



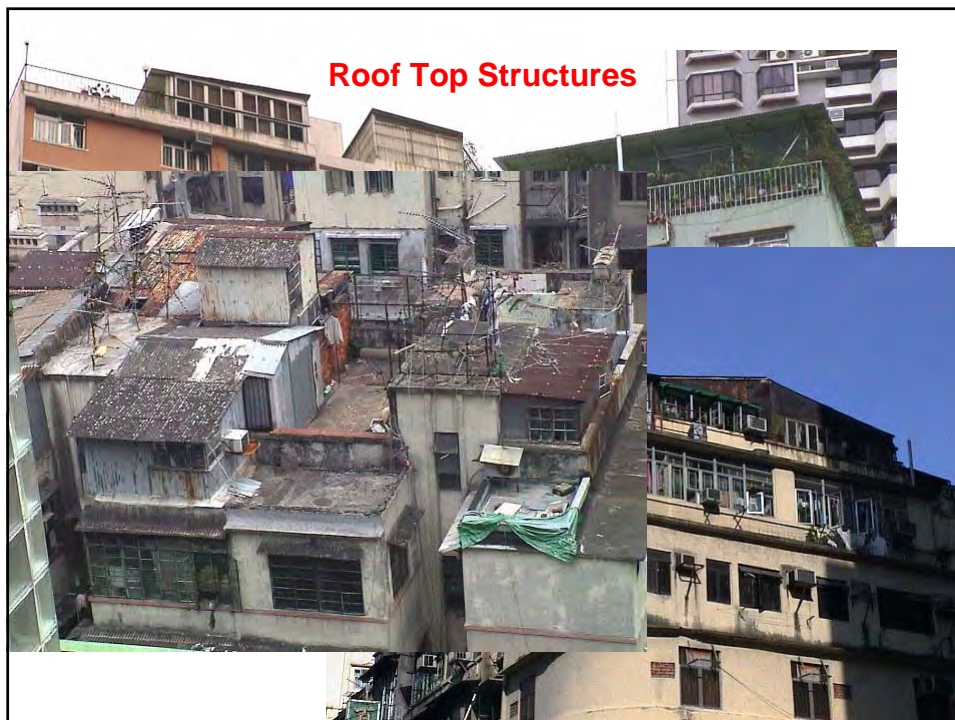
## Introduction

- Overview of the proliferation of unauthorized building works (UBWs) in Hong Kong
- First empirical study on this topic
- Appraised and inspected 323 apartment bldgs.
- **Objectives:**
  1. Reasons why UBWs are built;
  2. Distribution of UBWs; and
  3. Hypothesize on relationship of UBWs with management regime.



## Introduction

- Shelter, as a fundamental human needs, must be **safe**
- **Safe**: harms controlled, health and well-being of all are safeguarded
- Risks and hazards free
- **Hong Kong**: densely populated, high-rise built environment, prone to UBW hazards





## Appendages on External Walls



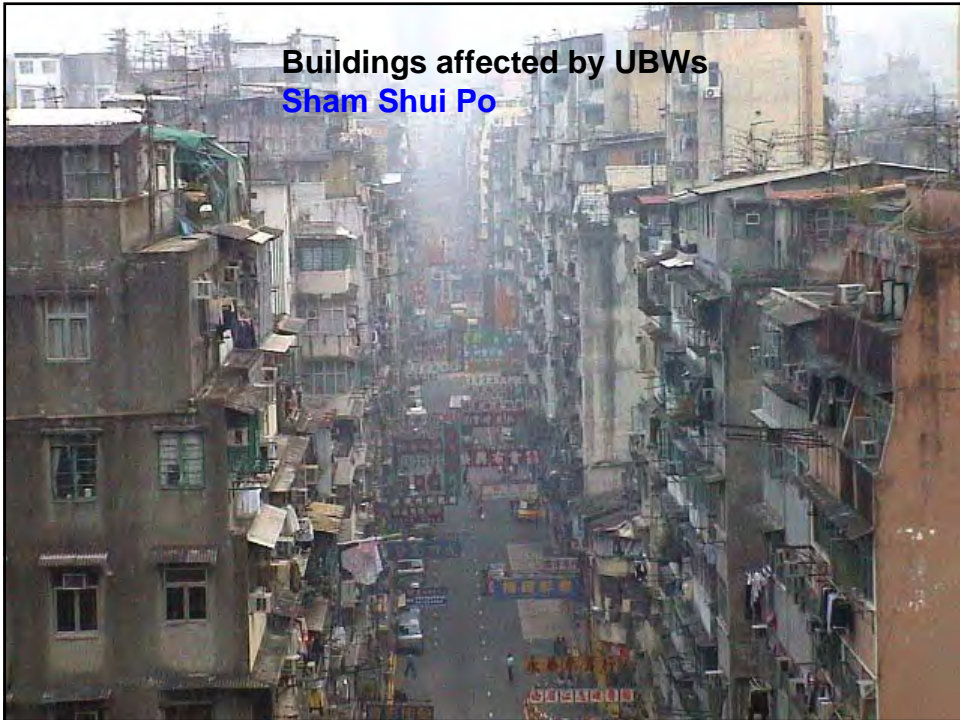
## Others



**Buildings affected by UBWs**  
**Sham Shui Po**



**Buildings affected by UBWs**  
**Sham Shui Po**





**Buildings affected by UBWs**  
**Mid-Levels**

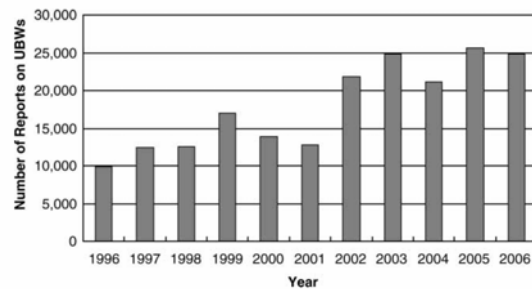


**Commercial districts**  
**Admiralty & Central**



## UBW defined

- In general building works completed or undertaken in **contravention** of the *Buildings Ordinance* are called UBWs
- Estimated No. : **800,000** in 2001, **21** related deaths and **135** injuries between 1990 and 2002



No. of UBW reports received by the Buildings Department

## Statutory enforcement against UBWs

**Prioritized UBW removal**



**Building Authority serves order**



**Compliance by the owner within a specific period of time**

Maximum imprisonment of 1 year



Liable to fine + daily fine

Defective property title: encumbrance in property title causing difficulties in conveyancing



## More about HK's built environment

- Dominated by **high-rise** buildings
- Private residential buildings are largely **apartments** (39,000 blocks or 1 million units)
- **Co-ownership** (strata title) arrangement
- Prerequisite to obtain **consents from all owners** in occasions such as commencement of repair and improvement works in common areas
- **Large developments** ▶ More units ▶ More residents involved ▶ More difficult to get opinions, consent and consensus ▶ **Difficult to take action** against individual owners' improper acts



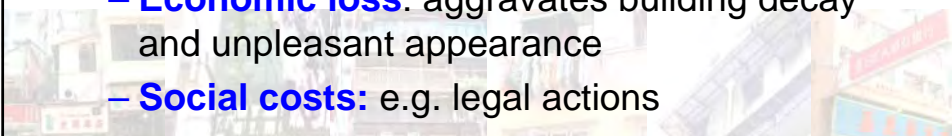
## Why did UBW proliferate?

- **Scarcity** of land resources in Hong Kong:
  - Price of property high
  - Demanding larger livable space per unit
- High enforcement **costs**
- **Ambiguities** in the *Buildings Ordinance*
- Poor **building management**
- Lack of provision of **amenities**, e.g. no clothes-drying facilities and supports for air-conditioners.



## Effects of UBWs

- Structural soundness is doubtful ▶ detrimental to building **safety**
- Foreseeable effects:
  - **Health and safety**: loss of lives, jeopardize building structural stability and fire safety e.g. unauthorized advertisement signs and metal cages on external walls blocking natural light and ventilation, repair and rescue
  - **Economic loss**: aggravates building decay and unpleasant appearance
  - **Social costs**: e.g. legal actions





## Difference between various management modes

	Owners Committee (OC)	Incorporated Owners (IO)	Mutual Aid Committee (MAC)	Property Management Agent (PMA)
<b>Similarities</b>	Formation of OC, IO, MAC and PMA is necessary for coordination and as facilitator			
<b>Duties, Functions and Powers</b>	Authorized to monitor PMA under the Deed of Mutual Covenants (DMC) but no statutory powers	A representative body, convene owner meetings, enforce resolutions, appoint, terminate and monitor PMA	Informal and advisory, minimal effect on building management, promotes good neighbourhood	A paid agent, help handling building management issues
<b>Legal Basis</b>	Lack of statutory power but backed by DMC	Statutory as legal entity, prescribed in <i>Building Management Ordinance</i> (Cap. 344)	Nil	Not in building management context but in company registration ordinance as legal entity
<b>Government Standpoint</b>	Neutral, IO is more desirable	Recommended and assisted the formation	Neutral, IO is more desirable	Recommended together with IO, assisted the engagement

## Hypothesis

- A lot of studies support IO and PMA in:
  - Airing of grievances
  - Coordinate owners to made collective decisions
  - Expertise of PMA
  - Fewer problems and better building conditions
- **Hypothesis:** presence of IO and PMA would have **negative** effects on number of UBWs in buildings

## Explanatory Model

- Degree of UBW proliferation is measured by no. of UBWs per unit in a building, which is easier to identify in building surveys

$$UBW = f(BLDG, MGMT) \quad (1)$$

- **BLDG**: a set of physical characteristics (7 nos.)
- **MGMT**: a set of factors in which building is managed (4 nos.)

$$UBW = f(AGE, SIZE, UNIT, ESTATE, IO, OC, MAC, PM, ACHOOD, DRYFAC, LOCATION) \quad (2)$$

- where
  - AGE: age of BLDG in years
  - SIZE: average size of dwelling units in BLDG in m<sup>2</sup>
  - UNIT: total no. of dwelling units within BLDG
  - ESTATE: dummy variable, 1 for estate type development, otherwise 0
  - IO: dummy variable, 1 for owners corporation formed, otherwise 0
  - OC: dummy variable, 1 for owners committee formed, otherwise 0
  - MAC: dummy variable, 1 for mutual aid committee formed, otherwise 0
  - PM: dummy variable, 1 for employing an external property management agent for building management, otherwise 0
  - ACHOOD: dummy variable, 1 for provision of integrated air-conditioner hoods, otherwise 0
  - DRYFAC: dummy variable, 1 for provision of integrated drying facilities, otherwise 0
  - LOCATION: dummy variable representing the building location

## Building variables

- **SIZE**: a potential de-motivators for UBW construction
- **UNIT**: measure the effect of development intensity on UBW proliferation
- **ESTATE**: measure the scale effect
- **ACOHOD & DRYFAC**: expected to have a close association with UBWs
  - With the provision of these amenities in the design, fewer UBWs are expected
- **AGE and LOCATION**: included to control the possible ageing and location effects

## The samples



Satellite Image of Hong Kong urban area (adopted from Google Map)

## The samples



The Eastern District

Yau Tsim  
Mong (YTM)



- The 2 districts have the **largest** no. of residential units in HK
- YTM: 103,906 (**10%** of total stock of units),  
Eastern District: 125,028 (**12.1%**)
- Great **varieties**: from post war blocks to new, from large estates to single block



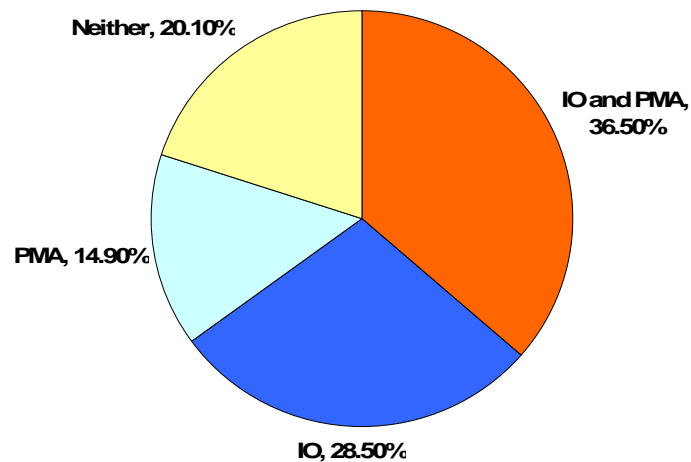
## Characteristics of the samples

- **No. of buildings** surveyed: YTM: **148** (5.5% of 2,716 total blocks) & Eastern District: **175** (10% of 1,749)
- Mean **age**: **32 years** for both
- Mean **flat size**: **53.53 m<sup>2</sup>** (YTM) & **62.51 m<sup>2</sup>** (Eastern District)
- Mean **no. of storey**: **11.70** (YTM) & **14.49** (Eastern District)
- Mean **no. of UA**: **107.9** (per BLDG), **2.6** (per dwelling unit)
- Max no. of UA: 869 (per BLDG), 24.5 (per dwelling unit)
- Min no. of UA: 0
- S.D: 132.2 (per BLDG)



## Characteristics of the samples

Building Management Modes of the Samples



## Results of the regression analysis

Variable	Coefficient	t-Statistic	
Constant	0.9741	1.8187	**
AGE	0.0248	2.1500	**
SIZE	0.9741	1.8187	***
UNIT	0.0248	2.1500	**
ESTATE	-0.0046	-4.1434	*
IO	-0.0547	-0.1808	
OC	0.2518	0.9479	
MAC	0.5339	1.1163	
PM	-0.1612	-0.5049	
ACHOOD	-0.2425	-1.2082	
DRYFAC	-1.4047	-6.0404	*
PE	-0.5810	-2.6326	*
MK	0.9206	2.9366	*
YMT	0.4871	1.7456	***
TKT	0.7905	2.1282	**
JD	0.2497	0.7606	
TST	0.2755	0.7842	
NP	0.6780	2.0661	**
TH	0.7831	2.8330	*
R <sup>2</sup>	0.38	Adjusted R <sup>2</sup>	0.35
F-statistic	10.50*	Number of observations	323
Dependent variable	UBW		

Notes: \*Significant at the 1% level; \*\*significant at the 5% level; and \*\*\*significant at the 10% level.

## Effects of building characteristics on UBW

- **AGE** and **SIZE** had **positive** effects on UBW:
  - Aging building problem
  - Lack of useable space was probably not a major cause
- But **SIZE** may not reflect the building population density in a building. Building populations were not input into the model, and the latter is more relevant



## Effects of building characteristics on UBW

- **Amenity features** have **negative** effects which help reduce the no. of low-risk UBWs:
  - Provision of **AC hoods**: UBW ↓ by 1.3 per unit
  - Provision of **clothes drying facilities**: UBW ↓ by 0.6 per unit
- Government should observe such needs in design and development of apartment buildings in future



## Effects of development scale on UBW

- Effect of development scale on UBWs:
  - UNIT: significantly **positive** effect
  - ESTATE: significantly **negative** effect
  - May confirm the contentions that:
    1. UNIT ↑ results in more difficult coordination,
    2. the 'common value' is a motivator to control UBW actively in estate type developments
- Robust conclusion, nevertheless, cannot be drawn





## Effects of management mode on UBW

- **Insignificant:** buildings with IO and/or PMA did not necessarily have fewer UBWs
- Possible problems :
  - Appointment of PMA (any check-and-balance mechanism?)
  - inactive participation of IO and OC
  - formation of rival groups within owners
  - presence of 'weak principal-strong agent' situation
  - conflicts between IO and PMA

## Solutions to the UBW problem

- **Governmental approach** to eliminate UBW problems through assisting IO formation and PMA engagement could be IN VAIN
- Granting **retrospective approvals** to the authorized works (Ho, 1993) backed by safety validations?
- **Tightened law enforcement** through more frequent inspections and heavier punishment
  - In Wu and Wu (2003), the above measures have shown to reduce unauthorized land uses in mainland China

## Solutions to the UBW problem

- **Community education**, together with legislation, to arouse the public awareness in UBWs and promote built environment safety
- Constructing buildings with more amenities such as air-conditioning hoods/platforms, with **plot ratio exemption** as incentives or making their provision **mandatory**



## Acknowledgements

- The authors gratefully acknowledge the financial support by the Research Grant Council, HKSAR Government (Grant No. HKU 7107/04E & HKU 7131/05E), HKU Small Project Funding and HKU Research Group on Sustainable Cities Seed Grant
- Buildings Department, Home Affairs Department, HKSAR Government



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***THANK YOU!***

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