

ECF Green Building Education Video Series Online Teacher Workshop



Funded by:



Organised by:



Speaker: Tony Ip, Sustainable Design Architect

- *Founder, Tony Ip Green Architects Ltd*
- *Chairman, Hong Kong Architecture Centre (2019-2021)*
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- *MSc Eng (Geot Eng) (HKU)*
- *MArch (Distinction) (HKU)*
- *MUrban Design (Distinction) (HKU)*
- *MSt IDBE (U of Cambridge, HK)*
- *Registered Architect (HK) AP (Architect)*



Aims of Workshop

- Understand the relationship between **Green Building** and **Liberal Studies**
- Identify the role of green buildings in a **sustainable city**
- Learn about **BEAM Plus**, a green building assessment tool designated for Hong Kong
- Encourage students' **self-learning** by using the **videos** in this Project



Green Buildings and Liberal Studies

Module 6 :
Energy Technology
and the Environment

Alleviate
Climate Change



Enhance
Biodiversity

Green
Buildings

Promote
Energy
Conservation



Encourage the application of Renewable Energy

Impact of Climate Change to global and Hong Kong



4 Industrial Revolutions



1st Industrial Revolution
1760s –
Mid of 19th century

Steam engine, Train, Ship

Mechanisation



2nd Industrial Revolution
1870s –
Early of 20th century

Light bulb, Lighting,
Electricity

Electrical Era



3rd Industrial Revolution
From 1940s

Electronic Information
Technology

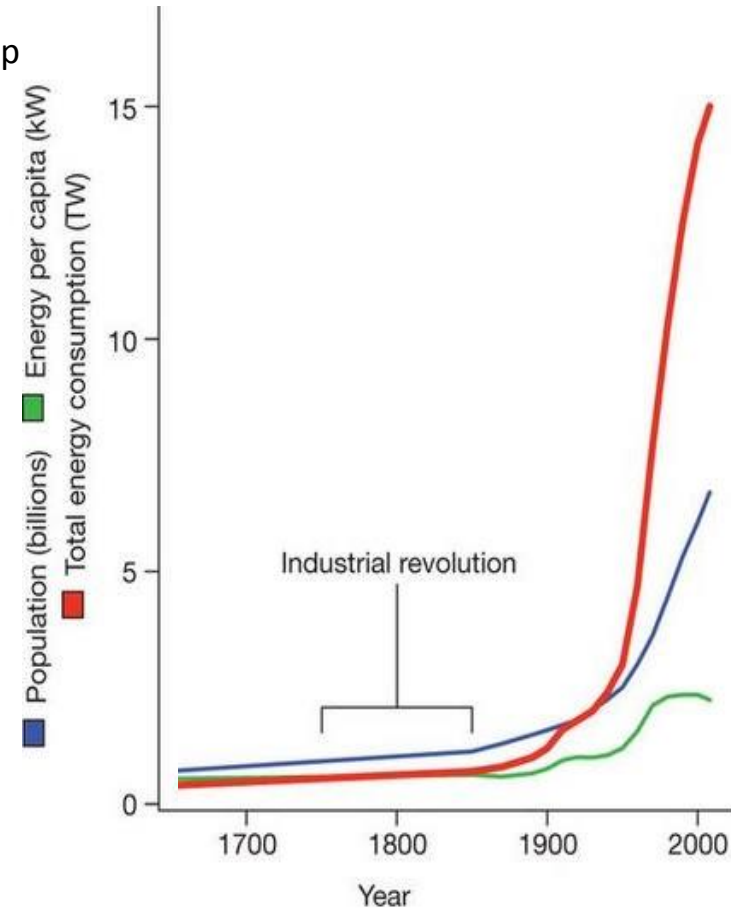
Information Age



4th Industrial Revolution
21st century

AI, IoT Technology

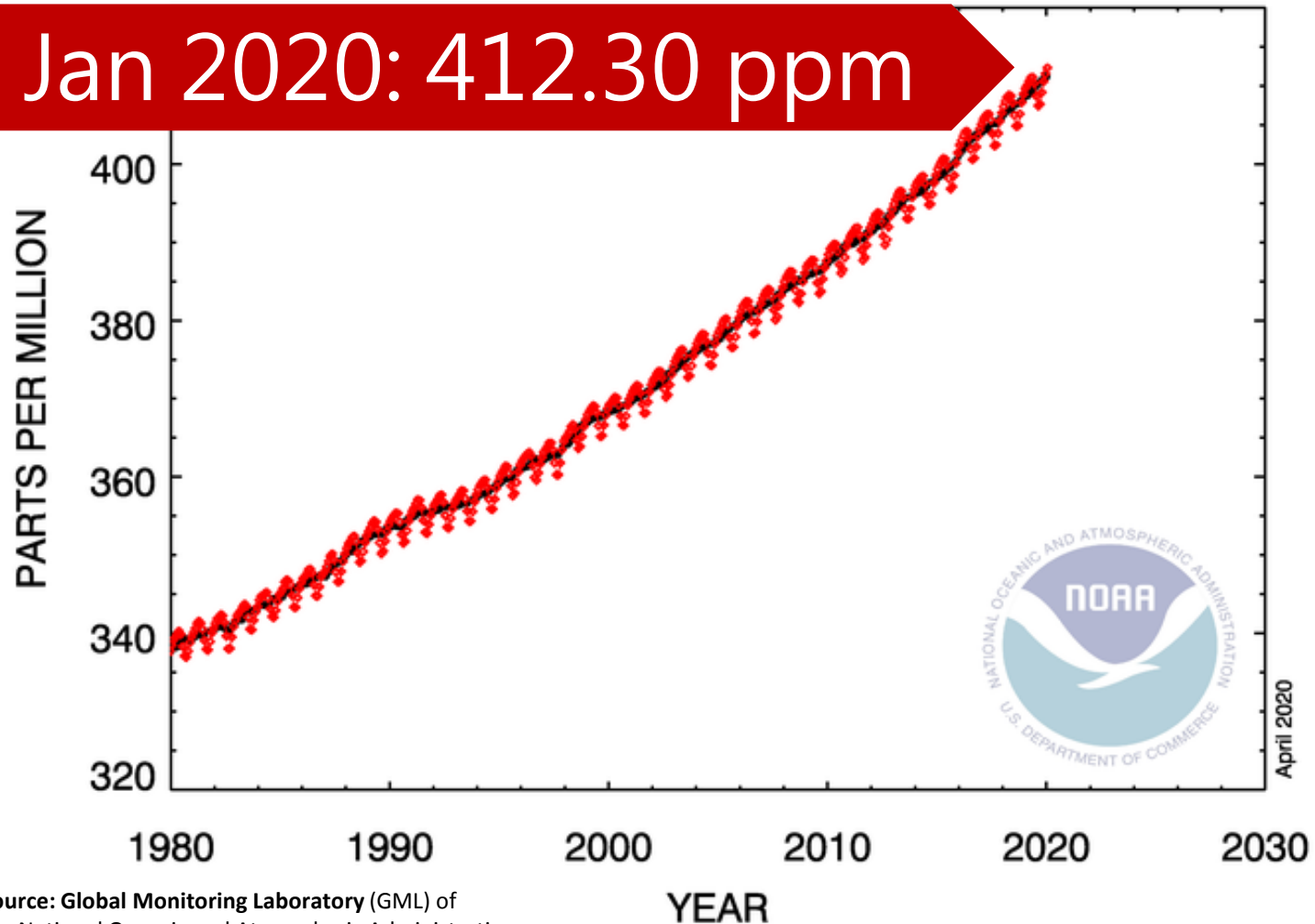
Age of Intelligent Machines



Increasing Amount of Global Carbon Dioxide Emission

GLOBAL MONTHLY MEAN CO₂

Jan 2020: 412.30 ppm

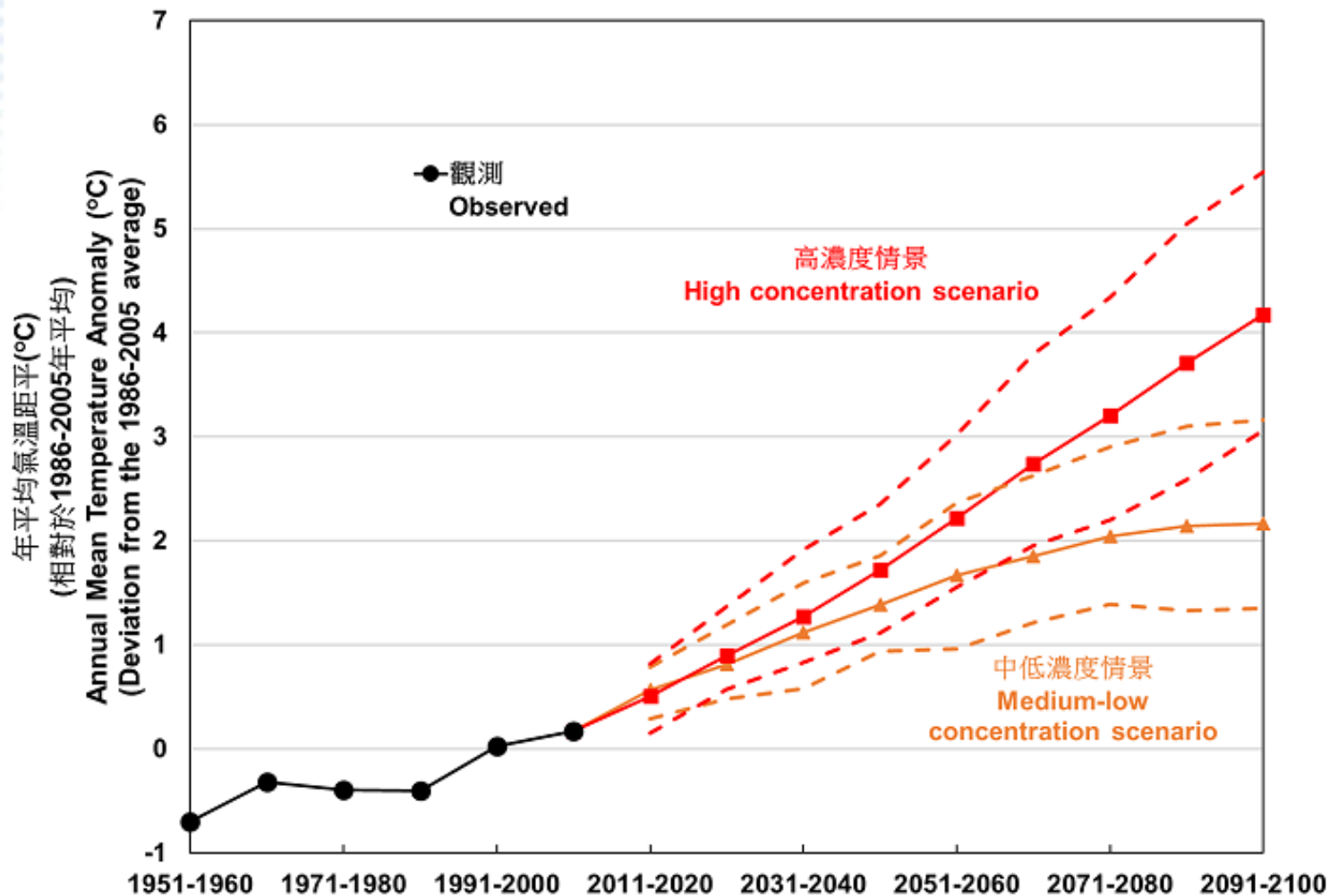


Source: Global Monitoring Laboratory (GML) of the National Oceanic and Atmospheric Administration
Last updated: April 6, 2020

Global Climate Change



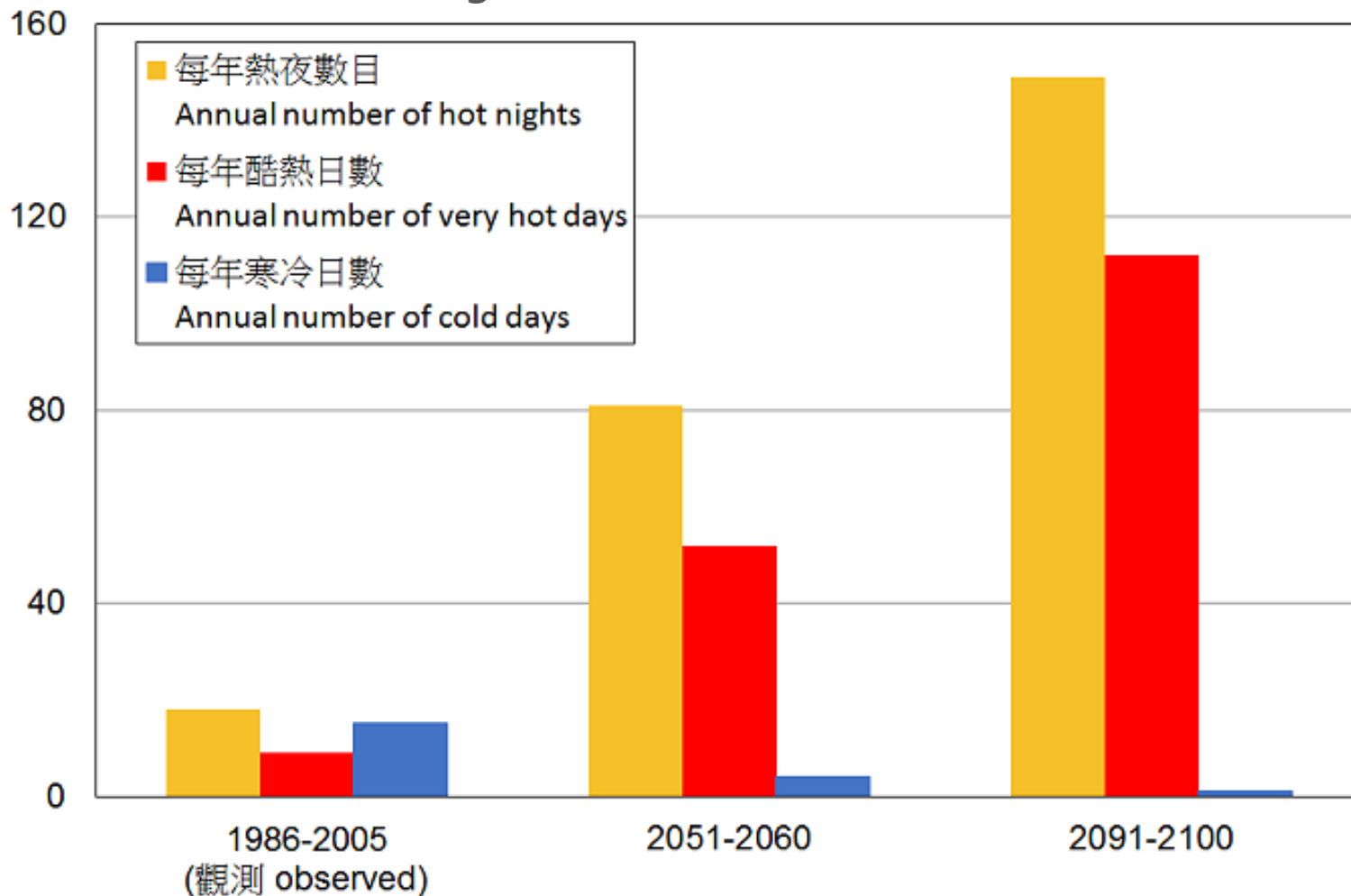
Climate Projections for Hong Kong - Temperature



Source: The Hong Kong Observatory -
Climate Projections for Hong Kong - Temperature

Climate Projections for Hong Kong - Temperature

High concentration scenario



Source: The Hong Kong Observatory - Climate Projections for Hong Kong - Temperature

Importance of Green Buildings



Hong Kong's Unique Built Environment

42,000+



>42,000 buildings
in private sector

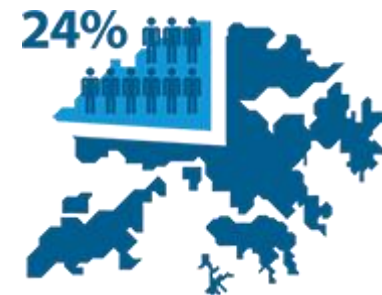
9,700



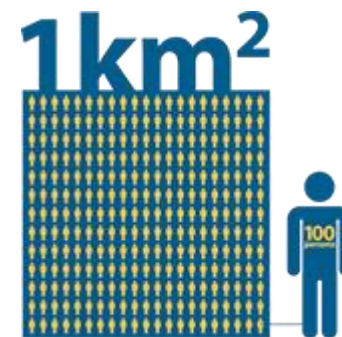
About 9,700
high-rise buildings
and skyscrapers



Our activities in buildings account for
90% electricity consumption or **60%
greenhouse gas emissions**



People live and work in
24% of HK's total area



Average population density of
built-up areas

28,000 persons/km²

What is Green Building?

Generally speaking, green buildings can **reduce the environmental impact** and **enhance the health and wellbeing of building occupants** within the building life cycle.



Concepts of Green Buildings

- **Optimising efficient use of energy, water**, and other resources to avoid overconsumption
- Adopting the use of **renewable energy** and **eco-friendly materials** to minimise carbon footprint and emission
- Reducing the production of waste and preventing pollution of areas like water, air, noise and land
- Enhancing indoor environmental quality through **natural ventilation and lighting** as well as **good indoor air quality** by design and other means



Why Green Buildings?

Why do we build?

- Longer Asset Life
- Increase asset value
- Improve the Ability to Secure Finance
- Enhance Corporate Social Responsibility



Developer / Owner



Reduce Life Cycle Cost

Why do we choose?

- Enjoy Green Living
- Enhance Corporate Image
- Enhance Productivity
- Safeguard Health and Wellbeing



Building Users



Green Building Certification

Green building certification systems are independent tools to showcase and compare the environmental performance of buildings.

For example:

- BREEAM for United Kingdom  , LEED for United States 
- “BEAM Plus” for Hong Kong 



➤ Hong Kong Green Building Council: **Certification Body**

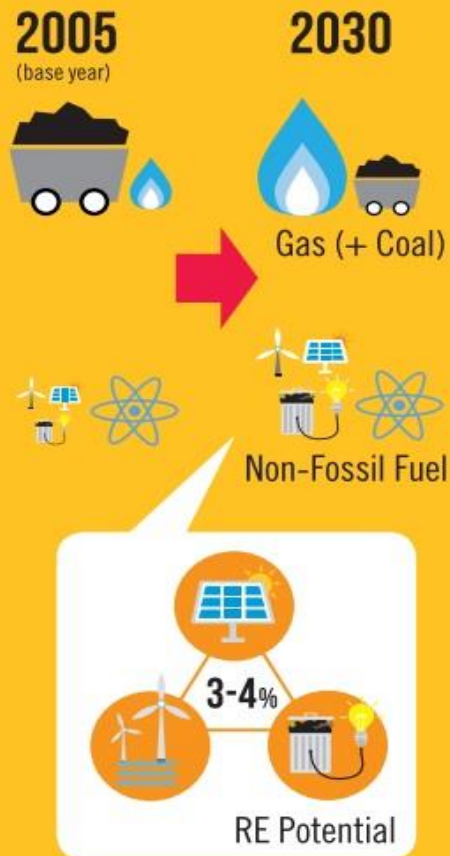


➤ BEAM Society Limited: **Assessment Body** **BEAM**
建築環保評估協會

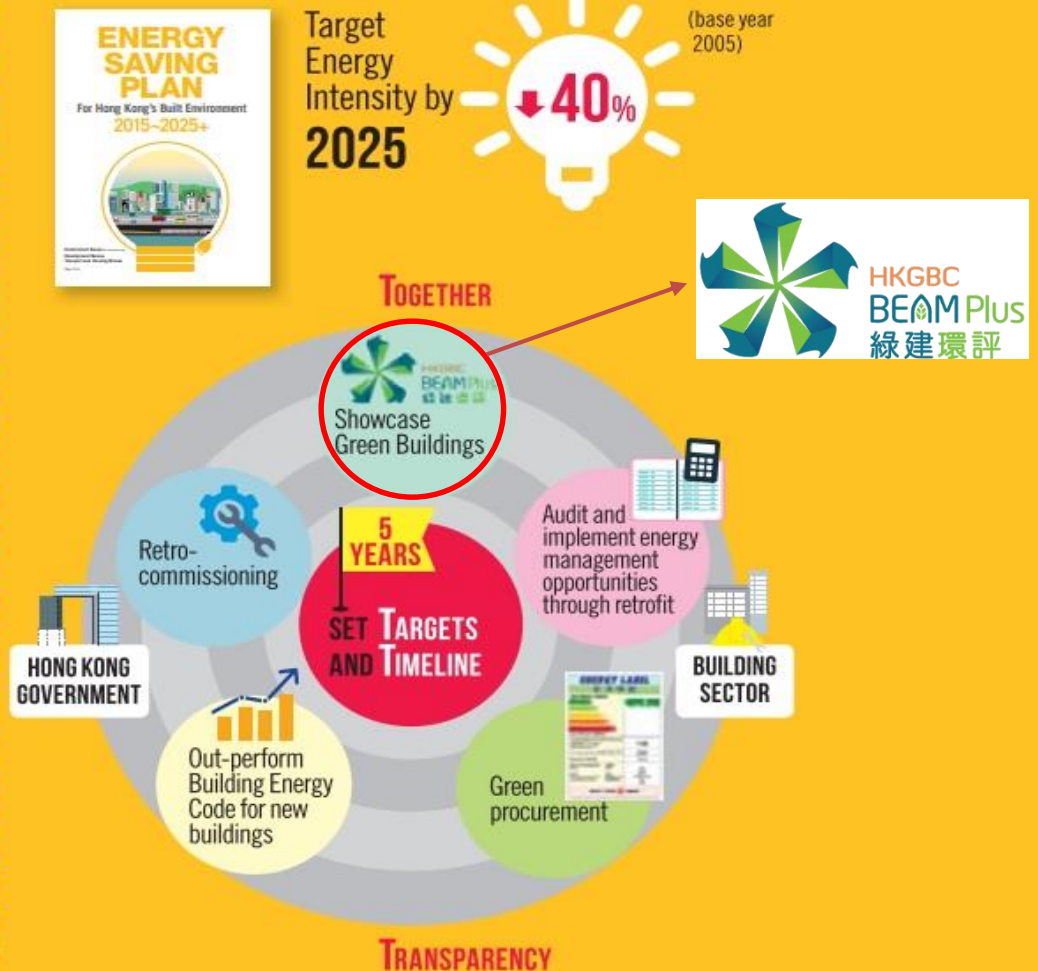


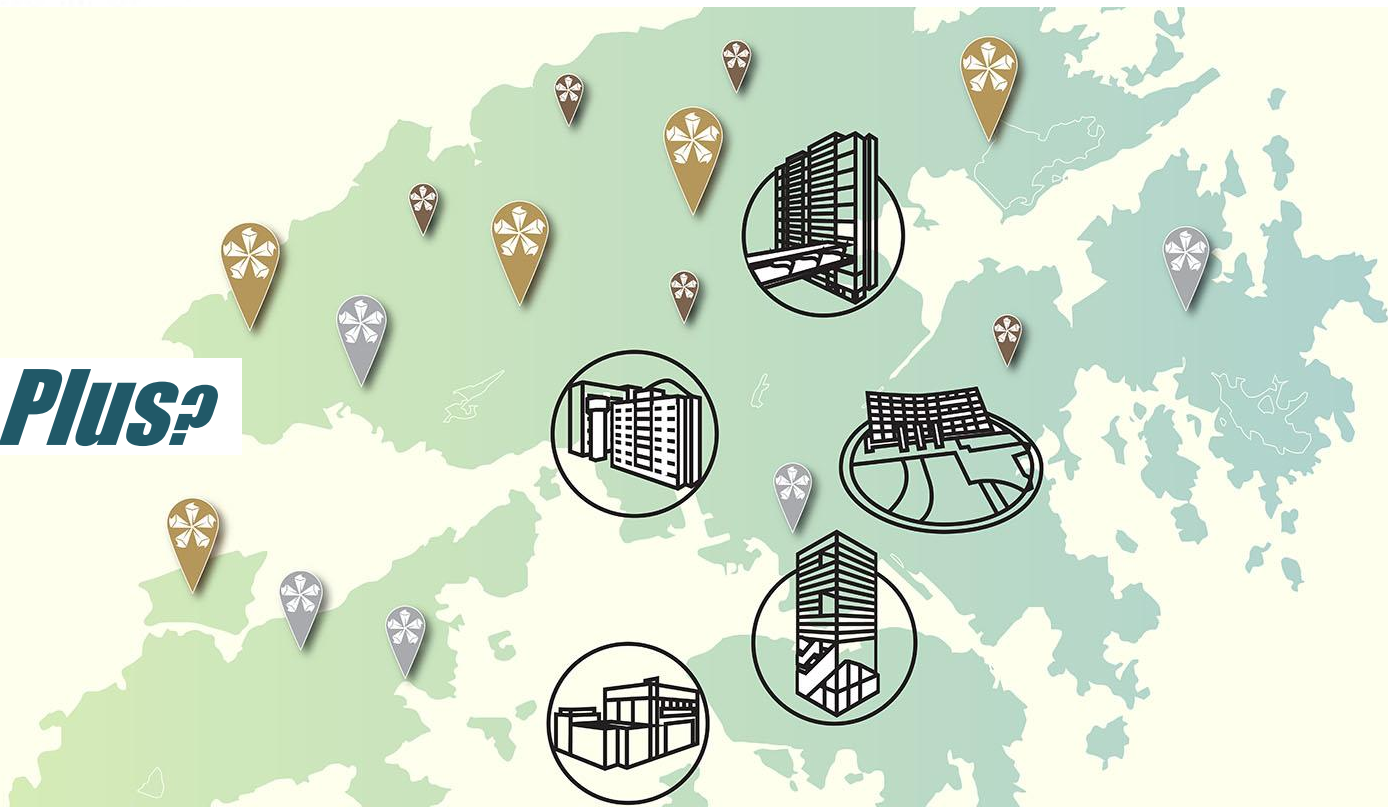
Government Support - Hong Kong's Climate Action Plan 2030+

SUPPLY SIDE



DEMAND SIDE





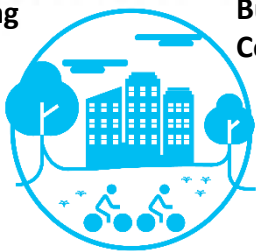
What is BEAM Plus?



BEAM Plus – A Comprehensive Assessment Tool

4 assessments tools under BEAM Plus

Masterplanning



Building Design and Construction



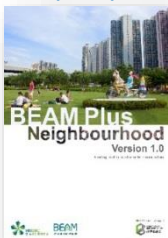
Post-Construction and Operation



Fit-out



BEAM Plus Neighbourhood
(ND)



Assessment



PLATINUM
鉑金級
NB 新建建築
V1.2 2015
HKGBC
BEAM Plus
綠建環評

BEAM Plus New Buildings
(NB)



Provisional Assessment,
Final Assessment



GOLD
金級
NB 新建建築
V1.2 2015
HKGBC
BEAM Plus
綠建環評

BEAM Plus Existing Buildings
(EB)



Provisional Assessment,
Final Assessment



SILVER
銀級
NB 新建建築
V1.2 2015
HKGBC
BEAM Plus
綠建環評

BEAM Plus Interiors
(BI)



Assessment



BRONZE
銅級
NB 新建建築
V1.2 2015
HKGBC
BEAM Plus
綠建環評

Assessment Aspects of BEAM Plus



Integrated Design and Construction Management



Community Aspects



Sustainable Sites, Site Aspects



Green Building Attributes



Management



Materials and Waste Aspects



Energy Use



Water Use



Innovations and Additions



Health and Wellbeing, Indoor / Outdoor Environmental Quality

BEAM Plus - Examples

BEAM Plus certified buildings

**Redevelopment of
Kowloon Junior School**
New Buildings V1.1
Final Silver



EcoPark
Existing Buildings V2.0
(Selective Scheme)
Excellent



Tin Shui Wai Hospital
New Buildings V1.2
Final Platinum

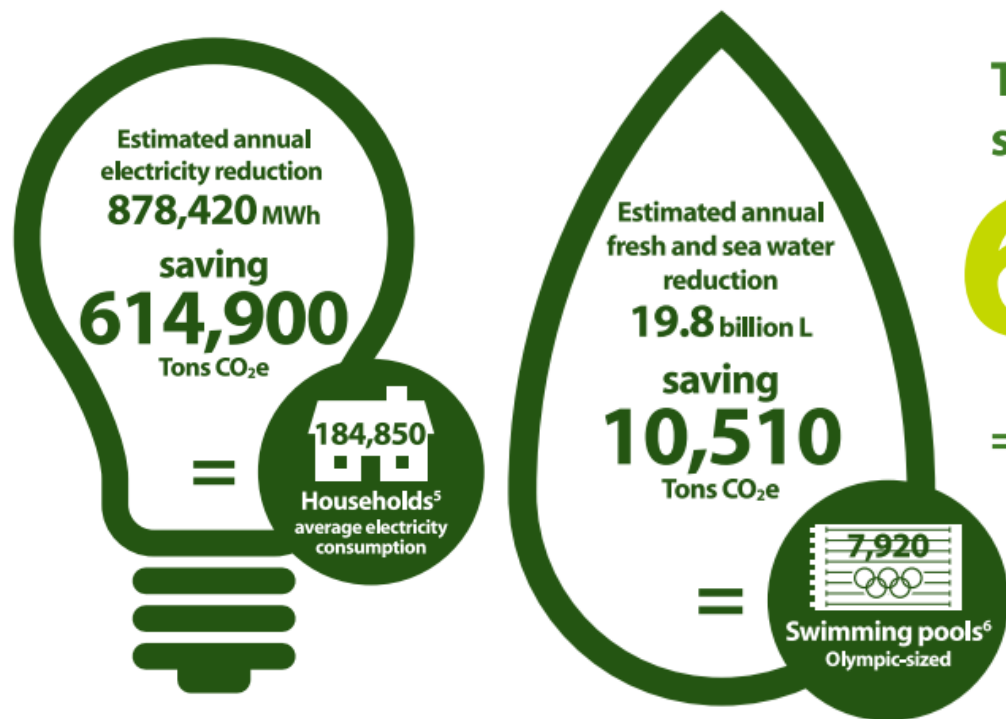


**Electrical and
Mechanical Services
Department
Headquarters**
Existing Buildings V1.2
Final Platinum



Contributions of BEAM Plus

Total saving of BEAM Plus assessed projects
Compared to the baseline:



Total estimated carbon emissions saved each year:

625,400
Tons of CO₂e
= 27.2 million trees planted

Updated as at 31st December 2019

A Strong Green Building Movement in over 20 Years

	Registered	Certified*
No. of Buildings	6,028	2,382
No. of Projects	1,678	773
GFA (m ²)	53.4 million	28.1 million

* Certified means Bronze or above

Strong Market Participation

Since 2014, the annual percentage of private sector projects joining BEAM Plus has reached nearly:

50%



Updated as at 31st December 2019



ECF Green Building Education Video Series



Environment and Conservation Fund (ECF)

- Established in 1994
- Subsidises local non-profit organisations to implement projects and activities related to environmental protection and conservation



Project Background

- 8 videos featuring two Green Building Key Opinion Leaders (KOL) are produced to introduce **green buildings** in a lively and interesting approach
- Bring out the global issue of **climate change** in a simple way
- Drive environmentally responsible behavioural change in youth

贊助機構
環境及自然保育委員會
ENVIRONMENTAL CAMPAIGN COMMITTEE
環境運動委員會

主辦機構
HKGBC
香港綠色建築議會

環保基金 綠色建築

教育短片系列

INSIDE GREEN BUDDY

星期「綠」檔案
綠色建築

「綠」點鐘新聞報道
綠色校園睇真D

極端天氣真係
唔關你事？

綠色建築你識唔識？

快啲嚟睇我哋嘅短片啦

綠色建築KOL
綠建築仔

綠色建築KOL
綠袖子

立即收看

www.hkgbc.org.hk | Q | hkgreenbuildingcouncil

f 香港綠色建築議會 Hong Kong Green Building Council

在此刊物上任何於項目活動內表達的任何意見、研究成果、結論或建議，並不一定反映香港特別行政區政府、環境及自然保育基金委員會及環保運動委員會的觀點。

ENVIRONMENTAL CAMPAIGN COMMITTEE
環境運動委員會

環境及自然保育委員會
ENVIRONMENT AND CONSERVATION

HKGBC
香港綠色建築議會

Extreme Weather? None of My Business!

**極端天氣
真係唔關你事?**

**Extreme Weather?
None of My Business!**



Can school be GREENER?

Green School means:

- Emphasizing on environmentally friendliness
- Adopting green design
- Cultivating students' awareness on environmental protection through in-class training or extra-curricular activities



Greening in campus



Wooden shading devices



Planting scheme for students

Drawback of "Walled Buildings"

Increasing heat content of air due to the heat exhaust from buildings

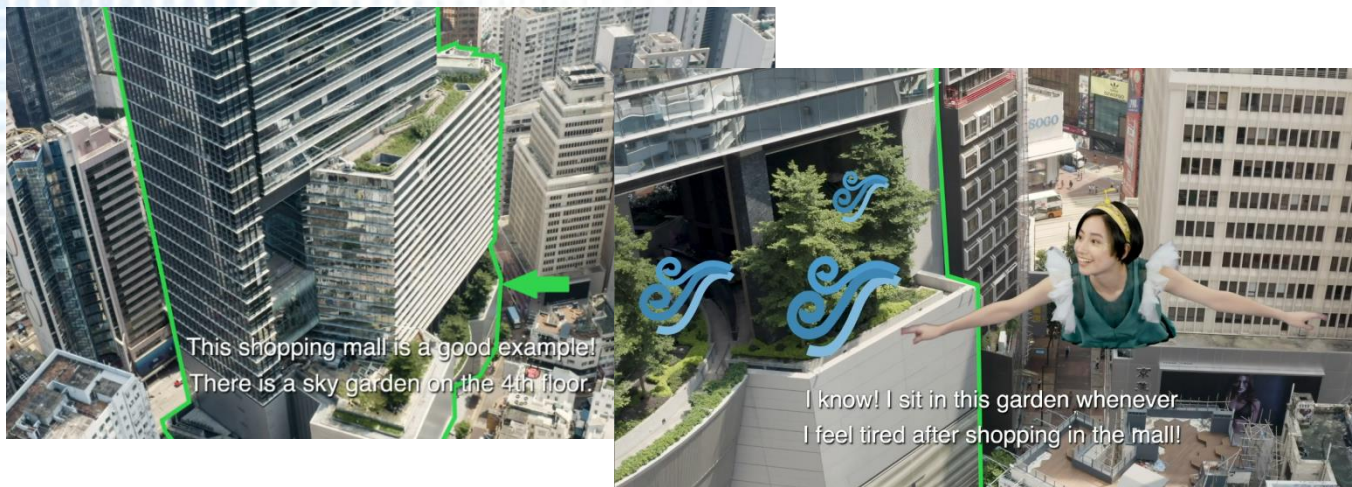
Reduction of air ventilation due to the rising of building density

Shortage of urban greening due to the lack of road trees

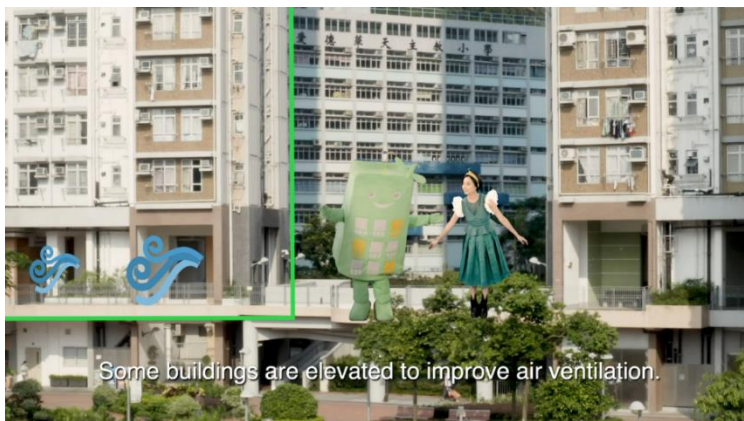
Urban Microclimate



How to solve "walled building" problem?



Increase building permeability



Increase the gap between podium and building block



Build setbacks to allow air paths to connect breezeways



Indoor environment of a building

Is this a good indoor environment?

No windows

Dim light

Fluctuated indoor temperature

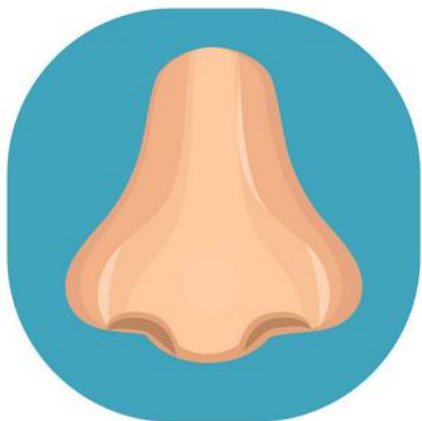
Smelly

Noisy

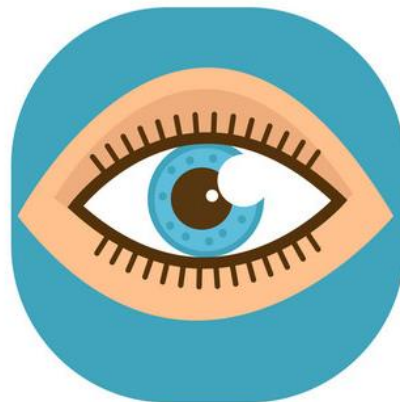


Indoor Environmental Quality and Wellbeing

A good indoor environmental quality can make us healthy



Good Indoor
Air Quality



Visual Comfort



Aural Comfort



Thermal Comfort



Labelling Scheme for Building Materials



CIC Green Product Certification



CIC Green Product Certification

- A **comprehensive certification scheme** for building materials
- Helps developers select and procure building materials that are more **environmentally friendly**

5 ratings will be given:



Why Maintain Buildings?

保養樓宇的好處

Avoid large amounts of construction waste generated by demolition



Make the buildings more sustainable



and be more environmental friendly!

Reduce carbon emissions

碳排放

CO2

CO2

CO2

CO2

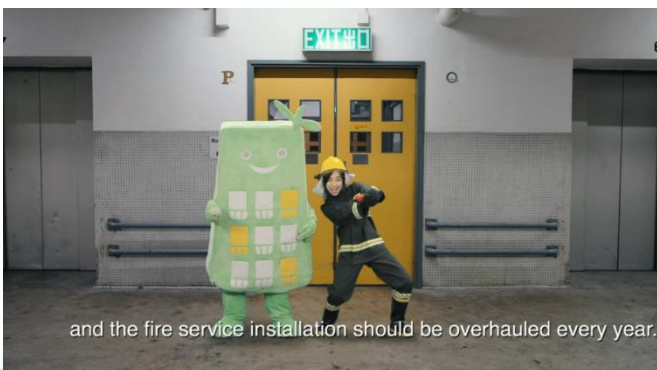
CO2

How to Maintain Buildings?



Water pipes should be regularly inspected to ensure **no leakage**

Lifts should be **cleaned and inspected** at least once a month



Fire service installation should be **overhauled** every year

Hong Kong's Ecological Environment

Hong Kong has cultivated more than...



3,000 kinds of plants



1,000 kinds of fish



500 kinds of birds





Biodiversity and Urban Development

Hong Kong is a densely populated city.
We need to conserve the biodiversity during development.



Therefore, it does not only serve as greening purpose
but also maintain the natural environment.



Biodiversity and green buildings

Green building can **improve air quality**, **lower indoor temperature** and **save energy**. It can also **beautify the building** and **enhance the biodiversity** of the nearby environment.



Green Hub

conserves the historic and architectural values, the heritage trees, and the habitats of egret



Hong Kong Wetland Park

compensates for the wetlands lost due to Tin Shui Wai New Town development

Benefits of Green Buildings



Let's study the opinions on green buildings from developers' perspective!



Benefits of Green Buildings

Economic

- Enhance the operation and management efficiency
- Enhance occupants' productivity

Social

- Exert corporate social responsibility
- Improve health and wellbeing
- Enhance the competitiveness of the society
- Build a sustainable environment

Environmental

- Optimise external scenery
- Enlarge green space
- Introduce natural ventilation
- Save Energy and Water
- Utilise renewable energy



Developers representative
(Swire Properties)



Developers representative
(Chinachem Group)

ECF Green Building Education Video Series

Want your students understand more on **Green Buildings**?

Browse the **Youtube channel** of the Hong Kong Green Building Council

👉 <http://tiny.cc/0puugz>



環保基金 綠色建築教育短片系列






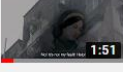


8 部影片 · 觀看次數：113次 · 上次更新日期：2019年10月17日



Hong Kong Green Building Council

訂閱



- 1  【綠築仔綠袖子話你知】 - 極端天氣真係唔關你事？
Hong Kong Green Building Council 4:53
- 2  【綠築仔綠袖子話你知】 - 「綠」點鐘新聞報道 - 綠色校園睇真D
Hong Kong Green Building Council 5:03
- 3  【綠築仔綠袖子話你知】 - 阻住我點走啊？
Hong Kong Green Building Council 2:29
- 4  【綠築仔綠袖子話你知】 - Life in a Box
Hong Kong Green Building Council 4:34
- 5  【綠築仔綠袖子話你知】 - Inside Green Buddy
Hong Kong Green Building Council 2:24
- 6  【綠築仔綠袖子話你知】 - 年紀大 機器壞
Hong Kong Green Building Council 1:51
- 7  【綠築仔綠袖子話你知】 - 這裏還有你嗎？
Hong Kong Green Building Council 2:40
- 8  【綠築仔綠袖子話你知】 - 星期「綠」檔案 - 綠色建築
Hong Kong Green Building Council 3:11



Extended Reading Materials



[Hong Kong: Green Building in Action 2019](#)



[BEAM Plus Online Exhibition](#)



[Green Building Guide Books](#)



[Hong Kong's Climate Action Plan 2030+](#)



[Energy Saving Plan For Hong Kong's Built Environment 2015-2025+](#)



[Deepening Energy Saving In Existing Buildings In Hong Kong Through "4Ts" Partnership](#)



[Hong Kong Biodiversity Strategy and Action Plan 2016-2021](#)



Thank You

Any opinions, findings, conclusions or recommendations expressed in this material / event do not necessarily reflect the views of the Government of the Hong Kong Special Administrative Region and the Environment and Conservation Fund.

