A short introduction to Hong Kong

Extreme landscapes
Overview

Baseline

• Landscape
• Population
• Reclamation
• Lifestyle footprint
• New town and MTR
• MTR R+P
• Economy, Business, Quality of Life

2030+ Challenges

• Key spatial diagram
• Challenges
HK Landscape

25%

Hong Kong wide land is built up about 275 km$^2$ /1,105.7 km$^2$

- **Arable land**: 2.95% 32.62 km$^2$
- **Permanent crops**: 0.95% 10.50 km$^2$
- **Other**: 96.10% (2012 est.) (CIA)

HK Density: 26,850/km$^2$

Paris Arrondissements: 25,650/km$^2$

excluding Bois de Vincennes & Bois de Boulogne

humid subtropical climate

40%

Hong Kong’s park system
40% of the city is protected by law as officially designated country parks and special areas about 443 km$^2$ /1,105.7 km$^2$
35%?

Hong Kong wide land below 100 m elevation
Coastline 733 km
HK Landscape

shortage of easily developed level land in Hong Kong

About 650 km$^2$, or 60%, is natural terrain

- About 40% of natural hillsides slope at less than 20 degree
- About 40% of natural hillsides slope between 20 degree and 30 degree
- About 20% of natural hillsides slope between 30 degree and 45 degree, with less than 1% sloping at more than 45 degree

A Digital Elevation Model (DEM) of Hong Kong emphasising the structural control of topography
HK Landscape
HK population

Hong Kong population

annualised rate of increase
Battle of Hong Kong (8–25 December 1941) beginning of Japanese occupation
Population ≈ 1,600,000
Battle of Hong Kong (8–25 December 1941) beginning of Japanese occupation
Population = 1,600,000

End of Japanese occupation (15 August 1945)
Population = 620,000

Battle of Hong Kong (8–25 December 1941) beginning of Japanese occupation
Population = 1,600,000

End of Japanese occupation (15 August 1945)
Population = 620,000
HK population

The graph shows the Hong Kong population from 1901 to 2016. The population has grown significantly over the years, particularly after the Communist revolution in China in 1949, which led to an influx of refugees.

The annualised rate of change shows a sharp increase in the 1950s and 1960s, which peaked around 1950. This was followed by a more moderate increase in the 1970s and 1980s, with fluctuations around 1970, 1980, and 1990.

The population reached a peak in 2000 with a slight decline in the following years.

Key events:

- Communist revolution in China in 1949

This event had a significant impact on the Hong Kong population, leading to a demographic shift and increased population growth.
Great Leap Forward 1958-61

Communist revolution in China in 1949

Communist revolution in China in 1949
HK Population & Land reclamation
HongKongers & Americans have about the same levels of wealth and prosperity

US $51,704 GDP/Capita
HK $50,936 GDP/Capita

HongKonger emits 68% less carbon emissions than an American

17.2 mTCO₂e/year
5.5 mTCO₂e/year

lives in a home that is 78% smaller than an American’s

201 m² average new dwelling size
45 m²

Commute mainly by public transport

95% of the population who commute by car
10%

and lives longer

78.6 Average life expectancy at birth
82.2 Average life expectancy at birth

Land use efficiency?
Land use effectiveness?
HongKongers & Americans have about the same levels of wealth and prosperity

<table>
<thead>
<tr>
<th>US</th>
<th>HK</th>
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<tbody>
<tr>
<td>$51,704</td>
<td>$50,936</td>
</tr>
<tr>
<td>GDP/Capita</td>
<td>GDP/Capita</td>
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HongKonger emits 68% less carbon emissions than an American

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<td>average new dwelling size</td>
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commute mainly by public transport

<table>
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<td>95%</td>
<td>10%</td>
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and lives longer

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<td>82.2</td>
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<tr>
<td>Average life expectancy at birth</td>
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and have a higher level of inequality

<table>
<thead>
<tr>
<th>US</th>
<th>HK</th>
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</thead>
<tbody>
<tr>
<td>0.46 gini</td>
<td>0.54 gini</td>
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</table>
Lifestyle footprint

US vs HK
2012 Land Utilization Map The Land Utilization Map of Hong Kong
Hong Kong Planning Department

- residential: 6.9%
- roads: 3.6%
- open space: 2.3%
New towns
New towns and MTR

- Every new town ended to be connected with the MTR
- MTR operates 9 rapid transit lines, the airport express and the light rail systems

<table>
<thead>
<tr>
<th>New Town</th>
<th>Development Area</th>
<th>Projected population 2015</th>
<th>Urban area Equivalent to</th>
<th>Density Pers/ha</th>
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</thead>
<tbody>
<tr>
<td>Sha Tin / Ma On Shan</td>
<td>3,951</td>
<td>711,100</td>
<td>Athens</td>
<td>180</td>
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<tr>
<td>Tsuen Wan</td>
<td>3,285</td>
<td>796,000</td>
<td>San Francisco</td>
<td>242</td>
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<tr>
<td>Tuen Mun</td>
<td>3,259</td>
<td>496,000</td>
<td>Denver</td>
<td>152</td>
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<td>Tai Po</td>
<td>2,897</td>
<td>278,100</td>
<td>Cardiff</td>
<td>96</td>
</tr>
<tr>
<td>Fanling / Sheung Shui</td>
<td>768</td>
<td>266,300</td>
<td>Cincinnati</td>
<td>347</td>
</tr>
<tr>
<td>Tseug Kwan O</td>
<td>1,738</td>
<td>402,800</td>
<td>Atlanta</td>
<td>232</td>
</tr>
</tbody>
</table>
Opened in 1975, the MTS now includes:
• 218.2 km (135.6 mi) of rail with
• 157 stations, including 89 railway stations
• 68 light rail stops

2016

Vision
We aim to be international recognized for project management excellence and proactive in responding to the needs of the community in providing transportation systems

Mission
• Enhance customers' quality of life and anticipate their needs
• Set ourselves new standards through innovation and continuous improvement
• Design and construct projects to optimize
• the sustainability of the environment, our business and social benefits
• Complete projects safely, on time and within budget
• Promote a collaborative working
culture which allows all partners to achieve common objectives
• Maximize staff development opportunities to support future growth
MTR - TOD

Establishment of MTR
(1975)

1st railway line
opened
(1979)

MTR was listed in
Stock Exchange of
Hong Kong
(2000)

Merger with KCR
(2007)

Total Assets
HK$241 billion
(2015)
Metro & Rail as backbone of urban growth

<table>
<thead>
<tr>
<th>Land Uses</th>
<th>% Within 500m of a Railway Station</th>
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<tr>
<td>Housing Units</td>
<td>42%</td>
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<tr>
<td>Commercial &amp; Office GFA</td>
<td>75%</td>
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</table>

(Source: Planning Department, 2013)
TAD: Transit Adjacent Development in San Jose, California’s Silicon Valley
Light-rail station in roadway median, separated from surrounding buildings, all of which are spread-out, single-use employment centers enveloped by surface parking.
Land value capture mechanisms basic logic
- enhanced accessibility to attractive and efficient transport systems adds value to land and real estate.

- This value addition confirmed by research

- In Hong Kong, research indicates that housing price premiums are in the range of 5% to 17% for units in proximity to railway/metro.

- This premium can even exceed 30% if properties incorporate transit-oriented design, such as structures that facilitate pedestrian access to commercial amenities or provide pathway connected with stations

- Only around 20% of MTR’s profit are derived from transport operations
Rail + Property Model

Transit Oriented Developments “TOD”

“3D” Principles:

- **High Development Density**
  Intensive and efficient land use within the station walk-in catchment area

- **Land Use Diversity**
  Enhance the life and vibrancy of the community

- **High-Quality Community Design**
  Seamless connection and interchange, segregation of pedestrian and vehicular traffic, greening environment
MTR Provides the First and Last Mile to Daily Trips

- Station sites as Origins and Destination of daily trips
- Rail + Property Model → Walkable Communities
“Rail + Property (R+P)” Developments by MTR

- 43 property projects above stations with total GFA of 13 million m²
### Improvement of Station Accessibility by PedLink

<table>
<thead>
<tr>
<th>STATION</th>
<th>Pedestrian Links</th>
<th>DEVELOPMENT</th>
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<tbody>
<tr>
<td>Above Ground Station</td>
<td><strong>Footbridge</strong></td>
<td>Existing/Future</td>
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<tr>
<td>(Existing)</td>
<td></td>
<td>Development</td>
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<tr>
<td>Entrance</td>
<td><strong>Pedestrianisation</strong></td>
<td>Lift / Escator</td>
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<tr>
<td></td>
<td></td>
<td>Lift / Escator</td>
</tr>
<tr>
<td>Underground Station</td>
<td><strong>Subway</strong></td>
<td>Basement</td>
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<tr>
<td>(Existing)</td>
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</table>

**Images:**
- TWH
- TST/ETS
- ADM

**MTR**
Stations with PedLinks (since 1984)

54 Stations out of 84 with Pedestrian Links
Rail + Property Model
Modes integration

Rail + Property Model
Rail + Property Model  Modes integration

Station Accessibility – Multi-level Ped. Link

Elevated Station  Footbridge  Nearby Buildings
Station Entrance  Escalator / Lift  Pedestrianisation
U/G Station  Subway  Basement

Ground level  Ground level
Integration with Other Transport Modes

Public Transport

Hung Hau Station

Diamond Hill Station

Private Transport (Park & Ride Facilities)

Choi Hung Station

Kam Sheung Road Station
Stations with Public Transport Interchange

54 Stations out of 84 with PTI
MTR – success? model?

• Every day, over 11 million passenger journeys are made on the public transport system, which includes railways, trams, buses, minibuses, taxis and ferries.

• More than 90% of all motorized trips are by public transport, the highest market share in the world.

• Hong Kong, China, represents an extreme case difficult to copy in other parts of the world. However, many coastal cities in mainland China have recently mimicked Hong Kong’s development pattern (high-rise, mixed-use development).
# HK Economy & Business

<table>
<thead>
<tr>
<th>Category</th>
<th>Hong Kong</th>
<th>Switzerland</th>
<th>US</th>
<th>Singapore</th>
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<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td><strong>Economic Performance</strong></td>
<td>5</td>
<td>10</td>
<td>1</td>
<td>4</td>
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<tr>
<td>Domestic Economy</td>
<td>19</td>
<td>9</td>
<td>1</td>
<td>13</td>
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<tr>
<td>International Trade</td>
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<td>17</td>
<td>12</td>
<td>1</td>
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<tr>
<td>International Investment</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>5</td>
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<tr>
<td>Employment</td>
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<td>17</td>
<td>10</td>
<td>4</td>
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<tr>
<td>Prices</td>
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<td>51</td>
<td>35</td>
<td>52</td>
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<td><strong>Government Efficiency</strong></td>
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<td>2</td>
<td>25</td>
<td>3</td>
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<tr>
<td>Public Finance</td>
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<td>5</td>
<td>49</td>
<td>4</td>
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<tr>
<td>Fiscal Policy</td>
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<td>7</td>
<td>29</td>
<td>8</td>
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<td>Institutional Framework</td>
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<td>22</td>
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<td>13</td>
<td>3</td>
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<tr>
<td>Societal Framework</td>
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<td><strong>Business Efficiency</strong></td>
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<td>3</td>
<td>7</td>
<td>5</td>
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<tr>
<td>Productivity &amp; Efficiency</td>
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<td>5</td>
<td>4</td>
<td>10</td>
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<td>Labour Market</td>
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<td>16</td>
<td>25</td>
<td>8</td>
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<tr>
<td>Finance</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>6</td>
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<tr>
<td>Management Practices</td>
<td>2</td>
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<td>Attitudes and Values</td>
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<td><strong>Infrastructure</strong></td>
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<tr>
<td>Basic Infrastructure</td>
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<tr>
<td>Technological Infrastructure</td>
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<td>Scientific Infrastructure</td>
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<td>13</td>
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<td>Health and Environment</td>
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<td>4</td>
<td>16</td>
<td>25</td>
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<tr>
<td>Education</td>
<td>13</td>
<td>9</td>
<td>24</td>
<td>4</td>
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Note: Each of the sub-factors carries the same weight (i.e. 5%) in the overall results.

<table>
<thead>
<tr>
<th>City</th>
<th>Country</th>
<th>Economist 2014 Rank</th>
<th>Monocle 2014 Rank</th>
<th>Mercer 2014 Rank</th>
<th>GaWC 2012 Rank</th>
<th>Z/Yen 2014 Rank</th>
<th>GDP $ per capita</th>
<th>Area (M km²)</th>
<th>Density (/km²)</th>
<th>Year</th>
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<td>Vienna</td>
<td>Austria</td>
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<td>6</td>
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<td>4,894</td>
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<td>44,28,758</td>
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<td>4,894</td>
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- **Quality of Life**
  - Stability
  - Safety/crime
  - Safety
  - Globalisation

- **Economics**
  - Global Financial Centres

- **Stability**
  - International Connectivity
  - Education

- **Healthcare**
  - Quality of Life
  - Environment

- **Culture**
  - Public Transportation
  - Environment

- **Environment**
  - Tolerance
  - Recreation

- **Urban Design**
  - Pro-active Policy Developments
  - Medical Care
Towards a Planning Vision and Strategy Transcending 2030

Public Engagement
Location, location, location

Reaching Half of the World’s Population within 5 Hours’ Flying Time

70-120 millions people within the Pearl River Delta (PRD) 39,380 km²
HK – Key challenges

- A growing and ageing population and a shrinking labour force
- Aspiration for enhancing liveability
- Imbalance in home-job spatial distribution and jobs of a limited range of skills
- Keen competition in the global and regional economy
- Innovation and technology and enabling education to increase productivity
- Meeting the land requirements and adopting a much longer term view
- Providing new transport and other infrastructure
- A large quantity of ageing building stock
- Readiness for climate change
Q&A
A short introduction to Hong Kong

Extreme landscapes

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