



# Sustainable Affordable Housing for a Nation The Singapore Success Story

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## Singapore Yesterday



World Bank holds Singapore up as model of development, pointing to sound policies in urbanisation



Source: The World Bank's World Development Report 2009

## Singapore Today



### The "Miracle" Transformation



From 3<sup>rd</sup> World to 1<sup>st</sup> in One Life Time !

# About Surbana

- Formerly the Technical Consultancy Division of the Housing & Development Board ( HDB ) of Singapore
- Unique International Multidisciplinary Building Consultancy Outfit
- Expertise grounded & perfected in practice for over half a century
- Housing for Singaporeans - 27 World Class Townships – 1,000,000 homes
- **Key Player in Singapore's Success Story**
- To date, projects in 27 countries & 95 cities
- We plan, Design & Implement Liveable Futures
- We pride ourselves with providing 1<sup>st</sup> mover solutions that help transforming communities globally

# Some Challenges for Cities

- Uncontrolled Urban Sprawl
- High Unemployment
- **Housing Shortage**
- Aging Strained Infrastructure
- Increasing Crime Rate
- Pollution
- Traffic Congestion
- Lack of Economic Sustainability
- Energy & Water Security

## Implications :

*The need to achieve sustainability in the development of cities becomes an economic & environmental imperative.*



# The Makings of a Great City

Liveability... Liveability... **Liveability...**

“ Liveability is concerned with **the quality of space & the built environment**. It is about how easy a place is to use and how safe it feels. It is about creating & maintaining a sense of place by creating an environment that is both inviting & enjoyable.”

*UK Department of Communities & Local Government*

*Some Liveability Benchmarks:*

Reliability of Utilities Services

Quality of Transport system

Culturally Vibrancy of City

Sustainable Living & Development

Visitor friendly place

Safe and Secure City

Economic Vibrancy

Education Opportunities



**Liveable Cities compete more effectively for talent & limited FDIs**



Sustainable Affordable Housing for a Nation – The Singapore Success Story



# Success Formula for Singapore's Sustainable Public Housing Programme

## 1. Government Commitment

- Land Acquisition Act
- Housing Development Act
- Funding for Public Housing
- Creation of CPF
- Govt. Key Policy Driver of Development

## 4. Estate Management

- Mandatory Payment of Service & Conservancy Charges
- Govt Funding for Maintenance
- Leveraging off Technology Based Monitoring & Management Systems

## 2. Comprehensive National Planning & Development of Technical & Manpower Resources

- Long-term Land Use Plan
- Creation of Total Living Concept
- Technical & Manpower Resource Development

## 3. Home Ownership Scheme

- Innovative Ownership Schemes for the Working & Middle Class
- Transparent Rules to Prevent Abuse



# 1. Land Banking

- In 1967, the government legislated the **Land Acquisition Act** which empowered it to acquire land at low cost for public use.
- Today, 90% of land is owned by the state as opposed to 49% in 1965.
- This Act, together with sensitive resettlement policies, enabled HDB to clear squatters and slum areas smoothly and, in their place, build new and a HDB flats.

# 2. Establishing an Institution to Focus only on Affordable Housing

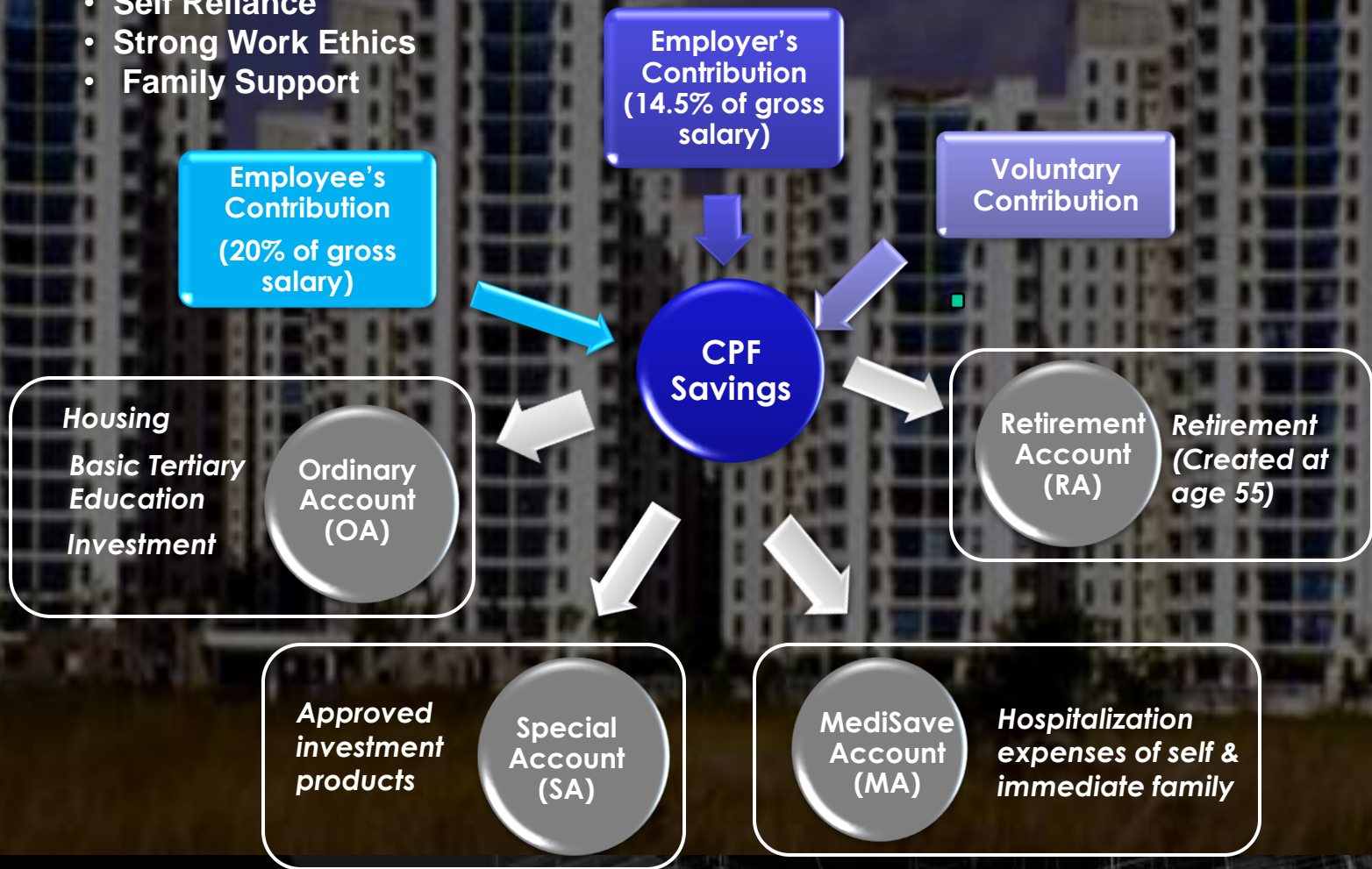
- The **Housing & Development Act (1960)** gave the Housing and Development Board (HDB) legal authority on public housing matters.



### 3. Establishing of the Central Provident Fund ( CPF )

#### Key Principles

- Self Reliance
- Strong Work Ethics
- Family Support

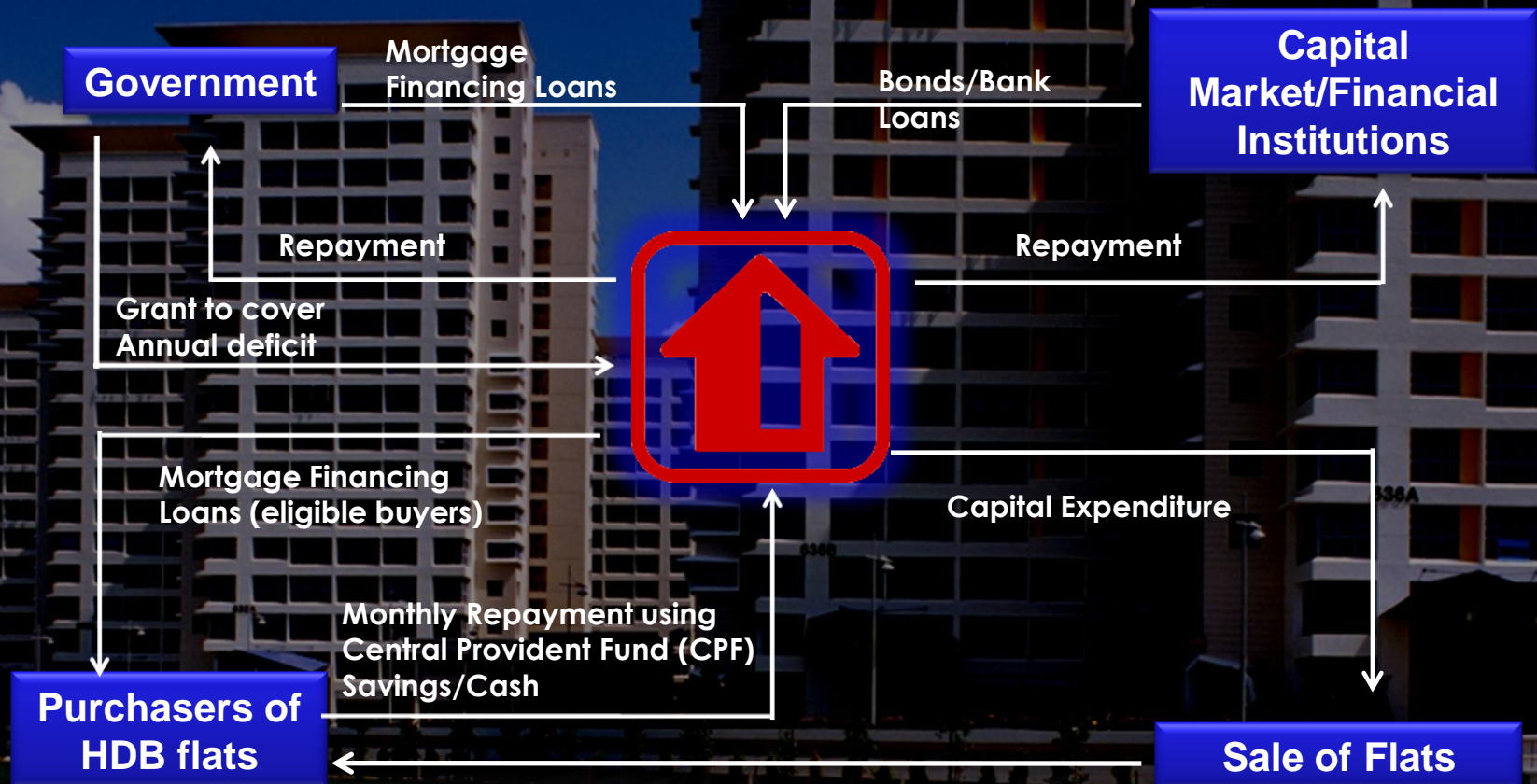




## Government Commitment

### 4. Government – the Banker of Public Housing

- *Cheaper Financing for the Poor*
- *Land Cost not factored into the Sale Price of Apartment*



## 5. Leveraging off the Social Engineering Dimension of Public Housing

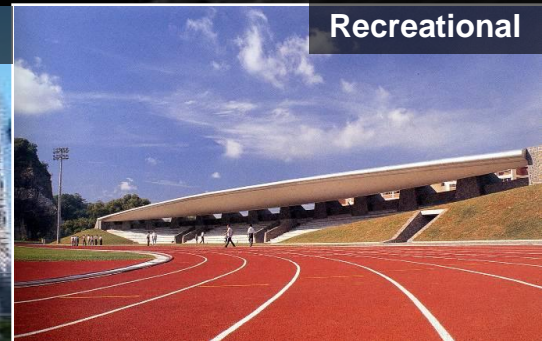
- *Ethnic Integration Policy*
- *Economic Integration Policy*
- *Designing Total Living Environments*
- *Policies to encourage family units to stay together*
- *Building a more cohesive society*

## 6.0 Asset Enhancement Strategy for every citizen

- *Every Citizen will have a roof over his / her head*
- *Diversity of home designs for sale and rental*
- *Adequate government subsidies to ensure housing affordability*
- *Developing a vibrant secondary market for public housing*
- *Developing clear and transparent rules governing the buying and sales of Public Housing – prevention of real estate speculation*

# Comprehensive National Planning & New Town Developments

## Singapore Townships are master pieces of seamless development integration



## Defining Liveability through Total Living Concept for Townships

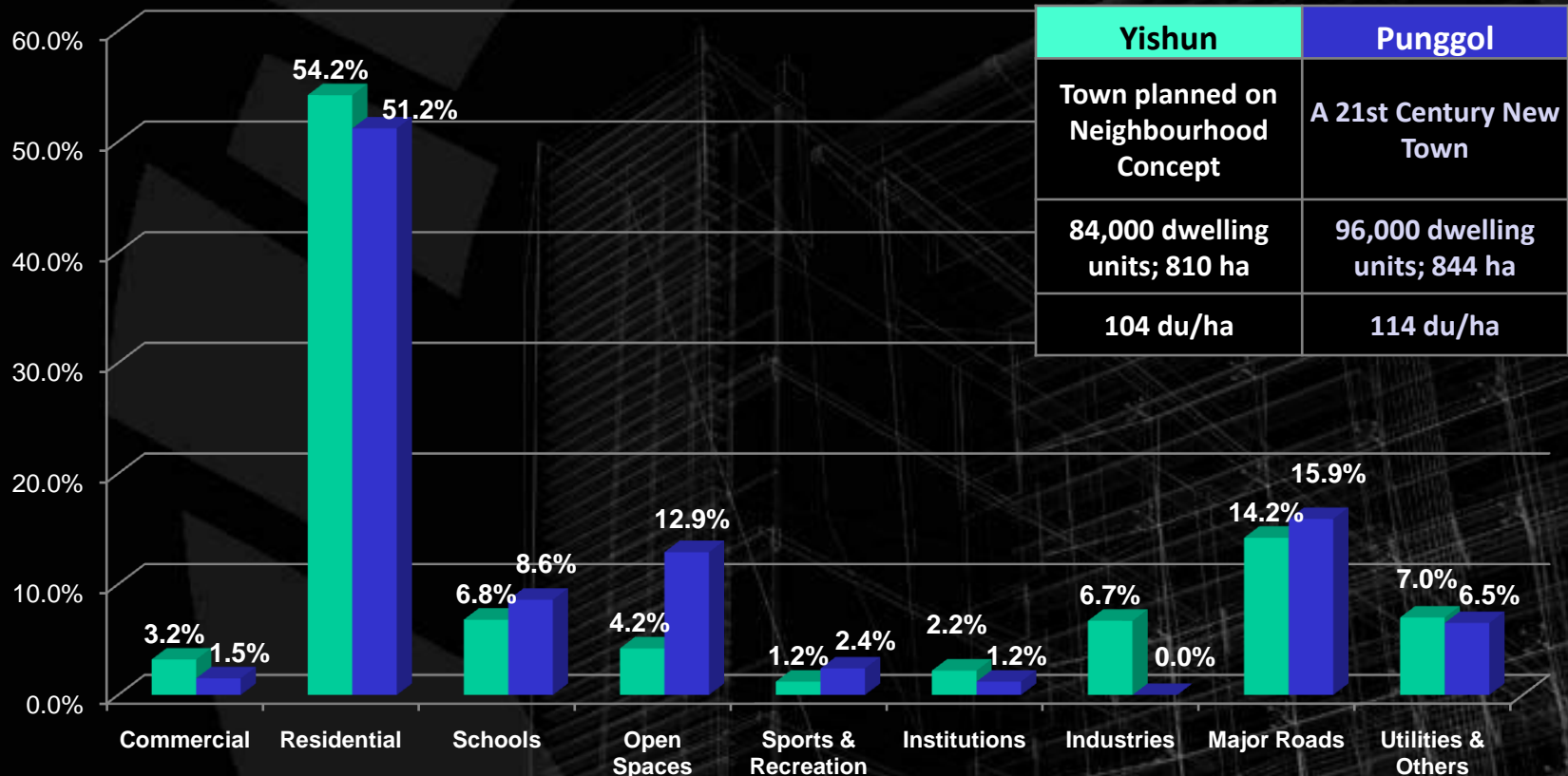


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# 7. Total Living Concept for Public Housing

Secure Total Living Environment to Live, Work & Play to draw people away from crowded city centres

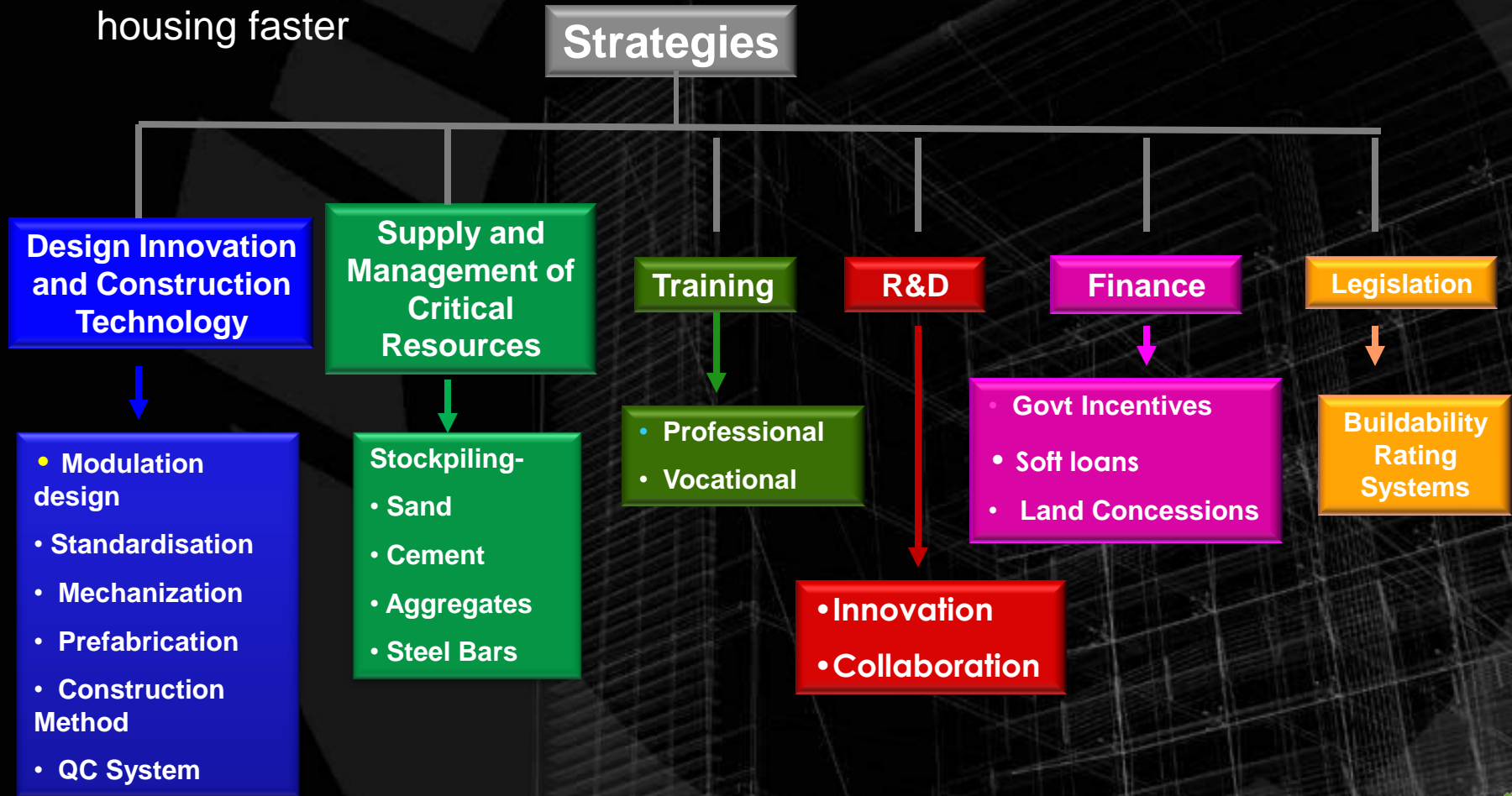


Each Townships- Seamless Integration between Residential, Institutional, Commercial, Industrial, Recreational & Infrastructural Developments

Source: Housing and Development Board, Oct 2008

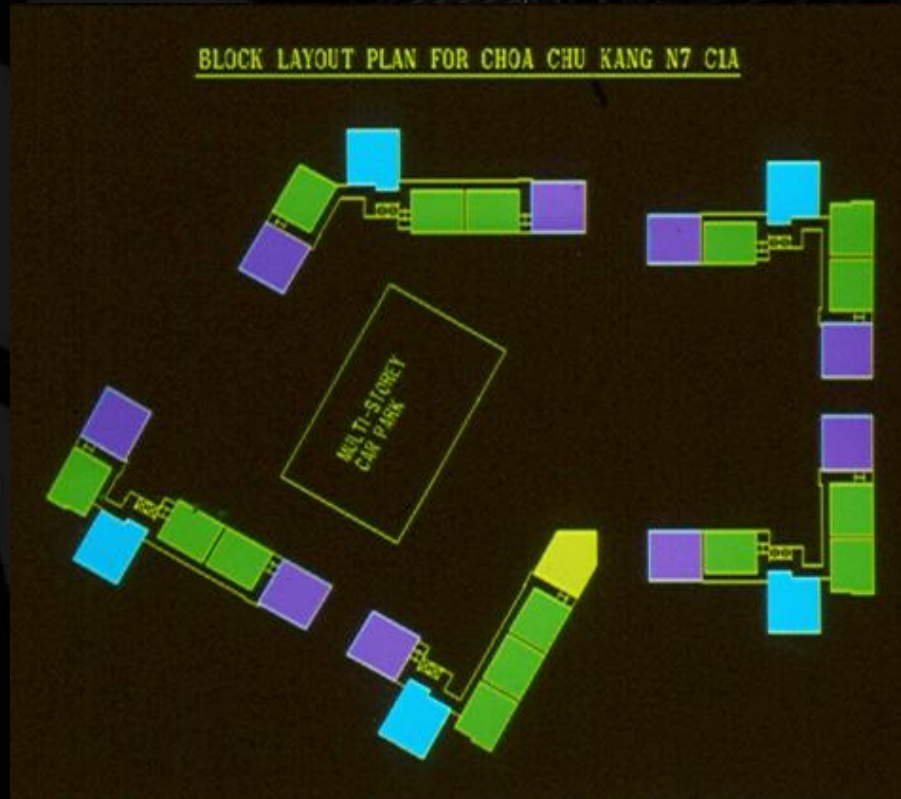
## Sustainable Mass Housing Design & Construction Strategy

- Holistic Approach
- Establishing the technical and manpower resources to build better quality housing faster



## Design Innovation & Construction Technology

- Limiting the variation in Unit Types
- Standardisation of building component dimensions
- Designs that facilitate the use of Industrialised Construction Methods
- Achieving economies of scale



### Apartment Types

 Type 1

 Type 2

 Type 3

 Type 4

Design Innovation & Construction Technology



Precast Columns

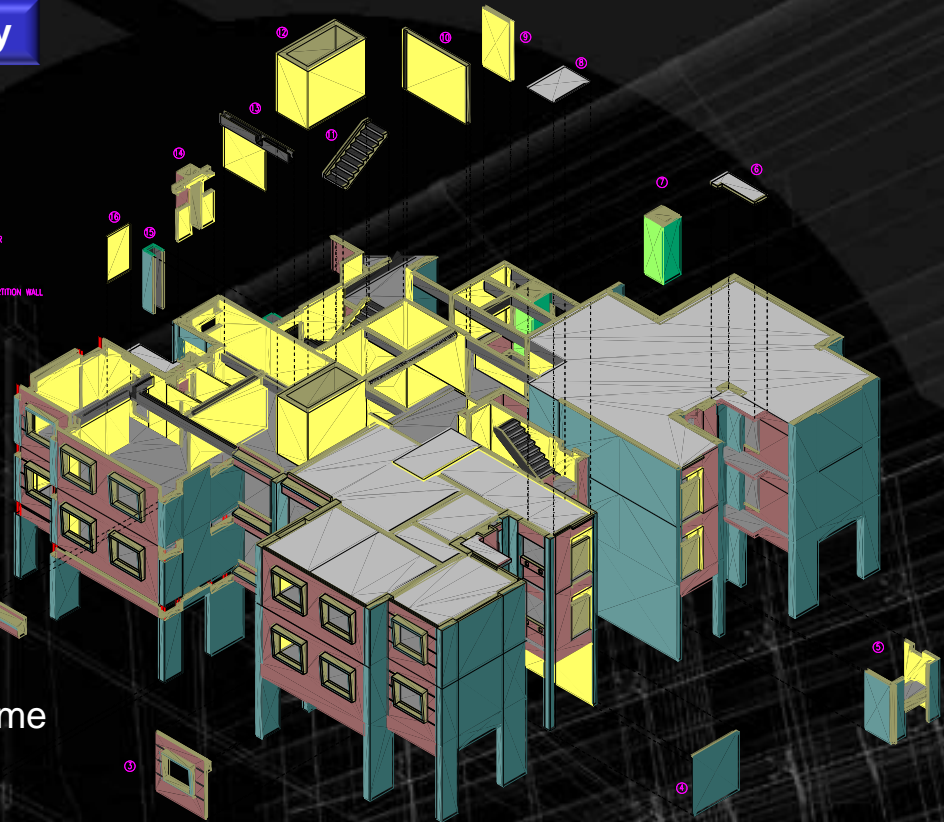


Precast Wall

Standardised Building Components

- Off site construction
- Faster Construction Turn around Time
- Better Apartment Quality

- PRECAST COMPONENT:
- ① PRECAST BEAM
  - ② PRECAST COLUMN
  - ③ PRECAST FACADE
  - ④ PRECAST CABLE END WALL
  - ⑤ PRECAST HI-PANEL
  - ⑥ PRECAST AIR-CON LEDGE
  - ⑦ PRECAST REFUSE CHUTE
  - ⑧ PRECAST PLANK
  - ⑨ PRECAST STAIRCASE WALL
  - ⑩ PRECAST LIFT WALL
  - ⑪ PRECAST STAIRCASE
  - ⑫ PRECAST HOUSEHOLD SHELTER
  - ⑬ PRECAST BATH ROOM WALL
  - ⑭ PRECAST STACK DUCT
  - ⑮ PRECAST SERVICE DUCT
  - ⑯ PRECAST NORMAL WEIGHT PARTITION WALL



Precast Plank Slabs



Precast Parapets



Precast Facades



Segmented Water Tank



Precast Stair flights





## Supply & Management of Critical Resources

### Better Management of Critical Building Resources

#### Stock pile of critical resources

- Sand
- Cement
- Aggregates



#### Advantages

- Better Quality control at Source
- Hedging against future material price increases

## Construction Professional & Vocational Training

### Singapore Construction Industry Training Institute (CITI)

- Development of core group of consultants/ contractors / suppliers / workers
- Skills Certification
- Multitask Training
- Uplifting Professionalism in the Industry





Extensive use of Timber formwork in early 1970s



Extensive Use of Metal formwork in 1980s



Minimal Metal formwork working in Tandem with Precast Technology in the 1990s

## Helping Contractors Upgrade and Automate Construction Processes



1970's - 2 Bag Mixer



1980's - Semi-Automated Site Batching



Today's Concrete Batching Plant

## Government Initiatives & Legislation

# Legislation of Buildable Design

## Buildable score system

- Appraisal System for all Building Developments
- High Buildable Scores equals to More Efficient Labour Usage in construction and hence Higher Site Labour Productivity
- Projects scoring below a minimum score will have plans rejected



## Clear Guidelines on Eligibility to Purchase Public Housing

1968 – Government allowed the use of compulsory savings from CPF to buy HDB flats

Eligibility Conditions		Singapore Citizen	>= 21yrs of age	Must form a family nucleus	Household income Ceiling	Able to Own other private residential property	To be First-Home*
Buying a Flat Direct from HDB		Yes	Yes	Yes	\$8,000/mth	No	No
Buying a Resale Flat in Open Market	With CPF Grant	Yes	Yes	Yes	\$8,000/mth	No	Yes
	Without CPF grant	Yes Open to PRs	Yes	Yes	Nil	Yes, subject to certain conditions	No
Buying a Flat under Design, Build & Sell Scheme (DBSS)		Yes	Yes	Yes	\$8,000/mth	No	Yes for CPF grant
Buying a studio Apartment		Yes	>= 55yrs of age	No	\$8,000/mth	No	No

*"First-Home" refers to those who have not bought any flat direct from HDB nor enjoyed any housing subsidy. Open Market offers a wider choice of flat-types and location. There is also no waiting time.*

*Source: Housing and Development Board, Oct 2008*

## Pricing of Housing to Ensure Affordability

### Sampling of Home Financing - HDB the Banker for the people

Flat Type	2-Room	3-Room	4-Room	5-Room
Standard Floor Area (Sq m)	45	65	90	110
Average Indicative Selling Prices* ( S\$ )	\$88,000	\$146,000	\$251,000	\$339,000
Median Monthly Income**	\$1,300	\$2,100	\$4,400	\$5,400
Additional Housing Grant, if eligible***	\$30,000	\$20,000	NA	NA
Monthly Instalment#	\$232	\$504	\$904	\$1,221

- \* Average selling prices for new HDB flats under various stages of completion offered in 2008 in Non-Matured Estates.
- \*\* Refers to monthly household income of First Time BTO applicants, typically young couples (aged below 35) buying a flat direct from HDB in 1Q – 3Q 08.
- \*\*\* Additional Housing Grant (as at 2008) is assumed to first offset the 10% downpayment, where applicable.
- # Computed based on max. 90% of Average Indicative Selling Prices and interest rate of 2.6%. Assumed applicants are aged 35 & below and household consists of 2 adults.

Source: Housing and Development Board, Oct 2008

## Housing for the Elderly & Singles

### Sampling of Home Financing Strategy with CPF Grants

Schemes	Description
<b>Studio Apartments (for the elderly)</b>	<p>Launched in 1998 to provide another housing option for the elderly. These apartments are specially designed with elderly-friendly features. Social/communal facilities such as Neighbourhood Links, run by the Voluntary Welfare Organisations, are also provided where possible.</p>
<b>To Help Singles</b>	<p>Single Singaporeans &gt;35yrs of age can purchase a resale flat of any type and location. Eligible applicants whose gross household income <math>\leq</math> \$3,000/mth, and are buying up to 5-Room resale flat, can apply for a CPF Housing Grant of \$11,000.</p> <p><b><u>Joint Singles:</u></b> Two or more Singaporeans <math>\geq</math>35yrs can jointly purchase a resale flat of any type and location. All eligible applicants whose gross household income not more than \$8,000, can apply for a CPF Housing Grant. A maximum of two singles will receive a grant of \$11,000 each.</p>

**Note: The CPF Housing Grant is given only if the applicants have not enjoyed such grant for a previous flat or have not purchased a subsidised flat direct from HDB before.**

Source: Housing and Development Board, Oct 2008

## Housing for the Needy

ELGIBILITY CONDITIONS FOR RENTAL OF HDB FLATS		
Public Rental Scheme		Rent and Purchase Scheme
1-Room (Average floor area 33 sqm)	2-Room (Average floor area 45 sqm)	3-Room (Average floor area 60 sqm)
<ul style="list-style-type: none"> <li>• Singapore Citizens</li> <li>• <math>\geq 21</math> yrs of age</li> <li>• Total household income <math>\leq</math> \$1,500</li> <li>• Must form a family nucleus</li> <li>• Must not own any property</li> </ul>		<ul style="list-style-type: none"> <li>• Singapore Citizens</li> <li>• <math>\geq 21</math> yrs of age</li> <li>• Total household income \$801 to \$2,000</li> <li>• Must form a family nucleus</li> <li>• Must not own any property (except a 2-Room flat)</li> <li>• Must be a first-timer or second-time who has met the 5-yr time bar</li> </ul>
Rental Rates		
(A) Income $<$ \$800: <b>\$26 - \$33</b> (B) (B) Income \$801 - \$1,500: <b>\$90 - \$123</b>	(A) Income $<$ \$800: <b>\$44 - \$75</b> (B) (B) Income \$801 - \$1,500: <b>\$123 - \$165</b>	(c) Income \$801 - \$2,000: <b>\$100 to \$206*</b>

\* For first 2 years of tenancy, depending on household income. Rental would be revised upwards by 20% at each subsequent renewal of tenancy. *Source: Housing and Development Board, Oct 2008*



# Typical Maintenance Problems faced by Singapore Townships

- **Budget Control and Arrears Management**
- **Planning & Coordination of routine and improvement works**
- **Managing hundreds of contractors upkeeping the aesthetics and functional value of the town**
- **Managing a large inventory of lifts that comply with stringent performance standards**
  - Lift rescue operation within 25 minutes
  - Lift breakdown attended within 2 hours
- **Citizen Relationship Management (CRM)**
  - Complaints must be resolved within the time limit according to severity
- **Ensuring security of the residents and properties**

## Funding Strategy for Maintenance of Town Councils

- Estate management functions of the common areas in housing estates are carried out by Town Councils through routine and cyclical maintenance.
- Flat owners pay monthly Service & Conservancy charges to the Town Councils managing their estates based on their flat type, citizenship, etc.

Service & Conservancy Charges paid to Town Councils (as at 31 Oct 2008)						
Flat Type	1-Room	2-Room	3-Room	4-Room	5-Room	Executive
Monthly Charges	\$18.00 to \$19.50	\$25.50 to \$29.00	\$36.00 to \$40.00	\$47.00 to \$56.50	\$59.00 to \$68.50	\$75.00 to \$85.00

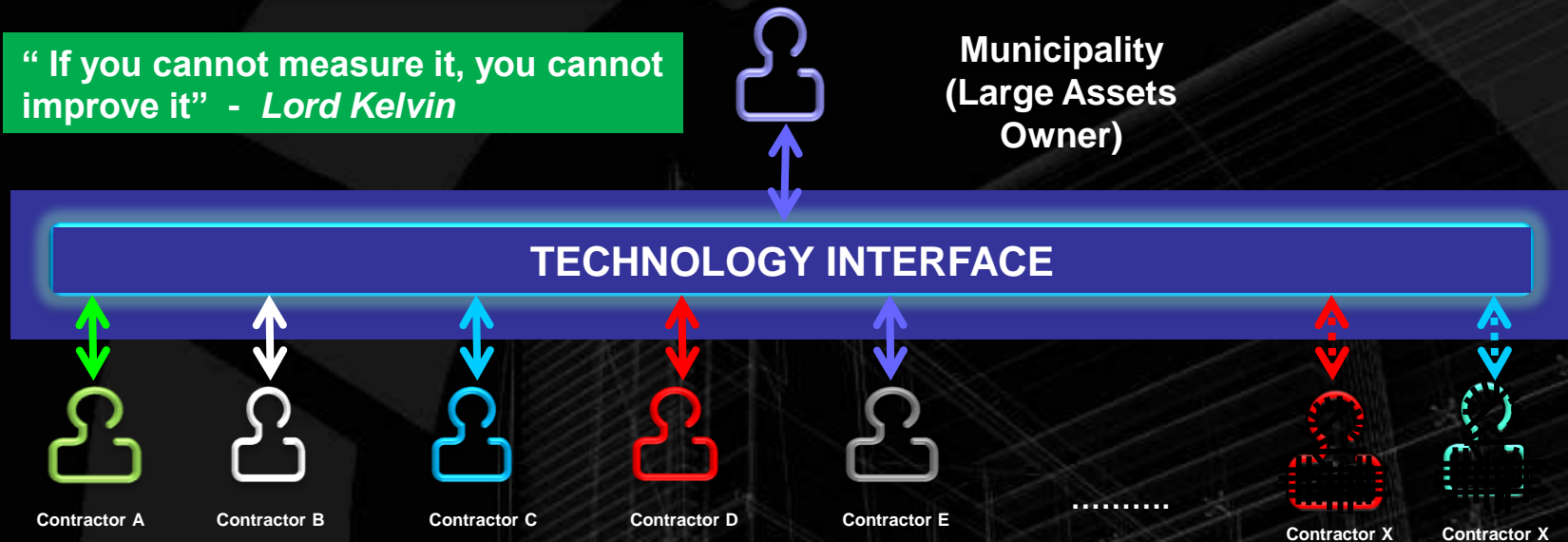
Source: Housing and Development Board, Oct 2008

- The Government also provides funds pegged against the no. of apartment units in each Township to support cyclical maintenance works.

Funding from the Government	
1-Room Apartment	S\$35.00
4-Room Apartment	S\$9.00
5-Room and above/ Executive Apartment	-

# Leveraging off ICT to Facilitate Large Scale Performance Based Asset Management Solutions

“ If you cannot measure it, you cannot improve it” - *Lord Kelvin*



## Benefits

- Interface managing information flow between the Municipal Authorities and all service providers
- Injecting transparency and accountability into all maintenance work processes
- Facilitating paperless archiving and efficient retrieval of information
- Comprehensive real time information updates for more effective business/operational decision making
- Facilitates performance based outsourcing and contracting
- Automation / digitalisation of work processes
- More productive and cost effective deployment of maintenance resources
- Better budget control leading to long-term cost savings in the maintenance process
- Effective execution of Customer Relationship Management
- Better branding and image

# Preserving & Enhancing Asset Values through better Estates Upkeep

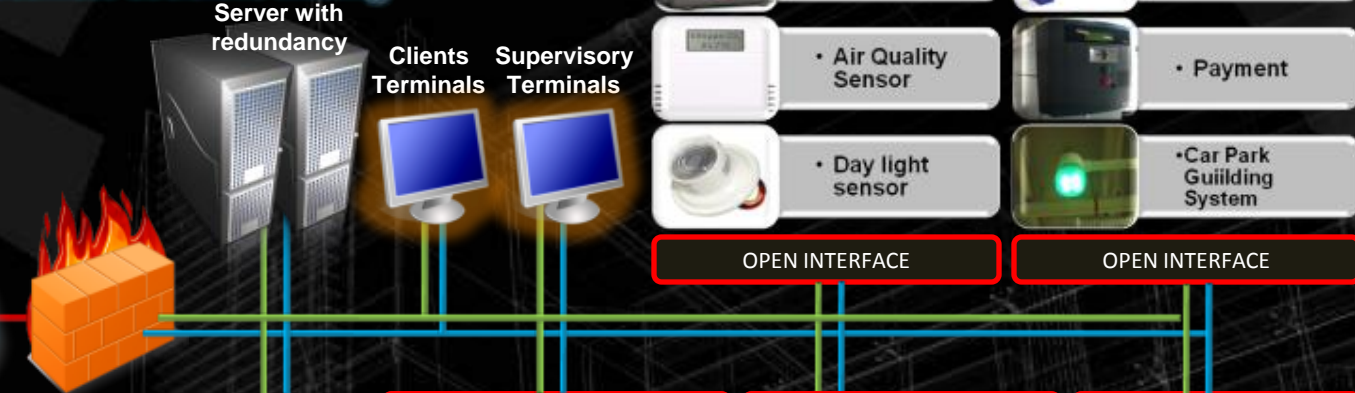
Integrated Estate Management (IEMS™) – Meeting the challenge of managing the maintenance of building assets in 26 world class Townships in Singapore.

24/7 Monitoring & real time updating-facilitating critical business decisions making



Remote Access

9,000 Buildings  
19,100 Lifts  
1,000,000 Homes



**OPEN INTERFACE**

**Computerized Application Module**

- Performance Benchmarking
- Mobile Workforce Automation
- Budget/Expense Tracking
- Customer Feedback Services
- Planned Inspection
- Scheduled Maintenance
- Instruction And Works Order
- Asset Management
- Inventory Management
- Comprehensive Reporting & Analysis

**OPEN INTERFACE**

- Elevators
- HVAC
- Lightings
- Pumps
- Generators

**OPEN INTERFACE**

- CCTV
- Door Access
- Siren & Alarms
- Fire Detectors
- Smoke Detectors

**OPEN INTERFACE**

- Gas
- Water
- Power
- Temperature
- Pressure

Building Monitoring Services      Security Management      Energy Management

A unique system with no parallel anywhere else in the world !



Sustainable Affordable Housing for a Nation – The Singapore Success Story



# Assessing the Performance of Singapore Town Councils

## THE STRAITS TIMES

June 27, 2009 Saturday

It's been 20 years since town councils took the place of the previously ubiquitous HDB in running housing estates, but Senior Minister Goh Chok Tong - who was instrumental in their formation - laments that the vital link with residents has yet to be forged. Political Correspondent **Aaron Low** reports



### 'Missing link between town councils and residents'

Mr Goh Chok Tong, taken in the right spirit, the proposed report card on town councils will spur them to put in more effort to manage their estates. This applies to both PAP and opposition wards.

**F**OR HDB resident Mr. Tan, the town council is not another government agency that he has to pay fees to for its services. He appreciates that the clean estate he lives in but laments that, the 30-year-old TF project started in 1979, does not see what the town council can do for him. He does not, for instance, realise that town councils are required to function as a form of local government and give residents more say in how they live.

"You mean the town council also includes residents?" he asks. "If they were all civil servants," he says.

This link between residents and town councils was the theme of a meeting last week between the Home Affairs Minister Goh Chok Tong and town council chairmen. The meeting is still ongoing, despite town councils having been around for 20 years.

For the record, town councils are often grassroots leaders who reside in the estate, being in the town council has enabled them to see for themselves how complex it is to run a housing estate, as Mr Goh notes.

But residents themselves? Says Mr Goh: "That's the next stage - how do we get them to take a greater interest?"

By residents, for residents. This idea of town councils surfaced some 25 years ago at an election rally in 1984. Mr Lim Boon Hong, then a second-tier People's Action Party (PAP) candidate, suggested forming local authorities to manage housing estates. The idea was to separate from local government HDB estates could then develop their own identities instead of looking alike under one central authority.

The idea was approved by the Cabinet minister in charge of housing, who was then Mr Goh. The second Minister for Health, speaking to bright at his Istana office this week, Mr Goh recalls that MP had to cope with much red tape. He wanted to get things done faster.

Beyond running estates however, town councils were also meant to achieve another objective. This was to transfer some powers from the Government to MPs, grassroots leaders and ultimately to residents, by entrusting them with more responsibility for their own living environment. In Mr Goh's words, it was to involve responsible citizens in the management of their estates.

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They first had to set up a branch office, which would then report to headquarters. "HQ will tell you if your idea is good, but we can't do it for you because if we do it then we're not doing it for the sake of the people," he says.

Town councils were given responsibility for housing estates in four group representation constituencies and 11 single-seat wards in 1989, the Housing Board officials' authority to manage the estates.

By mid-1991 - a year after Mr Goh took over from Mr Lee Kuan Yew as prime minister - all wards were covered. Today, a total of 16 town councils, 14 PAP-run and two opposition-run - manage some 500,000 HDB flats nationwide. They not only maintain HDB estates and enforce certain by-laws within their own estates. They can, for instance, fine a resident if he parks his motorcycle at the void deck. They can also fine residents for displaying goods beyond certain boundaries.

### E-mail, SMS your views

DO YOU feel responsible for your estate? Would you be interested to know more about the town council's work? How significant will the Town Council Management Report be for you?

He warns that any bias in the report will be damaging to the Government. "Even the perception that it's politically biased will be very bad for us."

He hopes that, taken in the right spirit, the report card will spur town councils to put in more effort to manage their estates. This applies to both PAP and opposition wards.

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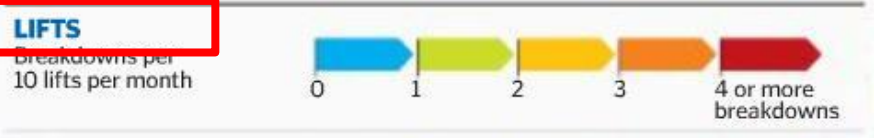
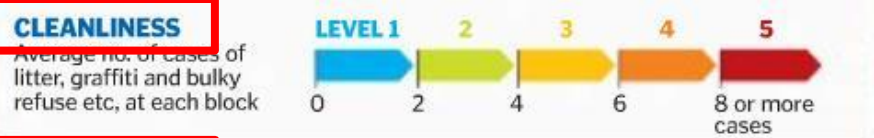
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## THE STRAITS TIMES

September 24, 2009 Thursday

### Home improvement

From Oct 1, all 16 town councils will be evaluated in four areas and graded on a scale of 1 to 5, with 5 being the worst.



\* It refers to the device that brings the lift to the nearest landing during a power failure  
Note: Grading system may be further refined

...the Government's latest move to introduce a report card system to grade the performance of town councils...

# Take Aways from Singapore Housing Success Story

- *Undisputed control of land use made possible through extensive Land Banking at the start of Nation Building*
- *Land Cost is not injected into the sale price of public housing*
- *Sustainable Financing through the Compulsory National Savings instrument CPF – providing Singaporeans with the means to pay for their public housing*
- *Development & Implementation of standardised housing types and investment in manpower upgrading and building technology from the sole provider of Public Housing ( HDB ) – key to speeding up housing building programme without compromise in quality.*
- *Establishment of strict rules regarding the purchase and sales of public housing together with a well implemented estates maintenance strategy have helped enhance asset values of citizens through an established secondary market for social housing*

Periwinkle – A sampling of a Precinct in Punggol New Town

# Thank You

Email: [mails@surbana.com](mailto:mails@surbana.com)

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