, and which offer market possibilities in industrially advanced countries (EDB, 1962: 3 and 4).

The improvements in labor climate and investment environment, accomplished by enacting the Employment Act in which standards of employment were laid down, helped to resolve industrial disputes. In addition, the National Trades Union Congress (NTUC) and National Wage Council (NWC) were formed in 1972 to help promote better labor-management relations. Further, the government identified key infrastructures, including the establishment of the Jurong Town Corporation, for investment.

Nationalized companies in areas where the private sector lacked capital or expertise, like Singapore Airlines, Neptune Orient Lines, Development Bank of Singapore and Sembawang Shipyard.

#### *4.3.3. Pro-business policies*

Pro-business planning and policies are integrated part in Singapore's development programs. In industrial estate development, recent examples include a number of management policies implemented since the Asia Finance Crisis in the late 1990s. These include economic relief measures; more flexibility in building and investment period and lease renewal; and other pro-business changes. A total of \$369 million Singapore dollars were redistributed to JTC's customers in the forms of rental rebate, property tax savings, and reduction in refurbishment charges. Companies affected by the economic downturn, which are evaluated by JTC on a case-by-case basis, are allowed to defer their committed investment so that they can use their available funds to meet immediate operational requirements. Companies that are experiencing financial difficulties or those that cannot commit to investment plans due to business uncertainties are allowed to defer their lease renewal decision for up to 2 years, while remaining in their existing sites as tenants. The 3-months security deposit was reduced to 2 months in order to aid companies in their cash flow status. The application forms for Lease Application and Lease Renewal have been reduced from 11 to 3 pages, in order to help companies save costs.

In addition, a number of standard pro-business policies were introduced in the areas of (1) short-tenure renewal; (2) assignment restrictions; (3) plant and machinery criteria; (4) building and civil works; (5) subletting; (6) reinstatement of property.

Past practice in lease renewal was that the lessees applying for lease renewal were required to fulfill the plant and machinery investment criterion and grass plot ratio requirement. The policy change was to introduce the short-tenure policy in April 2003. Under this policy, companies whose leases are due to expire within the next 3 years will be allowed to extend their leases for up to a maximum term of 10 years without having to meet any criteria. In November 2003, JTC further liberalized this policy to allow short-tenure lease renewal to be automatically offered to all lessees 5 years before their lease expiry. This measure is targeted at helping existing lessees continue their operations without incurring additional investments. By providing easy short-tenure renewal, JTC hoped to retain companies and preserve jobs in Singapore. The 10-year lease renewal may help the tenants to tide through their restructuring period and concentrate on their on-going business instead of having to divert their attention to lease renewal and the associated

requirements. JTC's estimation was that some 300 companies currently in operations would benefit from this measure.

An Assignment Restriction Period was in place in order to discourage industrialists from taking up land for speculation purposes. Under this restriction, JTC lessees were not allowed to assign their properties during the first 5 years of their lease tenure. Since April 2003, JTC has lifted the five-year restriction period. Lessees are now free to assign their properties as long as they have fulfilled their investment commitment to JTC. The rationale behind this policy change is to facilitate the transaction of JTC properties in the secondary market. This could be especially helpful for companies who have been affected by the downturn in the economy and need to downsize or wind-up their operations.

For the Plant and Machinery (P&M) criteria, the past practice was that companies which applied for 30 or 30+30-year leases were required to invest a minimum sum of \$300 and \$650/m<sup>2</sup>, respectively, in the Gross Floor Area (GFA) in order to qualify for an allocation. This was to ensure allocation of scarce industrial land to productive users. However, a 'one-size-fits-all' investment requirement will not enable companies to operate at optimal levels, because every company is unique in terms of their businesses and operations. With effect from February 2002, JTC no longer requires a minimum investment in P&M. Companies applying for lease allocations are to self-declare and illustrate how their proposed P&M investments are able to support their business plans. Under the new policy, human and intellectual capital as well as R&D efforts are also recognized as part of the investments by the companies. This new policy applies to both lease allocations and lease renewals. With this change, industrialists will be able to exercise greater flexibility in managing costs while ensuring efficient use of resources.

In terms of the Building and Civil Works Guidelines, a minimum sum of a \$500/m<sup>2</sup> investment in the GFA for external refurbishment works was required. This was to ensure that minimum quality standards would be met for the buildings in an industrial estate. However, this investment criterion may not be necessary for the purpose of maintaining a minimum standard of the external façade, which was the actual intention of the old policy. Thus, since April 2000, this has been replaced with a set of qualitative guidelines, which provides an indication of the desired building standards. A cost figure may be attached to each standard. However, this figure serves as a reference and does not form part of the investment criteria. This new policy applies to both lease allocations and lease renewals.

The past rule on subletting was that lessees were allowed to sublet a maximum of 50% of their built-up space after 5 years. The 50% quantum cap was imposed to discourage lessees from trying to build more space than necessary for speculative gains through subletting. Tenants were not allowed to sublet at all if the space taken by tenants is relatively small and the tenancy period is shorter than those of lessees. Since October 2001, a new subletting policy has introduced. Lessees may now sublet a maximum of 50% of their built-up space immediately upon occupation and a maximum of 100% of space after 5 years. Tenants may also sublet up to 50% of their space for the entire tenancy period. This change allows industrialists more room in managing their operating costs. It will also be easier for smaller firms to obtain space by subletting from someone else instead of paying for an entire factory unit.

The policy on Reinstatement of Property was also changed. In the past, outgoing tenants of JTC's ready-built-facilities had to restore the premises to the original state upon

expiry of their tenancy agreement. This incurred a cost to the outgoing tenants, and might removed fittings and fixtures useful to the new tenants. Under the new policy, outgoing tenants can defer, for up to 6 months, the reinstatement of the premises while JTC processes the allocation of space to another tenant. If the incoming tenant is prepared to take over the fittings and fixtures, the outgoing tenant will not have to reinstate the premises at all. If a matching can be achieved, both the outgoing and the incoming tenants can save time and money in the relocation process.

#### 4.4. Summary

The manufacturing sector is an important component in global city making as judged by its contribution to the economies of the global cities (Hall, 1998; Sassen, 2001). In Singapore, the manufacturing establishments share about a quarter of the GDP, and have contributed to the provision of employment and enhancement of the linkage between the island city-state and the world economy. Industrial and business parks are active agents in implementing the various industrial development policies in Singapore. They are also the physical reflection of Singapore's industrialization strategies and the industrial structure.

A range of industrial properties have been developed in Singapore, including ready-built factories of different sizes and designs, low-rent offices/workshops for start-up companies, high-end science and business parks for R&D, and serviced industrial land for customized industrial property development. The ready-built factories have the longest history among all the industrial estates on the island. They were one of the attractions to multinational companies for cost saving in Singapore's early industrialization program (Pereira, 2000). The forms of ready built factories have evolved so that labor-intensive manufacturing facilities have been gradually replaced by technology-intensive manufacturing establishments. The biomedical parks and wafer manufacturing parks are the latest additions to the ready-built industrial promises. For start-up companies which are often bearing higher risks in product development and marketing, the provision of low-rent, small but well equipped R&D spaces are popular among the entrepreneurs. The high-end R&D parks which are conveniently located, carefully planned and landscaped were introduced in the 1980s as the government embarked on a program to upgrade the manufacturing sector towards higher technology contents. The latest addition in this category is the One-North project, which integrates live work and play in the newest industrial estate in Singapore. Serviced industrial land parcels are available in various industrial estates for developers to bid, build and rent, and for industrialists who want to build their customized plants.

The development of industrial estates in Singapore is carefully planned. In site selection, a range of factors such as cost of land acquisition and development, physical features of the site, and accessibility to main infrastructures are considered. The types of industries are then defined, which consequently guide the parcellation of the site. In land use zoning, special requirements of co-location of certain land uses and the positive and negative externalities of a particular land use are considered. Sectoral planning follows. For example, these include traffic planning, waste disposal planning and social planning. In traffic planning, both passenger and goods circulation networks are set, with details on parking, loading/unloading areas, etc. Detailed technical standards are applied for road

radius, width, and distance to bus stops or MRT stations. Plans for both solid and liquid waste disposal are drawn, so that installation of pre-treatment facilities and treatment facilities are defined. In social planning, amenities and services are focused. These include food outlets, childcare services, clinics, etc. It is particularly considered for the various religious facilities, as Singapore is a multiracial society. At design level, there have been detailed standards developed by JTC for architects and engineers.

Development phases are carefully defined for implementation of the industrial estate plans. Rather than carrying out the whole plan by one-go, there are usually two or more phases involved in an industrial estate development project. The timing of latter phases of development is dependent on the demand for the properties completed in the first phase. This allows the government to minimize the risk of building excessive spaces. Thus, in the time when weak demand presents, the government can hold the development; whilst in the time when strong demand present, the whole project can be completed in a short time frame. The first phase development is critical as it demonstrates the estate in terms of the physical environment, its operation and the main tenants. Often, government agencies and government-linked-companies are among the pioneer tenants of a new industrial estate. This is not only because that the new industrial estate is built to accommodate the related R&D activities, but also due to the need for boosting the demand for the particular project.

In time, land use intensities increased. Some of the old industrial estates are of concern because of their low densities. This leads to the redevelopment programs under which old properties are bought back for land use intensification. The En-Block Redevelopment scheme launched in 1997 serves the purpose for land use intensification.

Successful maintenance of the industrial estates centres on the ability to attract and retain tenants. A number of investment incentives (e.g. the pioneer industries status) are offered by the Economic Development Board, which is over and above the pro-business policies implemented by JTC. The latter ensures that the industrial properties are in good condition in both physical looking and functionality. On top of these, rental rebate may be available; rental restrictions may be removed; and application procedures may be simplified in order to make it easier for the tenant to survive and develop in economic downturns. All these pro-business policies and practices are part of the puzzle to strengthen the manufacturing sector in the island city-state, and more importantly, to embed multinational companies in the Singapore economy.

## CHAPTER 5

### Housing

Inequality is a concern in global city formation, as the presence of an affluent population group which is linked with the economic control and producers' service functions and well-paid by international standards contrasts sharply with the poor population group which is linked with obsolete industrial sectors and informal employment associated with low-wages. A divide between elites and unskilled labor as well as social polarization become an unavoidable consequence in major global cities (Friedmann, 1986; Sassen, 2004). The production and consumption of the residential landscape reflect the inequalities in earning and household income in both processes and forms. These processes may include suburban housing development, gentrification, informal economies, and immigration, which have shaped the social geography of global cities with distinctive communities such as gentrified areas where a new culture of consumption has developed for an affluent segment of the population, and rehabilitated areas where immigrants and minority groups reside (Sassen, 2001: 321–323). How does Singapore deal with the housing issue in global city making? This chapter addresses this question, with emphases on the overall housing system that provides choices for different income groups and the public housing program, which has been used for nation building and for redistribution of national income. Indeed, many researchers claim that Singapore's public housing contributed towards lower wages, higher productivity, and political and social stability that have attracted international capital and manufacturing investment (Wong and Yap, 2004: 93).

#### 5.1. *Housing types*

##### 5.1.1. *Overview*

A pyramid housing system has formed in Singapore, with a large portion of the housing stock at the bottom representing public housing flats, and a very small portion of the stock being bungalows and semi-detached bungalows. In the middle of the pyramid is a housing form introduced in the early 1970s, i.e. condominiums, which include high and low-rise condominium apartments and some terrace houses. This housing pyramid meets the housing demand on the one hand, and provides opportunities for people to 'move up the social ladder' on the other. Indeed, landed housing are much sought after, and are normally regarded as a higher 'grade' of housing provision, compared to flats and condominiums (Han *et al.*, 2002: 261). In view of their relative scarcity, they normally command a price premium much higher than that for other housing forms in the same locality. Condominium housing was built to cater to the need of high-income locals and expatriates working in Singapore (Sim and Yu, 1993: 5). Residents in the public housing estates do have the aspiration to upgrade their residence to the upper part of the housing system (Wong and Yap, 2004).

Table 5 shows the proportions of the main housing categories in the period 1970–2000. In the early years (i.e. the 1960s), public housing construction was in its

Table 5  
Percentage of housing in different types, 1970–2000

Type of housing	1970	1980	1990	2000
HDB flats	39.3	68.5	84.6	88
Condos and private flats	3.3	2.3	4.1	6.0
Private houses	12.9	8.5	7.0	5.1
Others	44.5	20.6	4.3	0.9
Total	100.00	100.00	100.00	100.00

Sources: Data on HDB flats, Condos and private flats, and private houses in 1970 are from [van Grunsven, 2000: 12](#). All other data are from [Singapore Department of Statistics \(2001: 18\)](#) on [www.singstat.gov.sg](http://www.singstat.gov.sg) accessed on 1 October 2004. Proportion of 'Others' in 1970s is calculated by author according to the first three numbers. Here, Others include shop-houses, attap/zinc-roofed houses, other public flats and others.

initial stage, and the stock of public housing was made up less than 40% of the total housing stock. A large proportion of the houses were shop-houses and attap/zinc-roofed houses (44%) which presented the living condition in the Central Area, as described by [Chew \(1973\)](#) in Chapter 3. This situation changed drastically by 1980, when public housing made up almost 70% of the housing stock. The proportions of substandard housing and other housing forms such as shop-houses, zinc-roofed houses, and private houses declined. Condominium development was experimented during the 1970s, but the decline of private apartments showed a decreasing proportion of the houses in the Condo and private flat category in 1980. In the 1980s and the 1990s, public housing and private condominiums kept on increasing in proportion, while the proportions of landed houses and others continued to shrink. In 2000, 88% of the housing stock was HDB flats; condominiums and landed houses shared 6 and 5%, respectively, and other housing types accounted for less than 1% of the housing stock.

Housing estates in Singapore are categorized as high-, medium- and low-densities housing. Low-density housing refers to low-rise housing that is 5-storeys or less and landed housing. Housing estates with a gross plot ratio from 1.4 to 2.1 and with heights varying up to 24-storeys are defined as medium-density housing. High-density housing has a plot ratio above 2.1 and usually taller than 24-storeys. The Concept Plan 2001 continues to provide a variety of housing, from low to medium and high-density housing ([Table 6](#)). More high-rise residential blocks are planned for development, and more people are expected to live on higher floors. In areas with little height constraints, housing can rise to 30-storeys and higher. Currently, only about 35 000 people live above the 20th storey. For the low-density housing, there will be an overall increase of more than 50 000 dwelling units even though the proportion will drop one percentage point. This is because the population size will increase to 5.5 million according to Concept Plan 2001.

Residents change residences within the housing system according to their housing preferences and purchasing power. A study for the period 1991–1995 reveals that 185 100 households shifted residences ([Department of Statistics, 1997](#)). Two thirds of these households were up-graders and one-third was down-graders. Up-graders were defined as those HDB/HUDC resident private households, which had shifted from a lower category



Table 6  
Housing density mix

Housing density	Low (%)	Medium (%)	High (%)
Existing mix	9	13	78
Concept Plan 2001	8	13	79

Source: Skyline (May/June 2001: 6).

to a higher category of dwelling unit during the period of study. Categorization of the dwelling units from low to high categories include (1) HDB 1–2-room flats; (2) HDB 3-room flats; (3) HDB 4-room flats; (4) HDB 5-room flats; (5) HDB executive flats; (6) HUDC flats/government executive flats; and (7) private housing (bungalows, semi-detached houses, terrace houses, condominium and private apartments). Similarly, down-graders were those resident private households which had shifted from a higher to a lower category of dwelling unit during the study period.

### 5.1.2. Landed housing

Landed housing (Fig. 33) in Singapore is a housing form in which all housing units have ground contact, and disposal is by way of land subdivision (Han *et al.*, 2002: 259–261). These include detached bungalows, semi-detached houses, terrace houses and linked houses. Most of them are low-rise, ranging from 1 to 3-storeys. They are generally found in low-density residential areas, most of which are at the city fringes or suburban locations. Fig. 34 shows the distribution of the landed housing areas defined by the Master



Fig. 33. An example of landed housing: King Albert Park.

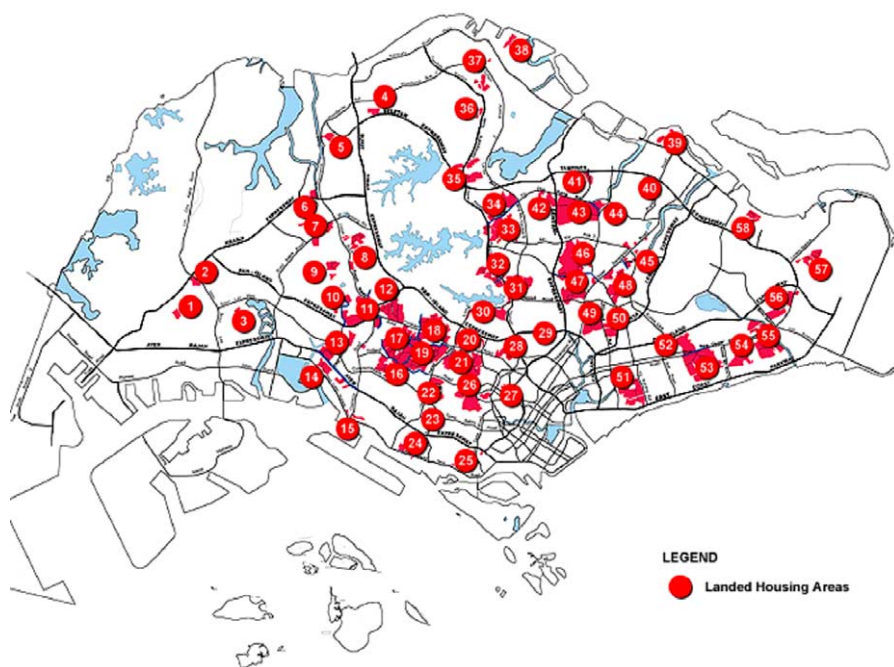


Fig. 34. Location of landed housing areas. Source: [www.ura.gov.sg](http://www.ura.gov.sg).

Plan 2003. Over time, many of these areas have developed into attractive, mature housing estates.

URA's estimation in 1994 revealed that landed housing areas took up about 2 500 ha of land in Singapore (URA, 1994). 'Good class bungalows', which are landed housing on large land plots (minimum 1400 m<sup>2</sup>), made up the cores of these areas. There are 39 such areas in Singapore, and they are subject to strict planning controls (such as minimum standards of plot size, boundary setbacks and maximum site coverage) in order to prevent erosion of their character. 'Non-conforming' housing forms such as flats are not allowed to intrude into them. Outside these areas are smaller and scattered pockets of 'mixed' landed housing areas, which are interspersed with flats, condominiums and other housing forms.

The Concept Plan 1991 set up a vision to increase the stock of low density housing from 72 000 to 176 000 units by 'Year X' (Han *et al.*, 2002: 267). As a follow up, in 1994, the URA announced its strategy to further increase the supply of landed housing in Singapore to meet the rising aspirations of the local population. The planners envisaged that about half of the targeted units will come from new developments (from a combination of government land sales and private sector development), and the other half from the redevelopment of existing landed housing areas. As such, the government land sales program was extended to the sale of sites for landed housing, similar to the sale of sites for condominiums and flats, in the early 1990s. For the first time, leasehold (99 years) landed housing was introduced into the market. These new 99-year leasehold sales augmented

significantly the supply of landed housing, and opened the landed housing market to a much larger segment of the population (Han *et al.*, 2002: 268). In terms of the location, many of these sales sites are away from the 39 established landed housing areas. Some of them are sites close to the public housing areas, so that a better ‘social mix’ in residential areas can be achieved.

For existing landed housing estates, cluster and strata bungalows were introduced in 1993. Like ‘conventional’ landed housing, cluster bungalow units have ground contact, but have shared facilities (such as swimming pools, tennis courts, etc.) similar to those found in condominiums. The strata title arrangement is used to define the extent of private areas and communal areas in this housing form. For strata bungalows, each bungalow unit may have its own compound but shares some of the communal facilities and common areas. The strata title arrangement is also used to define the extent of private and communal areas. The prices of these new housing forms are generally lower than those considered to be ‘pure’ landed housing, which are sold under the traditional land subdivision arrangements (Han *et al.*, 2002: 271). From its first development in Punggol (i.e. the North Shore Bungalows), there have been 2000 units of strata landed housing scattered round the island (Skyline, 2001: 2).

In addition to the new landed housing forms, planning controls were revised in order to produce a larger number of landed housing units for the same land size. In 1994, new planning controls allowed for higher plot ratios, smaller plot sizes and less boundary setbacks. The semi-detached housing, for example, has the minimum plot size reduced to 200 m<sup>2</sup> from the previous 330 m<sup>2</sup>; for bungalows, the minimum plot size was reduced to 400 m<sup>2</sup> from the previous 555 m<sup>2</sup> (Table 7). It was envisaged that the new landed housing forms and the new planning controls will let some 20 000 units eventually be added to the existing stock (Han *et al.*, 2002: 271).

### 5.1.3. Condominiums

Condominium (Fig. 35) is a housing form introduced to the housing system in Singapore in the early 1970s, responding to a number of concerns including the housing demand from the middle-income population; the problem of urban sprawl and wasteful use of land associated with the traditional low density landed housing; the problem of fragmentation of land ownership associated with the sub-division of land for detached and semi-detached bungalows; and the shortage of space for recreational facilities and other common facilities (Sim and Yu, 1993: 3). As a planning concept, condominium refers to residential developments comprising flats, apartments and townhouses arranged in such a way as to maximize land use. In 1972, general guidelines were issued, and these guidelines were officially adopted in 1974. Under the guidelines, the overall density of residential development could be increased to twice the Master Plan maximum density or 741 persons per hectare whichever is lower. The minimum plot size was limited to 0.405 ha in order to discourage the fragmentation of plots and to control urban sprawl. The building coverage ratio was set at 20% with flexibility for special circumstances, so that there would be space for provision of open space and landscaping. Ownership of the open space and the facilities follows a strata-title arrangement, so that each unit owner shares a portion of the common facilities and space.

Table 7  
Guidelines on landed housing: planning controls parameters

Type	Minimum plot size (m <sup>2</sup> )	Minimum width (m)	Minimum dept (m)	Building coverage	Setback control (m)	Boundary clearance for roof eaves (m)
Detached	400	10	No control	40% 45% <sup>c</sup>	Front: 7.5 <sup>a</sup> Side: 2 Rear: 2 For 3rd storey, side and rear: 3	Front patio: 2.4 <sup>b</sup> Carporch: 2.4 <sup>b</sup> Side/rear: 1
Good—class bungalow	1400	18.5	30	35% (for plot > 800 m <sup>2</sup> ) 35%	Front: 7.5 <sup>a</sup> Side: 3 Rear: 3	Front patio: 5.1 <sup>b</sup> Carporch: 2.4 <sup>2</sup> Side/rear: 1.6
Semi-detached and corner terrace-I	200	8	No control	No control	Front: 7.5 <sup>a</sup> Side: 2 Rear: 2 For 3rd storey, side and rear: 3	Front patio: 2.4 <sup>b</sup> Carporch: 2.4 <sup>2</sup> Side/rear: 1
Terrace-I intermediate	150	6	No control	No control	Front: 7.5 <sup>a</sup> Rear: 2 For 3rd storey, rear: 3	Front patio: 2.4 <sup>b</sup> Carporch: 2.4 <sup>2</sup> Rear: 1
Terrace-II intermediate	110	6	No control	No control	Front: 1 (fixed) Rear: 2 For 3rd storey, rear: 3	Front: nil Rear: 1
Corner terrace-II	150	8	No control	No control	Front: 1 (fixed) Side: 2 Rear: 2 For 3rd storey, side and rear: 3	Front: nil Side/rear: 1

Source: <http://www.ur.gov.sg/devtcontrol/designatedland-frame.htm>.

<sup>a</sup> Applicable to sites fronting category 3–5 road. For sites fronting category 2 road, the front setback would be according to the buffer requirements.

<sup>b</sup> Applicable to sites fronting 3–5 road.

<sup>c</sup> Applicable to 2-storey mixed landed and 2-storey semi-detached housing areas.

Since its inception, condominiums have experienced four distinctive stages in its development: (1) the early years of its development; (2) the period of boom and rapid growth; (3) the period of slump and market consolidation; and (4) the period of recovery and boom (Sim and Yu, 1993: 4). During the early years, both developers and home-buyers were cautious about this new residential form. Developers moved slowly to build the projects, taking 5–6 years for completion from the date when the land was bought from



Fig. 35. An example of condominium housing: Bukit Timah Road.

the government 'sales of site' program. The Grangeford Condominium, for example, was one of the two land parcels sold in the fourth 'sales of site' program in 1974, but the project was only completed (i.e. the year when the temporary occupation permit was issued) in 1981. The first condominium completed and placed in the housing market was Ridgewood at Mount Sinai by an American company. Condominium buyers then were mainly foreigners, who accounted for 90% of the resident population in these projects (Ho, 1989: 1). It was only since 1985, local buyers have moved into condominium development, exceeding 50% of the resident population in some of the projects (Ho, 1989). The trend of upsurge in condominium demand began in the late 1970s, generated by strong economic growth. Rapid increase in national income and influx of foreign companies and expatriates contributed to the great demand for condominium housing (Sim and Yu, 1993: 5). URA allocated more land parcels for condominium development (seven in its 10th 'sales of site' program in 1981). Many developers rushed in and snapped up all available land parcels for condominium projects, leading to the boom of 1981/1982 (Sim and Yu, 1993: 6). As a result, there was excessive supply of condominium units in the 1983–1988 period: 173 condominium projects with about 16 600 units completed. Both sale prices and rentals began to drop in 1983. It was only in 1989 a sign of a slow recovery shown. The prices began to pick up and the number of condominium development applications increased. Land sales from URA allowed 3000 units of private residential properties in 1993; this was doubled (to about 6000 units per year) in the years 1995 and 1996; and land parcels for about 7000 units were in the pipeline for the sales of site program in 1997. Rapid rise of property prices attracted more people to speculate in the housing market. In May 1996, the government introduced measures to curb speculation.



These include limits of financing (i.e. housing loan will not exceed 80% of the purchasing price or valuation price, whichever is lower); taxes on property gains (i.e. gains of the sale of any property within 3 years of its purchase will be taxed as income); and stamp duty on the full value of the property on every sale and sub-sale regardless of whether it is a completed or uncompleted property. These measures, together with the Asian Financial Crisis in 1997, brought Singapore's property market to a major recession. By the end of 1998, average residential property prices fell by 45% from its peak in mid-1996 (Choo, 2001: i). Recovery of the domestic economy in the late 1990s boosted property sales and prices to rise up to 39% by mid-2000. But this upsurge did not last long due to regional political instability, stock market volatility and US economic slowdown (Choo, 2001). By the first quarter of 2001, property price was 9% off the 2000 peak. Several event in the following years, including the 911 attack to the US, the consequent Iraq War, the SARS epidemic and the bird flow all contributed to a slowdown of the property market. At the point of writing of this monograph, the number of condominium launches is increasing and a sign of picking up has shown.

In terms of spatial distribution of the condominiums, there was a concentration in the Central Area in the early years (Liu, 1991). Urban planners tried to decentralize the development by setting up three regional centres in the 1990s. URA 'sales of site' program also allocated more land to the non-central regions for residential development. In terms of the planning regions, there was an increase of the development in condominiums in the non-central regions, indicating some level of success in decentralized development of the condominiums. By examining the clustering of property values, however, development in the non-central areas seemed not quite obvious (Han, 2005).

#### 5.1.4. HDB housing

Public housing (Fig. 36) in Singapore accommodates over 80% of Singaporeans. Before 1982, there were three statutory boards/agencies in charge of public housing construction, distribution and maintenance. The largest of the three is the Housing and Development Board (HDB). JTC was the second largest public housing provider, developing and managing public housing as a part of the industrial estates. In 1982, JTC handed over 13 660 owner-occupied flats and 10 020 rental flats to HDB. The third was the Housing and Urban Development Company (HUDC). HUDC was established in 1974 to provide public housing for middle-income Singaporeans (Tan and Phang, 1991: 13). It built 2732 units and handed over to HDB in May 1982.

The earliest housing estates were built on state-owned land at the fringe areas of the central city. This was because of the location of employment in the Central Area, and nearness to these job sites received important considerations in residential location choice. Public housing constructions at rather central locations has continued throughout the 1970s and the 1980s though in the form of increasingly smaller scale projects and through infilling (and redevelopment) rather than development of land previously not used for residential purposes. During the second half of the 1970s, a continuous outward shift of the location of new large-scale projects was observed, at increasingly larger distance from the central city. Older housing estates (e.g. Toa Payoh, Queenstown, Bukit Merah) were consolidated and improved in facility provisions. By the mid-1980s, older housing blocks with most of the one- two- and three-room flats are in the Central Area. Larger flats including four–five-room flats and executive flats are in the suburban new towns. Many of





Fig. 36. An example of public housing: Toh Tuck Road.

the old blocks in the Central Area were demolished. Construction of the one- and two-room flats stopped around 1975. (Van Grunsven, 2000: 111).

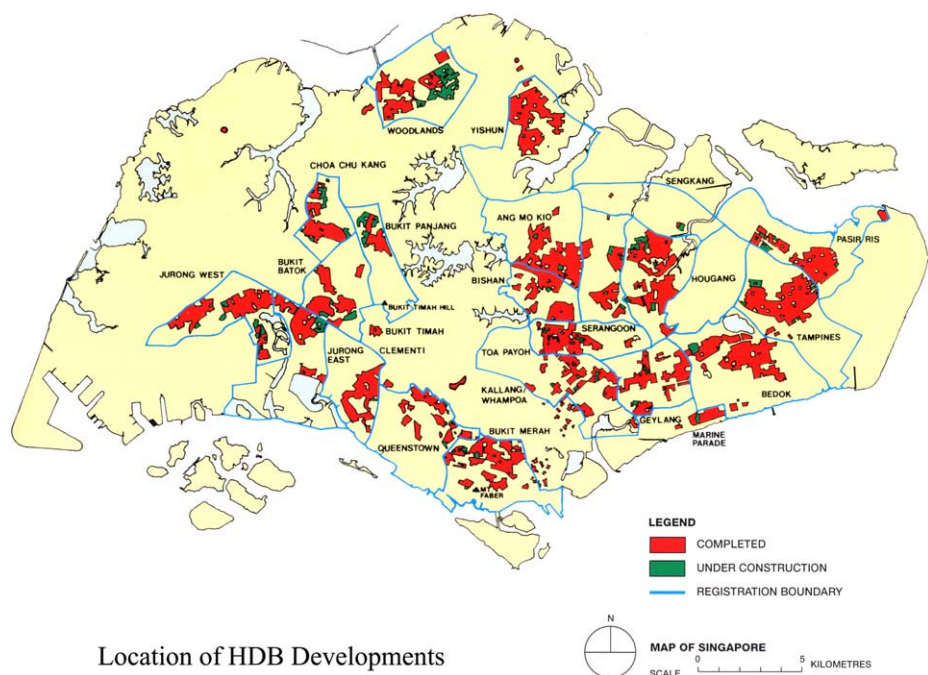
HDB housing includes various unit types classified by the number of bedrooms. Table 8 shows the proportions of each type in 1980–2000. Clearly, the proportion of larger units with four bedrooms and above increased, while the number of flats with three-bedroom or less decreased. This is a reflection of the increasing affluence among Singapore's population. A very small portion of the public housing is for rental, as a result of the government policy towards universal homeownership. At the end of the 1960s there was about 80% of the population lived in rental housing; by the mid-1990s almost 90% were owner-occupiers (Van Grunsven, 2000: 111).

The majority of HDB housing was developed in the form of new towns. Over the years, 26 new towns were established island wide (Fig. 37).

Table 8  
Unit types and proportions

Flat type	1980	1990	2000
1- and 2-room	21.9	8.2	5.0
3-room	32.2	35.4	25.7
4-room	9.8	27.4	33.2
5-room and executive	3.5	13.0	23.7
Others	1.1	0.7	0.4

Source: Singapore Department of Statistics (2001).



Location of HDB Developments

Fig. 37. Location of HDB new towns. *Source:* HDB Annual Report 1995.

## 5.2. Public housing development: history, finance and nation building

### 5.2.1. Evolution of HDB housing

Public housing development in Singapore can be traced back to 1927, when the Singapore Improvement Trust (SIT) was set up to deal with the lack of sanitation and diseases that could harm the reproduction of the labor force (Yeoh, 1996: 137). Though not empowered to carry out housing projects, SIT built public housing for homeless. Due to financial constraints and limited power to acquire land and resettle residents, the operations of SIT were mainly concentrated on public sites or converted military areas (Gamer, 1972: 43 and 44). By 1959, the SIT had built 23 000 units, housing less than 9% of the total population (Wong and Yap, 2004: 92). It was only after 1959 when Singapore attained its self-government status and after the HDB was established in 1960, public housing development took off and progressed at an extraordinarily rapid speed.

HDB summarizes the public housing experience in Singapore using the decades as the time frame. Thus, the focus of the 1960s was to lay down the groundwork for public housing development, resolving housing crisis by drastically increasing the number of flats available. For the purpose of mass production of housing, low-cost units were constructed, with little facilities. The quality of life in new towns received little attention (Van Grunsven, 2000: 111). Ooi (2004: 52) observes that the planning aim then was to provide for self-contained neighborhoods in the public housing estate in terms of meeting the residents' daily needs for goods and services. Shops and fresh food produce markets were

provided in the neighborhood centres. Beyond that, few other community and recreational facilities were constructed. It was expected that residents could continue to rely on most of the urban services and facilities concentrated in the Central Area. As such, most of the early developments were small isolated estates built on parcels of vacant state-owned land near the fringe of the central city area.

A remarkable change of the physical environment in public housing estates was the formation of new towns in the 1970s, though the central concern of building as many units as possible within the shortest possible time continued in the early 1970s. From the mid-1970s, attention to the overall living environment has steadily grown. New towns were developed with a wide range of amenities, such as shops, playgrounds and swimming pools. In flat design, the HDB became more custom-oriented (Wong and Yap, 2004: 96). The overall demand for public housing shifted from a large proportion of one- and two-room flats to three-room flats. Housing needs of the middle-income population was also a concern, which led to the birth of the Housing and Urban Development Company (HUDC). HUDC was established in 1974 for providing public housing to those families whose incomes exceeded the ceiling for the qualification of a HDB flat but were inadequate for private housing. By 1982, when the HUDC housing was transferred to HDB, about 2700 units were built by the HUDC.

The 1980s was a decade for community building and social engineering. The physical environment of public housing estates emphasized on the provision of common spaces and sharing facilities, so that opportunities for residents' interaction could be created. Reserve sites set aside for future community, religious and institutional use became a norm in new towns (Wong and Yap, 2004: 98). Through home ownership scheme and constant improvement of the housing estate, residents have been tied effectively into a system that requires regular income to pay off monthly housing loans and to meet higher expenses for an improved material living standard. As a consequence, residents are increasingly committed to a social order that the government advocates (Wong and Yap, 2004). Further, public housing management and upgrading have been linked to support for the ruling party. Parliament members are assigned to oversee the estate management, through which to get closer to the grassroots and also accumulate experiences. Estate upgrading projects which include a heavy government subsidy were used to secure votes (Wong and Yap, 2004: 99).

HDB describes the 1990s as a decade of public housing renewal and regeneration. This was to preserve not only the physical structures, but also the community. Systematic upgrading and renewal programs were introduced, including the Main Upgrading Program and the Interim Upgrading Program. A new housing form under HDB was introduced in 1995, known as executive condominium (Fig. 38). They are strata title apartments with design, facilities and finishes comparable to private developments but with restrictions for buyers similar to those applied for public housing purchase. Buyers must be Singaporeans, form a family nucleus and occupy the flats for at least 5 years. The income ceiling is \$10 000 per month, higher than HDB's income ceiling of \$8000. In each executive condominium development, 76% of the units will be offered to applicants currently in the HDB executive flat queue, 5% to members of grassroots organizations and the remaining 19% will be allocated by ballot amongst other eligible applicants (JLW, 1997). The first two launches in 1996 were overwhelmingly received and several new projects are being developed.



Fig. 38. An example of executive condominium: Eastvale. Source: [http://www.capitaland.com/SBU-res\\_exec-00.html#exec08](http://www.capitaland.com/SBU-res_exec-00.html#exec08).

### 5.2.2. *Housing finance*

HDB succeeded to all the property, rights and interests, as well as the liabilities and obligations of the former Singapore Improvement Trust (SIT) upon its establishment in 1960. These included 23 917 units public housing built by SIT, a few government loans and grants. During its operation from 1927 to 1959, SIT was funded from four main sources: the improvement rate and government contribution; rents from properties; government loans; and the \$10 million Fund and the Princess Elizabeth Fund (Chua and Ho, 1975: 59). The improvement rate was a levy on properties within the city area, which was maintained at 2% of the annual value since the formation of SIT. The government was required to contribute a sum equivalent to the proceeds of that improvement rate. Rental income included rentals from houses, flats, shops and markets. But the rental was set at a level that the gross rental revenue was the equivalent of gross out-goings including repayment of capital cost. Government loans were granted usually on 60 years terms with 3–4% interest and repayable by fixed installment over the loan period. About \$150 million loans were accumulated by 1957. The \$10 Million Fund was provided by the government in 1926 to the disposal of SIT. The whole amount was expended by the end of 1948 for acquisition and clearance of slums; acquisition and development of land and the opening up of roads; and housing schemes to relieve overcrowding and to facilitate the re-housing of slum dwellers. The Prince Elizabeth Fund was a balance left from the celebration of Princess Elizabeth's marriage in 1947 amounting to \$800 429, which was used for erecting workmen's dwellings by 1951.

According to the Housing and Development Act, HDB prepares annual budget to be forwarded to the Minister for Law and National Development for approval. The Board is bound by the budget approved, but supplementary budget can be requested if there is

deviations in expenditure. In the early years, the main source of HDB long-term finance was government loans. Since 1964, flat sales under the 'Home Ownership for the People' scheme became another main source of finance. Rents, conservancy and service charges are the main items of current revenue (Chua and Ho, 1975: 61).

HDB revenue income had three main sources: rental income; conservancy and service charges; and interest receivable from investment and mortgage loans. There were other minor incomes such as agency fee and advertisement, which accounted for a very small portion of the total income. The expenditure was mainly on property tax and loan repayments and charges. In operation, HDB incurred budgetary deficits annually. In 1960, the gross annual budgetary deficit was \$2.1 million; in 1973/1974, it was \$34.2 million (Chua and Ho, 1975: 62). In the 1990s, annual deficit for the sales of flats ranged from \$80 million (1990/1991) to \$995 million (1995/1996), reflecting the influences of the construction costs and the number of flats built and sold (Tan, 1998: 19). The resulting deficit was made up by means of government subsidies. Since 1960, the HDB has been receiving subsidies ranging from \$2 to \$120 million a year from the government (Lim and Yuen, 1997: 57). For public housing construction, government loans were the main sources of finance. Approved government loans to HDB amounted to \$1193.1 million over the period 1960–1974. A 6% per annum interest was charged on those government loans deemed to be for the construction of housing units for sale, less any payments made in the same year from CPF for purchasing the units. This part of the loan was paid over 10 years. The excess of loan drawings in each year over the value of flats sold would be treated as a long-term loan at 7.75% per annum over 60 years. In cases where the value of housing units sold exceeded loan drawing for the same year, the excess amount would be carried forward and added to sales of the following year (Chua and Ho, 1975: 63). Since the establishment of the HDB, there has been never a single instance where the request for funds for the public housing program has not been approved by the government (Lim and Yuen, 1997: 58).

Since 1964, income from flat sales—as a result of the Home Ownership for the People scheme—has become another source of HDB income. In order for those people in the middle and low-income groups to own their homes, the selling price was maintained at a low level, i.e. slightly below 2 years of average earnings of the purchasers. Purchasers were given options for easy finance, including the option to pay outright or to take a HDB loan at 6.25% repayable in 5, 10 or 15 years. In 1968, the Central Provident Fund Approved Housing Scheme was introduced, whereby members of CPF could utilize part or the whole of their contributions for the purchase of HDB housing flats and for the payment of monthly installment. The utilization of CPF contributions for the purchase of public housing has augmented the flow of funds into housing finance, helping both the HDB and individual purchasers.

The CPF is a tax-exempt compulsory saving fund instituted in 1955. Under the scheme, an employee is compelled by statute to save a certain percentage of his/her monthly income and the employer is required to contribute to the employee's saving too. The rate of contribution changed over time, as a result of the overall economic well-being. From 1955 to 1984, contributions from both employees and the employers increased from 5 to 25% each. During the 1985–1987 downturn, the employers' contribution was reduced to 10%. This was gradually increased to 20% in 1995, as the economy turned around (Chua, 1996b: 12). The 10% contribution returned again in the late 1990s as a result of the major



regional economic crisis. As in 2004, employers contribute 13% for employees below the age 55, and the employees contribute 20% to the fund.

### 5.2.3. *Public housing and nation building*

Public housing has been used for nation building in a number of ways: incorporation of the workforce into the socioeconomic system; implementation of government policies; redistribution of income; control the social and political behavior of the population; and support to the construction industry Wong and Yap (2004: 95) claim that public housing development 'was effectively a process of incorporating the workforce into a new life-style promising regular wages linked directly with world demand for goods and services produced in Singapore'. Homeownership arrangement through the repayment of a housing loan from the Central Provident Fund requires the owner to maintain a stable income which can be secured through consistent improvements in productivity, skill, and technological and management innovations. Thus, 'the encouragement of homeownership raises the level of commitment of the population to a social order promoted by the government to protect the capital gains acquired through a series of governmental efforts in order to improve material living standards, including property ownership' (Wong and Yap, 2004: 95).

Public housing has been used as an instrument to implement government policies since the early years of its development. In the late 1960s, for example, the population policy was to encourage smaller families. This was transformed to housing allocation policy in the Home Ownership Scheme, which began in 1964. The minimum family size of adult members qualifying for purchase was reduced from five to two (Tan, 1998: 39); the family size requirement for rental flats was also reduced to two (Tan and Phang, 1991: 19). In the 1990s, family planning policies changed to encourage larger families. The HDB has initiated the Third Child Priority Scheme, which gives priority in allocation if the applicant has three children. The government's objective of 'keeping the family together' is also reflected in public housing allocation. Single citizens were not encouraged to have their own homes, thus no provision of public housing was made for young singles to live on their own. The minimum age for singles to qualify for public housing was set at 40 for females and 50 for males, with the condition that applicants must team up with one or more persons of the same sex to apply for public housing (Tan and Phang, 1991). A further example is the policy to integrate ethnical groups nationwide, which is reflected in the HDB allocation rules about the racial quota at block, and neighborhood levels (Sim *et al.*, 2003).

Public housing serves as an instrument for income redistribution in at least two ways: subsidies in below-market purchasing price and allowances; and upgrading programs. Financial deficit registered in the HDB flat sales shows that income from housing sale is less than the production cost. As such, first time buyers of public housing are subsidized by the government. A first time buyer purchases a flat at a below market price set up by the HDB. First-time buyers purchasing from the resale market receives a cash grant (since 1994) of \$40 000 for the applicants who are married couples. A grant of \$50 000 (instead of \$40 000) is awarded if the married couple is a first time buyer and purchases a resale flat within the same town or estate or within 2 km from their parents' residence. The Ministry of Finance calculated that, in 1994, the low-income population group (>\$700 a month; accounting for 20% of the population) received a subsidy of about \$1806; the lower



middle-income group (\$700–\$2100 per month; 50% of households) received \$4009; and the upper middle-income group (\$2100–\$4500; 20% of the households) received \$3578 (Tan, 1998: 21). This was disputed, however, as there is disagreement on how the true cost of land was factored in (Tan, 1998: 20). The compulsory Land Acquisition Act enabled the HDB to acquire land at low cost in the early years, but land cost increased tremendously in the market.

Estate upgrading through various programs is another way for income redistribution. Ooi (2004: 169) observed that the intension of upgrading ‘has been to share the economic wealth of the country through a program to upgrade and, hence, increase the values of homes in public housing estates’. The key components of the upgrading program include: (1) improvement of the inside of the flats. These including better sanitary fittings and the addition of an extended kitchen/dining area and extra bathroom or toilet for flats which have only one bathroom/toilet; (2) improvements at block level. These include upgraded corridors, staircases, façade design emphasizing individuality, improved lift lobbies and enclosure of lobbies and entrances to limit access, and improve security; (3) at neighborhood or precinct level, these include to break up these units into distinct groupings of five to seven blocks only, and to allow each to have a distinct appearance as well as resident-controlled access within them. In addition, at this level, new amenities such as multi-storey car parks, walkways between blocks, landscape gardens and children’s playgrounds, will be added. A distinct area name will be adopted to ensure individual identity (Van Grunsven, 2000: 123 and 124).

Major upgrading programs include the Main Upgrading Program (MUP), the Interim Upgrading Program (IUP) and the Selective En-bloc Renewal Scheme (SERS). In 1995, the Main Upgrading Program (MUP) entered the steady phase after a pilot and demonstration phase (Van Grunsven, 2000: 124). The program was carried out in batches of six neighborhoods. The government absorbed 80–90% of the total costs involved. As residents have to pay the rest of the upgrading cost, there is a minimum requirement of the proportion of residents (75%) who support the proposed upgrading. Among the 100 over upgrading projects completed and undertaking, only two did not get a support over 75% of the residents.

In order to bring the benefit of upgrading to the estates faster, the Interim Upgrading Program (IUP) was introduced in 1993. The MUP concentrate on neighborhoods 18 years or older; the IUP are carried out in neighborhoods between 10 and 17 years of age, and improvements are concentrated only on the housing blocks and neighborhood surroundings. SERS, which was announced in August 1995, is to demolish the old blocks and redevelop the site more intensively with better quality housing (Tan, 1998: 25). New housing blocks are developed on vacant land nearby to the sites for SERS. A batch of residents is selected to move to the new flats and vacate their old blocks for demolition and redevelopment. When the redevelopment is ready, the next batch of residents moves in and yet empty another group of blocks for redevelopment. The old blocks are acquired by HDB under the compulsory Land Acquisition Act. Residents receive compensation payable under the Land Acquisition Act, an *ex gratia* payment, an assured allocation of a new flat in the replacement site, a discount to buy the replacement flat equivalent to 20% of the price of the replacement flat up to a maximum of \$30 000 (Tan, 1998: 26).

The selection of neighborhood for upgrading is linked with the political behavior of the residents. Ooi (2004: 170) claimed that ‘[w]hile superficially the upgrading program

would seem to be similar to the process of ensuring that older public housing estates keep up with the new estates being built, the government has announced its intention of giving priority to the constituencies that have voted for the ruling political party'. The message is very clear from PAP leaders on the issue of estate selection for upgrading. In addition, HDB rules help to control residents' social behavior. An example is the additional punishment imposed by HDB to 'killer litters' a term used to describe those convicted of throwing any article down from his flat. Over and above the normal punishment of imprisonment or payment of a fine, the HDB dweller faces the prospect of being evicted from his flat and being debarred from applying for any other HDB flats (Tan, 1998: 39).

Last but not least, a hidden agenda behind MUP and IUP is to rescue the construction industry (Van Grunsven, 2000: 124). Slow population growth and oversupply in offices, shops and other non-residential floor spaces caused a slump in construction industry. Upgrading programs add on to construction investment and the creation of employment opportunities.

### 5.3. *New town planning*

New town planning in Singapore can be traced to the development of Toa Payoh New Town, which was the first new town developed in 1965 (Lim and Yuen, 1997: 49). This fully planned and programmed development was conceived with a target population of 180 000, with a town centre and a range of complementary facilities. Pedestrian circulation was separated from vehicle movement; industrial land use was allocated for light industrial development, for the purpose of reducing commuting traffic between the town and other employment centres and also to utilize the female labor force in town; other amenities such as schools, parks and sports facilities were also provided. As the first new town evolving, some problems became obvious. The ring road structure in the form of a series of loops does not help one's orientation, especially when most of the buildings are highly standardized. Planning standards were also needed for the provision of various educational, communal and recreational facilities (Ooi, 2004: 53).

#### 5.3.1. *A prototype model*

A prototype new town model, as exemplified by the Ang Mo Kio New Town, was developed in the 1970s in order to guide the future planning of new towns in Singapore (Fig. 39). The model contains three-tier hierarchy of urban service centres, that is, the town centre, the neighborhood centres, and the sub-centres (Table 9). Town centres serve residents of the entire town by offering a more complete set of complementary facilities that that provided at Toa Payoh. There have a wider range of services including supermarkets, restaurants, cinemas, and more importantly, the public interchange as well as the MRT station (Lim and Yuen, 1997: 49; Ooi, 2004: 53).

Neighborhoods are the basic planning units in new towns, each comprising 4000–6000 public housing apartments. Every neighborhood is served by a centre approximately 4 ha and located generally within a maximum walking distance of 400 m. At neighborhood centres there are fresh market produce shops, eateries, other

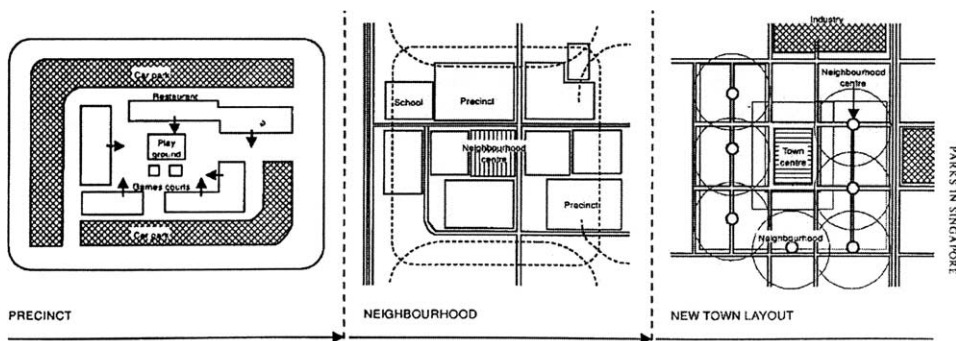


Fig. 39. A prototype new town model. Source: Lim and Yuen (1997: 52).

retail outlets, banks, doctors' clinics, among others (Ooi, 2004: 53). In the sub-centres, there is a group of local shops. New block design, architectural forms and application of color and landscaping elements were also emphasized in order to improve the aesthetic environment of the new towns.

The concept of precinct was introduced in the post-1985 new town development. A precinct usually comprise of a few residential blocks housing 400–800 families. This is a size easier for fostering community development and social interaction (Lim and Yuen, 1997: 49). At the precinct centre there are provisions of children's playground, small game court, or garden serves as a focal point for the community. A pedestrian linkage system was developed in the precincts.

Table 10 shows the land use allocation and density in the prototype new town. Over 30% of the land was used for residential blocks; almost 20% of the land was used for industrial purpose; about 14% of the land was for commercial use; about 12% each were used for schools and major roads; open spaces and institutions each took about 4% of land; and the rest were for sports complexes and utilities.

### 5.3.2. Planning standards

A systematic set of planning standards have been developed over the years, which is summarized in three groups of facilities for provision (i.e. commercial, institutional and sports and recreational). Table 11 reports the planning standards in Singapore's new town development.

Table 9  
Three-tiers of planning units in Singapore's new towns

Name of planning unit	Number of planning units	Number of dwelling units per planning unit	Population per planning unit	Land area per planning unit (ha)
Town	1	25 000–50 000	125 000–25 0000	625
Neighborhood	5–6	4000–6000	20 000–30 000	80–100
Precinct	6–7	500–1000	2500–5000	10–15

Source: Based on Lim and Yuen (1997: 51).

Table 10  
Land use allocation in prototype new town planning

Land use	Land area (ha)	%
Commercial (town centres and neighborhood centres)	86	13.8
Residential	207	33.1
Schools	73	11.7
Open space	23	3.7
Sports complexes	13	2.1
Institutions	23	3.7
Industry	120	19.1
Major roads	75	12
Utilities and others	5	0.8
Total land use	625	100
Total dwelling units	40 000	
Gross new town density	64 dwelling units per ha	

Source: Calculated by author, based on [Lim and Yuen \(1997: 51\)](#).

Though the planning standards were generally observed, there was an insufficient provision of amenities in the early years. It was only in the 1980s that town planners in Singapore turned into the improvement of facilities in the new towns, and responded more sympathetically to existing natural features which can accentuate the character and individuality of the new town ([Ooi, 2004: 54](#)). Among the few standards maintained are the high density, the location of neighborhood centres and the provision of industrial estates. In terms of density, the standard of 99 units per ha was used in the first new town (i.e. Toa Payoh); and 64 in the early 1970s. The location of neighborhood service centres within walking distance of the majority of residents remains; each new town was also planned with industrial estates for light and clean industries ([Ooi, 2004: 53–54](#)).

There are other planning standards which have guided flat design criteria, block design requirements and site planning principles, building spacing, building setback requirements, and provisions of educational, communal, and recreational facilities ([Ooi, 2004: 54](#)).

### 5.3.3. Public housing innovations: Punggol 21

HDB views the first decade of the 21st century a decade for public housing innovation. Punggol 21 was planned an icon for the new century to serve the need of the ‘globally connected, sophisticated Singaporeans’. The key ideas for Punggol 21 include: (1) more executive condominiums and private housing in the estate; (2) more high quality HDB flats in the form of ‘Design and Build’ and ‘Design Plus’ flats; (3) a town planned with LRT right from the start; (4) walking distance to the LRT stations not more than 300 m for most residents; (5) clusters of community facilities; (6) clubs run by SAFRA or NTUC ([www.ura.gov.sg](http://www.ura.gov.sg) accessed on 1 November 2004).

Punggol 21 is located in the north-east on the island, connected by the North-East MRT line ([Fig. 40](#)). The planning area is about 957 ha, and 80 000 families are planned. These families will be accommodated in public housing (60%), private

Table 11  
Planning standards for facility provision in new towns

Facilities	Planning standards
<i>Commercial</i>	
Shops (30–400 m <sup>2</sup> )	1 shop to 70 flats; 20% in town centre, 50% in neighborhood centres and 30% in precincts
Kiosks (3–15 m <sup>2</sup> )	1–600 flats; 30% in town centre and 70% in neighborhood centres
Emporiums (4500–6500 m <sup>2</sup> )	1–2 per new town
Supermarkets (1200 m <sup>2</sup> )	1–2 per new town
Eating houses (450 m <sup>2</sup> )	1 eating house to 750 flats; 7% in town centre, 23% in neighborhood centre, 70% in precincts
Restaurants (90–2000 m <sup>2</sup> )	1–1000 flats; 30% in town centre and 70% in neighborhood centres. In addition, 2 or 3 fast food restaurants and 1 or 2 bigger restaurants in town centre
Office space	60 m <sup>2</sup> to 450 flats; 70% in town centre and 30% in neighborhood centres
Cinemas (1800 m <sup>2</sup> )	2 per new town in town centre
Mini-markets (450 m <sup>2</sup> )	1–6000 flats
Market produce shops (130 m <sup>2</sup> )	1–3000 flats
Market produce look-up shops (40 m <sup>2</sup> )	1–500 flats
<i>Institutional</i>	
Primary school site (1.8 ha)	2300—1 primary school
Secondary school site (2.7 ha)	4100—1 secondary school
Junior college site (6 ha)	1 per new town
Vocational institute site (6 ha)	1 per new town
Library (0.3–0.4 ha)	1 per new town
Polyclinic (0.5 ha)	1 per 30 000 flats
Community centre (0.4 ha)	1 site to 4000–5000 flats to be sited in neighborhood centres
Mosque (3000 m <sup>2</sup> )	1 site per new town
Chinese temple (0.2 ha)	1 site per 9000 flats
Church (0.3–0.4 ha)	1 site to 12 000 flats
Hindu temple (0.2 ha)	1 site for 2 new towns
Others, e.g. residents' committee centres, community hall, neighborhood police post, kindergarten, child care centre, senior citizens' club, etc.	These non-profit communal uses are usually sited at the ground floor void decks of the apartment blocks. For other institutional uses, there are 6–7 reserve sites of 0.2–0.4 ha per neighborhood
<i>Sports and recreation</i>	
Swimming complex (1.5 ha)	1 per new town
Sports complex (3 ha)	1 per new town
Indoor stadium (1.2 ha)	1 per new town
Football field (140 m × 100 m or 95 × 70 m <sup>2</sup> )	Minimum 1 per neighborhood
Hard courts for badminton, volleyball, etc. (6.5 m × 18.5 m)	1 court to 1000–2000 flats
Multi-purpose court (30 m × 18 m)	1 court to 2500–3000 flats; 1 per neighborhood
Precinct garden (0.2 ha)	1–3000 flats
Neighborhood park (1–1.5 ha)	1 per neighborhood
Town garden (5–10 ha)	1 per new town

Source: Lim and Yuen (1997: 55).





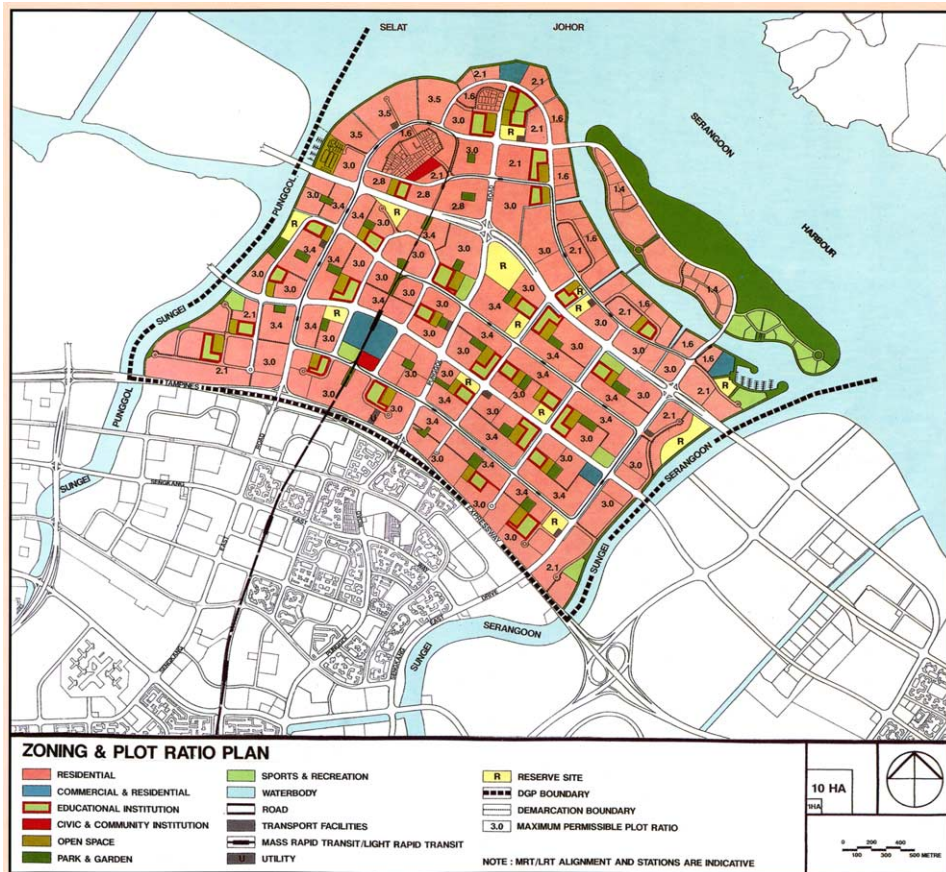


Fig. 41. Layout of public housing in Punggol 21. Source: URA (1998: 17). (For interpretation of the reference to colour in this legend, the reader is referred to the web version of this article.)

(Sim *et al.*, 2003). At the block level, the pattern of ethnic distribution showed two distinctive features: (1) ethnic mixing at block level was the rule rather than the exception. No block was found to be occupied entirely by one ethnic group. However, households of minority groups tended to group together at the same floor within individual high-rise blocks (Straits Times, March 1988). Apparently the allocation mechanism has been less effective at this level (Van Grunsven, 2000: 117)

As far as the existing stock is concerned, as in Feb 1989, 35 out of the total 125 neighborhoods, and 1177 out of the 4825 housing blocks, did not conform to the ethnic limits (Straits Times, March 1989, after Ven Grunsven, 2000: 119).

#### 5.4.2. Grassroots organizations (GROs)

The primary role of the GROs is to serve as a 'bridge' between the government and the people (Sim *et al.*, 2003) In the early 1960s, such a role was crucial as the GROs helped

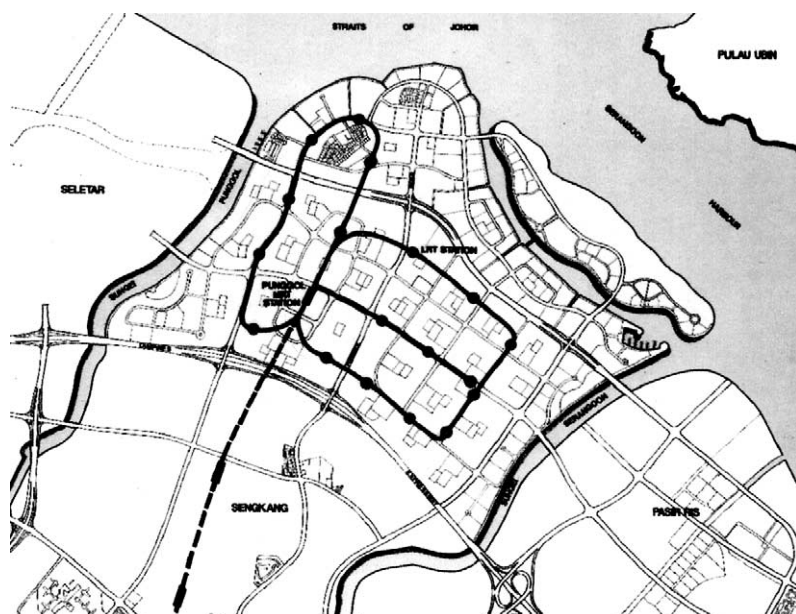


Fig. 42. LRT in Punggol 21. Source: [www.ura.gov.sg](http://www.ura.gov.sg).

the government to not only reach out to the people but also check the influence of forces such as communism. Over the last 40 years, the roles of the GROs have evolved to focus on organizing and providing a wide range of community projects and activities to meet the social, recreational, educational, cultural, and welfare needs of the residents. In addition, these GROs act as a two-way communication channel to disseminate information and obtain feedback on national issues and policies.

GROs are organized under the umbrella of the People's Association (PA). PA was set up in 1960 as one of the conscious efforts by the Singapore government since independence in order to building up grassroots support. Under the PA, each electoral constituency in Singapore has its own Citizens' Consultative Committee (CCC) and several Residents' Committees (RC). In each constituency, there is also at least one community centre or club catering to the needs of different ethnic groups, women, the senior citizens and the youth group.

Table 12  
Ethnic proportions in HDB estates

Ethnic group	Ethnic proportion (%)	
	At neighborhood level	At block level
Malay	22	25
Chinese	84	87
Indian/others	10	13

Source: [Sim et al. \(2003: 298\)](#).

The CCC acted as a coordinator between different organizations, trades, and individuals in the constituency. The Community Centre Management Committee (CCMC) was responsible for the management of Community Centres/Clubs (CCs). A number of housing blocks formed an RC zone. The mandate of an RC was to provide opportunities for residents to mix and interact with each other, to exchange opinions, and to discuss their common concerns. These GROs encouraged interactions among residents through organized activities.

Multi-racial composition is emphasized in both the membership as well as the leadership structure of the GROs, which has a mandate to promote harmonious inter-ethnic relationships through their activities. The concern with this multi-racial representation is that the HDB estate is often conceived as the Singapore heartland or a microcosm of the Singaporean ethnic, religious, language, cultural and income groups (Siddique, 1994). Mr S. Dhanabalan, Minister for National Development, pointed that “[c]ommunity organizations like the CCCs, RCs and CCMCs brought together local leaders of different racial and social backgrounds. These leaders were able to see the needs of the community as a whole and at the same time appreciate the specific concerns of each racial and social group in the community” (Straits Times, 7 January 1989). Multi-racial representation of the different ethnic groups in the housing estates and the GROs in proportions that approximate to the general population profile has not only integrated the different ethnic groups but has also helped to maintain racial harmony as well as promote community bonding (Sim *et al.*, 2003).

The GROs are organized top-down with strong influence of the politicians representing the constituency in deciding who the members of the various committees are. Ooi (2004: 60) observed, for example, that RCs ‘have aligned themselves more to the local Member of Parliament and the ruling party and have less answerable to the residents or constituents they serve. So constituents remain passive and indifferent to activities organized by the Residents’ Committees or the opportunities presented to shape their community life’.

#### 5.4.3. *Town councils (TCs)*

Public housing were traditionally both developed and managed by the Housing and Development Board. With increasing attention being paid to decentralization of governance and participatory democracy in Singapore, however, central management of this kind would be ‘unsatisfactory as the majority of Singaporeans would become passive observers in the development of their estates’ (MND, 1988: 1). This led to the establishment of town councils to manage these estates with the main purpose of ‘giving Singaporeans, the chance to decide for themselves the kind of environment they prefer and to let them participate in the day-to-day running of their estates’ (MND, 1988: 1). It is hoped that through town councils, residents can determine the characters of their own communities. As such, town councils become ‘an important nation-building mechanism to help Singaporeans to forge stronger community spirit and identity’ (MND, 1988: 1).

The idea of town councils was first mooted in December 1984. In 1986, three pilot town councils were established (Lim, 1988). In 1988, the Town Councils Act was introduced. By February 1991, all public housing estates were progressively transferred to town councils. Before the last election in November 2001, there were 16 town councils in

Singapore, combining either single constituencies or group representation constituencies (GRCs). Because the constituency boundaries were not constant, and normally changed as a result of general elections, the town councils were also restructured after each election. In other words, the boundaries of town councils and of the public housing estate managed by each town council were all subject to change. Thus, in 1988, there were 27 TCs, while in 1997 there were 16. These included 14 town councils under the PAP and two under the oppositions.

With the close link-up between the formation of town councils and the electoral cycle, there has been concern that this discontinuity would affect the efficiency of service delivery. “Town councils were to have mobilized greater resident-based involvement in the day-to-day running of their ‘town’ thereby encouraging greater sense of ownership of their neighborhoods and estates. Such an objective seems rather difficult given the frequency of changes to the boundaries of ‘towns’ and the estate management teams as well as the councilors in charge of them” (Ooi, 2004: 58).

As the revised [Town Councils Act \(2000\)](#) states, the mission of town councils is to provide high quality physical living environment for the residents, and the primary function of town councils is ‘to control, manage, maintain and improve the common property of residential and commercial property of the HDB within the town and to keep them in a state of good and serviceable repair and in a proper and clean condition’ (page 15). The ‘common property’ refers to the land and those parts of all HDB buildings which are shared by the residents and are not residential units ([Town Councils Act, 2000: 5](#)).

Generally, the town councils’ management and maintenance work can be classified into two main categories: (1) day-to-day estate maintenance work, and (2) upgrading and improvement work ([Han and Peng, 2003: 92](#)). The day-to-day estate-maintenance works include essential maintenance and preventive maintenance. Essential maintenance includes dealing with lift breakdown, failure of electricity or water supply, sanitary choke, and overflowing tanks. Preventive maintenance includes periodic works such as servicing and testing of lifts, washing, cleaning, and sterilizing water tanks. In addition, some conservancy works, such as regular refuse removal and disposal, daily sweeping, and washing of common areas and landscaping, are also included in the town council’s day-to-day works.

Upgrading and improvement works can be categorized as cyclical maintenance and town-improvement projects. The cyclical maintenance is to ensure that the buildings and structure are kept in good condition by (1) repairing and redecorating, for example, repainting the outer surface of housing blocks; (2) rewiring of electrical installations in the common areas; (3) re-roofing, which covers replacement of the waterproofing membrane of the roof and the secondary roofing slabs. The improvement projects include the provision of facilities such as new playgrounds, covered link-ways linking buildings and bus stops, senior citizens corners, pavilions, fitness corners, direction sign boards, and barbecue pits. These facilities are in addition to those that are provided in the Main Upgrading Program (MUP), Interim Upgrading Program (IUP), and Selected En-Bloc Redevelopment Scheme (SERS), which are all administered by the HDB. MUP and IUP improve the existing properties, whereas the SERS rejuvenate the older states and builds new flats.

As town councils are run by the Member of Parliament representing the constituency, the operation of town councils is closely linked with politics. Thus, it ‘...would be the interest of residents to be very careful whom they choose to be their representative in the Parliament. By voting for honorable, capable and dedicated MPs, and by becoming involved in their community, residents will be able to avoid having to pay the price of a badly-run town council’ (MND, 1988: 1 and 15).

While TCs are doing a great job in carrying out its mandate, they need a greater say in determining bigger things such as the kind of public housing estate to be development in the town, the transport linking the towns (Ooi, 2004: 61).

### 5.5. *Summary*

Decent housing is important for all societies for sociopolitical stability and economic development. In global city making, the housing issue needs particular attention because the co-existence of the highly-paid and the poorly-paid workforces increases inequality in housing consumption. Singapore’s housing solution provides an innovative treatment to the production, allocation and maintenance of housing. There has a housing system developed catering to the needs of different population groups and satisfying peoples’ housing aspirations. Singapore’s public housing succeeded in supplying Singaporeans and the permanent residents a decent home. At the same time, public housing is used as an instrument to regulate the social and political behaviors of the residents.

A pyramid housing system with different housing types is made available to the population. These include high-end bungalows and other forms of landed housing; private apartments with a range of amenities and tenure types; and public housing of different sizes. Costs of housing could range from over \$10 million Singapore dollars for the bungalows to less than S \$100 000 for a small one-bed room public housing flat. Housing up-graders, a term describing those who change from smaller flat to a bigger flat in the public housing estates, or, those move from public housing to private housing (including landed and non-landed housing), search for their housing dreams within the system. Expatriate professionals are largely accommodated in private housing; residences of the CEOs of large multinational companies are usually in the landed housing areas, joining the local elites in housing consumption; others join the upper-middle class and live in condominiums.

Over 80% of the Singaporeans live in public housing operated by the HDB. By purchasing a HDB flat, residents benefit from the below-market price, and other subsidies from the government in future upgrading exercises. In return, public housing residents have to follow certain rules and values imposed by the government. Some of the rules are essential for all to observe, such as heavy punishment for ‘killer litters’ and minimum number of family members to qualify for a public housing flat; others are voluntary and tied up with higher monetary incentives. Examples are the value of keeping families together (to locate near parents’ homes) and political loyalty to the ruling People’s Action Party (to obtain funds for estate upgrading). Monetary incentives are provided for residents conforming to the above values. In addition, mortgage loans financing the housing purchase incorporate the owners into the broader socioeconomic/political system, contributing to the stability of the society.



Land use sites for housing development are carefully designated in the concept and Master Plans. Further, planning and detailing of the development are guided by a hierarchical model which defines the service and neighborhood arrangements. According to this model, housing blocks are organized into precincts; several precincts form a neighborhood; and several neighborhoods form a new town. Accordingly, there are service centres at the new town, neighborhood and precincts levels. Other amenities such as those for religious pray, education and entertainment are specified at detail. New towns that are built since the late 1970s followed the model in spatial organization of the housing estates, while older generation new towns were improved accordingly. The latest housing estate planning (i.e. Punggol 21) still reflects the spatial setup of the model, though changes in land use mix (i.e. to include private housing), internal circulation (i.e. to build LRT lines) and standard and variety of services/amenities (i.e. to introduce clubs and better precinct landscaping) are introduced in order to better reflect the progress in overall socioeconomic and public housing development in Singapore.

For public housing finance, the state is the sole source. HDB prepares annual budget for the development of public housing and receives grants from the government. Every year, HDB budget shows deficit. This is used by HDB as an indication of the subsidies that the government transfers to the residents. However, this is debated because the cost of land may be exaggerated as the land was acquired at a much lower price.

Public housing management involves HDB, the town councils and grassroots organizations. HDB is responsible for the allocation of housing flats, following a quota set up for mixing the residents from different ethnical groups. The town councils are responsible for the physical maintenance of the common areas of the estates, such as the corridors, lift-landing areas, gardens and for garbage disposal. Grassroots organizations include Residents' Committees and Citizen's Consultative Committees which are under the People's Association. These GROs help the politicians to reach the ordinary people, and organize activities to engage residents from different ethnical backgrounds for the purpose of nation building. Studies show that the racial mixture succeeded at neighborhood and block levels (Sim *et al.*, 2003), but there are clustering of certain groups at some floors (Van Grunsven, 2000: 117). The town councils work well within its scope, but it lacks the institutional arrangement to deal with broader issues such as the type of public housing built in the town (Ooi, 2004). The GROs face the challenge of mobilizing residents to participate in the activities that they organize.

A further challenge in Singapore's public housing planning and management is 'how to encourage the residents and the urban population in general to develop a stronger sense of ownership of the city and its spaces. This would mean lesser dependence on state agencies for city maintenance and ultimately, lower costs for the state and its citizenry' (Ooi, 2004: 54 and 55).



## CHAPTER 6

### Conclusions

Global city making is a main concern to many government officials and planners in today's economy of globalization. Being a global city, or being one functionally close to it, symbolizes the status of economic development, and thus, offers the potential for continued growth. As such, it is desirable to many politicians and planners to enlist their cities as a global city. In this regard, Singapore succeeded as the name of the island city-state appears firm in the various global city league tables (e.g. [Friedmann and Wolff, 1982](#); [Dicken, 1992](#); [Taylor, 2000](#)). How has Singapore accomplished the global city status? What general principles and progress in planning and development contributed to Singapore's global city making? What can be learnt from the Singapore experiences?

This monograph presents three main factors that underlie Singapore's success in global city making: long-term vision and constant efforts towards integrating Singapore into the world economy; a developmental state approach in guiding not only socioeconomic changes but also urban development; and a pragmatic urban planning system which facilitates the implementation of government visions. Singapore's global city-making process began long before globalization and global/world city discussions became popular among academics and planners. In Singapore, the need to integrate into the global economy is a matter of surviving, because resource wise, there is no way that Singapore can be self-sufficient in meeting its basic needs. Thus, since the founding of the Republic in 1965, the ruling People's Action Party has been actively looking for the niches in the world economy. Industrial policies were formulated accordingly to guide Singapore's industrialization program and economic structure. Multinational corporations responded positively to most of the policies and incentives, as they found that these policies and incentives were to their advantages of cost reduction and control ([Pereira, 2000](#)). Constant and long-term efforts in active participation to the global economy helped to transform Singapore from a port city to a global centre of financial control and manufacturing activities with regional and international significance.

A developmental state played a critical role in Singapore's global city making. The role of state in guiding Singapore's socioeconomic development is well recognized in the literature ([Huff, 1994](#); [Perry \*et al.\*, 1997](#); [Pereira, 2000](#)). In urban development, absolute command on resource use is attained by a range of institutional arrangements. These include the endorsement of the Land Acquisition Act in 1966, the statutory and non-statutory plans, and the development control procedures. Empowered by these institutional arrangements, there is hardly a situation in which land ownership or government bureaucracy caused delays to a project. Unlike in many developing countries, where centralized control over resource use is a source of corruption, power abuse is minimized in Singapore. Compulsory land acquisition would not be used if there were other alternatives in land supply, such as the focus on state owned land in public housing and industrial development in the late 1960s. More importantly, strict regulations and law enforcement against corruption, aided by a civil service culture towards a clean and efficient government administration, helped to safe-guide the global city making process.

Third, a pragmatic and progressive planning and development system prepared the infrastructures and the urban environment for economic globalization. Some of the main preparations above are discussed in terms of Downtown creation, development of industrial estates, and evolution of the housing system. Clearly, Singapore has not followed a blue-print approach in planning and plan implementation. Rather, the geographic and functional coverage of the Downtown evolved to foster new linkages to the global economy in high level service and control functions; the varieties of the industrial estates increased to reflect the impact of global industrial restructuring on the industrial structure in Singapore; and the housing system developed to cater to the needs of both local and expatriate populations. The long-term Concept Plan, which covers 20 years in future, is made non-statutory so that new features of the global economy can be timely assessed and their impact on Singapore reflected in the development vision. On the other hand, short-term developments are relatively easy to firm up in the statutory Master Plan, which looks for a five-year development frame. This arrangement allows maximum flexibility in the planning system but at the same time maintains the authority of the plans. In addition to the flexibility in modifying the plans, plan implementation, urban management/property maintenance, and redevelopment are indispensable parts of the pragmatic planning and development system. Development plans, once endorsed, are implemented with strong government support in promoting and financing the main projects. Development control ensures that land use development and change of the structures conform to the plans. In urban management and property maintenance, a Singapore brand has developed, with the reputation of high quality in managing physical, human and economic aspects of the environment. Pro-business policies extended property management from its traditional concern on the physical facilities to business operations; while public housing has used to embed social values to the population, and to engineer residents' sociopolitical behavior. Redevelopment projects, especially in industrial estates and public housing, have been in operation for the past decade in order to intensify land use. Together, planning, implementation, management and redevelopment form a full circle of the pragmatic planning and development system in Singapore.

Apart from the progressive formation of the full circle of planning, implementation, management and redevelopment, there are a number of progress and innovations discernible in Singapore's planning and development system. First, the planning hierarchy matured over time, changed from a blue print Master Plan, to 'vision and action' programs, then to a new system including concept and Master Plans. Second, zoning designations have become more flexible, by including white sites and new business land use categories. These changes made it possible to include different activities in a particular land development, and to have a flexible mix of the activities in a development. Third, implementation mechanisms were innovated. These include land acquisition techniques in dealing with disagreements and appeals, project time control in dealing with slow response to government initiatives, allocation of state land using 'sales of site' bidding procedures, and development control using charges laid on the basis of development control sectors. Fourth, urban/property management using government-linked companies in both industrial estates and public housing estates, including subsidiary companies of JTC for industrial properties, and spin-offs of HDB for town councils. These management agents operate according to the market in determining service charges and service qualities.

Last but not least, the buy-back program for industrial sites and the en-bloc redevelopment scheme for both industrial and residential developments were invented in order to intensify land use in Singapore. Early developments which have potential in increasing density will be redeveloped to better reflect the value of land in the land scarce city-state.

Singapore's global city making is a comprehensive process embedded in the strategies and policies for the city-state to survive and to develop. Though the path of urban development in Singapore is unique, her experiences could be learned on two scales. On a broader scale, the institutional arrangements, including formal and informal rules regulating urban development could be overhauled following the Singapore model. This may include radical changes in government ideology, politics, and the ways in administration, so that the learner city would adapt a developmental state approach in urban development. On a smaller scale, Singapore's know-how in urban development could be learned. These may include setting up of a flexible and open-minded planning system and procedures for discretionary development control; enhancing government support in promoting and financing large public projects; introducing mechanisms for land acquisition, allocation and development control; and introducing management practices and redevelopment schemes towards sustainable land use. Some of the urban planning/management know-how were already exported to other cities/countries. For example, Shanghai learned from Singapore's Central Provident Fund and set up a housing saving system (Cai, 1996). However, many of the operational level know-how need support from the institutional arrangement. This returns to a clean and efficient government which cannot be easily attained without major changes in the institutions.

Adding to the comprehensive process of global city making is another complex process in cross boarder transfer of urban development know-how (Han, 2004). The recognition of these complex processes is a starting point for cross-boarder learning. Proper match between the interests of the learners and that of the donors forms the second step in formulating innovative learning programs. Singapore was not poor at its starting point of transformation; Singapore identified the opportunities in attracting multinational firms at the right time; Singapore had the elites who developed a vision for the city-state and possessed the operational mechanisms to carry out the goals of development; Singapore does not have a comprehensive administrative hierarchy which is a part of the governments in larger countries. All these are difficult to be duplicated by other cities/countries. Nevertheless, Singapore's experiences highlight the complicated global city-making process with her own innovations. Now it is the turn of the learners to creatively use the Singapore reference and to formulate appropriate policies and mechanisms to make their cities a global city, embedding in the local history, politics and socioeconomic conditions.

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