



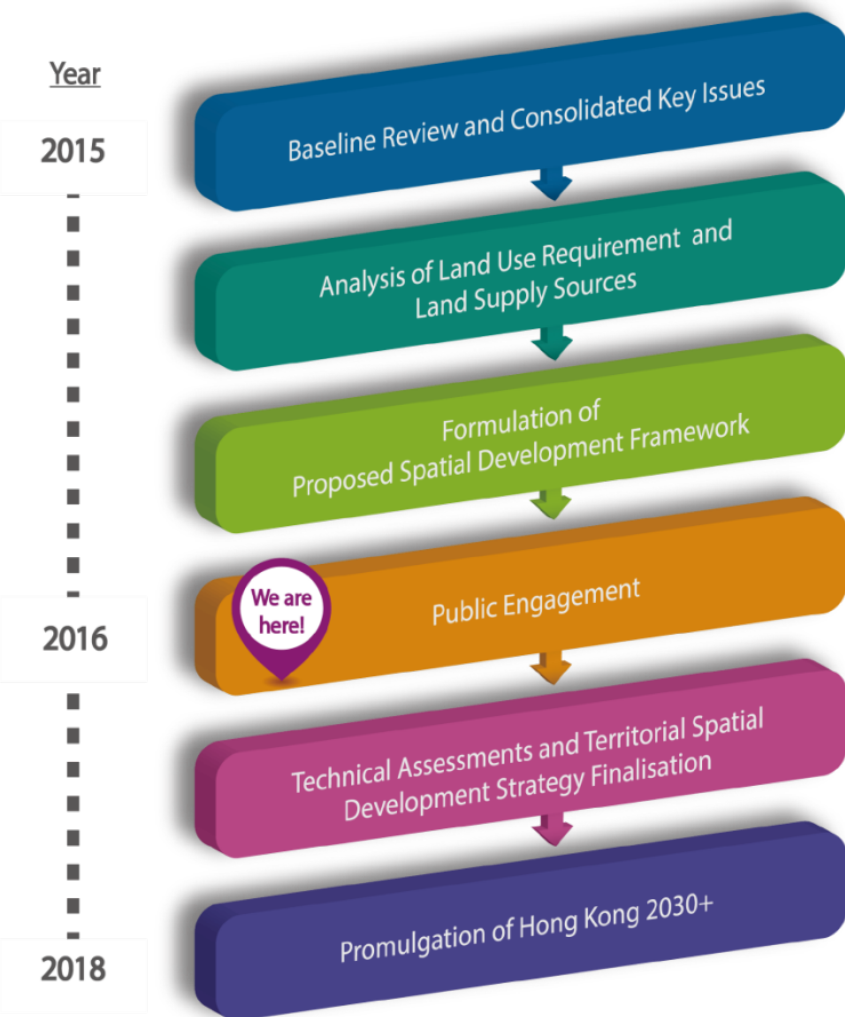
Hong Kong 2030+ Knowledge Sharing Seminar  
Nature Conservation and Regenerating Environmental Capacity:  
**Creating Environmental Capacity for Sustainable Development  
under Hong Kong 2030+**

19 March 2017



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Towards a Planning Vision and Strategy Transcending 2030



- “**Hong Kong 2030+**” aims to update the territorial development strategy to guide planning, land and infrastructure development, and the shaping of the built and natural environment of Hong Kong beyond 2030
- This update adopts a visionary, proactive, pragmatic and action-oriented approach to respond to the changing circumstances and challenges
- A **6-month public engagement** for “Hong Kong 2030+” is currently underway until end April 2017
- The study is scheduled for completion by 2018

Vision



To become a liveable, competitive and sustainable “Asia’s World City”

Overarching  
Planning  
Goal



Championing sustainable development with a view to meeting our present and future social, environmental and economic needs and aspirations

Three  
Building  
Blocks



Three building blocks for achieving the vision and overarching planning goal



1 Planning for a Liveable High-density City



2 Embracing New Economic Challenges and Opportunities



3 Creating Capacity for Sustainable Growth

Key Strategic Directions and Actions

Conceptual  
Spatial  
Framework



One Metropolitan Business Core



Two Strategic Growth Areas



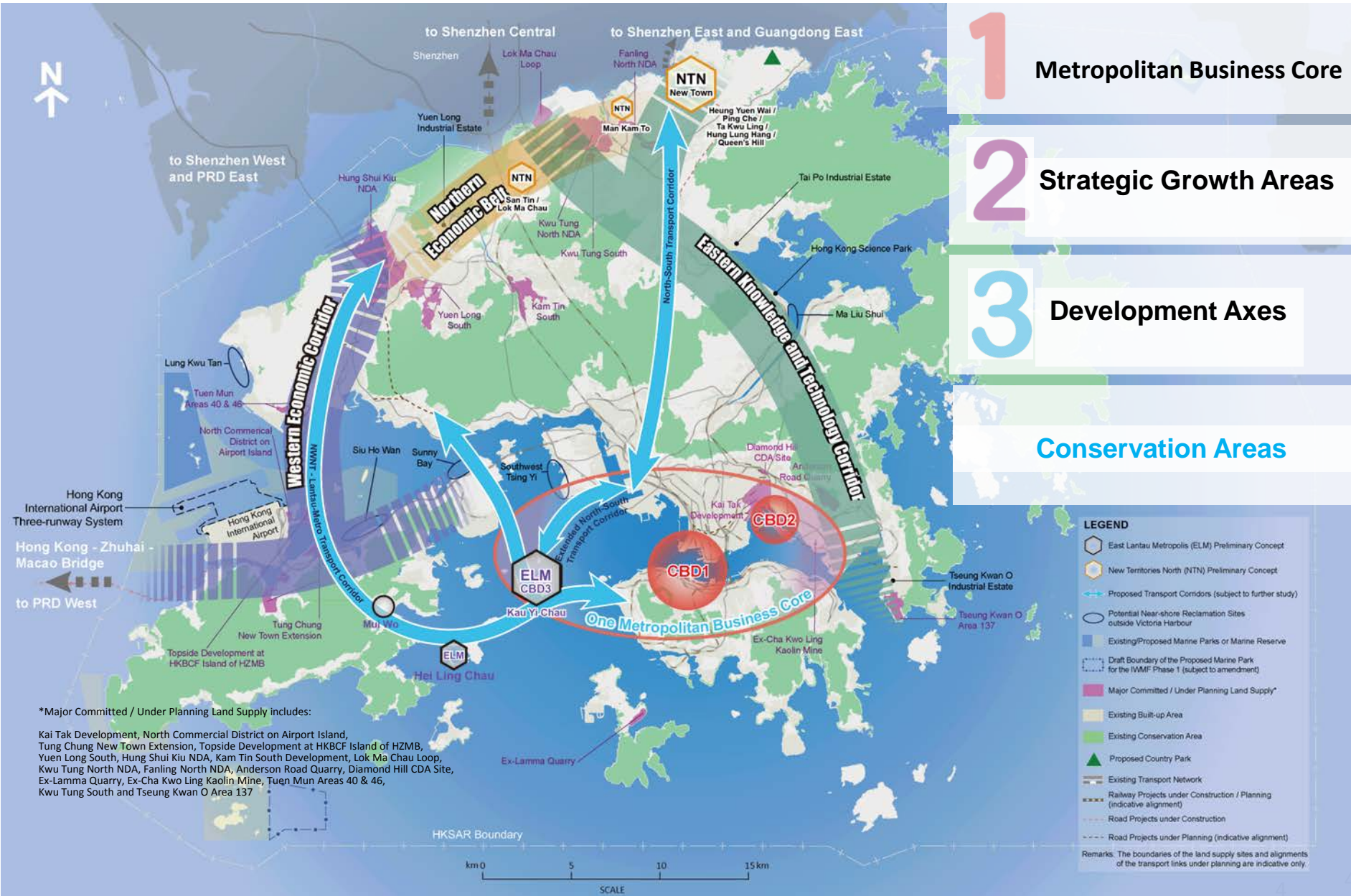
Three Development Axes



Supporting Transport Network

A vision-driven and capacity creating approach for strategic planning of land and space, transport, infrastructure provision and the environment, and for enhancing liveability

# Proposed Conceptual Spatial Framework



**1** Metropolitan Business Core

**2** Strategic Growth Areas

**3** Development Axes

Conservation Areas

**LEGEND**

- East Lantau Metropolis (ELM) Preliminary Concept
- New Territories North (NTN) Preliminary Concept
- Proposed Transport Corridors (subject to further study)
- Potential Near-shore Reclamation Sites outside Victoria Harbour
- Existing/Proposed Marine Parks or Marine Reserve
- Draft Boundary of the Proposed Marine Park for the IWMF Phase 1 (subject to amendment)
- Major Committed / Under Planning Land Supply\*
- Existing Built-up Area
- Existing Conservation Area
- Proposed Country Park
- Existing Transport Network
- Railway Projects under Construction / Planning (indicative alignment)
- Road Projects under Construction
- Road Projects under Planning (indicative alignment)

Remarks: The boundaries of the land supply sites and alignments of the transport links under planning are indicative only.

\*Major Committed / Under Planning Land Supply includes:  
 Kai Tak Development, North Commercial District on Airport Island, Tung Chung New Town Extension, Topside Development at HKBCF Island of HZMB, Yuen Long South, Hung Shui Kiu NDA, Kam Tin South Development, Lok Ma Chau Loop, Kwu Tung North NDA, Fanling North NDA, Anderson Road Quarry, Diamond Hill CDA Site, Ex-Lamma Quarry, Ex-Cha Kwo Ling Kaolin Mine, Tuen Mun Areas 40 & 46, Kwu Tung South and Tseung Kwan O Area 137



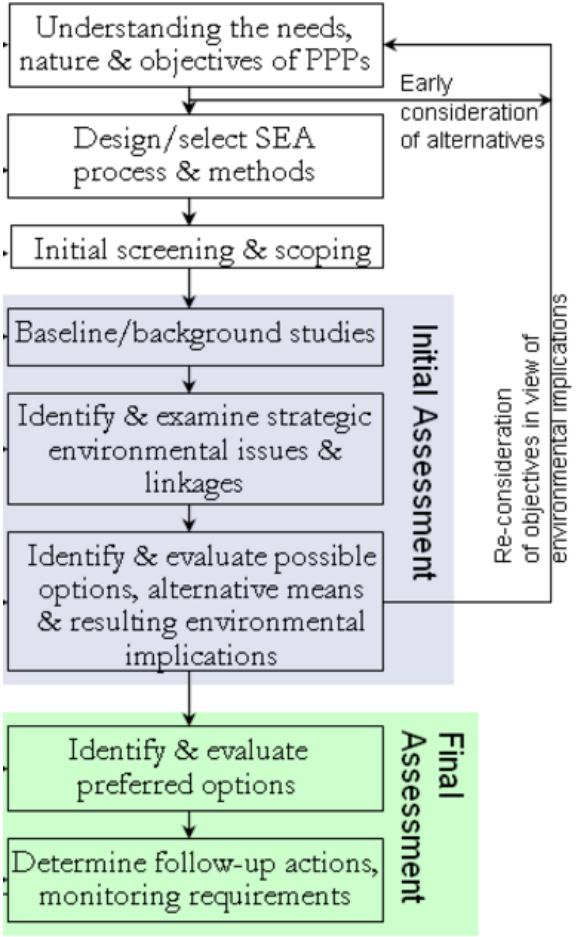
### SEA VS EIA

SEA	EIA
At early stage of the proposed policies, plans and programmes (PPPs)	At the project level
Up-stream & forward-looking	Down-stream
Broadbrush information & greater uncertainties	More details available (e.g. development layout) & less uncertainties
Broad range of potential alternatives	Alternatives within project boundary

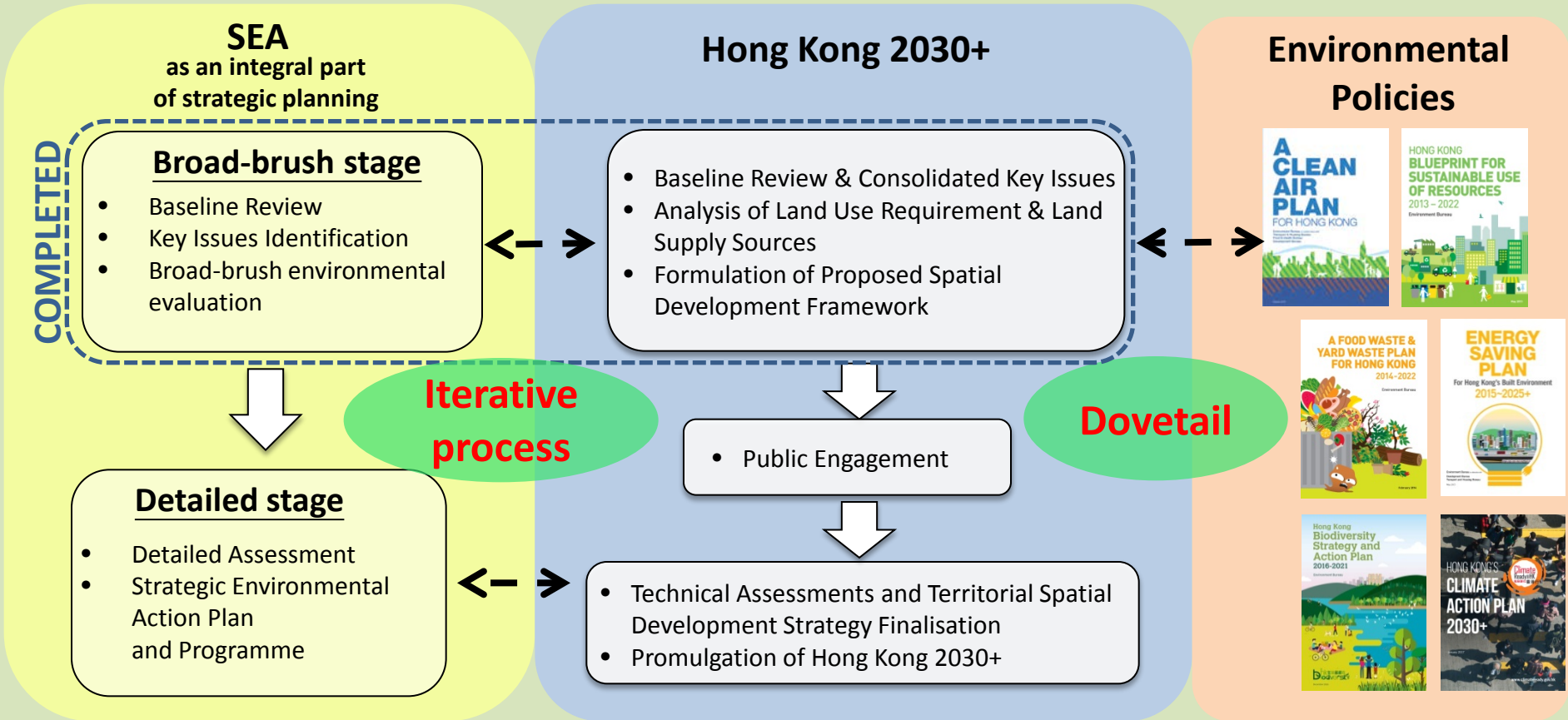
### SEA

- To evaluate broader environmental implications
- To identify environmental concerns at an early stage
- To proactively turn issues into opportunities, and devise environmentally friendly options

### Generic steps of SEA



Source: Hong Kong SEA Manual (EPD 2015)



## Issues

### Air

- Regional air quality problem & local street-level pollution from road transport ( $\text{NO}_2$ , RSP), navigation ( $\text{SO}_2$ ,  $\text{NO}_2$  and RSP) and public electricity generation ( $\text{NO}_2$  and  $\text{SO}_2$ )
- **Hotspot areas:** metro areas

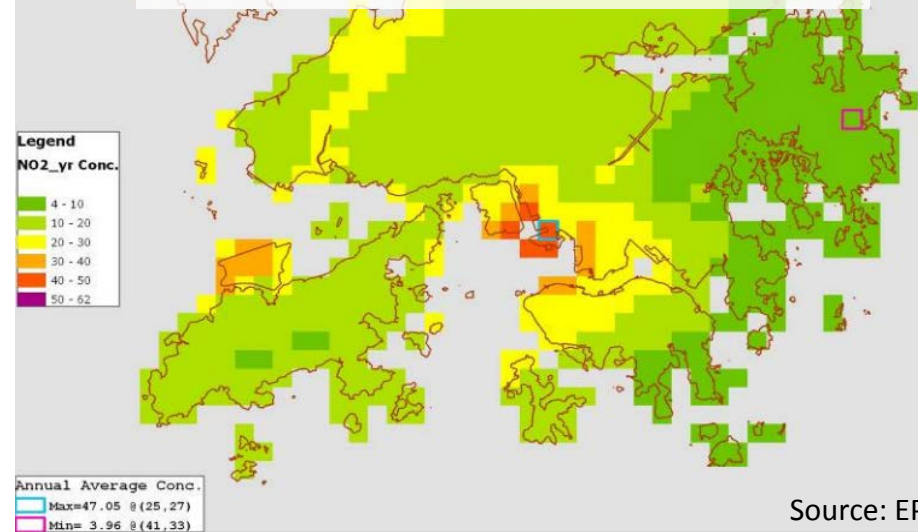
### Noise

- Less than one million people are affected by excess traffic noise
- **Hotspot areas:** people exposed to >70dB (1 hour)- Yau Tsim Mong (24%), Kowloon City (22%) and Sham Shui Po (20%)

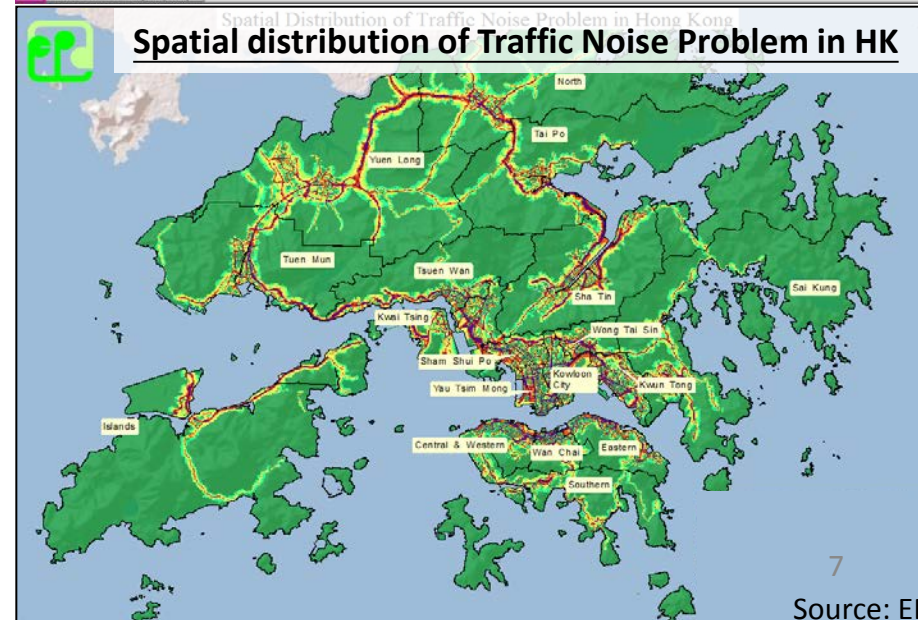
## Opportunities

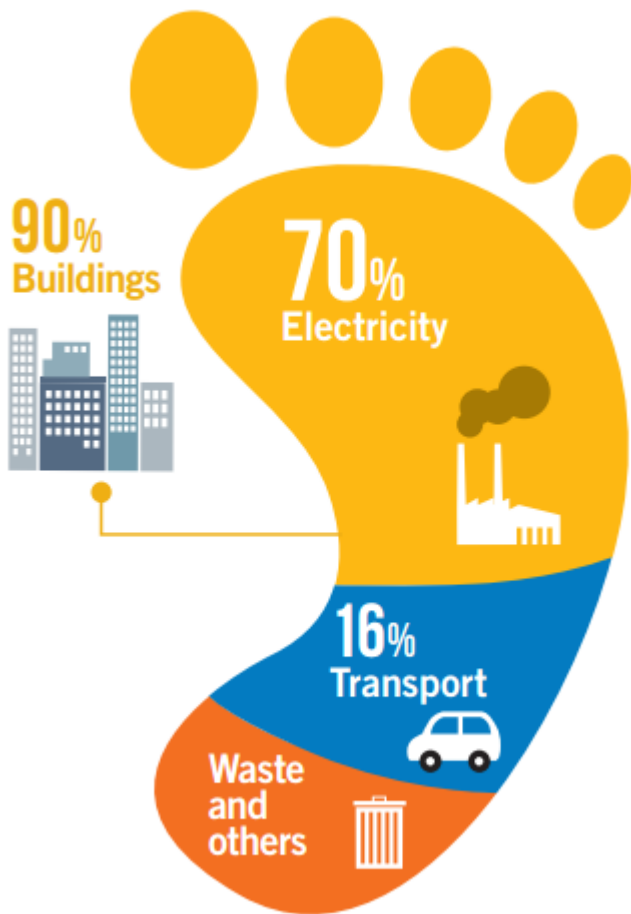
- AQO Review
- Stricter emission control and better regional cooperation
- To reduce vehicular-based traffic. Rail-based development and car-free communities
- To improve home-job balance. To reduce cross-district commuting
- To improve the liveability of dense urban core

Annual ambient  $\text{NO}_2$  concentration upon implementation of Phase I measures



Spatial distribution of Traffic Noise Problem in HK





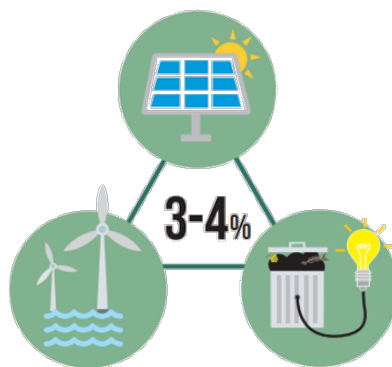
Largest source of carbon emission in HK

## Issues

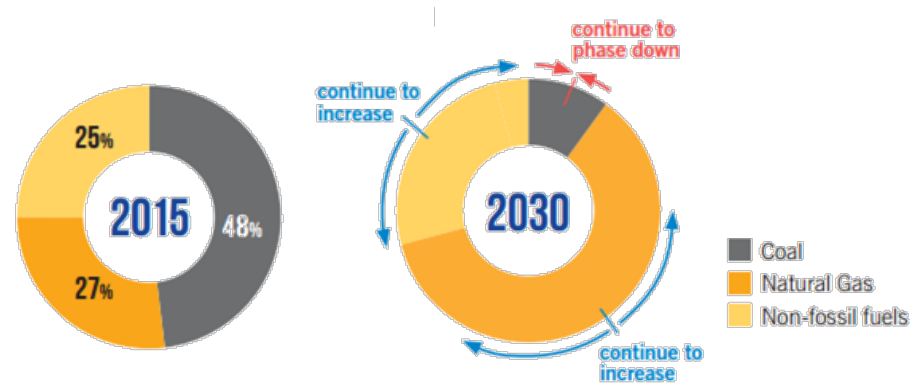
- About 70% of carbon emissions from local electricity generation
- Electricity used in buildings contribute to about 60% of Greenhouse Gas Emissions

## Opportunities

- To reduce coal usage in fuel mix for electricity generation
- To enhance energy efficiency & renewable energy
- To promote low carbon living



HK's Realisable RE Potential up to 2030

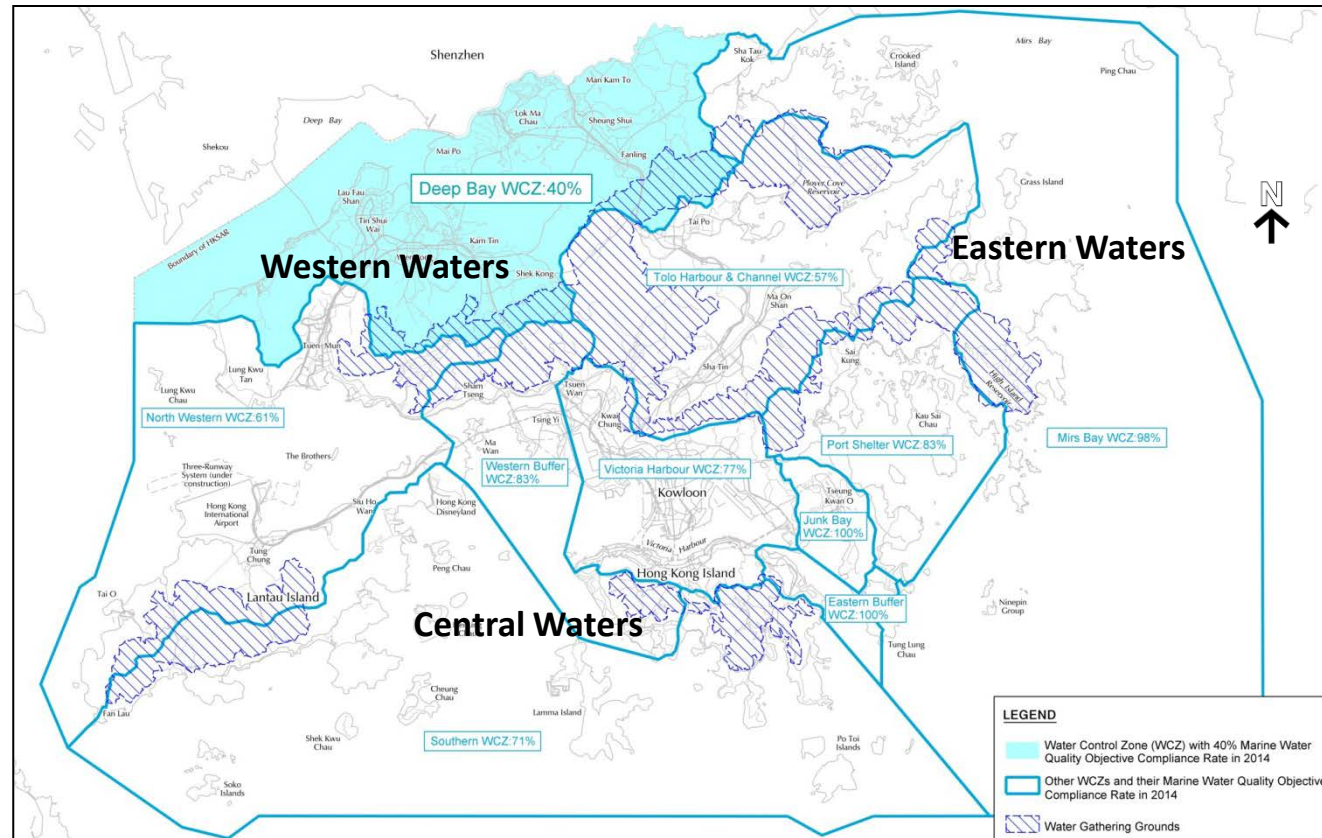


Reduction of coal in fuel mix for electricity generation 2015-2030



## Issues

- **Eastern waters:** good water quality in general
- **Central waters:** Generally has a high marine water quality compliance rate
- **Western waters:** Water quality in Deep Bay is the poorest



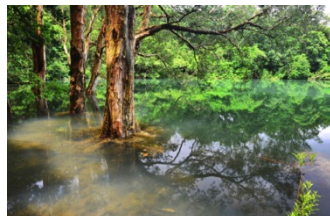
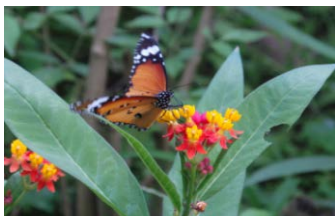
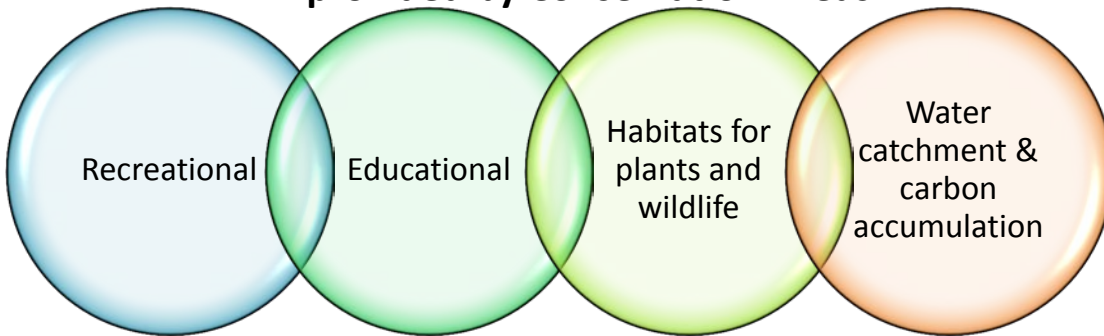
## Opportunities

- Regional cooperation
- To encourage effluent reuse to reduce effluent discharge
- To adopt green infrastructure, e.g. sustainable drainage system and rainwater harvesting so as to reduce pollution loading

## Issues

- Need to conserve HK's rich biodiversity
- Loss of connectivity between areas of natural habitats due to urban development and infrastructure
- Increasing public awareness of nature conservation

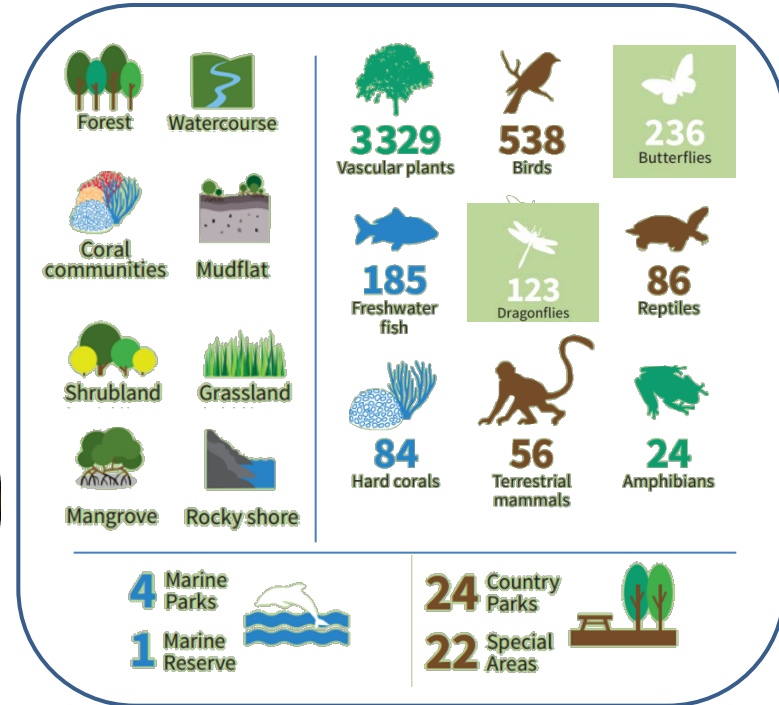
### Multi-functions/ Eco-system Services provided by Conservation Areas



## Opportunities

- To implement the Hong Kong Biodiversity Strategy and Action Plan
- To enhance urban biodiversity
- To restore, enhance and manage valuable green and blue assets
- To reinvent the "green and blue system" networks

## Biodiversity of HK



Source: AFCD

## Natural Resources (% of territorial area under protection)

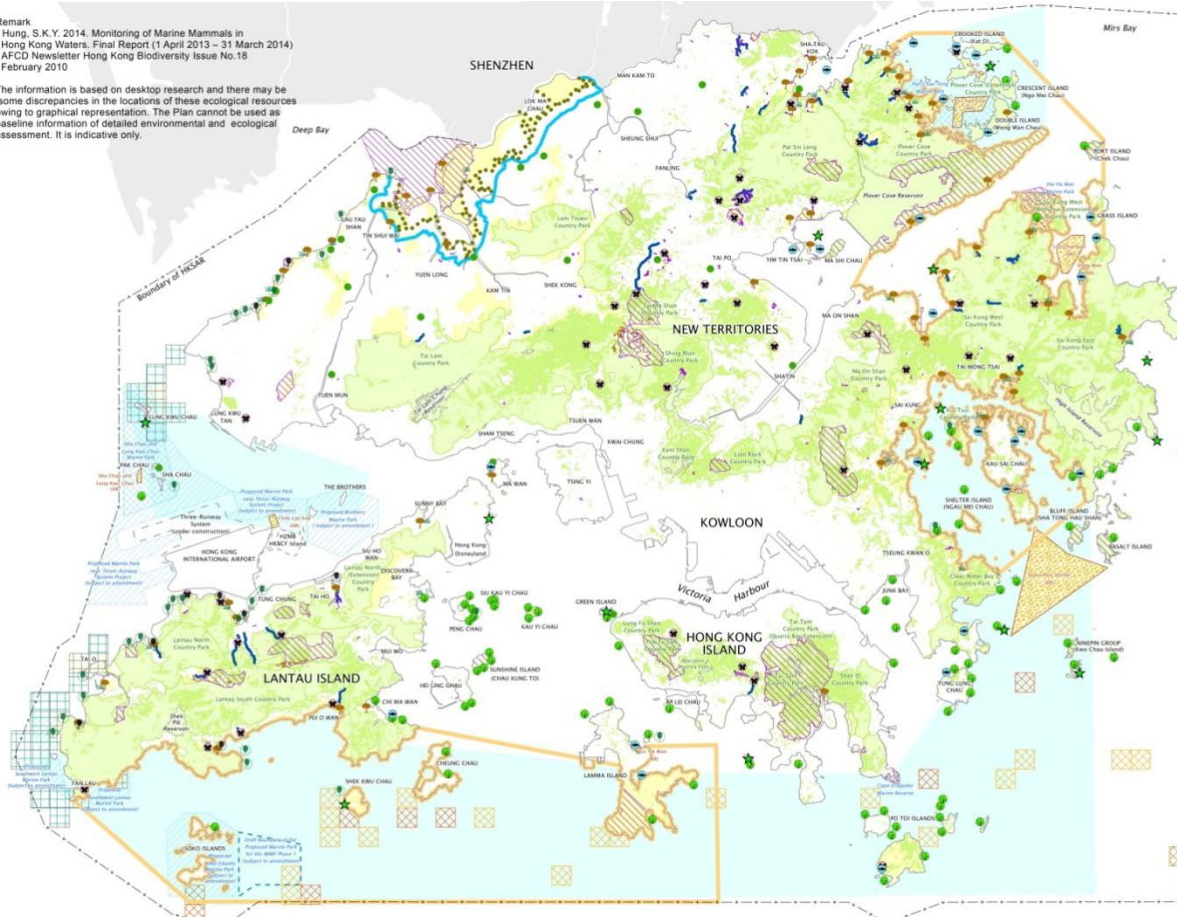
# HKSAR: 5<sup>th</sup>

"Travel and Tourism Competitiveness Report 2015" by World Economic Forum

## Ecologically Sensitive Areas

Remark  
 \* Hung, S.K.Y. 2014. Monitoring of Marine Mammals in Hong Kong Waters. Final Report (1 April 2013 – 31 March 2014)  
 \* AFCD Newsletter Hong Kong Biodiversity Issue No.18 February 2010

The information is based on desktop research and there may be some discrepancies in the locations of these ecological resources owing to graphical representation. The Plan cannot be used as baseline information of detailed environmental and ecological assessment. It is indicative only.



### Legend

#### Terrestrial

- Butterfly
- Nest Site of White-bellied Sea Eagles\*
- Egret Site (as at 2014)
- Fung Shui Woodland
- Montane Forest
- Lowland Forest

#### Marine

- Artificial Reef (AR)
- Mangrove
- Key Coral Area
- Sea Grass Bed
- Horseshoe Crab
- Juvenile Horseshoe Crab Site

#### Number of Chinese White Dolphin per 100 units of survey effort\*

- 61.0 - 80.0
- > 80.0

#### Number of Finless Porpoise per 100 units of survey effort (combining dry and wet season data)\*

- 40.1 - 60.0
- 61.0 - 80.0
- > 80.0

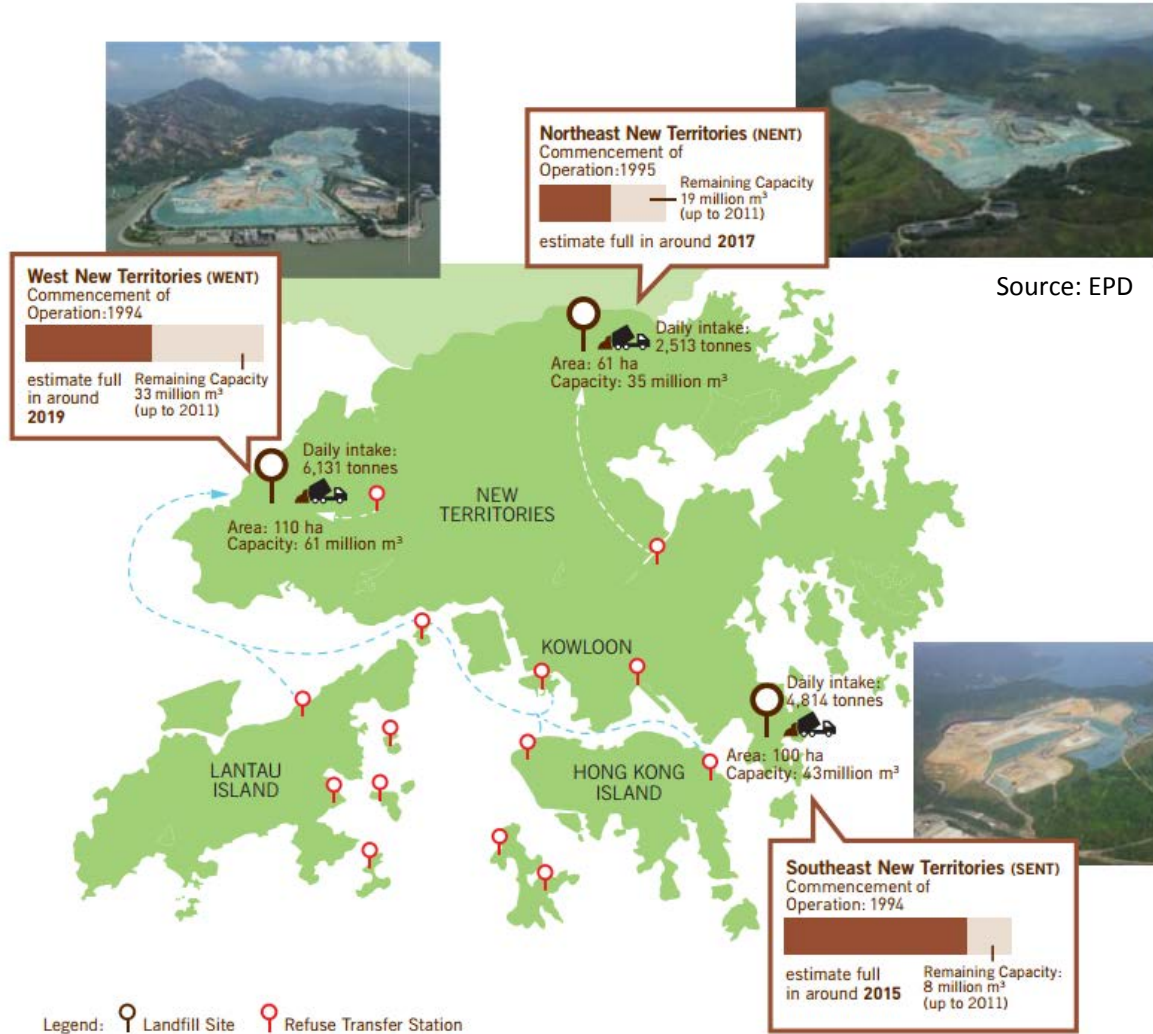
- Country Park and Special Area
- Ecologically Important Stream
- Site of Special Scientific Interest
- Existing / Proposed Marine Park / Marine Reserve
- Wetland Buffer Area
- Wetland Conservation Area
- Fish Culture Zone
- Fish Nursery Ground
- Fish Spawning Ground
- Conservation Zonings on Statutory Plans (SSSI, CPA & CA)

## Opportunities

- To continue protecting and conserving protected areas and areas of high ecological value
- To revitalise degraded areas, e.g. revitalising abandoned farmland and brownfield

## Issues

- Strategic landfills will cope with disposal needs until mid or late 2020s



Source: EPD

## Opportunities

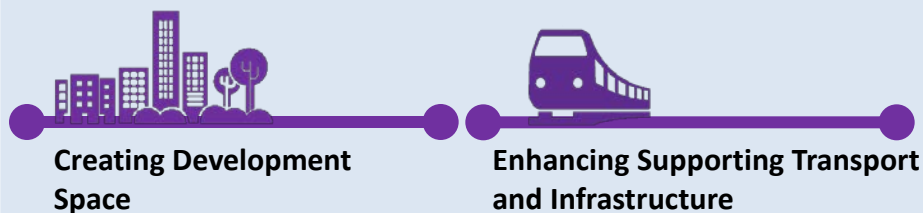
- Use less, waste less
- Innovative approach to tackle the waste problem, e.g. from waste to energy
- Explore rock cavern/underground space to minimize the landuse incompatibility issue
- Revitalise the closed landfill areas

### 3 Strategic Landfills

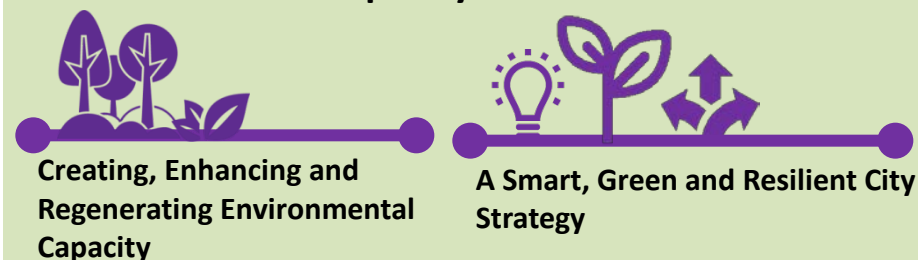
## Overall Approach

- To adopt an enhanced strategic planning approach embracing:
  - 1) creation of development capacity and environmental capacity,
  - 2) managing and minimising the demand for resources and infrastructure

### Development Capacity



### Environmental Capacity\*



\*The ability of the physical environment to sustain human activities and biodiversity

- Create sufficient and timely capacity with buffers to meet various social and economic development needs. Avoid land and infrastructure provision posing major bottlenecks for development as at present
- Implementation of individual projects will continue to be evaluated in accordance with established mechanisms, taking into account cost-effectiveness and resource priority

# Creating, Enhancing and Regenerating Environmental Capacity under Hong Kong 2030+

- A two-pronged conceptual environmental planning framework to guide the formulation of the updated territorial development strategy
- It seeks to create **environmental capacity** by integrating conservation and biodiversity considerations as well as environmental improvement



Biodiversity Enhancement



Environmental Improvement



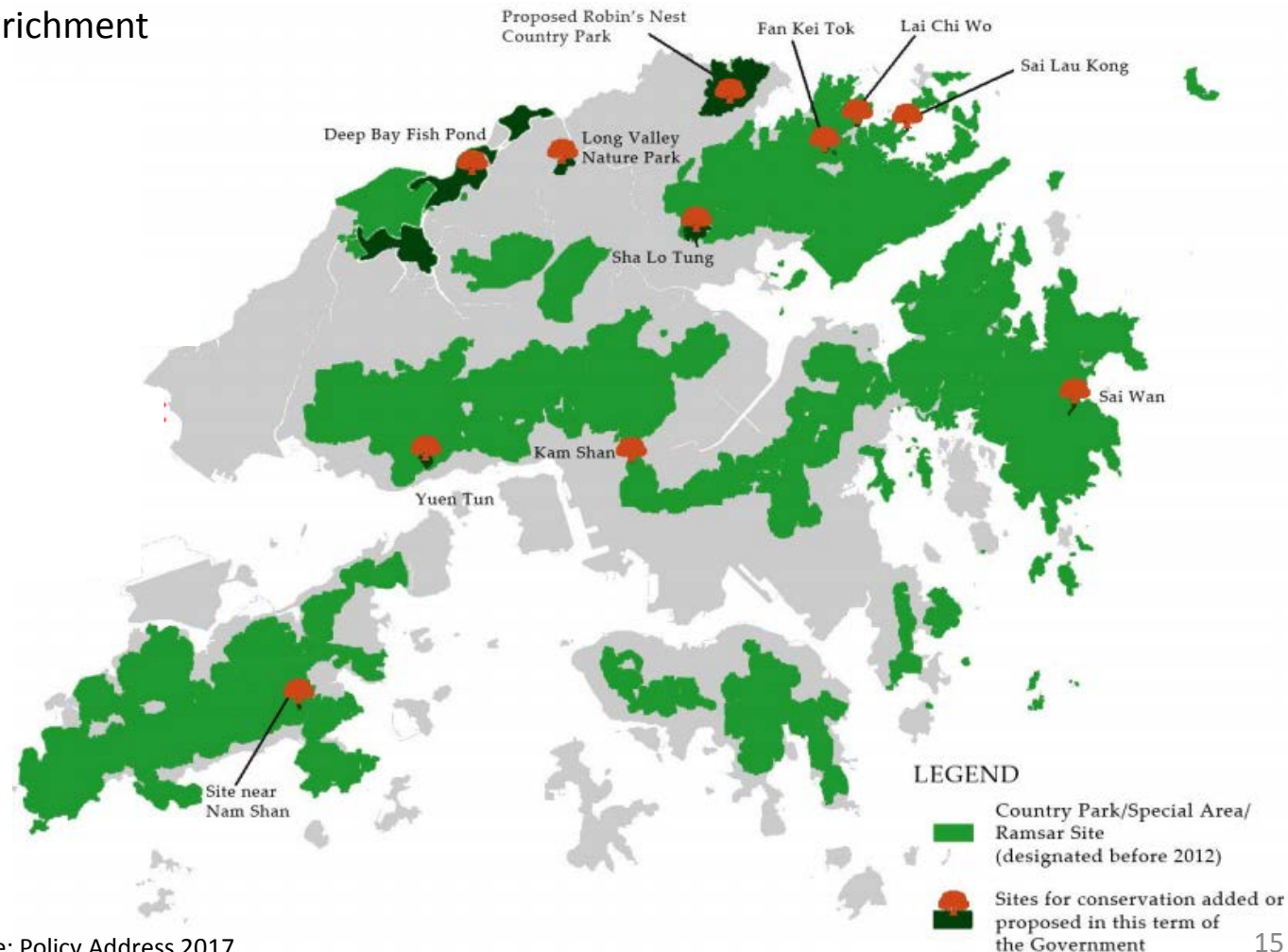
BIODIVERSITY ENHANCEMENT		
Country Parks, Marine Parks and Sites of Special Scientific Interest	<ul style="list-style-type: none"> <li>Continuing to protect</li> <li>Taking forward the proposed extensions</li> <li>Country Park Plantation Enrichment</li> </ul>	▲ ▲
12 Priority Sites and Country Parks (CP) Enclaves	<ul style="list-style-type: none"> <li>Continuing to protect</li> <li>Enhancing conservation value of the 12 Priority Sites through Public-private Partnership (PPP) Scheme and Management Agreement (MA) Scheme under New Nature Conservation Policy</li> <li>Incorporating CP enclaves into CPs or statutory town plans</li> </ul>	▲
Wetlands/ Marshes	<ul style="list-style-type: none"> <li>Continuing to protect (e.g. Ramsar Site, Wetland Conservation Areas and Wetland Buffer Areas)</li> <li>Identifying areas requiring enhancement</li> </ul>	☙
Water Bodies	<ul style="list-style-type: none"> <li>Stream/ river revitalisation</li> <li>Catchment/ reedbed enhancement</li> <li>Irrigation reservoir enhancement</li> </ul>	
Agriculture	<ul style="list-style-type: none"> <li>Setting up of agricultural park</li> <li>Setting up of nature park</li> <li>Revitalisation of abandoned agricultural land</li> </ul>	☙
Urban Biodiversity	<ul style="list-style-type: none"> <li>Promoting urban ecology (e.g. enhancing ecological value of urban greenery)</li> </ul>	
Coastline	<ul style="list-style-type: none"> <li>Adoption of eco-shoreline for new reclamation/ Conversion of existing seawall into eco-shoreline</li> </ul>	↻

ENVIRONMENTAL IMPROVEMENT		
Energy	<ul style="list-style-type: none"> <li>Planning for a low carbon city and a better urban wind environment</li> </ul>	⚡
Air & Noise	<ul style="list-style-type: none"> <li>Reducing air pollutants through environmentally friendly transport and green infrastructure</li> <li>Improvement and preservation of acoustic environment</li> </ul>	
Water	<ul style="list-style-type: none"> <li>Save water campaign</li> <li>Water resources protection and enhancement</li> <li>Seawater desalination to diversify fresh water sources</li> <li>Reclaimed water: reuse of treated sewage effluent</li> <li>Grey water recycling and rainwater harvesting system</li> </ul>	💧
Waste	<ul style="list-style-type: none"> <li>4Rs Concept: reduce, reuse, recycle and recover</li> <li>Waste-to-energy approach</li> </ul>	♻️
Degraded areas	<ul style="list-style-type: none"> <li>Comprehensive replanning of brownfields</li> <li>Rehabilitation of quarries</li> <li>Restoration of landfills</li> </ul> <p>(Restored landfills available for after-use development under the Restored Landfill Revitalisation Funding Scheme)</p>	🔍

# A) Creating Sustainable Environment for Nature and People Biodiversity Enhancement Initiatives

## Country Parks, Marine Parks and Sites of Special Scientific Interest

- Maintain existing protection status of protected areas
- Take forward the proposed extension
- Incorporate CP enclaves into CPs or statutory town plans
- Country Park Plantation Enrichment



Source: Policy Address 2017

# A) Creating Sustainable Environment for Nature and People Biodiversity Enhancement Initiatives

## Water Bodies

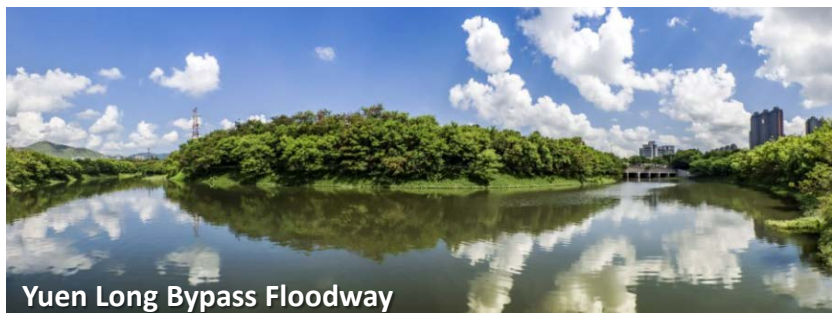
- Respect rivers and streams
- Channels revitalisation/ catchment enhancement



Fish Ladder, Ho Chung River (Sai Kung)



Proposed river promenade at Ng Tung River (Kwu Tung North NDA)

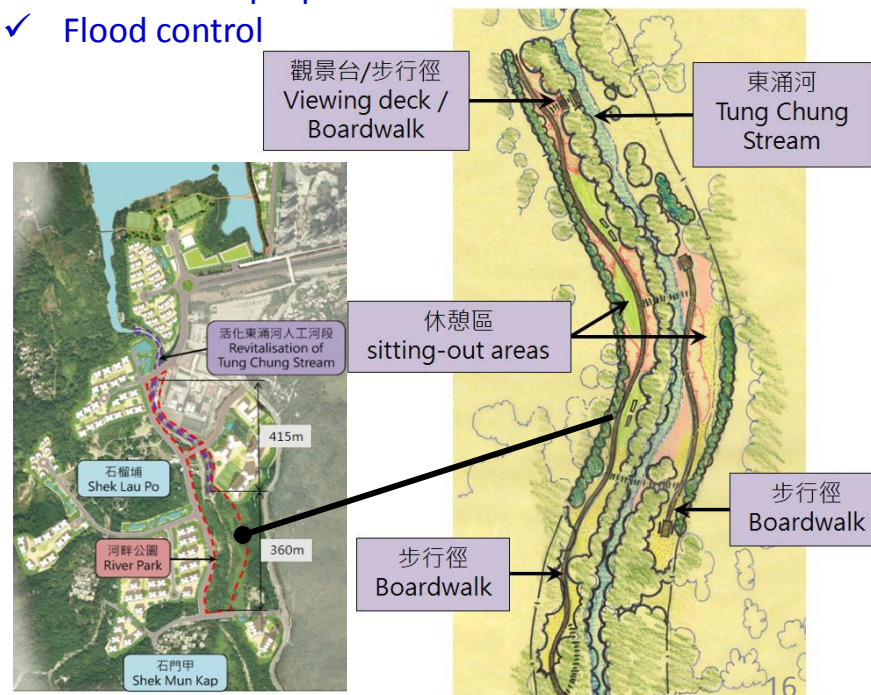


Yuen Long Bypass Floodway

“Blue-green infrastructure” is a network providing the ingredients for solving urban and climatic challenges by building with nature. Integrated green infrastructure planning strategies can enhance overall urban ecosystem functionality.

### Biodiversity enhancement example: Tung Chung River Park

- ✓ Green space for leisure, recreational and educational purposes
- ✓ Flood control



New Development Areas with Stream Revitalisation	
Hung Shui Kiu New Development Area	✓
Tung Chung New Town Extension	✓
Yuen Long South	✓
New Territories North	✓



## Coastline

- Respect natural coastline
- Convert existing seawalls into eco-shorelines
- Adopt eco-shorelines for new reclamation

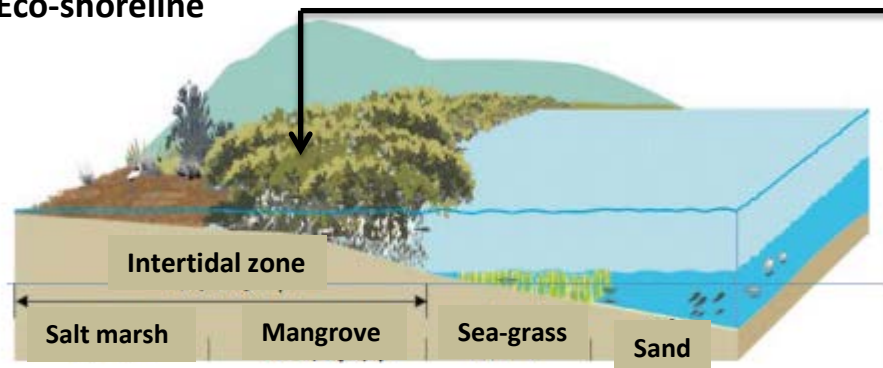
**Eco-shoreline** represents a paradigm shift in fundamental approach to sustainable and environmentally friendly construction, from “minimizing impact” to “creating ecological benefit”

### Opportunities:

#### Tung Chung East, Sunny Bay, artificial islands for the ELM

- ✓ Explore different types of eco-shoreline systems to suit different marine conditions

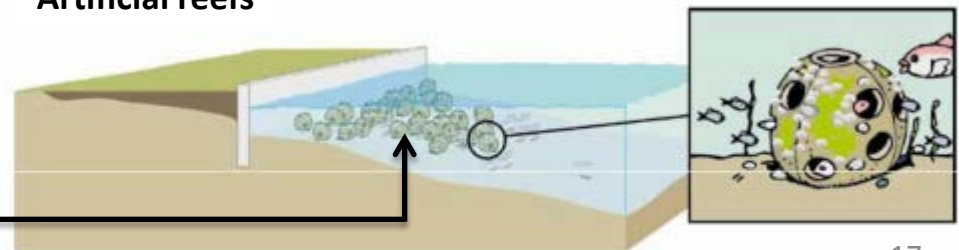
#### Eco-shoreline



To restore beneficial use and ecological function of the existing natural shorelines

Artificial reefs deployment can provide nursery and breeding grounds for fishes to enrich fishery resources

#### Artificial reefs



# A) Creating Sustainable Environment for Nature and People Biodiversity Enhancement Initiatives

## Agriculture

- Setting up of agricultural park (Agri-Park)
- Identify Agricultural Priority Areas (APAs)
- Set up nature park
- Revitalisation of abandoned agricultural land

**Environmentally friendly farming** technologies benefit the conservation of natural resources and agricultural ecology

### Kwu Tung South

- ✓ preliminarily identified a cluster of about 75 to 80 hectares of farmland suitable for establishment of Agri-Park

### Lai Chi Wo

- ✓ Revitalisation of abandoned agricultural land



### APAs

- ✓ To identify clusters of farmland with higher value for agricultural activities



### Long Valley Nature Park

- ✓ Under the Kwu Tung North Development Area project to preserve and make wise use of the wet agricultural land



# A) Creating Sustainable Environment for Nature and People Biodiversity Enhancement Initiatives

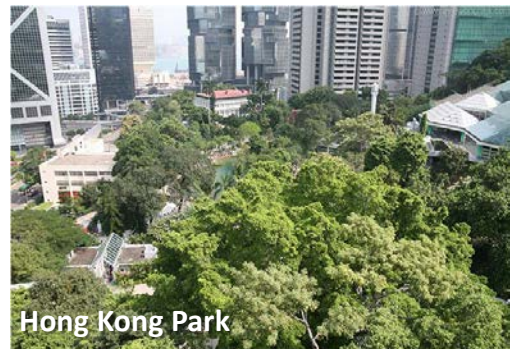
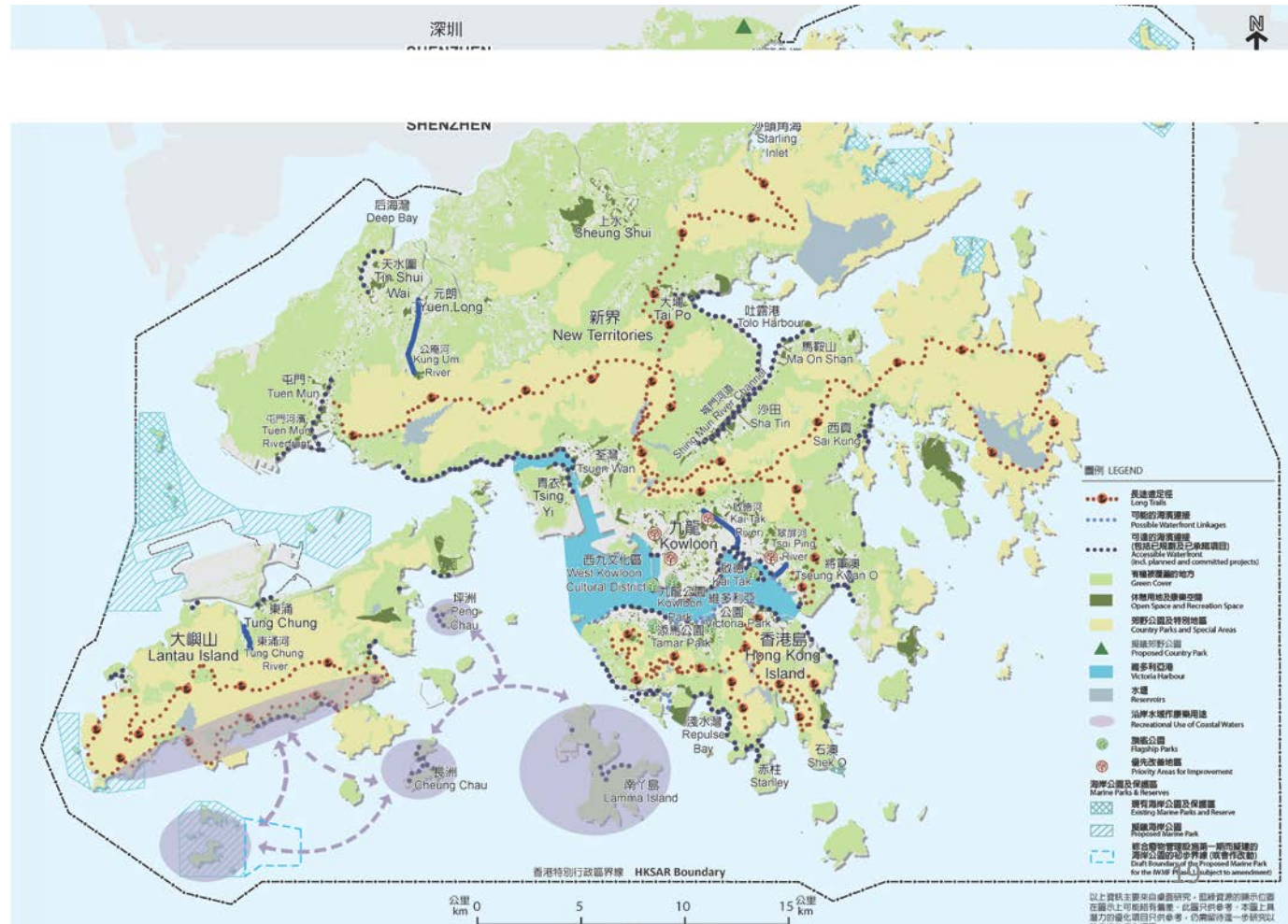
## Urban Biodiversity

- Promote urban ecology (e.g. enhancing ecological value of urban greenery)
- Develop blue and green framework
- Develop an urban forestry strategy

## Urban Forestry

- provides a strategic framework for sustainable long-term management of our urban vegetation in a holistic manner
- serves as important ecological linkages with our countryside

## Conceptual Spatial Framework for Green and Blue Space Planning



# B) Creating Sustainable Environment for Nature and People: Environmental Improvement Initiatives

## Air & Noise

Reduce air & noise pollutants through

- Environmentally friendly transport and green infrastructure
- Minimize motorized traffic

“Bringing jobs closer to home” to reduce home to work journeys, vehicular emission, and carbon-footprint and to improve sustainability of communities

### Example:

### Hung Shui Kiu New Development Area (HSK NDA)

- ✓ Compact & walkable
- ✓ Key commercial activities and higher density residential developments are concentrated **within 500m of the railway stations**

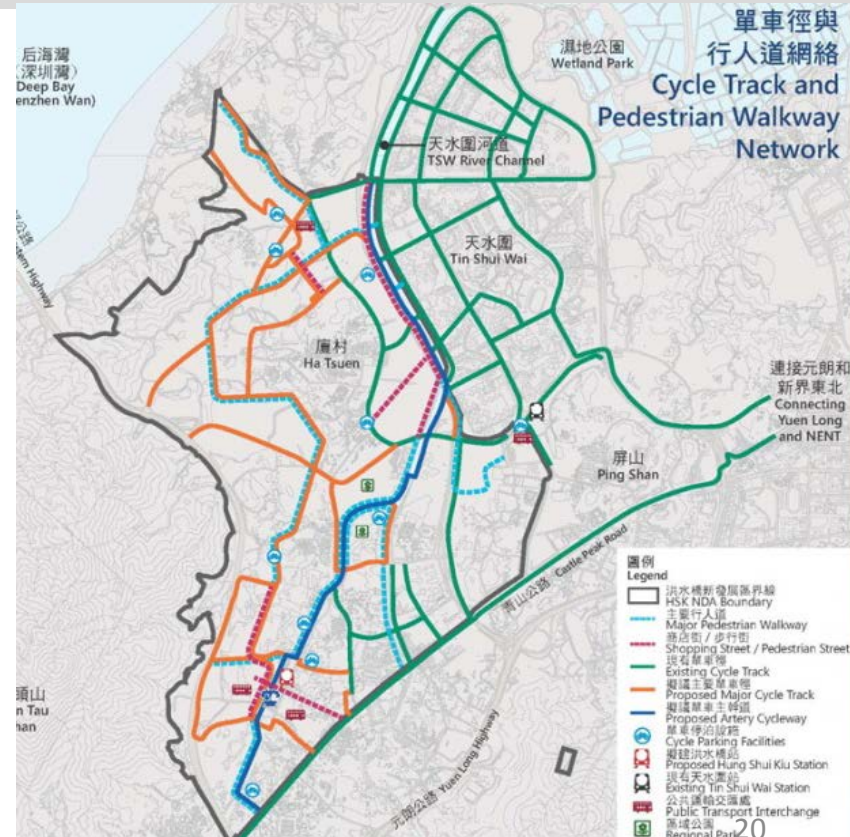
#### Walk in HK

- Make it smart
- Make it connected
- Make it enjoyable
- Make it safe

Source: Policy Address 2017



Green Transit Corridor (GTC)



# B) Creating Sustainable Environment for Nature and People: Environmental Improvement Initiatives

## Energy

- Planning for a low carbon city (e.g. energy saving buildings and infrastructure)
- Incorporate urban climatic and air ventilation considerations into planning and urban design
- Active design and green mobility

### The Paris Agreement and Hong Kong: The 2°C Target -

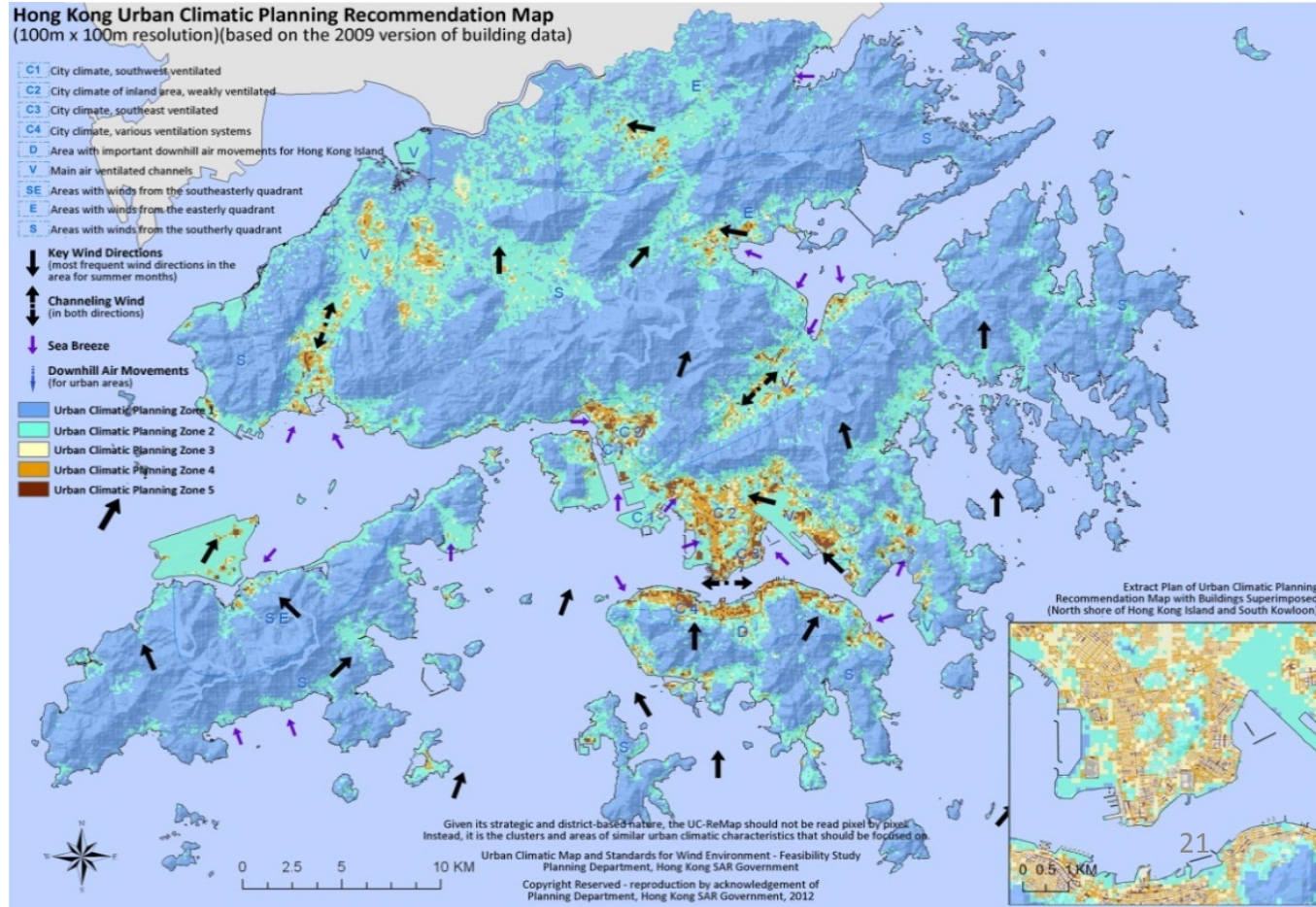
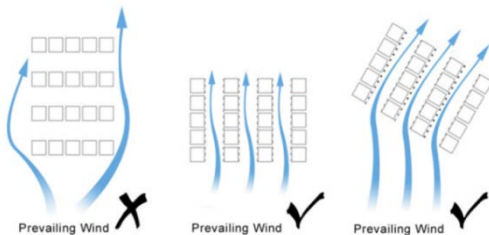
Keep global average temperature increase well below 2°C relative to pre-industrial levels and to pursue effort to limit it to 1.5°C

### Example: Kai Tak District Cooling System



Annual energy saving equivalent to the reduction of 59,500 tonnes CO<sub>2</sub> emission upon full development

### Urban design



# B) Creating Sustainable Environment for Nature and People: Environmental Improvement Initiatives

## Water

- Water resources protection and enhancement
- Reuse of treated sewage effluent:  
Sewage effluent after tertiary treatment and further polishing can be re-used for non-potable purpose, e.g. toilet flushing

**Sponge City Concept** aims to mimic the natural water cycle and sea level rise through infiltration, evaporation and transpiration to capture rain, control flood and reuse stormwater

滲 Permaibility  
滯 Attenuation

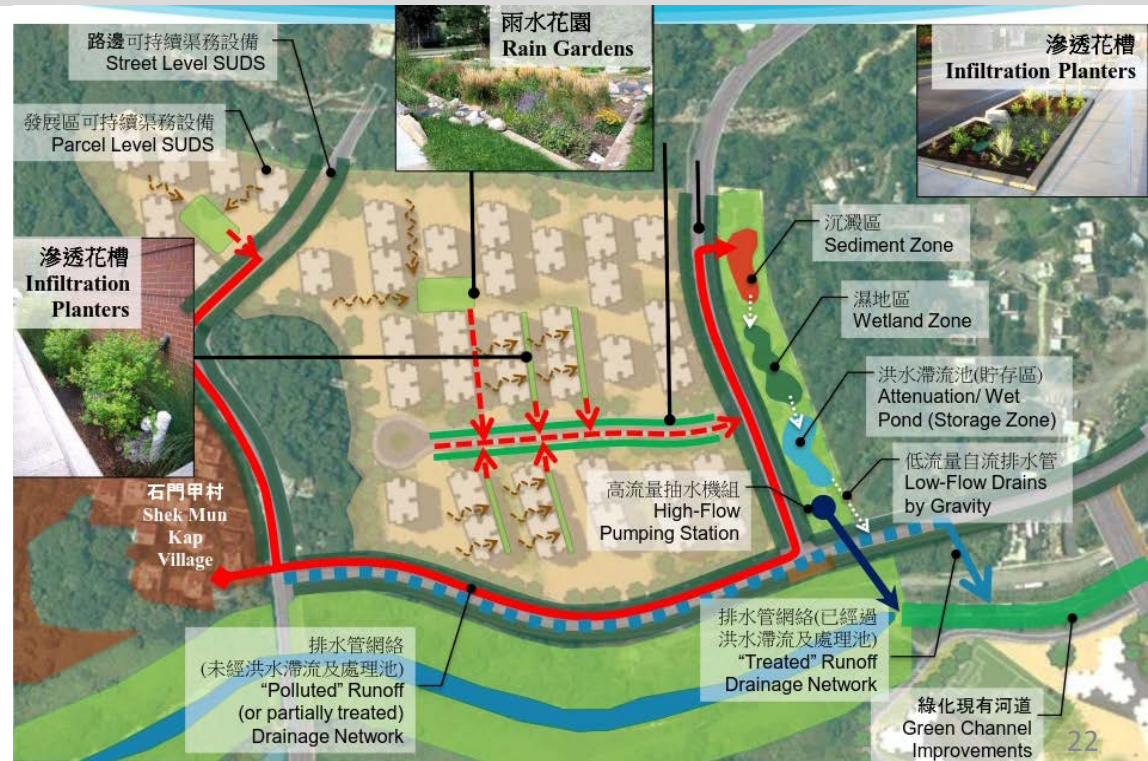
蓄 Retention  
淨 Treatment

用 ReUse  
排 Drainage



Fish Pond using Reclaimed Water at Ngong Ping Sewage Treatment Works

## Example: Tung Chung New Town Extension Study



Sustainable Storm Water Attenuation & Treatment Ponds

# B) Creating Sustainable Environment for Nature and People: Environmental Improvement Initiatives

## Waste

- 4Rs Concept: Reduce, Reuse, Recycle and Recover
- Waste-to-energy approach

To seek for an integrated and land-efficient approach **to reduce emission and minimize land-intake and incompatible issues**

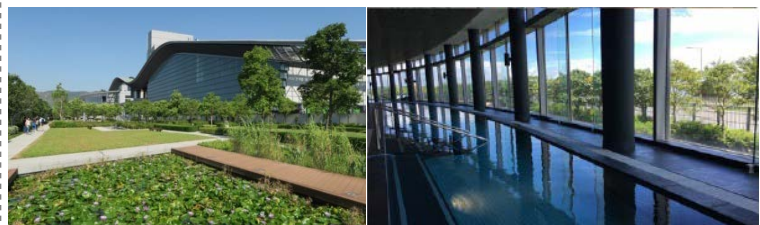
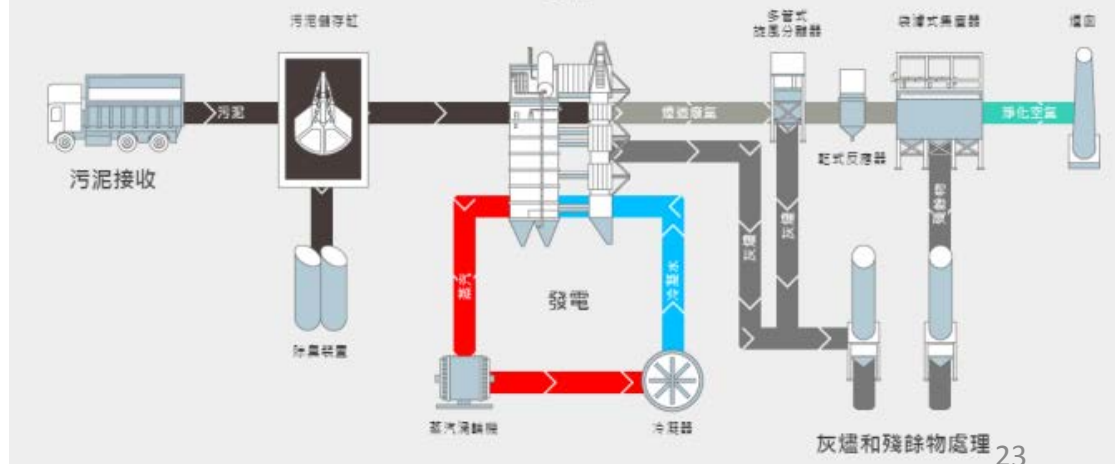
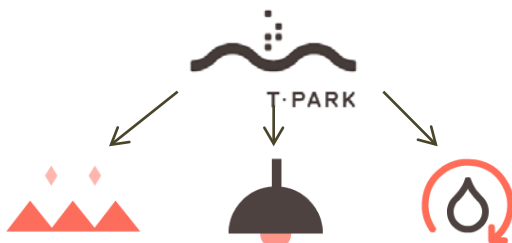
T.PARK (Tuen Mun)

### Example: T. Park

- ✓ The sludge HK produces every day equals 1,200 ton
- ✓ Cut the volume of waste to be disposed of in the landfills by up to 90% and reduce greenhouse gas emission

No external supply of water and electricity

1) Sludge reception    2) Incineration and power generation    3) Residue handling



## Prudent Use of Land Reserve

- Comprehensive replanning of brownfields
- Restoration of landfills
- Rehabilitation of quarries

Restored and rehabilitated degraded areas for **beneficial after-uses** where appropriate.

### Brownfields

- ✓ HSK, KTN & FLN NDAs and Yuen Long South Development: 340 ha
- ✓ NTN Development: 200 ha
- ✓ PlanD will commence a brownfield survey in 2017



Brownfield operations

### Quarries

- ✓ Early life cycle planning for comprehensive land use development
- ✓ Anderson Road Quarry Comprehensive Development



Proposed Retention Lake at Anderson Road Quarry

### Closed landfills in HK

- ✓ Convert restored landfills into recreational facilities under the Restored Landfill Revitalisation Funding Scheme



HK Jockey Club International BMX Park at Gin Drinkers Bay Landfill



Revitalising Restored Landfills (Lam Tin)



## Hung Shui Kiu New Development Area, Strategic Growth Areas and Urban Redevelopment Areas

### Sustainable Urban Drainage

- Revitalise Tin Shui Wai River Channel as major green spine, breezeways and view corridors
- Flood retention lake in Regional Park and other flood retention facilities to regulate storm water

### Water Resource Management

- Use of treated sewage effluent and rainwater harvesting

### Refuse Collection and Sorting

- Automatic refuse collection system and organic waste management facilities
- Community Green Station for environmental education and collection of recyclables

### Smart Energy

- Encourage energy efficient buildings
- Explore use of district cooling system



### Information and Communication Technology

- Common Spatial Data Infrastructure and an Information and Communication Technology Platform to enhance city management, city operation and open data usage
- Smart homes and smart offices



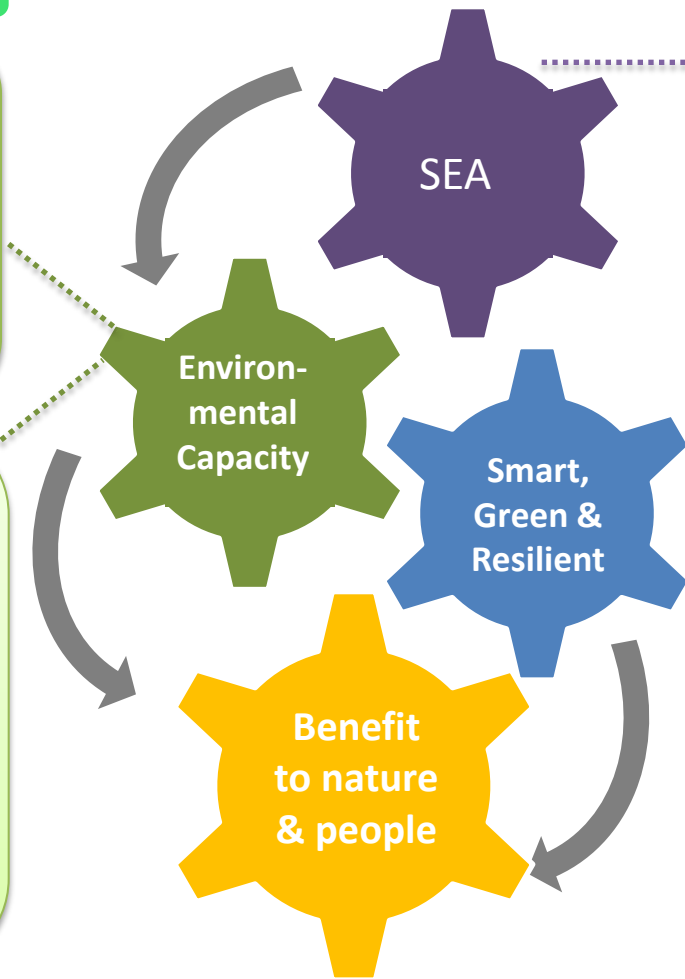
## Development Capacity

**Population:**  
from 7.24m to **8.22 m**  
**Built-up area:**  
from 268km<sup>2</sup> (24%) to **324 km<sup>2</sup> (29%)**

## Environmental Capacity

**Quantity**  
**Protected terrestrial environment:**  
from 540km<sup>2</sup> to **545km<sup>2</sup>+**  
**Protected marine environment:**  
from 24km<sup>2</sup> to **84km<sup>2</sup>+**  
**Future open space provision target:**  
from 2m<sup>2</sup> to **2.5m<sup>2</sup>/person**

**Quality**  
**Biodiversity enhancement**  
- Respect existing nature resources and enhance value of nature resources  
**Environmental improvement**  
- Apart from mitigation & avoidance, it also seek rooms to improve the environment proactively



**A prudent approach**

- to identify environmental concerns at an early stage
- to proactively turn issues into opportunities
- to create capacity for sustainable development

**The value of our natural environment** goes beyond scenic, landscape and leisure functions. It provides a wide range of services to nature and people.

**The Hong Kong 2030+** framework for creating development capacity will go hand in hand with creating, enhancing and regenerating environmental capacity to achieve sustainable future.



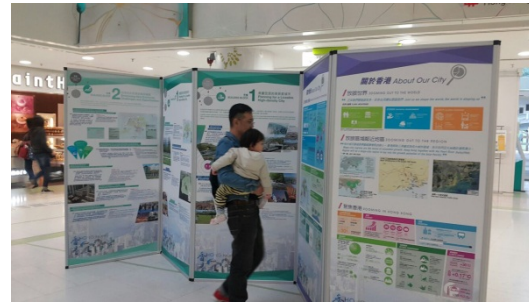
6-month public engagement from  
27 October 2016 to end-April 2017

Includes various activities such as thematic  
exhibition, public forums, knowledge  
sharing sessions and topical discussions, etc.

A guided visit on the subject of  
“Green Building”  
will be conducted in March 2017

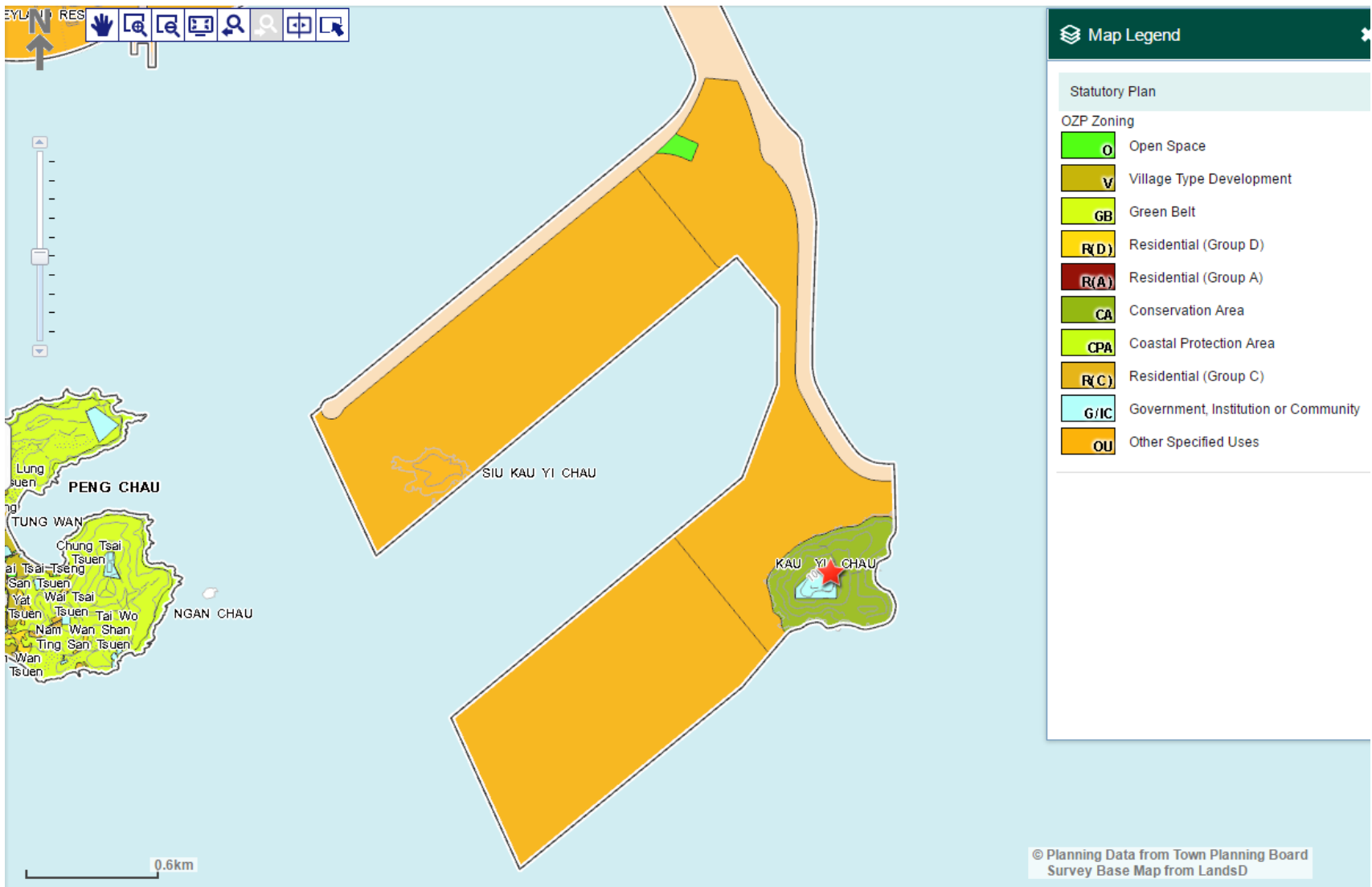
Details and other relevant information  
(e.g. topical papers) can be found at  
[www.hk2030plus.hk](http://www.hk2030plus.hk)

We welcome your invaluable views



**Thank you**

# Back-up Slides



S/I-NEL/12 - North-East Lantau