

United Nations Economic and Social Commission of Asia and the Pacific

5th meeting of the Expert Group on Disaster-related Statistics in Asia and the Pacific and
Workshop on Disaster Risks in East and North-East Asia



THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學

Place- and Age-Responsive Disaster Risk Reduction for Hong Kong

Yi SUN PhD

Assistant Professor

Department of Building and Real Estate

The Hong Kong Polytechnic University

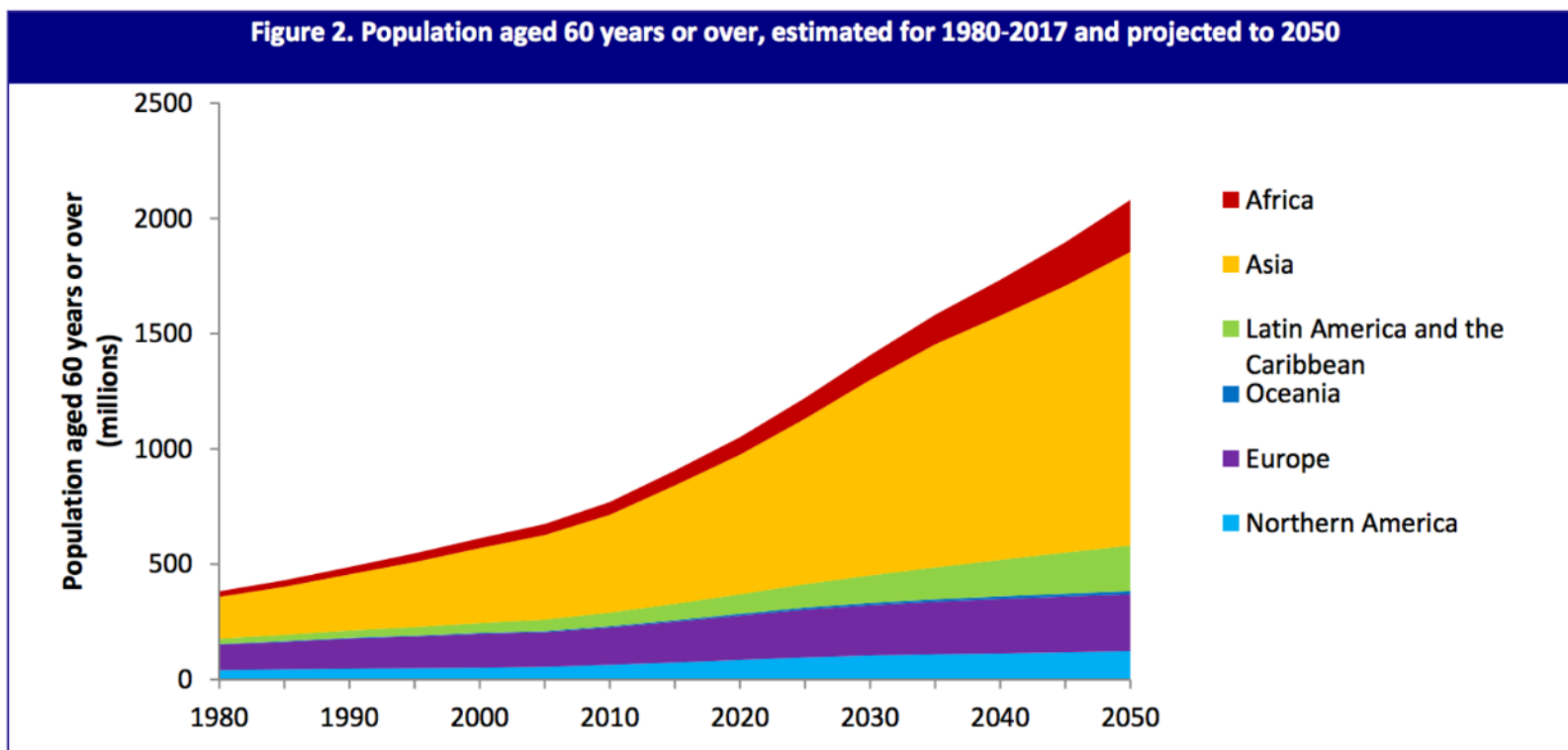
Email: yisun@polyu.edu.hk

Opening Minds • Shaping the Future
啟迪思維 • 成就未來



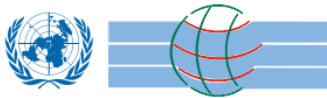
Leave no one behind

...including the eradication of extreme poverty, by ensuring equal rights and opportunities, socioeconomic and cultural diversity, and integration in the urban space, by enhancing liveability, education ... health and well-being...



Data source: *World Population Prospects: the 2017 Revision*

Source: United Nations Department of Economic and Social Affairs



World Conference on Disaster Reduction
18-22 January 2005, Kobe, Hyogo, Japan

Hyogo Framework for Action 2005-2015:^{*} Building the Resilience of Nations and Communities to Disasters

www.unisdr.org/wcdr

*Extract from the final report of the World Conference on Disaster Reduction
(A/CONF.206/6)



International Strategy for Disaster Reduction

Sendai Framework for Disaster Risk Reduction 2015 - 2030



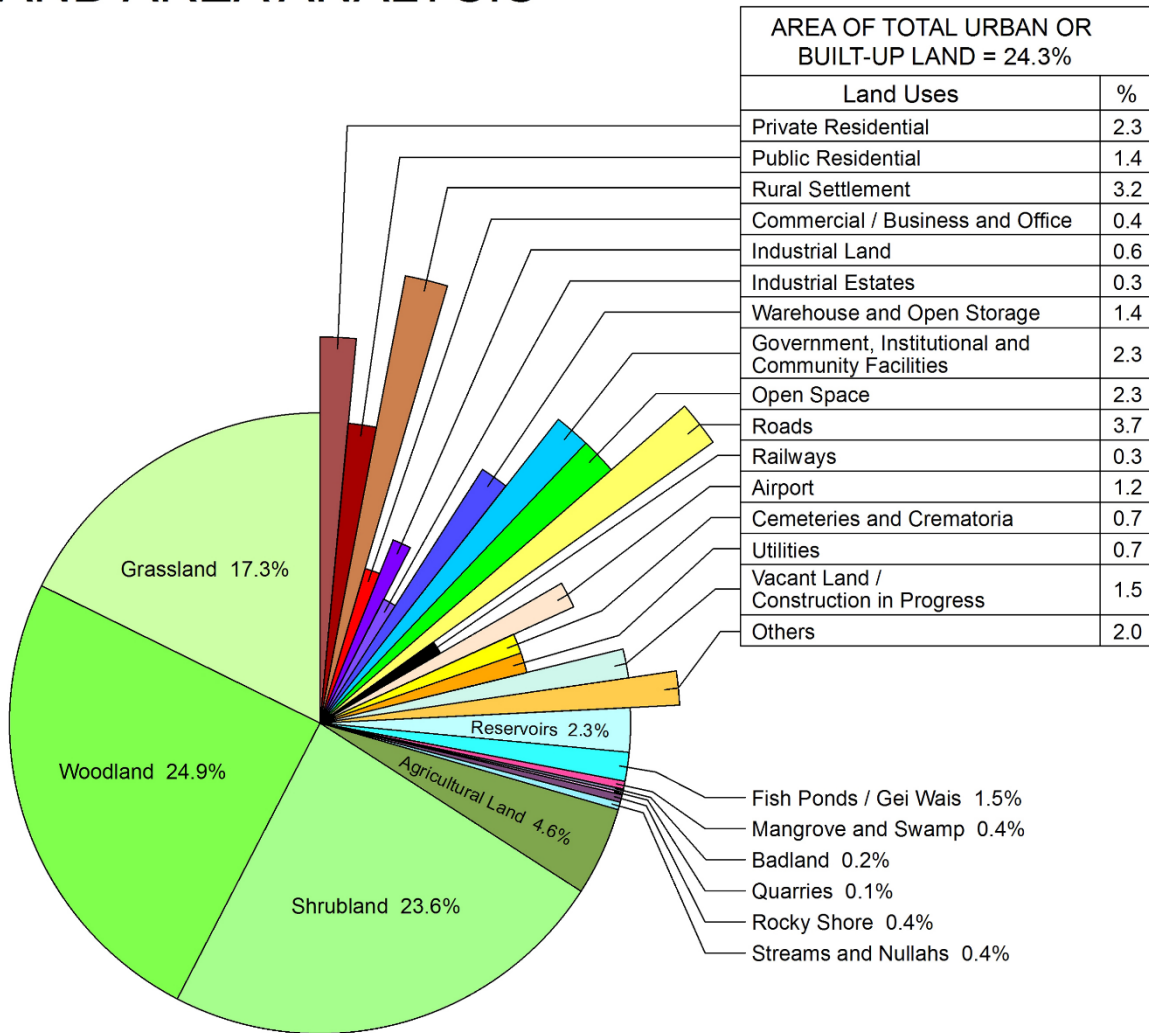


Population: 7,377,100

Ageing population (65 and above): 543,026 (16.1%)

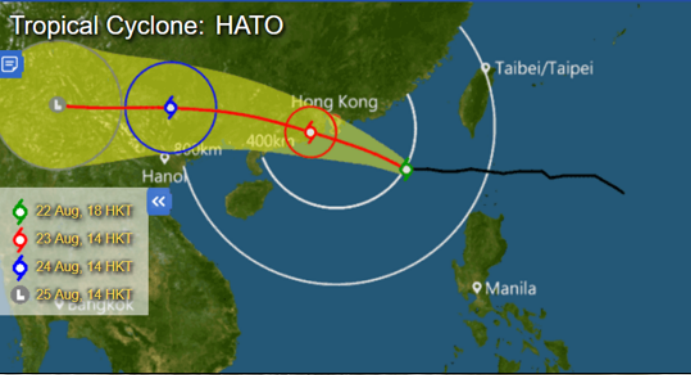
*2016 data

LAND AREA ANALYSIS



Total land area = 1,111 km² (including about 4 km² of Mangrove and Swamp below the High Water Mark)
 Vegetated area covers about 78.7% of the land area of Hong Kong
 Country Parks, Special Areas and Mai Po Ramsar Site cover about 41.7% of the land area of Hong Kong

http://www.pland.gov.hk/pland_en/info_serv/statistic/landu_2017_2.jpg



HEADROOM
高度限制
1.9^M_米

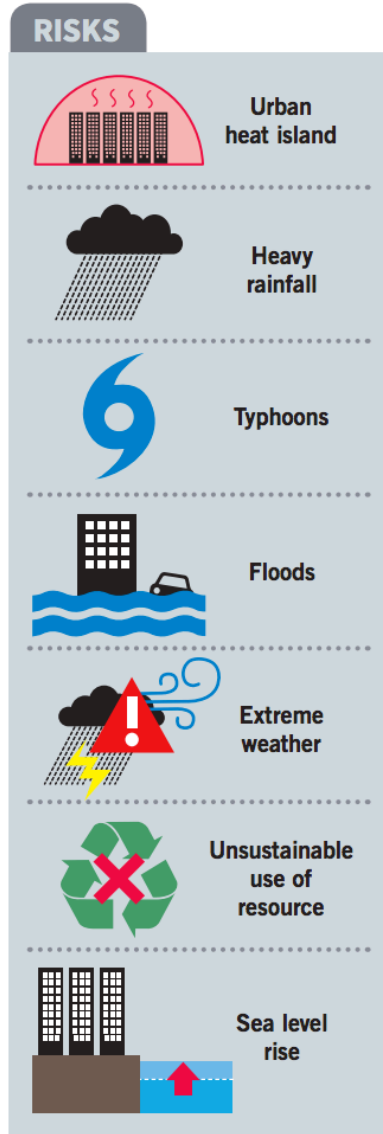




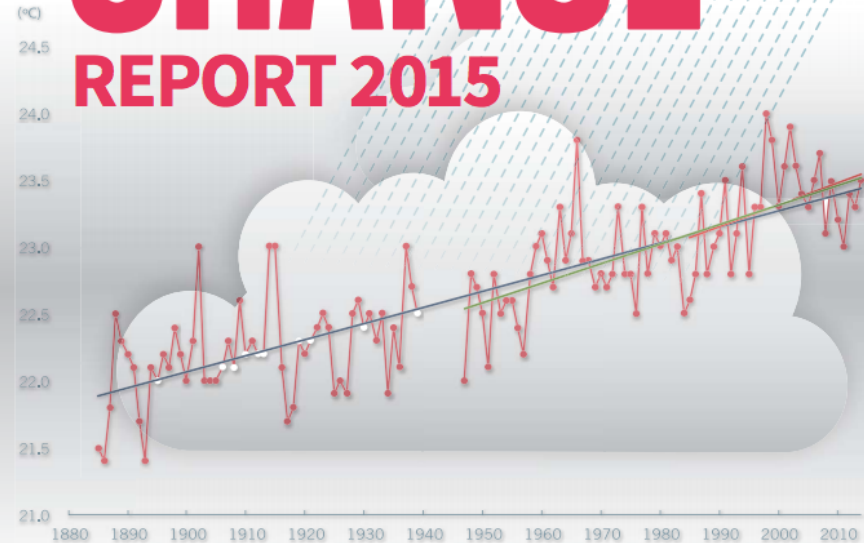
Summary of climate change and Hong Kong

The effects of climate change have already emerged with Hong Kong experiencing raised temperatures, more frequent extreme rainfall and rising sea-level. The changes in Hong Kong's climate in the 21st century may be summarised as follows:

- The number of very hot days and hot nights is projected to increase;
- The number of rain days is projected to decrease while the average rainfall intensity will increase;
- The frequency of extreme rainfall events is projected to increase;
- There will be more extremely wet years but the risk of extremely dry years will remain;
- Global sea level rise will lead to coastal changes all over the world, including in Hong Kong; and
- The threat of storm surges associated with tropical cyclones will increase.



HONG KONG CLIMATE CHANGE REPORT 2015

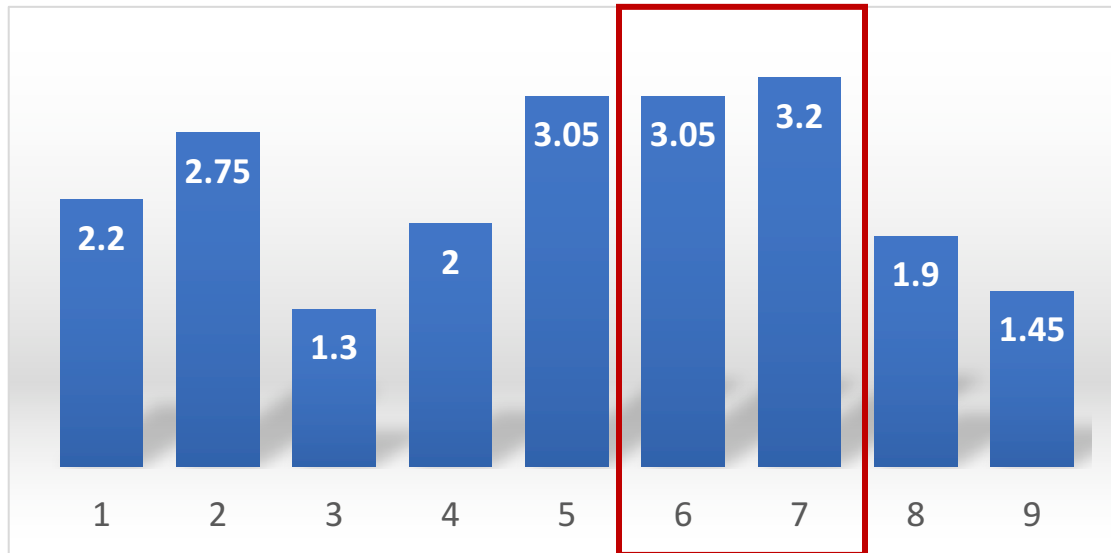


Environment Bureau in collaboration with

Development Bureau | Transport & Housing Bureau
Commerce & Economic Development Bureau | Food & Health Bureau | Security Bureau

November 2015

Readiness of disaster events (1 strongly disagree -5 strongly agree):



1. I know when disasters will happen
2. I cannot control the happening of disasters
3. I have participated in workshops on emergency preparedness
4. To remain alive after disasters is by luck
5. Information and knowledge sharing are important
6. **Government can provide everything necessary when disaster happens**
7. **I am confident for reconstruction activities from government after disasters**
8. Talking about disaster with community member is important
9. I used to listen experts or DRR leaders who work or do activities for disaster management

Security Bureau Circular No. 2/2015

**CONTINGENCY PLAN
FOR NATURAL DISASTERS**

(INCLUDING THOSE ARISING FROM
SEVERE WEATHER CONDITIONS)

Emergency Support Unit
Security Bureau
Government Secretariat
November 2015

File Ref. SB FR/1-90/4

Contents

Section	Subject	Page
	List of Annexes and Appendices	2
	List of Abbreviations	3 - 4
1	Introduction	5
2	Alerting System and Co-ordination	6 - 7
3	Tropical Cyclones – Warnings and Action to be Taken	8 - 9
4	Rainstorms – Warnings and Action to be Taken	10 - 12
5	Flooding – Warnings and Action to be Taken	13 - 14
6	Other Natural Hazards – Warnings and Action to be Taken	15 - 16
7	Other General Warnings	17
8	Controlling Authorities	18 - 22
9	Non-Government Organisations' Responsibilities	23 - 24
10	Bureaux's and Departments' Responsibilities	25 - 33
11	Training	34
12	Exercises	35
13	Revision of the Plan	36

6. OTHER NATURAL HAZARDS - WARNINGS AND ACTION TO BE TAKEN

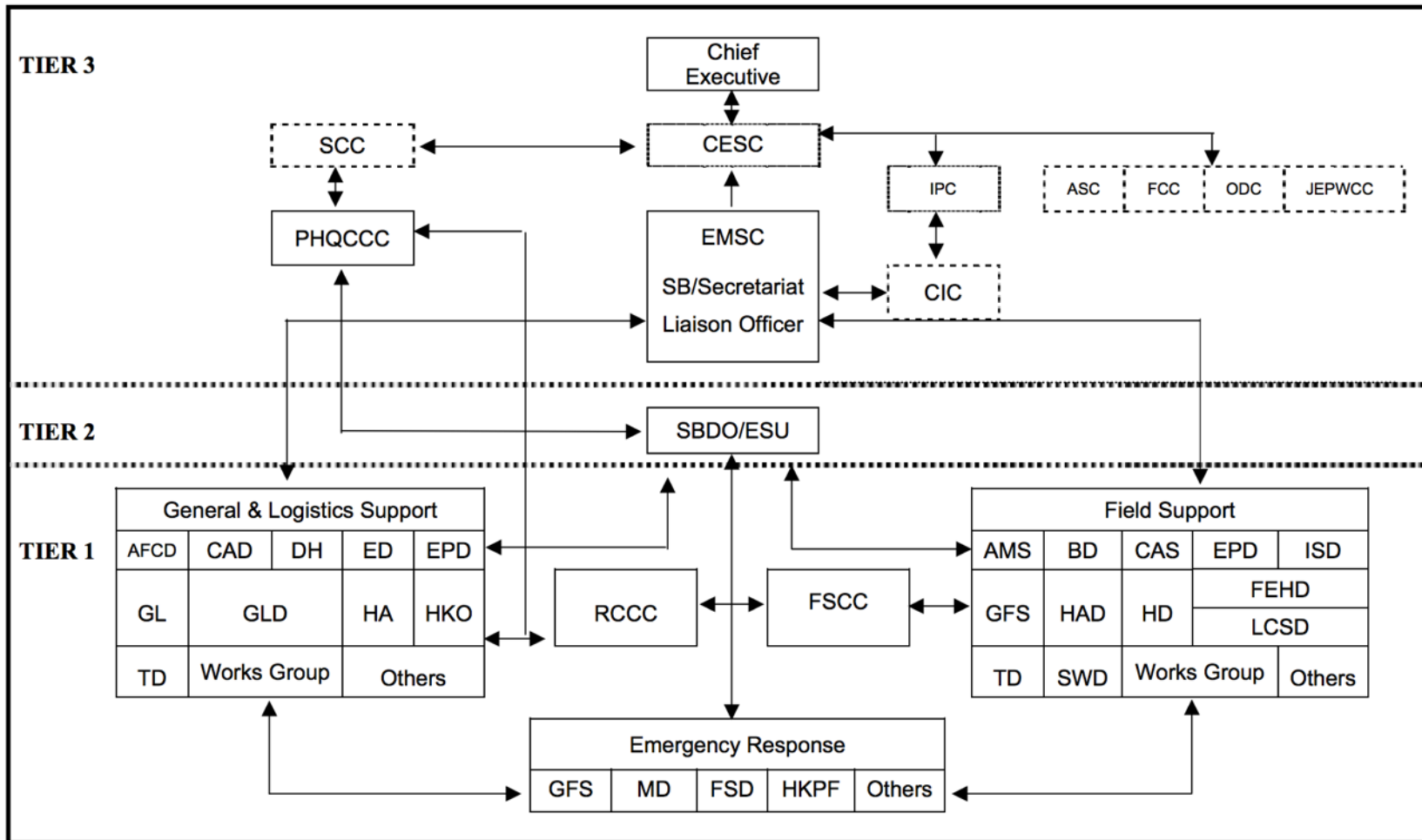
6.1 Given the hazards posed by Hong Kong's tropical weather, it is necessary to provide separate warnings for *Landslips, Thunderstorms and Tsunami*, in addition to those for Tropical Cyclones, Rainstorms and Floods. Detailed background information on Landslips, Floods and Thunderstorms is given in *Annex C*. As for tsunami, which is a geophysical hazard, detailed background information is given in *Annex D*.

6.2 **Landslip Warning** - Heavy rain can cause landslips. A Landslip Warning will be issued by the HKO in conjunction with the Geotechnical Engineering Office (GEO) when there is a high risk of many landslips as a result of persistent heavy rainfall. When a warning is issued, a **Landslip Special Announcement** on precautionary measures will be sent to the local radio and television stations for broadcast to the public. The announcement will be updated at appropriate intervals until the likelihood of landslips has diminished (sample at **Appendix A to Annex C**). When the Landslip Warning criteria is no longer met, the HKO will cancel the Landslip Warning in conjunction with the GEO.

6.3 **Thunderstorm Warning** - Whenever thunderstorms are expected to affect Hong Kong in the short term (within one to a few hours), a brief **Thunderstorm Warning Announcement** will be issued (sample at **Appendix C to Annex C**). Thunderstorm warnings are issued irrespective of whether thunderstorms are widespread or isolated. If thunderstorms will affect isolated areas within a short period of time, the thunderstorm warning issued by the HKO will indicate the areas being affected, to alert members of the public to take appropriate precautions. When thunderstorms are widespread or the areas being affected vary, it will be mentioned in the thunderstorm warning that Hong Kong will be affected by thunderstorms without specific reference to individual areas. Reports of high gust, hail, tornado and waterspout as well as special precautionary announcements will be included in the Thunderstorm Warning when situation warrants. **Thunderstorm Warnings** are primarily targeted at departments and organisations (including the construction, electric power and other industries; those outdoors; those at swimming pools and beaches; and those at sea) which have specific action to take to minimise loss or damage caused by lightning. The warning is also broadcast to alert the public to the potential threat of lightning. Advice on precautionary actions to be taken by individuals is given in publicity leaflets distributed by the HKO.

6.4 **Tsunami Warning** - If an earthquake in the South China Sea or the Pacific Ocean is expected to generate a significant tsunami in Hong Kong (i.e. a tsunami with a height of 0.5 metre or more above the normal tide level) and the estimated time of arrival (ETA) of the tsunami at Hong Kong is within 3 hours, the HKO will issue a **Tsunami Warning** (sample at **Appendix A to Annex D**) to alert members of the public to take precautions (sample precautionary announcements at **Appendix B to Annex D**). If a tsunami may reach Hong Kong but the tsunami height at Hong Kong is not likely to be significant, or a significant tsunami is expected to arrive at Hong Kong but the ETA of the tsunami is more than 3 hours away, then HKO will issue a **Tsunami Information Bulletin** (sample at **Appendix C to Annex D**) to notify members of the public. **Tsunami Warnings** are updated at hourly intervals until cancellation, which indicates that the tsunami would not reach Hong Kong or has passed Hong Kong and subsided. **Tsunami Information Bulletins** are updated once every 6 hours when the time is more than 3 hours before ETA, and once every hour when the time is 3 hours or less

Flow Chart on Graduated Response to Emergencies



Source: Emergency Support Unit, Security Bureau, Government Secretariat. The Government of the Hong Kong Special Administrative Region
Emergency Response System: emergency response procedures. May 2000.

A paradigm shift is needed for Disaster Risk Reduction

Table 1 Summary of variables for SVI for Hong Kong elders. *Source* Adapted from Gusmano et al. (2006)

Variable	Rationale	Data descriptions
1. Older population size	The degree of frailty increases with age, thereby leading to physical and cognitive decline and limited competence [that is, physical and mental health, intellectual capacity or ego strength (Lawton 1977)]. The absolute number reflects the actual number of people who need support	Number of people aged ≥ 75
2. Institutionalization	Hospital patients and institutional care residents are extremely vulnerable and constitute a large segment of death toll during disaster	Percentage of institutionalized older population aged $\geq 75^a$
3. Living alone	Living alone is prone to damaging psychological well-being. This slows evacuation and rescue under emergency scenarios	Percentage of community dwelling older population aged ≥ 75 living alone
4. Poverty	Poverty is associated with low socioeconomic status, which will limit older people's capability to obtain resources and maintain well-being	Proportion of community dwelling older population aged ≥ 75 living in poverty ^b
5. Communication obstacles	Communication is essential in community capacity building, which is also important under contingency situations. Communication obstacles are commonly associated with lower education attainment	Proportion of community dwelling older population aged ≥ 75 who had education level less than lower secondary (Grade 9)
6. Disability	Disability develops in the advanced stage of frailty. It is often related to physical, cognitive, and sensory impairment as well as difficulties in speech and hearing. It is the direct indicator of vulnerability	Proportion of community dwelling older population aged ≥ 75 with disability
7. Access to primary care	An easier access to primary care system has a direct bearing on disease prevention and treatment. Conversation with medical practitioners enhances disaster literacy and health literacy, preventing the complications of chronic diseases	Rate of avoidable hospital condition per 1000 people aged $\geq 15^c$

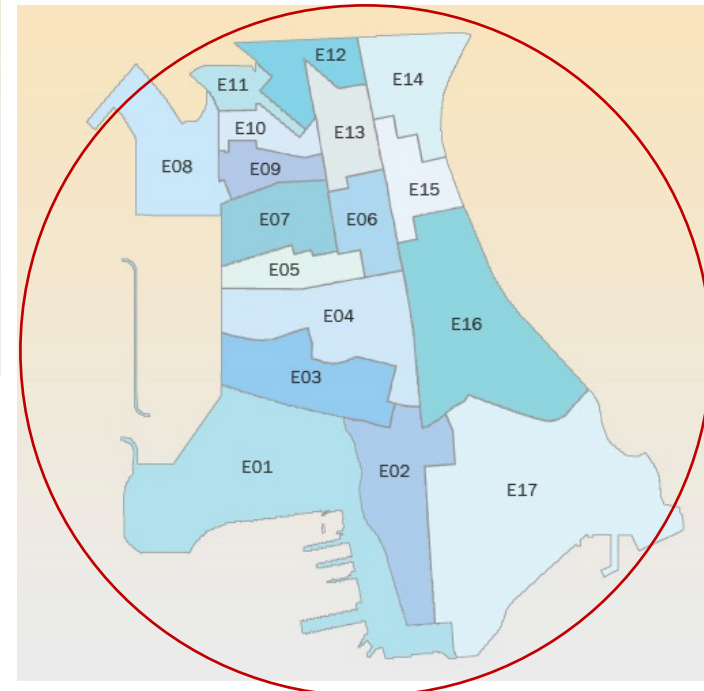
^a Statistically, institutionalized older population is calculated as the total older population minus domestic older population

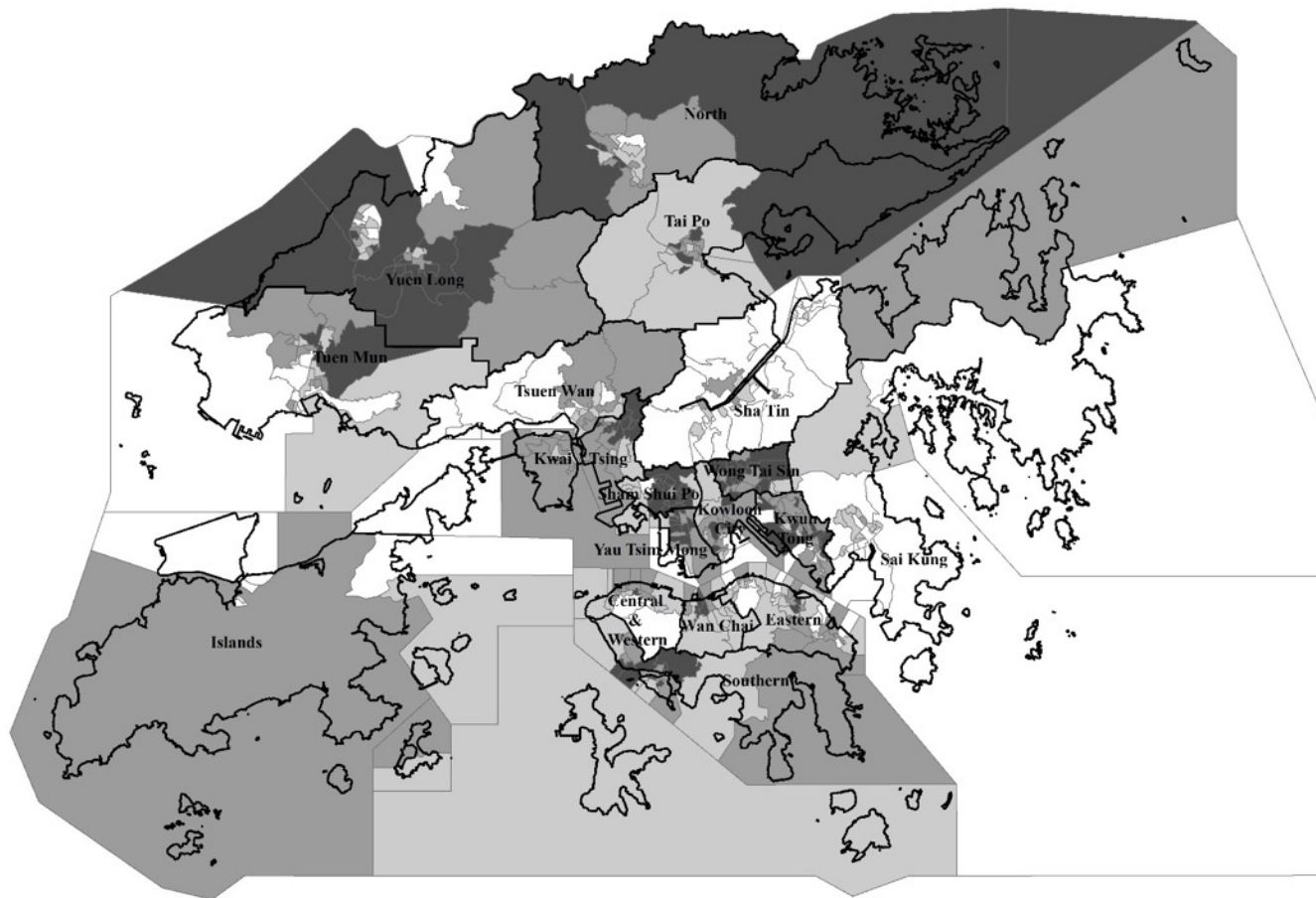
^b Local adaptation of the 2005 US Department of HHS Poverty Guidelines was used to adjust the dollar value by a purchasing power parity of five

^c AHC rates were adjusted using the WHO's age standardization method (Ahmad et al. 2001). It is a proxy of the provision of primary care services. Therefore, we do not restrict the age to the elderly



District Council Constituency Areas (CAs)

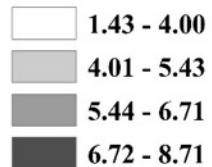




District boundary of Hong Kong



Categories of Social Vulnerability Index (SVI)



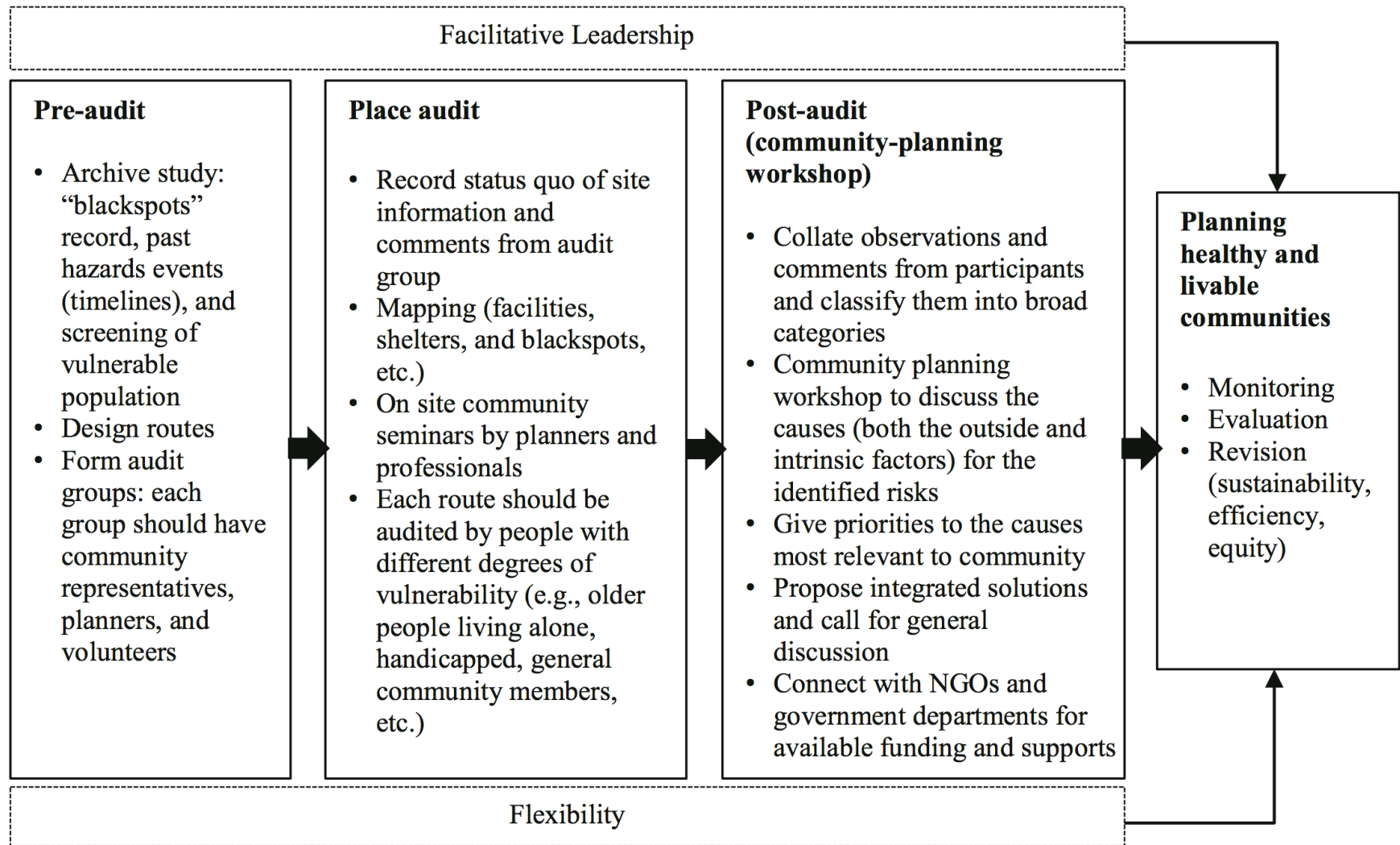


Fig. 1 Framework of collaborative place audit (CPA). *Source* The authors

Place audit



Community planning workshops



Place- and age- responsive Disaster Risk Reduction

1

People

2

Health/
wellbeing

3

Right to
the city

4

No one left
behind




[International Journal of Disaster Risk Science](#)

June 2017, Volume 8, [Issue 2](#), pp 121–133

Place- and Age-Responsive Disaster Risk Reduction for Hong Kong: Collaborative Place Audit and Social Vulnerability Index for Elders

Authors

[Authors and affiliations](#)

Yi Sun , Pui Hing Chau, Moses Wong, Jean Woo

[Open Access](#) | Article

First Online: 26 June 2017

349

Downloads



Thank You

Yi SUN

The Hong Kong Polytechnic University

yisun@polyu.edu.hk