Public/Private Open Space?
Analysis of Multiple Intensive Land Use in Hong Kong

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ABSTRACT

Hong Kong comprises a unique situation in the world where extreme high density, overcrowding, scarcity of buildable land, land-use intensification and economic viability are the major driving forces, as well as constraints, for urban development. Most people want to live adjacent to the Central Business District area and accept super high-rise living. The most appropriate regulatory ground and emerging solution for this extreme situation is the Multiple Intensive Land Use (MILU) law. MILU requires open spaces within dense development for both the residential inhabitants and all the citizens of Hong Kong. These legislated urban open spaces are constructed by private developers, publicly owned, but privately operated or managed. This is an example of a symbiotic agreement of public and private partnership (PPP) for public benefit. However, designers act for the developer's benefits often in opposition to public benefits in many cases. This paper outlines research investigating the real condition of public open space resulting from MILU and measures its success from urban design perspectives. Are MILU open spaces accessible, legible, and usable for the public? Hong Kong needs more 'truly urban open space' for its citizens to interact, have recreation, relax, circulate, eat and play. From this point of view it is essential to analyse critically the quality and the design nature of privately built and managed public open space in MILU development.

Keywords: *Public Open Space, Open Space Design, Multiple Intensive Land Use, accessibility*

INTRODUCTION

Hong Kong is a high-density city with a small and limited area of buildable land. A major constraint is the continuous problem of land scarcity with an increasing population. This city has a population of more than 7 million and it is growing about one million each decade. More than half of the population of Hong Kong wants to live and work near to the Central area or Central Business District (CBD) and prefers a social life that mixes private and public space (Lau et al. 2005, p.527). Hong Kong is one of the most appropriate places for the implementation of Multiple Intensive Land Use (MILU) regulations for projects that combine residential, commercial, and recreational, community facilities and transport facilities at high densities (ibid.) Large-scale private developments act as small cities where open space is essential for both the inhabitants of the development as well as the urban dwellers in the adjacent areas. Urban open space provided in this type of development is located on different podium levels and can provide successful places for all Hong Kong citizens and connect to the city's open space system. This public open space is publicly owned and privately constructed and operated. The aim of this paper is to find out the real condition of these open spaces as constructed and used. They represent a

symbiotic agreement of public and private partnership (PPP) under the regulations. The ultimate intension of the regulation is to ensure a better living environment for all citizens. On the other hand, the main temptation for the developers is to provide this open space to expand the commercial and financial benefits for their property. The outcome of these phenomena is where people are now living – the public space of Hong Kong as created by MILU (Table 1).

METHODOLOGY

Three cases were selected for this study considering a diverse range of examples. The three selected developments represent different time frames of construction ranging from the early stage of MILU implementation to contemporary times. The composition of residential, commercial and office space is different in each case. The podium developments are also different in proportion, scale, layout and environment. This diversity provides a broad scope for comparative study. The study has followed the Environmental Behavior Mapping (EBM) method for the detail survey (Table 2).

Observation technique: Several types of observation techniques were used for data collection at each public space, such as trace measure, behavior mapping, counting and tracking as well as interviews and questionnaires for measuring people's perceptions. For accurate data on the information and 'flow' of a place, these techniques were applied during different time periods over the course of the day, and also at different periods during the week.

Interviews and Questionnaire: Informal spontaneous conversations and formal structured interviews were used according to the purpose and need.

THE MILU IN THE URBAN CONTEXT OF HONG KONG

Although Hong Kong is one of the most densely populated cities in the world, the population density of most of the Multiple and Intensive Land-Use developments are much higher than the average density of Hong Kong. For comparison the three

Table 1: Comparative population density among the major world cities

Description	Birmingham	London	Munich	Singapore	Paris	Hong Kong
Land area (ha)	28,300	157,800	31,441	62,000	10.500	107,500
Population (mil)	1.2	7.1	1.2	4.1	2.1	6.7
Density (per/ha)	444	418	412	800	2084	2500

Source: Lau et al. (2005, p. 529), Coupland (1997), Churchman (1999).

Table 2: Ranges of diversities among the cases

Name of the Cases	Constriction Periods	Residential area: (GFA)	Commercial area: (GFA)	Office area: (GFA)	podium Site coverage
Mei Foo Sun Chuen Development (1st MILU in HK)	1969-1989	90%	7.5%	0.3%	Well proportioned
Metro City Development, Poo Lam Station, TKO	1997-2000	64.8%	25.8%	1.2%	100%
Union Squire, Kowloon Station development	One building is under Construction	42.8%	13.1%	17.1	100%

Source: Lau et al. 2005, p.538.

depicted cases are given below (Lau et al., 2005, p. 538):

Mei Foo Sun Chuen Development
3,250 persons /ha (1.3 times HK)

Metro City Development
4,500 persons /ha (1.8 times HK)

Union Square, Kowloon Station
2,020 persons/ha (0.8 times HK)

As discussed earlier, MILU is a compact built form where residents can get everything from the same complex and can move to all directions within a very short time through access to multimodal mass transportation. As a result, efficiency, convenience and cost effectiveness appear as the main reasons for MILU as a desired development model. It is necessary to ensure a good quality living environment for the residents, domestic helpers, and office workers within such dense developments, as well as for users of adjacent neighborhoods. The quality of open spaces provided by MILU to serve this huge population needs to be evaluated.

The selected cases are examples of MILU developments in Hong Kong. A consideration for selection was to examine different programmatic combinations of residential, commercial, recreational, community facilities and transportation facilities. In Hong Kong transportation facilities include many modes such as Mass Transit Rail (MTR), light-rail, double-decker, bus, light-bus, rentable taxi, private vehicle and their termini, stoppages or drop-off area. Multi-level pedestrian connectivity has been considered as one of the major goals of MILU.

DESCRIPTION OF THE CASES

Mei Foo Sun Chuen Development The project is located in the Shum Shui Po District of West Kowloon. It marked a milestone as the first private development under MILU in Hong Kong. It was considered the largest housing development in the world at that time. Mei Foo development was completed in eight phases, with 117 towers of 15 storey apartment buildings in four adjoining sites. According to Lau et al. (2005, p. 537), the project includes 46,245 residents or 13,068 households living in a comparatively small and compact urban form (Figure 1a, 1b).

Two-lane arterial roadways line either side of the entire development and a flyover flows as a freeway over the arterial passageway. Road level pedestrian paths, a public transport node and the two separated lanes of the arterial roads are under a flyover connection on both sides of the developments. A pedestrian mall connects the MTR exit ways as well as other transport nodes. In general, the development has a variety of retail shops, service shops, residential areas, gyms, restaurants, banks, schools, gardens, etc. in a multi-level podium from where everyone can get every necessary support for daily life. The complete development acts as a mini and compact city. The total development is a composition of multi level podiums and streets where open spaces are connected by bridges, steps, staircases and walkways. Pedestrian paths, zebra crossings, government offices, and a large, well designed park surround the development.

Metro City Development, Po Lam Station, Tseng Kwan O (TKO). Metro City Development is situated along Tseng Kwan O Bay. The entire development consists of 21 residential towers of 43 storeys for 6,778 households or 25,676 residents and was completed in three phases. The super high-rise towers of this development stand on top of a podium occupying 100% of the land. The height of the podium is 15 meters and is 4 storeys tall. The three phases of the development rise from three

Figure 1a:
Mei Foo Sun Chuen Development in the context: aerial view. Source: Google earth.

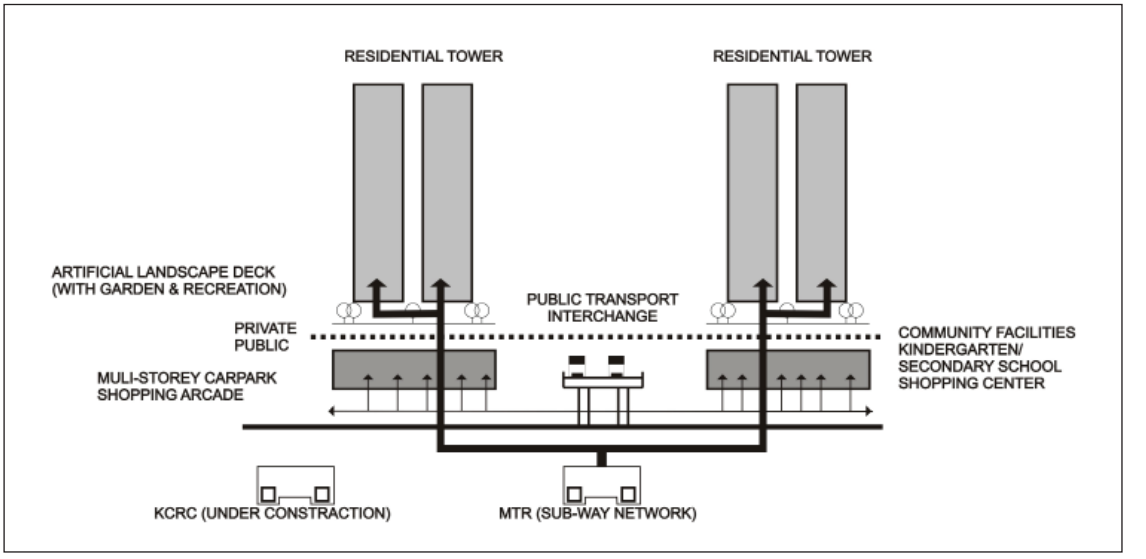


Figure 1b:
Mei Foo Sun Chuen Development Conceptual Section. Source: Lau et al., 2005, p.539, reconstructed by the author.

separate land parcels that are separated by roads from the street level and connected by covered walkways through the MTR through shopping levels, which are accessible 24 hours a day, but there is no connectivity to the podium top level (Figure 2a, 2b).

Arterial roads and pedestrian walkways lined with trees surround the entire periphery of this development. The MTR station passes through this development. Most of the shops are not open to the pedestrian walkways. The site is connected overall with footbridges on the shopping floor level. A swimming pool, tennis courts, small-scale children play areas, and good landscaping with greeneries are on the podium tops within a gated community space.

Union Square, Kowloon Station Development. This development is located on reclaimed land in West Kowloon. The new international airport is connected to the urban centers of Hong Kong by the MTR through this Kowloon Station transport interchange. The publicly owned company Mass Transit Railway Corporation (MTRC) is the owner of this station and they are also operating and managing it.

The total development is a group of 18 super towers of four joint venture investments that are centrally oriented to the comparatively large, park-like open space and MTR exit on a massive single podium. The development has accommodated 58,282 families in 30- to 60-storey high residential towers. There is a 102-storey commercial tower including 231,778 m^2 of office space and a 330 room hotel. Two more office towers of 64 stories each, a serviced apartment tower, and a 1,060-room hotel are also

Figure 2a:
Metro City Development in the context: aerial view.
Source: Google map.

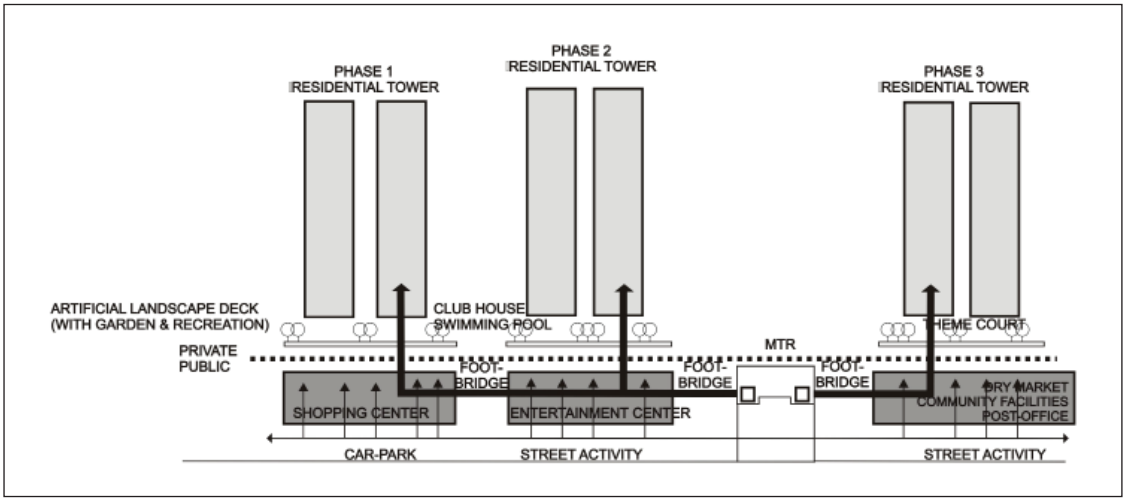


Figure 2b:
Metro City Development Conceptual section. Source: Lau et al., 2005, p.539, reconstructed by the author.

Table 3: Demographic information of the cases (in %).

Name of the case	Elderly, age 65 and above	Age 16-64	Age up to 15	Total
Mei Foo Sun Chuen Development	16.3	73.54	11.16	100%
Metro City Development	5.5	78.84	15.66	100%
Kowloon Station Development*	3.47	80.20	16.32	100%

*Source: online market survey from www.centamap.com. Note * based on Sorrento and The Waterfront.*

present in this development. The podium functions as a shopping complex with cinema halls, children's play area, and a multi-level car park for 6000 vehicles. Transport intersections and taxi stands are found at the bottom side. Within 10 minutes anyone can connect to the CBD from the MTR station (Figure 3a, 3b).

Union Square is an example of a development that combines residential and commercial spaces. A large children's play area adjacent to a badminton court, food court, MTR exit ways, and bus stops are on the podium top. The design of the podium top open space is landscaped with greeneries, sculptures, fountains, steps etc. Multi-level freeways, highways, car drop zones, vehicle entrance and exit ways, busy vehicle roads, and a wide pedestrian path with trees surround the street level of this development. No shop openings are found at the street level. This is an example of transport-oriented development (TOD) (Table 3) and (Figure 4).

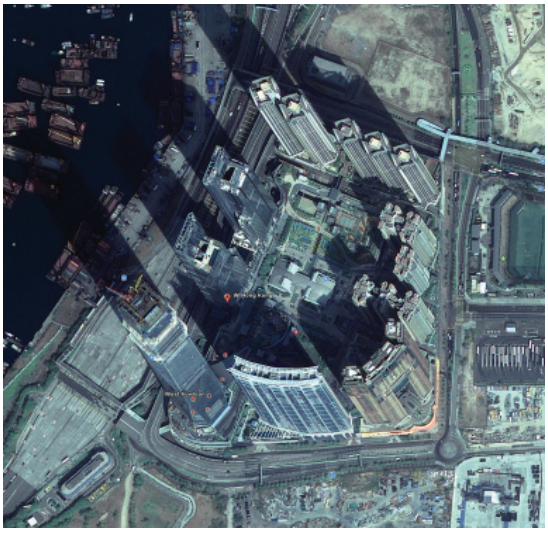


Figure 3a:
Union Square, Kowloon Station Development in the context: aerial view. Source: Google Map.

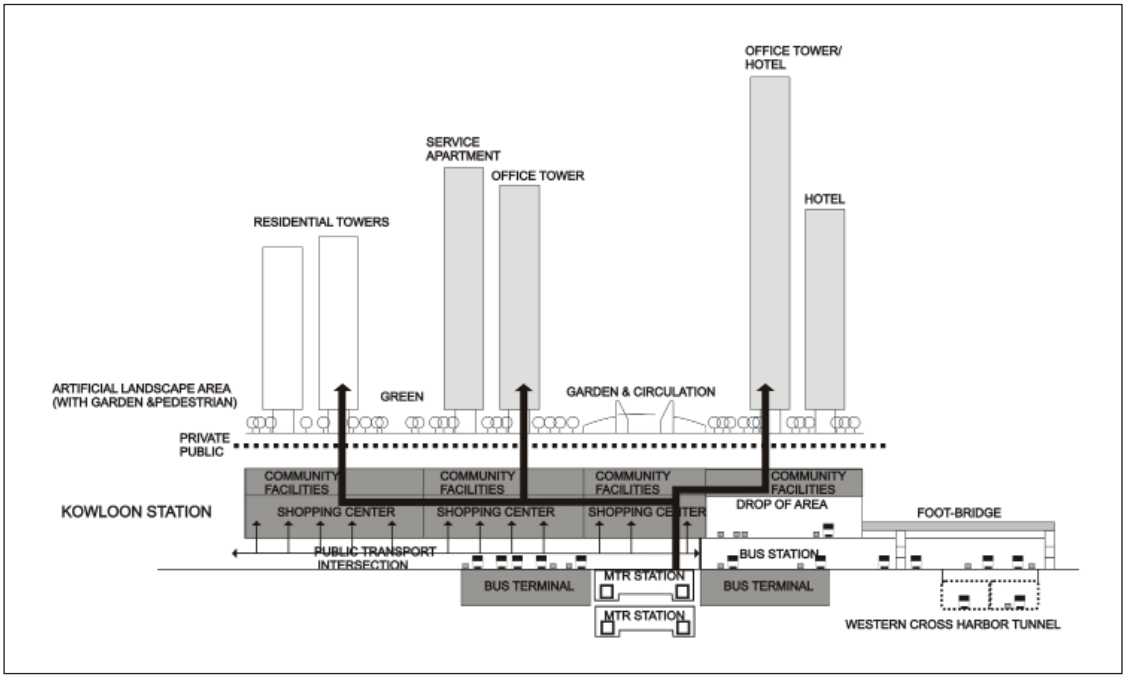
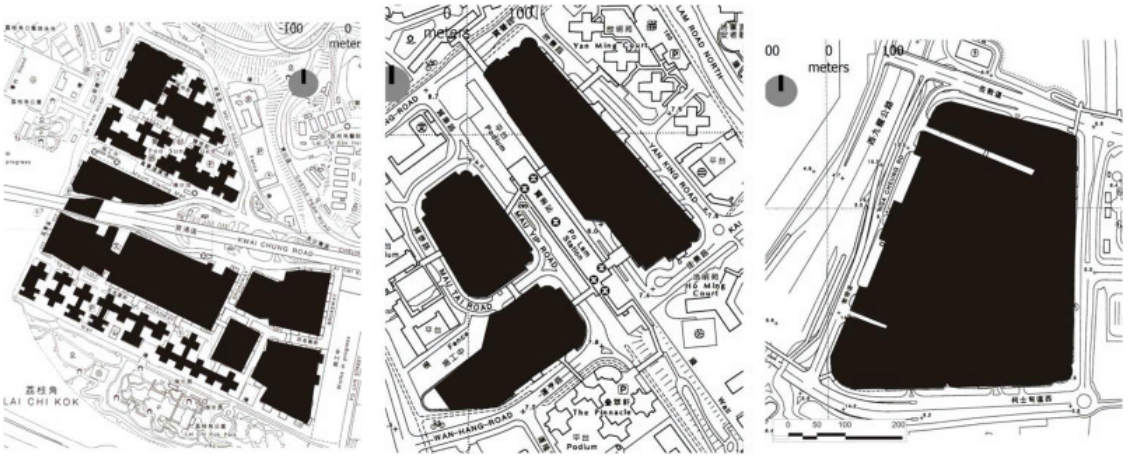


Figure 3b:
Union Square, Kowloon Station Development: Conceptual section. Source: Lau et al., 2005, p.540, reconstructed by the author.



Mei Foo Sun Chuen Development | Metro City Development | Kowloon station

Figure 4:
Comparative figure-ground diagrams showing the street-open space and building masses. Here the buildings are black figure and open spaces are white ground. Metro City Development and Kowloon Station developments are found to have podiums covering 100% of the land and almost 100% accordingly. A large amount of area is allocated with streets (about 35% of the development) multi-levels and open spaces in Mei Foo Sun Chuen. The developments were found to have various types of massing configurations. Source: Developed by author, 2009.

FINDINGS

Spatial Quality Scoring For Urban Open Space: The observation for scoring was conducted many times during the day, mostly from afternoon to sunset where peak hours (two hours before sunset) for evidence of people's interaction and activities (Table 4,5,6).

Table 4: Spatial Scoring of Mei Foo Sun Chuen Development.

Urban Open Spaces	Type of spatial quality						Total (for space)
	Permeability	Variety	Legibility	Vitality	Perfectness	Personalization	
A. Peripheral space	3	2	2	2	2	2	13
B. Beside commercial activities	3	3	3	3	2	3	17
C. Surrounded by buildings	3	3	2	3	2	3	16
D. Internal connections	3	3	2	3	2	3	16
E. Playground	2	1	1	1	1	1	7
F. Other spaces	3	3	2	3	2	3	16
Total (for qualities)	17	15	12	15	12	15	86

Table 5: Spatial Scoring of Metro City Development, Po Lam Station, and TKO.

Urban Open Spaces	Type of spatial quality						Total (for space)
	Permeability	Variety	Legibility	Vitality	Perfectness	Personalization	
A. Peripheral space	3	1	2	1	1	2	10
B. Beside commercial activities	2	1	2	1	1	1	8
C. Surrounded by buildings	2	3	2	3	3	3	16
D. Internal connections	1	1	1	1	1	1	6
E. Playground	2	2	2	2	2	2	12
F. Other spaces	1	2	1	2	2	3	11
Total (for qualities)	11	10	10	10	10	12	63

Table 6: Spatial Scoring of Union Square and Kowloon Station.

Urban Open Spaces	Type of spatial quality						Total (for space)
	Permeability	Variety	Legibility	Vitality	Perfectness	Personalization	
A. Peripheral space	1	1	1	1	1	1	6
B. Beside commercial activities	2	2	2	2	3	3	14
C. Surrounded by buildings	2	3	3	1	3	1	13
D. Internal connections	2	2	2	1	3	2	12
E. Playground	2	3	2	3	3	3	16
F. Other spaces	1	1	2	1	2	1	8
Total (for qualities)	10	12	12	9	15	11	65

Table 7: Comparative result of the cases

Case	Total Score	Brief Analysis
Mei Foo Sun Chuen Development	86	All spaces are well connected and accessible both vertically and horizontally from internally to externally.
Metro City Development	63	Lush but limited accessibility by management and more privatized design.
Kowloon Station Development	65	Less permeable in design for all people with elegant and park like space for certain level of people which resulted in emptiness.

Space consideration. In the Mei Foo Sun Chuen development, most of the open space was judged in good condition except for the play area. The playground is not properly allocated. In the Metro City Development only the space surrounded by the building did not register a good score. Although it has a lush environment, this is a space accessible only by the residents. The playground and small children's play area were found to run well as community spaces. Kowloon Station children's playground is a vibrant place, and also the open-air food-court is an overall vibrant place. The monumental space surrounded by tall buildings has been found to provide a good proportional dimension of open space (Table 7).

According to Sampson (1988), residential stability does seem to matter to the formation of neighborhood-based social networks, but urban context and connectivity is important for urban design. Social stability depends on demographic conditions (number and mix of population types), where urban context depends on connectivity internally as well as with surroundings, proximity and spatial use.

From these scoring criteria, urban design and environmental qualities can be understood. Design qualities have great impact on people's interactions. Residential stability in Mei Foo Development is better in both the neighborhood and urban context while Metro City is better only in the neighborhood context. In the Kowloon Station Development many small family and transient people make it a different type of social environment where interactions are unexpected. The scoring and comparisons were done by observation and counting. The observation's results differ according to time, seasons, context, etc. The survey occurred over three months starting from May in the hot summer time in Hong Kong.

DISCUSSION & RECOMMENDATION

> "Today, many public spaces seem to be intentionally designed to be looked at but not touched. They are neat, clean and empty- as if to say. "No people, no problem!" but when a public space is empty, vandalized, or used chiefly by undesirables, this is generally an indication that something is very wrong with its design, or its management, or both" (PPS 2002, p.20).

People's usability and the interactions are the ultimate measurable variables for the success of a place. If a place is accessible, safe, sociable, and comfortable, people will use the place.

Among the cases, Mei Foo Sun Chuen Development received the highest score in total grading for every type of open spaces except the playground. The design pattern of this development is different than the other two. Whether it is designed or not designed, the podium top space is created automatically because it is a rooftop of the top floor of the podium. So this open space is a by-product of the commercial allocation covering the whole site at the height of 15m or more. Normally with minimum modification this space is treated as a valuable addition for the residential development. So these open spaces generate high profit with low production cost. We should consider what the citizens of Hong Kong are gaining with this symbiotic relation between public and private. It has been seen that some elements necessary for successful design are missing and restrictions in management are found simultaneously in the two recent developments studied.

Inaccessibility to Open Space. Every open space should be a part of the whole urban open space network. Accessibility is the perceived permission to enter a place - like light in the dark is a condition to see. A good street network can ensure proper permeability everywhere within a site, as well as within the surroundings where it can ensure a well-integrated city mosaic. People can use all the negative, undesigned, leftover spaces in their own way. Design and management can achieve proper accessibility. In Hong Kong urban development

projects, accessibility from different directions can be achieved by horizontal (pedestrian streets, less vehicular street, etc) and vertical connecting elements (steps, foot bridge, staircase, etc). The concept of vertical place making is the same as on the horizontal level. The modern MTR exit way is not sufficient enough to ensure proper permeability among the surroundings. Also creating many options can ensure many choices.

For compact, convenient and efficient design in high density cities like Hong Kong, it has been observed that vertical and horizontal connectivity with visibility is a good generator of urban interaction. Multi-level pedestrian connectivity is a great achievement of Hong Kong urban development. Most people enjoy the multi-level connectivity and compact multi-level podiums up to 15 meters are common. It has been seen that recent MILU developments are losing multi level connectivity. Multi level connectivity can be achieved by steps, bridges, staircases, courts, etc. for creating a more vibrant urban environment. In this regard comparatively older developments such as Mei Foo Sun Chuen were designed with much more sensitivity than contemporary projects. These design elements are absent in the more recent cases, whose podiums are simply big solid boxes.

Streets are the main urban space and street level is the intimate level. According to the survey it has been found that all the functions on the street levels perform better than other levels. People flow spontaneously on the street level and experience and perceive urban space from eye-level. Streets are important for both circulation and activities. The street level becomes more active when it is ensured by comfortable pedestrian circulation, sitting, accessibility, and space for elderly, children's play areas, commercial activities, trees etc. All types of people, from elderly to children, normally like the street level. These types of design considerations are the key features in Mei Foo Sun Chuen Development and people are more evident gathering here than in the other two developments.

Inactive edges of the podium. The podium acts as an interface of vertical and horizontal relations. Peripheral space has to be designed to enrich and harmonize the podium with the adjacent site, otherwise the development would be isolated from the urban mosaic like the Kowloon Station podium. Streets with small pocket spaces, functions for playground or other use, shops opening to the street, and sitting areas can change the blank peripheral space to an active front porch. Interactivity between street level and podium level starts through commercial activities, which could make more successful urban places like Mei Foo Sun Chuen development.

The politics of 100% site coverage. According to the comparative study, scoring and grading, behavior mapping and counting analysis in the study it is found that 100% podium site-coverage failed to solve the overall successful urban open space environment. It is seemingly impossible to solve successful place design within 100% site coverage.

According to Lau, et al the MILU development is an outcome of financial pressures. MILU, and in a broad sense the city of Hong Kong, base everything on economic or financial viability, where the financial outcome is the main goal. Normally more commercial Gross Floor Area (GFA) means more profit. Developers try to fulfil all the GFA within the 15-meter high podium box. As a result, no space is left for streets, steps or anything else except the by-product podium-top open space. The extra GFA forms a solid podium box. It has been observed that MILU is missing its goal of creating a successful urban open space environment day by day (Lau et al., 2005), as Hong Kong city is composed with many more large mixed-use MILU developments.

Hong Kong Planning Slandered and Guidelines (HKPSG). HKPSG has defined the open space and also the qualities (location, accessibility, use pattern, etc) of open space, but it has not defined a quality assessment system. Qualitative matters are also difficult to measure.

Management

> "Designers failed to realize that the manmade environment is a political system in its own right: try walking through a wall, and you will notice that it is the physical fabric, as well as the way it is managed, that set constraints that what you can and can't do. Multiplied to the scale of a building or – crucially – a city, this is indeed a political matter." (Bentley et al., 1987, p.9)

Open space management has a vital role to make a place successful. From the design to management, the intention, benefit, reason, role, scope of works, etc of the different actors (owner, developer, designer,

public, etc) should be defined clearly on the basis of public benefit. Security ensures safety to stay in a place but strict security and too much observation also forces the space to lose the spontaneous movement of the people and the casual charm of a place. These privately managed open spaces impose restriction on public accessibility that hampers public gatherings. Hong Kong is over all a safe place where too much security is not necessary. If the owner of the podium top open space imposes restrictions through design, like Kowloon Station and Metro City it is better to declare it as a private or residential neighborhood open space.

CONCLUDING REMARKS

In designing and managing access to open space it is important to make a distinction between public and private. Privately-managed public open space in MILU developments have resulted in decreased quality of open space. These open spaces are no longer acting as accessible public spaces. Though the public good should be the main result of PPP as a process of symbiosis, but the ultimate benefit is mainly for the financial stakeholder. The design depends on the good intention of developers. Designers reflect this intension in their design. So it can be said that in many cases, MILU urban open spaces are privately constructed, managed, designed, publicly owned but inaccessible public space.

Urban open space refuels all citizens. Hong Kong is a unique example of high-density living with extreme scarcity of land where currently more and better-designed urban open space is necessary for its citizens. The MILU form emerges in Hong Kong from its social, cultural and economic context. The urban open space on the podium level of high-rise, high-density, mixed-use, mini-city MILU development is crucial, but it needs to be connected to an urban open space system that includes street level connectivity and activity. Public open space should be for the public good. Good intention and awareness are needed to develop high quality open spaces rather than only for profit making. We have to maximize the usability of costly urban open space, and make these spaces more democratic and social.

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