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**陪審團促立法管私人樹**  
塌樹死者創虛子患腦癱

Coroner's Court for the fatal tree collapse case at Robinson Road on 14<sup>th</sup> Aug, 2014.

Tree Expert for the Police Office on 23-27 Oct 2017. Ref.: CCDI 633/2014 (DK).

10

**樹木顧問資格誤導 報告錯漏百出**  
專家質疑地署殺錯樹

地成引能再驗人指陳

11

香港申訴專員公署  
Office of the Ombudsman - Hong Kong

全數調查報告  
Direct Investigation Report

政府對香港大學樹木管理問題的處理  
Government's Handling of the Issue

In front of Tsang Chi Ngung Building of University of Hong Kong

調查完成日期：2019年2月25日  
Assessment Date: 15 February 2019

[https://ofomb.ombudsman.hk/files/2019-2\\_D1423\\_FC\\_.pdf](https://ofomb.ombudsman.hk/files/2019-2_D1423_FC_.pdf)

<https://www.youtube.com/watch?v=911111111111>

<https://www.youtube.com/watch?v=911111111111>

12

**What is a Forest in your mind?**

13

**The change over time in the balance between habitat loss and gain within a geographic range**

[https://www.youtube.com/watch?v=n\\_rQLTNB7Ag](https://www.youtube.com/watch?v=n_rQLTNB7Ag)

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**Do we need to redefine forest?**

- ▶ Just another ecosystem with biodiversity?
- ▶ a source of timber products or valuable resources?
- ▶ a home for indigenous people?
- ▶ loss and gain of tree canopy cover?
- ▶ a repository for carbon storage ?
- ▶ a source of multiple ecosystem services ?

15

**Chazdon et al. (2016). When is a forest a forest? Forest concepts and definitions in the era of forest and landscape restoration. *Ambio* 45(5): 538-550.**

16

**Oops.....**

Because urban areas expand spatially and in terms of their economic, social, ecological & political influence

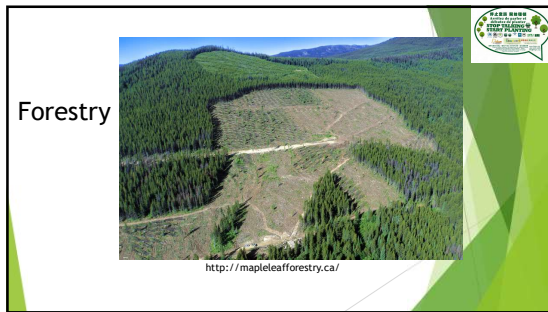
- ▶ More forests become 'urbanized'?

17

**What is Urban forestry?**

Forest ↔ Urban

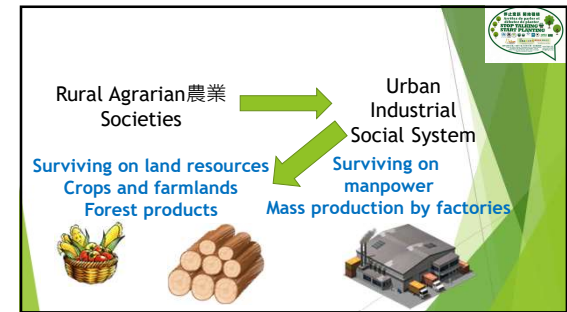
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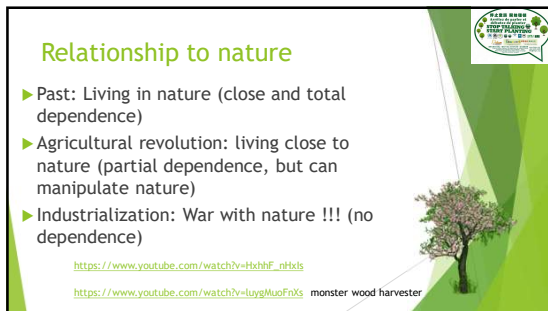
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21



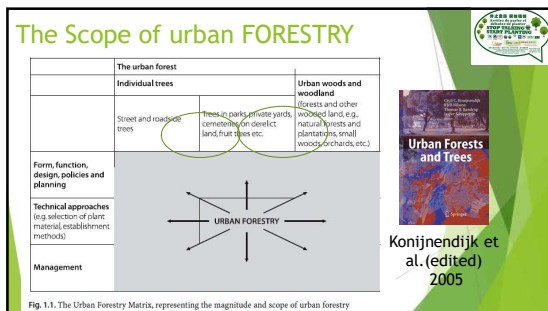
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23



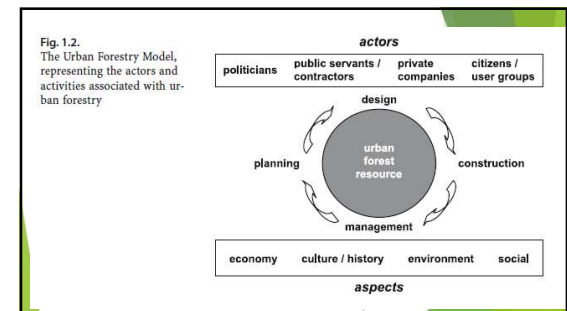
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27

### Urban forests - FAO definition

- ▶ networks or systems comprising all woodlands, groups of trees, and individual trees located in **urban and peri-urban areas**
- ▶ they include, therefore, **forests, street trees, trees in parks and gardens, and trees in derelict 被遺棄 corners.**
- ▶ Urban forests are the backbone of the green infrastructure, bridging rural and urban areas and ameliorating a city's environmental footprint.

Source: <http://www.fao.org/forestry/urbanforestry/87025/en/>

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### Benefits of urban forests

- ▶ nutrition and food security,
- ▶ poverty alleviation,
- ▶ livelihood improvement,
- ▶ climate change mitigation and adaptation,
- ▶ disaster risk reduction,
- ▶ ecosystems conservation.

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### Degraded green resources may lead to...

- ▶ surrounding landscape **fragmentation**;
- ▶ resource access **insecurity** and decrease of **food security**;
- ▶ **higher frequency** and **vulnerability** to extreme weather events: floods, droughts, landslides and extreme winds; --- think about 明日大嶼
- ▶ vulnerability of soil to erosion and watershed degradation;
- ▶ heat island effect;

30

### Degraded green resources may lead to..... (continue)

- ▶ increase of the **economic costs** in terms of mitigation of climate change effects;
- ▶ increasing levels of **pollution**;
- ▶ increase of human **diseases** (such as cancer, cardiovascular diseases, allergies, obesity, etc.);
- ▶ **loss in supply** of non-timber forest products and rise of their prices;
- ▶ **limited access** to **wood fuel products**, both for industrial and domestic purposes.

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### Back to Hong Kong.....

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33

1100km<sup>2</sup>

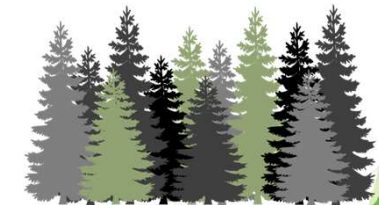
34

7.3 Million



35

67% vegetation



36

# 40% country parks

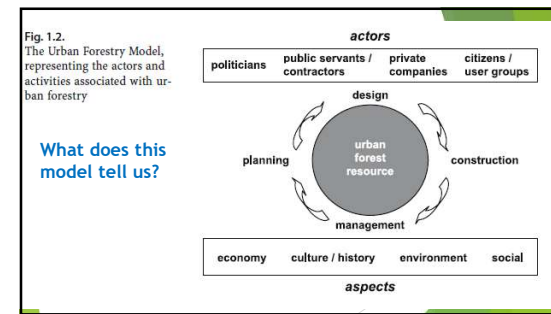
37

## What do we need?

quality of life  
town planning  
man-land relationship  
ecological preservation  
sustainable urbanism

greening policy

38



39

## How do we explain the benefits of urban forest to our property developers?

Sun Hung Kai Properties

- Henderson Land Development Co. Ltd
- Great Eagle Holdings Ltd
- Wheelock Properties (Hong Kong) Ltd
- Cheung Kong (Holdings) Ltd
- Nan Fung Group
- Pacific Century Premium Developments
- New World Development

40



41

## Government's Greening policy on govt website?????

Government have developed strategies which aim to

- ▶ To improve the coordination and effectiveness of greening efforts within the current regime,
- ▶ To make greening an integral part of future public works projects.
- ▶ To encourage private sector and community participation to promote greening
- ▶ To encourage active planning of greening programme
- ▶ To enhance opportunities of quality greening,
- ▶ To enhance community support and private sector involvement,
- ▶ To enhance tree preservation.

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### Planting Records

Number of plants planted in the past 10 years (approximately)

Year	No. of plants planted (million)			
	Trees	Shrubs	Annuals	Total
2008/09	1.3	6.7	0.9	8.9
2009/10	1.2	7.2	1.1	9.5
2010/11	1.1	8.3	1.0	10.4
2011/12	0.9	6.5	1.5	8.9
2012/13	0.8	6.0	0.9	7.7
2013/14	0.7	6.2	0.9	7.8
2014/15	0.6	4.9	0.5	6.0
2015/16	0.4	5.4	0.3	6.1
2016/17	0.5	4.8	0.3	5.6
2017/18	0.5	6.0	0.2	6.7
Total	8	62	7.6	77.6

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### Number of trees planted in the past 5 years (approximately)

Year	Urban areas (no. of trees and % of plants planted in that year)		Rural areas (no. of trees and % of plants planted in that year)	
	Urban areas	% of plants	Rural areas	% of plants
2013/14	60 000	(0.8%)	668 000	(8.6%)
2014/15	105 000	(1.7%)	545 000	(9.1%)
2015/16	19 000	(0.3%)	417 000	(6.7%)
2016/17	27 000	(0.5%)	427 000	(7.7%)
2017/18	57 000	(0.8%)	397 000	(5.9%)
Total	268 000		2 454 000	

44


- Aesthetic Benefits**
  - Add beauty to spaces
  - Screen unwanted views
- Psychological Benefits**
  - Reduce stress
  - Enhance mental health
  - Reduce crime
  - Enhance pride
  - Increase recreational opportunities
- Environmental Benefits**
  - Cool the air
  - Filter pollutants
  - Provide shade
  - Reduce wind speed
  - Fight climate change
  - Stabilize soil
  - Provide habitat for mammals, insects and microorganisms

45

### Benefits of Urban Forestry

**Ecological**

- Nature conservation
- Improve microclimate
- Clear air
- Ground water
- Biodiversity
- Soil protection
- Noise reduction




**Economic**

- Property values
- Reduce energy costs
- Reduce damage risks
- Increase tourism
- Employment of workers

**Social**

- Recreation and well-being
- Regional identity
- Aesthetics
- Human health
- Nature experience and nature education



46



建築物



行人道



馬路



天台綠化



47



斜坡



隔音屏障



48

## 綠化總綱圖



CEDD 土木工程拓展署  
Civil Engineering and Development Department



49

### Greening master plan

Planning


Theme-based

Design

Plant species

Construction guidelines

location



50

How do you think about the design of green space in Hong Kong?



51

### Preservation & Maintenance of Urban Trees and Forests

+

More new urban greening plans or policies

=

Revitalization of our urban areas

Liuzhou Forest City





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### Greening Works in Urban Areas – Central


市區綠化工程 – 中環

Before 前




Roundabout near Central Pier No. 7  
近中環七號碼頭  
環狀處

After 後



Central Pier No. 7




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### Greening Works in Urban Areas – Central


市區綠化工程 – 中環

Before 前




Central Pier No. 5  
中環五號碼頭

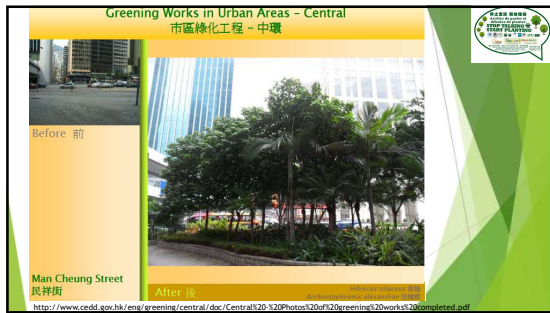
After 後



Central Pier No. 5



54



55

### 私人建築物

屋宇署2011年  
《可持續建築設計指引》  
必須遵從指引下的建築設計標準  
(包括綠化上蓋面積)

**2011**

可持續建築設計指引  
SUSTAINABLE BUILDINGS  
DESIGN GUIDELINES

2011年，屋宇署推出《可持續建築設計指引》(可持續建築設計指引) (Sustainable Buildings Design Guidelines) 作為建築師在設計及建造新建築物的參考。該指引旨在提高建築物的可持續性，並鼓勵建築師在設計及建造新建築物時，考慮到環境、社會及經濟的可持續性。

2011 Building Separation Distance

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### 政府建築物

發展局2012年為建築物綠化的上蓋面積制定標準和規定

面積 < 20000m<sup>2</sup> 綠化面積須達到20%  
面積 > 20000m<sup>2</sup> 綠化面積須達到30%。

57

## Evaluate

### Performance

- ▶ Effectiveness
- ▶ Proper care
- ▶ Safety
- ▶ Sustainability

Excellent  
 Good  
 Poor

58

### 成效

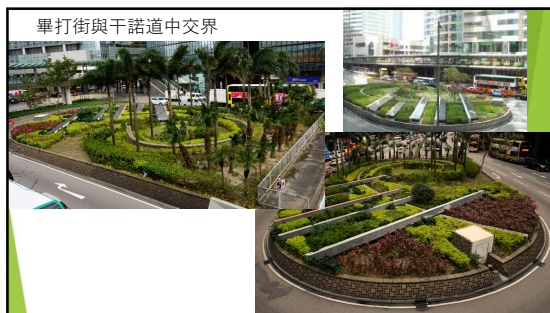
1. 是否有足夠空間讓設計方案落實？
2. 設計方案是否可以達到目的及功能？
3. 是否能增加景觀效果和觀感上改善？
4. 能否配合實地的地形和特色？
5. 是否用合理的價值而可達到預期景觀效果？

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Development Bureau  
發展局  
Technical Circular  
(Works)  
No.2/2012

**Allocation of Space for Quality Greening on Roads**

60



61

### Challenges of urban greening

- ▶ Minimal resources to obtain expected benefits
- ▶ Flexibility in planning and execution
- ▶ Quality design
- ▶ Public participation
- ▶ Cooperation with different government department to minimize deleterious impacts to existing environment
- ▶ Cost-benefit analyses?

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### Cost and benefit analysis

- Points to convince developers, businessmen and Politicians?
- ▶ Economic valuation?
- ▶ Recurrent maintenance and replacement **costs**
- Benefits:**
- ▶ **Tangible:** property values, employment of workers
- ▶ **Somewhat tangible:** shopper or tourist increase, energy cost reduction
- ▶ **Intangible:** pollution reduction, noise reduction, recreation, people harmony, aesthetic enhancement, regional identity, long term wildlife enhancement, improve community image

63

### Landscape treatment for slopes

**Greening**      **Erosion Control**

64

### General reference

GEO Publication No. 1/2011

#### Technical Guidelines on Landscape Treatment for Slopes

GEO Publication No. 1/2011

Source: [http://www.cedd.gov.hk/eng/publications/geo/doc/ep1\\_2011.pdf](http://www.cedd.gov.hk/eng/publications/geo/doc/ep1_2011.pdf)

65

### Measures to Allow Retention and Protection of trees

Where **valuable trees or vegetation exist** within the area of proposed slope works, measures that should be considered to allow retention include:

- (a) **Localised adjustment** of the slope design to **avoid removal** of, or **damage** to, valuable trees or vegetation.
- (b) Provision of **retaining structures**, e.g. local retaining walls, structural props or support guy ropes.
- (c) **Careful siting of engineering elements** (e.g. soil nail heads and grillages, stairways, drainage channels) away from trees and their root systems.
- (d) Provision of **tree protection zones** around trees to be retained

Source: [http://www.cedd.gov.hk/eng/publications/geo/doc/ep1\\_2011.pdf](http://www.cedd.gov.hk/eng/publications/geo/doc/ep1_2011.pdf)

66

Concrete or masonry structure around an existing tree and its rooting system – maintain former ground level

Former ground cut back)      New ground cut back)

a) Localised wall at mid-slope designed to retain an existing tree and typical details

67

c) Localised wall extending into adjacent pavement to retain an existing tree

68

- ▶ Trees on old masonry walls are of **particular value** and **require special consideration**, and the wall stability may be affected by them.
- ▶ *Ficus microcarpa* on masonry wall 石造壁 have **extensive rooting systems** that can cover significant areas of the wall face, and extending into the surrounding ground.
- ▶ For works on masonry walls, **the roots** of existing trees should be **carefully protected** and **special engineering details** may need to be provided in the design,
- ▶ such as provision of intermittent buttresses to support the wall or openings in a supporting toe slab to allow tree roots to extend into the ground

69

Existing wall tree

Planting strip provided at back of footpath to allow tree roots on the wall face to extend below ground

Footpath

a) Use of intermittent buttresses to support old masonry wall 石造壁

70

Buried toe structure

(b) Openings in a new toe slab supporting the wall to allow continued growth of existing tree roots

(c) Provision of planting strips above and below masonry walls to promote root growth and tree stability.

71

Where possible, transition between cut slope and natural terrain should be rounded in both vertical and horizontal profiles to blend slope into surrounding landscape

Retain natural variations in topography and ground surface as far as possible, especially where sprayed concrete has, unavoidably, to be used

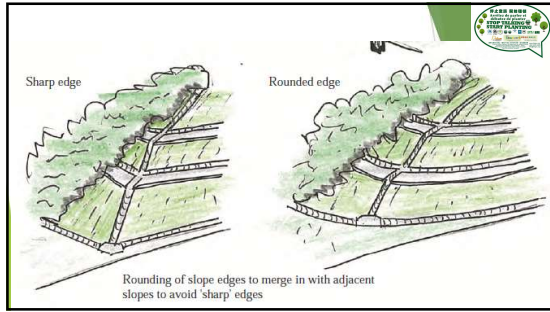
Slope topography, where possible, should be designed to match with surrounding natural topographical pattern, using similar gradients, aspects, etc.

Consider use of sloping berms and curvilinear alignment of drainage runs to create a more natural appearance

Overall proportion with larger, steeper inter-berm faces at the toe getting progressively smaller and flatter towards the top.

72

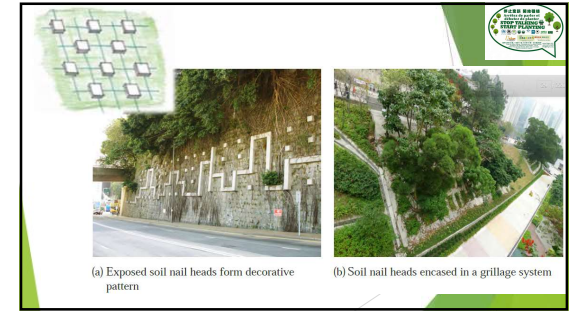




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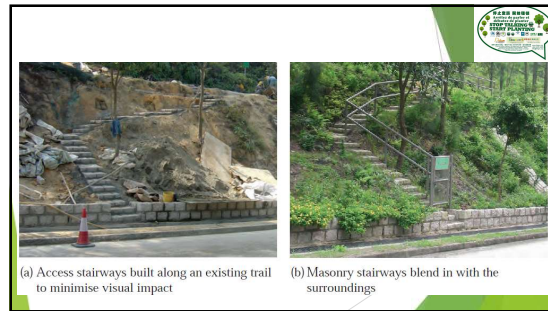
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77

### Parks in Hong Kong

- ▶ Can you name the largest urban park in Hong Kong?
- ▶ Where can you find the oldest urban tree in Hong Kong?

78

HK Park 8 ha	Victoria Park 17 ha	Morse Park 15.8 ha
	Kowloon Park 13.5 ha	HKZBG 5.4 ha
Tai Po Waterfront Park 22 ha		Tuen Mun Park 12.5 ha
Tin Shui Wai Park 14.8 ha		

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3000 yrs  
*Buddhist Pine*  
*Podocarpus macrophyllus*  
@Nan nian Garden

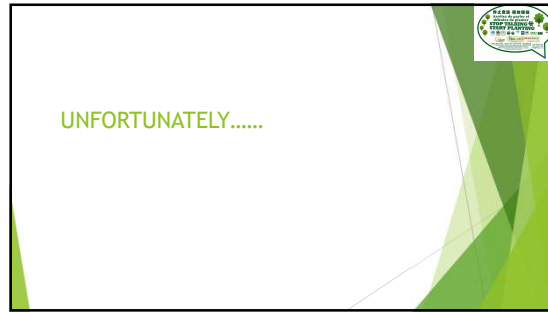
80

400 yrs  
Camphor Tree 樟樹  
*Cinnamomum camphora*  
@Sha Lo Wan

81



82



83



84



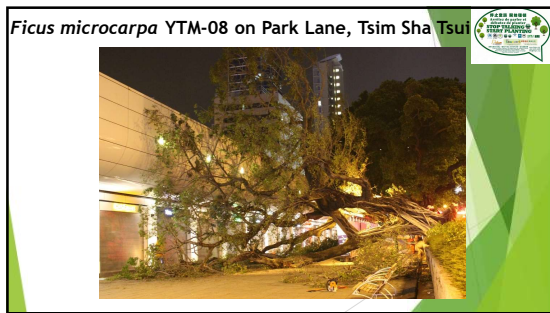
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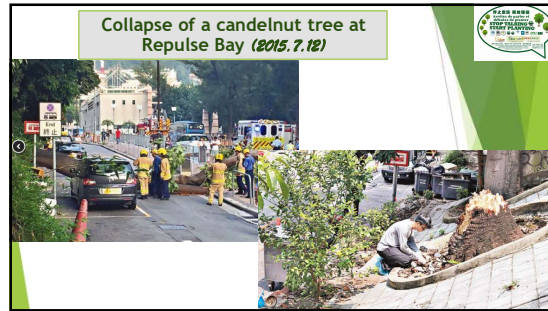
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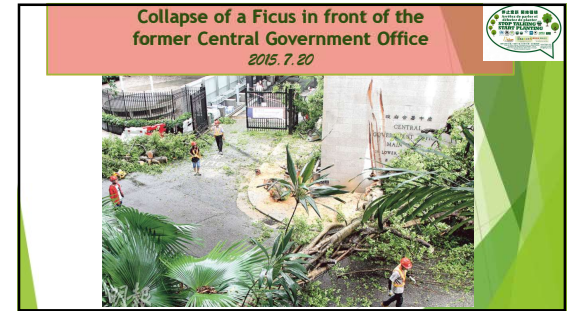
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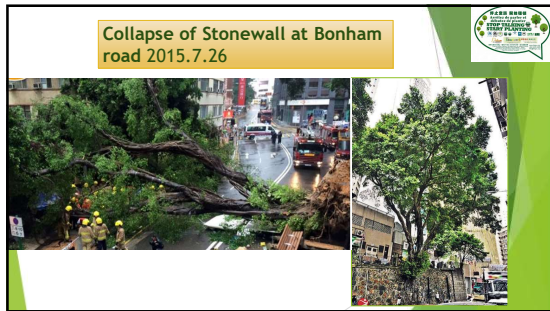
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97

**Facts**

- 5 fatal cases of tree collapse
- ~1.8m urban trees
- Managed by 38 Govt Dept
- ~87m Plants planted in the last 10yrs

98



99

## Is this unachievable goals?

Government have developed strategies which aim to

- ▶ To improve the coordination and effectiveness of greening efforts within the current regime,
- ▶ To make greening an integral part of future public works projects.
- ▶ To encourage private sector and community participation to promote greening
- ▶ To encourage active planning of greening programme
- ▶ To enhance opportunities of quality greening,
- ▶ To enhance community support and private sector involvement,
- ▶ To enhance tree preservation.

100

Any suggestions?  
What is the most important point(s)?

101

完 / The end

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## 活動聯絡

- 電話:  
67782670 / 69762635 (行動單位);  
28762855 (辦公室)\*
  - 無線電: 409.8375 (8號頻道) - 參加者亦可使用 /  
462.6875 (CTCSS-110.9Mhz)
  - (國際呼號 CALLSIGNS: VR2YMF / VR2XGN)
  - 電郵: info@hkgnu.org / pr@hkgnu.org 傳真: 39711469
  - 活動網址: [http://www.hkgnu.org/reboisement\\_millionarbres.htm](http://www.hkgnu.org/reboisement_millionarbres.htm)
  - 香港區委員會聯絡處: 尖沙咀新港中心2座907室
  - 香港區委員會郵政信箱: 郵政信箱68046號
- ▶ CIMTPNHK/HKGNU/HIMA/FPPLPHK-PFTPFHK/PNU-UNEP

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\*聯合國環境署 - 國際百萬森林計劃香港區委員會  
(包括十億樹木行動及地球植林計劃), 香港綠色自然聯盟(HKGNU)等

\*\*Le comité du projet et du réseau mondial de million d'arbres - la division hongkongaise (avec la campagne pour un milliard d'arbres, et le programme de "plantons pour la planète"), sous le cadre du Programme des Nations Unies pour l'Environnement (PNUÉ) ; et L'association d'écologie de Hong Kong (HKGNU), et caetera.

\*\*\*[ The committee of international million trees / forest project and network - Hong Kong Region (with the Billion Trees Campaign, and the "Plant for the Planet" Program), under the framework of United Nations Environment Programme (UNEP); Hong Kong Green Nature Union (HKGNU), etc. ]

二零一九年四月 04/2019  
<http://www.hkgnu.org> info@hkgnu.org  
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完 - 謝謝  
La fin, merci  
The end, thank you

二零一九年四月修訂

106