

## THE MULTI-FUNCTIONALITY OF URBAN FARMING IN PROMOTING HONG KONG URBAN SUSTAINABILITY

### URBAN FARMING



The cultivation activities of crops within or/and on the fringe of a urban area  
E.g. backyards, rooftop, commercial companies, institutional and community gardens

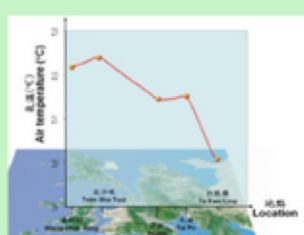


### HONG KONG

Practicing agriculture in Hong Kong urban area as promoting sustainability and green lifestyle become a priority of many urban citizens.  
There are over 43 urban farms in Hong Kong as of 2019 managed by the leading local urban farming company, Rooftop Republic.

### ENVIRONMENTAL

#### "URBAN HEAT ISLAND" EFFECT



The average temperature in urban area is higher than that of rural area of NT by more than

2°C

Worsened health and living quality of local urban citizens

#### URBAN FARMING: SOLUTION

- Urban farming and rooftop greening can alleviate UHI effect by
- Cooling the microclimate of urban area through transpiration of plants
- Providing shadow to the building material
- The successful implementation in California, the government providing standard and encourage urban greening

#### IMPROVE URBAN AIR QUALITY

High development density of urban area restrict air circulation  
Urban area usually have more pollution sources than rural area



Air quality in urban area is usually worse than rural area

Air quality in Central is the worst among all the air quality stations in HK regarding particulate matter less than 2.5 microns of diameter (PM2.5)

The vegetation of urban farm can absorb and block the pollutants and improve the air quality

The annual mean value PM2.5 of Hong Kong is 23 ug/m3, whereas the guideline value proposed by the WHO is 10 ug/m3

Guideline HK

(The News Lens, 2015) (WHO, 2017)

>230%

#### BETTER UTILISING VACANT URBAN LAND



~32 X VICTORIA PARK

Hong Kong has up to 600 hectare of potential vacant urban land



CURRENTLY...

Rooftop Republic is helping manage up to 43 urban farms (40,000 ft2) in different districts in HK



500 KG/YR HARVEST FROM ONE FARM

E.g. Bank of America Tower rooftop farm

### ECOLOGICAL

#### IMPROVING URBAN BIODIVERSITY

Highly developed HK urban area limited the urban biodiversity

pollinators and birds can't easily find food and favourable habitats inside the urban landscape



The practise of urban farming increase urban biodiversity

- Planting different species of vegetables and fruits
- Create an environmental-friendly landscape



The food source and habitats of pollinators and birds can increase

Practicing beekeeping in their urban farm



#### URBAN ORGANIC RESOURCES

Massive disposal of domestic food waste and other organic waste in Hong Kong

Organic Urban farming can transfer the domestic organic waste into fertiliser  
The total amount of waste can be reduced

Food waste composition system in Chai Wan community farm  
Digest about 15kg of domestic food waste into fertiliser one round

### FARM INCOME DIVERSIFICATION

NEW SOURCES OF INCOME



EDUCATION



PARTNERSHIP



MAINTENANCE



HONG KONG FARMERS

- Vulnerable income source
- Prone to extreme climate during growing period (i.e. typhoon)
- Highly seasonal income
- Diversify their income source by engaging them to tend for urban farms and act as educators for workshops and corporate programmes

### ECONOMIC

#### SOCIAL ENTREPRENEURSHIP

FOR PROFIT COMMERCIAL ACTIVITY



Potential for business expansion and employment



Innovative and alternative income generation



Growing market and consumer base of sustainable businesses

### NEW BUSINESS MODELS

ENVIRONMENT FOR INNOVATIVE OPERATION

**LOW-COST SPECIALIZATION**  
Short supply chains' vertical integration can increase the profit  
Vertical farm and hydroponic systems in Hong Kong



**REINVENT FOOD SYSTEM**  
Direct producer-consumer connections  
By raising awareness about sustainability - also generate demand  
Transparency



**CORPORATION PARTNERSHIP**  
Promote corporate responsibility  
Leverage resources  
Conscious development



### SOCIAL

#### NEIGHBOURHOOD ATTACHMENT

**1 POSITIVE EMOTIONAL CONNECTION**  
Connect individuals and their social- physical surroundings to create a sense of attachment to the neighbourhood

**2 SOCIAL CONNECTEDNESS**  
Facilitate social interaction in different settings, such as office space

**3 FOSTERING COMMUNITY INVOLVEMENT**  
Urban farms, workshops and events can provide a central gathering space for different people.

**4 REDUCTION OF STRESS**  
Plant-human relationship and interaction has been proven to reduce stress, fear, and anxiety by calming down the brain

#### PRODUCTION OF LOCAL FOOD

- Increase awareness of healthy eating and climate change
- Rethink about food access and food waste
- Provide organic and nutritious food to the underprivileged
- E.g. Donate fresh farm produce to Feeding Hong Kong



### LIMITATION

- Setting up a urban farm inside the building requires the consensus and approval of property owners, some conservative owners may feel reluctant to do so regarding different aspects of concerns
- Setting up urban farms requires proper site suitability, well drained system, enough affordability of the rooftop, and enough logistic support
- Many urban farms restrict public access due to safety and security concerns

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