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Rethinking Public Housing Policy

Building Sustainable Land Reserve

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About Our Hong Kong Foundation

Our Hong Kong Foundation (OHKF) is a Hong Kong non-profit organisation registered in September 2014, with a mission to promote the long-term and overall interests of Hong Kong through public policy research, analysis and recommendation. Pooling together local, mainland and international talent, the Foundation studies Hong Kong's development needs, offering multidisciplinary public policy recommendations and solutions to foster social cohesion, economic prosperity and sustainable development.

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PART ONE:
The Price of Our Public Housing Programme

Executive Summary

1. The Contemporary Picture

In Hong Kong today, household dwellings are roughly evenly divided between the private and public sector. At the same time, Hong Kong also has a massive public sector housing programmes on a scale that is unprecedented in free-market economies.

Among the public housing sector, the government provides a substantial number of "subsidised sales flats" for eligible households to purchase. In essence, the prevailing mechanism of subsidised sales flats is as follows:

(i) Assume a subsidised sales unit has an estimated market value of $1 million (HK$, same hereafter unless otherwise specified). It is first sold at a "discount" of, say, 30% against the market value (i.e. $700,000) to an eligible household satisfying the relevant means test;

(ii) The government also acts as the guarantor for the said property, allowing the household to obtain a mortgage up to 95% of the discounted price (i.e. $665,000);

(iii) The unpaid 30% of the house's market value (i.e. $300,000), is commonly termed the "unpaid (land) premium", and is payable to the government when the unit is sold in the open market in the future upon satisfying other requirements; and

(iv) The value of this unpaid premium is determined with reference to the market value not at the date of occupation of unit, but at the time when repayment is to be made. For example, if home prices double during this period (i.e. from $1 million to $2 million), the amount payable by the household before the unit can participate in the open market will also double (i.e. from $300,000 to $600,000).

This has made the term "homeownership" spurious in the public housing sector as very few "owners" of the "Homeownership Scheme" (HOS) (22%) and "Tenant Purchase Scheme" (TPS) (1%) can successfully settle the unpaid land premium, rendering the market for such units effectively non-existent and non-functional. This has grave socioeconomic consequences far beyond housing issues.

Additionally, the first generation of HOS units were built in the 1980s. Under the current mechanism, by the time redevelopment of these units is called for, the amount of unpaid premium will probably reach an astronomical level. Given that after settlement of unpaid premium to the government, the owners would be highly unlikely to be able to afford another unit in the market, they would therefore be reluctant to participate in private redevelopment. The city will then be left with numerous run-down HOS and TPS estates with shared ownership between the quasi homeowners and the government.

Furthermore, the present layout of HOS and TPS units is unfair. Unlike private owners who pays 100% of the maintenance fee and can subsequently enjoy 100% of the appreciation in value associated with the units, the owners of HOS and TPS units who are paying the full amount of maintenance fee will only be able to enjoy the capital appreciation minus the unpaid land premium. In the previous example, the owner can only enjoy 70% of any appreciation in captial values.

In terms of public finance, the public housing system is unsustainable. The average rent per public rental housing (PRH) unit is about $1,700 per month. This figure falls significantly short of the market value, which was put at $11,000 per month for a 360-sf private housing unit. On top of this, the government is subsidising on average $158 per flat per month on maintenance and other operational services.

Assuming a discount rate of 4% and assuming that each PRH unit has an estimated useful life of 50 years, the government is actually, in present value terms, subsidising around $2.4 million for each unit. Likewise, to meet the 10-year public housing supply target, the government has set aside its investment returns in 2015 and 2016 into the Housing Reserve which now stands at $74 billion. This is a tremendous fiscal burden.

The current public housing policy has produced the gulf between the 'haves' and 'have-nots', which has been widening since the mid-2000s. Disturbingly, this is connected to an array of malign issues including (a) an unequal and inequitable allocation of public housing; (b) the increase in rate of divorce and family breakdown; (c) low intergenerational mobility and poverty; and (d) social injustices.

2. The Inequality and Inequity of Housing Units

The small size of PRH units relative to other types of housing is a historical product of Hong Kong's resettlement housing programme introduced in the 1950s. And given the large difference in the median size of the housing units between the private and public housing sectors, an efficient or optimal housing arrangement would require that there be very different income levels between the occupants of these sectors.

In reality, however, the PRH programme fails to achieve equity in housing consumption. In 1981, the incomes of the wealthy half of the public tenants were equal to the wealthy half of the private tenants. By 2011, there

was some improvement, but the problem of overlap in the distribution of public and private tenants remained substantial.

Distribution of working-aged households (household heads aged 20 – 65) by housing type and by income quartiles

(%)	Public tenants		Private tenants		Public homeowners		Private homeowners	
	1981	2011	1981	2011	1981	2011	1981	2011
Bottom quartile	23%	48%	31%	21%	4%	17%	20%	13%
2nd quartile	28%	32%	26%	21%	13%	30%	20%	20%
3nd quartile	29%	17%	22%	24%	36%	35%	24%	27%
Top quartile	20%	3%	21%	35%	47%	17%	36%	39%
Bottom 2 quartiles	51%	80%	57%	42%	17%	47%	40%	33%
Top 2 quartiles	49%	20%	43%	58%	83%	53%	60%	67%

Source: Census and Statistics Department.

3. Divorce and Family Breakdown

The crude divorce rate in Hong Kong was 3.1 per 1,000 people in 2013, nearly three times higher than that in 1991. This places Hong Kong in the top ten in the world in divorce. We believe that implicit in the PRH allocation criteria is an in-built incentive that provides encouragement for unhappy couples or low-income households to initiate divorce and remarry across the border. A low-income divorced parent could apply for readmission to the PRH programme, often with preferential consideration (compared with being a singleton), if he or she had dependent children or remarried, since the current PRH allocation criteria favour married couples but do not discriminate between first marriages and remarriages.

This perverse incentive further tilts the balance in favour of divorce among low-income families and generates a penalty on children who inevitably suffer from family breakdown. The growing number of divorced women living in PRH units implies a rising number of children growing up in broken families in PRH estates. This is not conducive to upward social mobility but sets the stage for the production of a new underclass that perpetuates intergenerational inequality and low social mobility.

4. Intergenerational Mobility and Poverty

Divorced men and women are heavily concentrated in PRH. It follows that the PRH estates have become a conglomeration of single parent households that will have an adversarial effect on a sizeable number of children. Their development is stunted, causing both income inequality and poverty.

Hong Kong's public housing estates are transforming into areas of concentrated poverty with more children living with a single parent. These children reside in poor neighbourhoods which might lack good role models

to learn from and to emulate. This might demotivate them, perpetuate dynamic poverty and affect their future likelihood of moving up the social ladder.

This Report believes that extending homeownership is essential to family investment in both human and social capital. Indeed, many studies have shown families who are homeowners are more likely to invest in childhood development and neighbourhood stability.

5. Public Housing Policy and Social Justice

The current public housing policy is unjust because the society loses the value inherent in the public sector housing unit, the physical premises itself and the land that it occupies. The evaporation of resources benefits no one.

First, the taxpayer hardly ever collects the unpaid land premium because very few households ever pay it. Second, the subsidy provided by taxpayers to the household is the difference between the market value of the unit and the price the household pays for its use as shelter. Over time, the amount of the subsidy will increase as land values increase. It is unjust that the taxpayer pays for the asset value of the unit, but the household receives only the shelter value of the unit.

6. The Subsidised Homeownership Scheme (SHS)

A faster, less expensive and non-wasteful solution to address these malign issues will be the implementation of the SHS, granting eligible families the option to either purchase, rent or the choice to "rent first, purchase later" new public housing units in the future. Also, under the SHS, the unpaid land premium will be considered as a "loan", with its value fixed at the date of occupation, instead of effectively an "equity" under the existing system that fluctuates according to changes in market value of the unit.

This would render settlement of the unpaid land premium much easier, and a market for these units will quickly emerge. There would be an incentive for trading to take place and the re-matching of tenants' needs and housing units would come into effect and the problem of inequity could be rectified.

Additionally, bona fide homeownership in public housing units would incentivise families to stay together and discourage family breakdown. This can therefore act as a barrier against the costs of a broken family among the children of the divorcees and prevent the build-up of bad neighbourhoods that fosters poverty and lowers social mobility.

Since social mobility is closely associated with homeownership, the SHS would relieve Hong Kong of the bourgeoning problems of income

inequality and poverty. Not only can families stay together and children are benefited, the elderly population can also tap into the property asset as a form of retirement protection. With a home, a reverse mortgage can allow the elderly population to use the home equity for their retirement.

Furthermore, if we allow a market to exist, then less well-off households gain a share of the value of the land that would otherwise be lost, and in so doing they put the land resources to better use and raise the incomes of everyone. It is a win-win scenario. The outcome will be socially just. The SHS would allow for a more just society where resources are yielded for all, allowing people to have greater freedom of choice, and build a better community.

7. Concerns

A major concern about the privatisation of PRH and HOS units is that it may lead to a flood of new housing units into the market and trigger property prices to go down. However, the experience of the privatisation of social housing in the UK and our empirical findings suggest that granting more households the full property rights to their housing units does not necessarily lead to a drop in home prices.

Another major reservation to the SHS is the perception of unfairness, that public tenants will receive a 'double benefit' of a low rent and a discounted price from the government. However, under the SHS, the subsidised price will be repaid in full in the future. In effect, the government will merely be providing the financing which may be inaccessible for lower-income families, and the SHS would recover the full market price of the unit as the buyers pay the downpayment and service the mortgage loan, and upon their settling of unpaid premium, which would no longer be fluctuating with market value under the SHS.

8. Conclusion

Due to globalisation and technological advancement, wealth and income inequality is a worldwide phenomenon and is not constrained to Hong Kong alone. Governments from all over the world have sought to tackle this problem with little headway. Fortunately, the future of Hong Kong is more optimistic than others. Due to the fact that nearly half of the population of Hong Kong resides in public housing, this provides a golden opportunity to mitigate the unequal distribution of capital by providing homeownership and therefore an asset, possibly the most valuable form of capital, for the relatively lower-class citizens living in public housing.

Therefore, the Report is optimistic that the SHS will bring about positive externalities for the society of Hong Kong as a whole. An increased homeownership rate would narrow the disparity in asset distribution and hence the gap between the "haves" and "have-nots". The pursuit of a more equal and unified Hong Kong could be acheived.

1. Introduction

The shortage of land and housing is a perennial issue among the people of Hong Kong. Hence, as its first area of focus, Our Hong Kong Foundation (OHKF) published a research Report titled "Maximising Land Use to Boost Development; Optimising Housing Resources to Benefit All" in November 2015.

The said Report proposed to extend homeownership to the underprivileged by advocating for the implementation of the "Subsidised Homeownership Scheme" (SHS). The Report saw the SHS as an effective and viable policy option that could not only satisfy the demand for property ownership, but also to release valuable land resources. This in turn can steer the community of Hong Kong towards a direction of social harmony and prosperity.

In this second edition, the socioeconomic ramifications of the current housing policy are laid out and analysed. The objective of this research is to provide a clear and concise picture of how the public housing programme is detrimentally affecting the livelihood of the people residing within it. This further sheds light on the immense cost of our current housing policy on the society of Hong Kong and offers recommendations on a rethinking of current policies.

The Report is organised into seven main chapters: First, Background: The Contemporary Picture sets the scene by providing background information to the housing situation today and to introduce the urgency for the need to implement the SHS.

The following four chapters: The Inequality and Inequity of Housing Units; Divorce and Family Breakdown; Intergenerational Immobility and Poverty; and Public Housing Policy and Social Justice serve as an in-depth analysis on the price of our misguided housing policies with each chapter focusing on an overarching theme.

The subsequent benefits of the SHS are then discussed in The Subsidised Homeownership Scheme.

Next, Concerns addresses the salient issues of property prices and the notion of unfairness that critiques of the SHS have suggested.

Lastly, Conclusion summarises the key points and highlights the imperative of the SHS as a major policy alternative to current policies.

2.Background: The Contemporary Picture

2.1 Private and Public Household Dwellings

In Hong Kong today, household dwellings are roughly evenly divided between the private and public sector. **Table 1** shows that by the end of 2015, private sector owners and renters constitute about 53% of total domestic households, while 47% of households reside in various forms of government subsidised housing. In particular, 16% live in subsidised sales units in which the "Home Ownership Scheme" (HOS) and the "Tenant Purchase Scheme" (TPS) makes up the majority, and 31% live in Public Rental Housing (PRH) Units.

Table 1. Domestic households by type of housing, 2015

Type of housing	Number of domestic households	Share of domestic households
Public Rental Housing	769,100	31.0%
Subsidised Sales Flats*	384,500	15.5%
Private Permanent Housing	1,318,200	53.1%
Temporary Housing	10,900	0.4%
Total	2,482,700	100%

Note : (*) Subsidised sales flats that can be traded in open market are excluded.
Source: Census and Statistics Department.

Hong Kong has a large public housing sector even by international standards. **Table 2** shows that among other advanced economies, the percentages of domestic households in the population living in public sector housing pale in comparison with Hong Kong.

Table 2. Percentage of domestic households living in public rental housing in selected economies

Economies	Public Rental Housing
Hong Kong	31.0% (2015)
Japan	5.4% (2013)
Macau	3.5% (2011)
Singapore	6.4% (2015)
South Korea	5.0% (2012)
Sweden	20% (2013)
United Kingdom	17.3% (2015)
United States of Amercia	4.0% (2012)

Note : Latest available data are presented. The figures in parentheses represent the year to which the data pertain.

Sources: Official Statistics of Japan, Statistics and Census Service Macau, Department of Statistics Singapore, Kim (2014), Statistics Sweden, GOV.UK, and National Low Income Housing Coalition.

2.2 The Problem with Property Ownership

As **Table 1 and 2** show, Hong Kong has a massive public sector housing programme on a scale that is unprecedented in free-market economies. It is undeniable that the government of Hong Kong is the single largest landlord, developer, and operator of housing within the territory. While Hong Kong is often compared with Singapore in terms of housing policy, the two housing programmes are critically different because of their different policies on homeownership and tenancy rights.

Singapore has allowed for the establishment of an active market in public sector housing for rental, as well as for sales and purchases. The units are rented and sold to eligible households at subsidised prices. After five years from the date of effective purchase, owned units can be sold on the open market to eligible permanent residents of Singapore. In addition, the owner of the units can even sublet the unit, in whole or in part, on the open market. As a consequence, there has been no impediment to the emergence of a market for public sector housing both for renters and owners.

In Hong Kong however, restrictions have rendered the market for such units effectively non-existent and non-functional, with grave socioeconomic consequences far beyond housing issues. This is because unlike Singapore, the so-called "subsidised" sales flats in Hong Kong is not, in fact, subsidised. The prevailing mechanism of subsidised sales flats is as follows:

(i) Assume a subsidised sales unit has an estimated market value of $1 million (HK$, same hereafter unless otherwise specified). It is first sold at a "discount" of, say, 30% against the market value (i.e. $700,000) to an eligible household satisfying the relevant means test;

(ii) The government also acts as the guarantor for the said property, allowing the household to obtain a mortgage up to 95% of the discounted price (i.e. $665,000);

(iii) The unpaid 30% of the house's market value (i.e. $300,000), is commonly termed the "unpaid (land) premium", and is payable to the government when the unit is sold in the open market in the future upon satisfying other requirements; and

(iv) The value of this unpaid premium is determined with reference to the market value not at the date of occupation of unit, but at the time when repayment is to be made. For example, if home prices double

during this period (i.e. from $1 million to $2 million), the amount payable by the household before the unit can participate in the open market will also double (i.e. from $300,000 to $600,000).

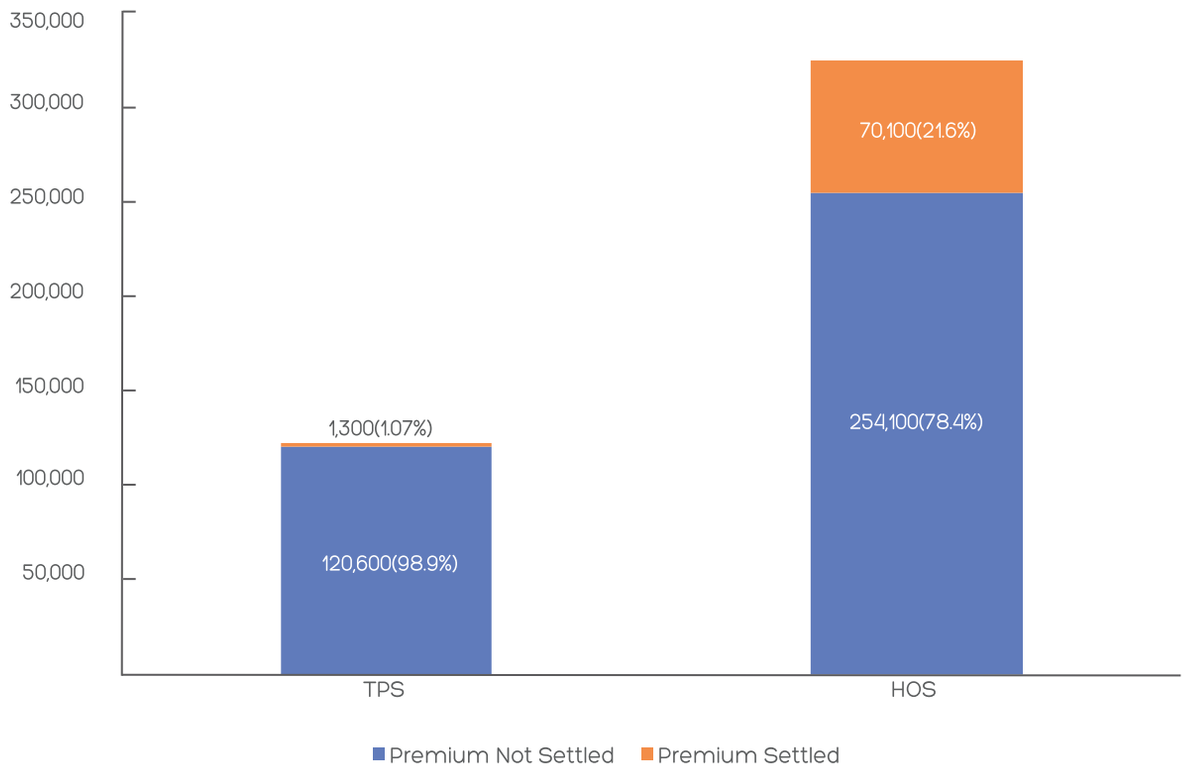
In the example above, the word 'discount' should not be interpreted at the face value. This is because unlike, for example, discounts in brick-and-mortar businesses where a discount on the price of a product does not have to be repaid in the future, the unpaid land premium has to be repaid in full upon resales of the unit in the open market. Not only that, instead of being fixed at the date of occupation, the said repayment is made according to the market value as the example shown above. In other words, this amount due to the government is not just a "loan", but effectively an "equity" in the property. The only subsidy under the current mechanism, if any, is the role the government plays in terms of financing, where it currently acts as a guarantor of the said property and the household in question may obtain a mortgage up to 95% of the property's value.

The direct consequence of the above mechanism is that it has rendered the term 'homeownership' in the public housing programme in Hong Kong spurious. Historically, the land value of the land premium has grown at a faster rate than inflation or household income, making it very difficult for families living in subsidised sales flats to save up sufficient capital to settle the unpaid premium.

Take HOS as an example. As of 2012, only 22% of some 320,000 HOS units have their premiums settled, making their owners bona fide homeowners. The remaining 78% are homeowners without the same property rights commonly prescribed to private ownership. This is because the requirement to repay the land premium poses a major hindrance to bona fide ownership of public housing units and restricts them from trading the asset in the open market without first settling the hefty premium. Hence, the majority of purchasers of HOS units are in fact quasi homeowners.

The situation under the TPS is even direr. Only 1% of some 120,000 units have their premiums settled (See **Figure 1**). This is possibly due to the generally steeper discounts offered to TPS households, and consequentially, leads to an even higher unpaid premium that is even more difficult to pay down.

Figure 1. Premium settled in HOS and TPS units



Note : All data pertain to 2012.
Sources: Legislative Council, and Census and Statistics Department.

To provide another illustrative example, **Table 3** displays the average sales price of two of the earliest HOS units: Sui Wo Court Phase I in Sha Tin, completed in 1980, and Chun Man Court in Ho Man Tin, completed in 1981. The original sales price had a 30%-discount over the estimated market value. Therefore, the true market price per square feet (psf) for these two developments would have been about $320 and $317 at the time of their completion. In 2011, the open market prices of transacted units in these two developments were $4,066 and $5,685 psf. This represents an appreciation of 12.7 times and 17.9 times over a 30-year period. It outpaced by a wide margin the increase in consumer prices of four times over the same period. Under the current mechansim, these HOS owners would have been highly unlikely to be able to sell the property on the open market because, after returning the land premium to the government, he or she may not be able to afford the purchase of another unit on the market.

Table 3. Original sales price and 2011 market price for HOS units (psf)

	Year	Sui Wo Court Phase 1, Sha Tin	Chun Man Court, HO Man Tin
Average original sales price	1980/81	$224	$222
After adding back a 30% discount to the original sales price	1980/81	$320	$317
Open market transaction price	2011	$4,066	$5,685
Value Appreciation		12.7 times	17.9 times
Value appreciation p.a. in percent		8.85%	10.10%

Source: Wong (2015a).

However, this was not actually the case in the early stages of the public housing programme. The market-adjusted land premium did not exist and early occupiers of HOS units in the two said HOS estates, were in essence, bona fide homeowners. It was only after 1982 that HOS units were subjected to restrictions stipulating that owners must first pay the land premium before the unit could be sold in the open market.

Linked to the fluctuations of property prices in the open market, owners of HOS units are not free to sell the units they ostensibly "own" unless they have repaid the land premium to the government. For the vast majority of HOS occupants, this is simply not affordable. The household in question becomes effectively a permanent occupant of the unit. Having paid for the development costs of the structure, the occupant household can remain in the unit for "free" but, because it cannot afford to pay the land premium, it is restricted to these premises. Even when the unit is no longer suitable due to the changing aspirations of household members over their life cycle, there is no choice but to stay there.

In fact, to the knowledge of the research team, no other developed economies with sales of public housing have an alienation restriction that requires owners to pay a market-adjusted land premium before resales on the open market (see **Table 4**).

Table 4. Resale restrictions of public housing flats in selected economies

Economies	Resale restrictions
Australia	Minimum occupation period
Macau	Inalienable period of occupation
Singapore	Minimum Occupation Period, Ethnic Integration Policy, Singapore Permanent Resident Quota*
United Kingdom	Repayment of discounts[1]

Note : (*) The Ethnic Integration Policy and Singapore Permanent Resident Quota are a set of proportion for the block / neighbourhood to ensure a balanced mix of ethnic groups and integration into the Singapore community.
Source: Government of South Australia, Housing Bureau (Macau), Housing and Development Board (Singapore), and GOV.UK.

There are two other problems associated with the public housing programme in Hong Kong especially regarding to the redevelopment of older HOS and TPS units. The situation is immensely convoluted with the current public housing mechanism. By the time redevelopment is called for, the amount of unsettled premium will probably reach an astronomical level. These owners would have very little incentive to sell their units for redevelopment since after settling the premium with the government, they would be highly unlike to be able to afford another unit in the private market. The city will then be left with numerous run-down HOS and TPS estates with shared ownership between the quasi homeowners and the government.

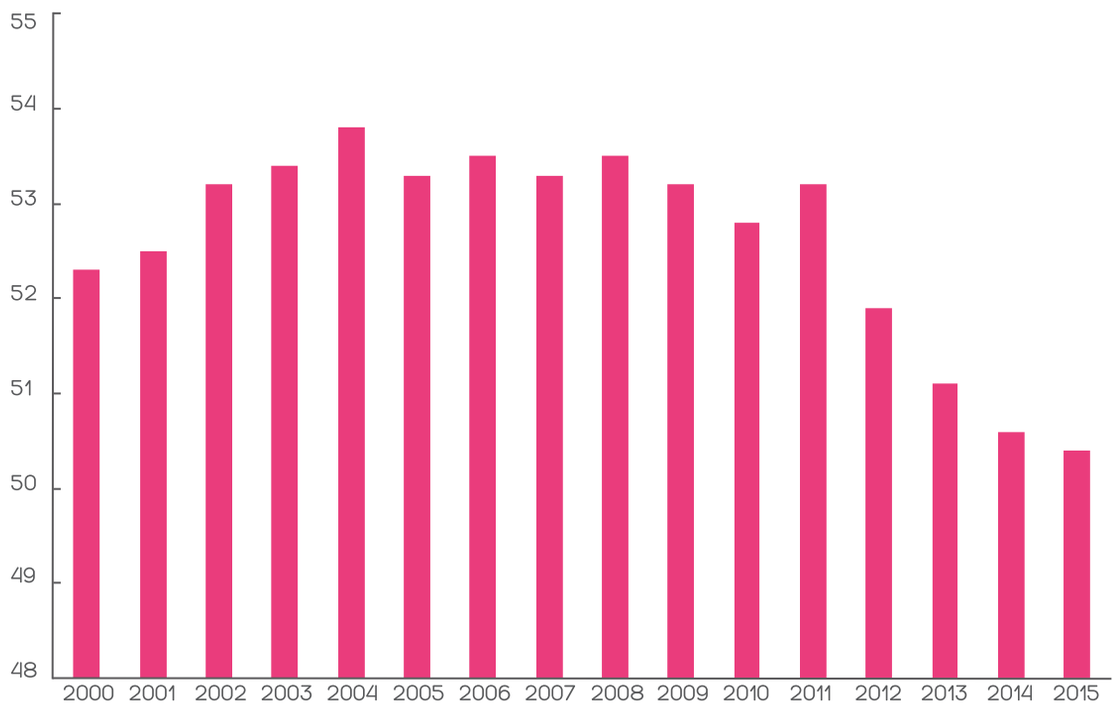
1. Amount of discount to be repaid will be a percentage of the resale value of the property. If the household sells within the first year of purchase, the whole discount will have to be repaid. 80% must be repaid if the household sells in the second year, 60% in the third year, 40% in the fourth year and 20% in the fifth year. After five years, the household can sell without repaying any discount.

Secondly, the present layout of HOS and TPS units is unfair. Unlike private owners who pay 100% of the maintenance fee and can subsequently enjoy 100% of the appreciation in value associated with the units, the owners of HOS and TPS units who are paying the full amount of maintenance fee will only be able to enjoy the capital appreciation minus the unpaid land premium. Thus, in the case illustrated above, owners of HOS units will only be able to enjoy 70% of the capital appreciation associated with any improvements of the properties.

2.3 The 'Haves' and the 'Have-nots'

The issue of bona fide vs quasi homeownership is not the only concern with property ownership in Hong Kong.

Figure 2. Trend in homeownership rate (%), 2000-2015



Source: Census and Statistics Department.

As **Figure 2** shows, similar to the divide between the public and private sector of household dwellings, the distribution of households by tenure of accommodation, i.e. whether they are owners or renters of the properties, is also approximately equal. While homeownership in Hong Kong constitutes a slight majority in the population, the trend of homeownership rate has been decreasing since the mid-2000s from its peak in 2004. This is most probably due to declining affordability of homeownership because of high property prices.

This has produced the gulf between the 'haves' and 'have-nots', as well as the 'quasi-homeowners' and 'bona fide homeowners', which has been widening since the mid-2000s. Disturbingly, this is connected to an array of malign issues, including and not limited to (a) an unequal and inequitable allocation of public housing; (b) the increase in rate of divorce and family breakdown; (c) low intergenerational mobility and poverty; and (d) social injustices. The Report will explore in detail each of these aspects in

the ensuing chapters.

2.4 Unsustainability

Furthermore, the public housing system is unsustainable. The average rent per PRH unit is about $1,700 per month. This figure falls significantly short of the market value, which was put at $14,000 per month for an average 500-sf private housing unit. On top of this, the government is subsidising on average $158 per flat per month on maintenance and other operational services.

Assuming a discount rate of 4% and assuming that each PRH unit has an estimated useful life of 50 years, the government is actually, in present value terms, subsidising around $3.2 million for each unit.

Likewise, to meet the 10-year public housing supply target, the government has set aside its investment returns in 2015 and 2016 into the Housing Reserve which now stands at $74 billion. This is a tremendous fiscal burden the government has to carry on its shoulders, and reveals that the current public housing regime imposes financial pressures for the government to deliver year after year.

2.5 Need for Change

Housing is not merely shelter. For most households, homeownership is the most important form of their savings and therefore a means of wealth accumulation and upward social mobility. This is especially true in Hong Kong, where land values are high and rising. For some households it can be a form of ready financing if the property can be re-mortgaged, especially for those who otherwise would have poor access to banks or financial help form relatives and friends. It could play a pivotal role as a source of social security for old age. Its effects span more than a single generation, because it can also be used as a bequest.

At the aggregate macroeconomic level, homeownership is an important form of fixed investment and directly affects consumption, savings, and aggregate output over the business cycle. It is also affected by these cycles. Most important of all, land and housing are valuable scarce resources, and whether they are efficiently deployed has important consequences for the growth and prosperity of a city and nation.

Nonetheless, amid the backdrop of such a lugubrious picture, the vital question to consider is: Given the current predicament, how does a housing strategy fit into the socioeconomic and political wellbeing of Hong Kong in the future?

To provide an answer to the question posed, the Report provides a unique perspective through which the need for the implementation of the SHS can be viewed. Furthermore, it is not simply a matter of satisfying demand for homeownership, but rather for the betterment of the economy and the society as a whole in light of the high costs and inefficiency of the existing system. The Report hence provides an additional layer of

justification to consider the SHS as an effective panacea for Hong Kong's social, political, and economic ills.

It would be sensible to appreciate that by reforming the public housing programme along the lines prescribed by the SHS, a city of homeowners will produce positive externalities for our society. Furthermore, OHKF believes that in the long run, the privatisation of public housing covering not only future supply of public housing, but also existing public housing units should be explored. This would maximise the benefits to our society.

(i) Rent-and-buy units are available for new public housing units with the option of "rent first and buy later". The government will act as the guarantor of the property so that the buyer could obtain a 90% to 95% mortgage to help low-income families to buy units sold under the SHS.

(ii) The unpaid premium will be considered effectively a "loan" from the government to the purchaser and the amount concerned will be fixed at the date of occupation. While the exact amount could be subject to a few possible mechanisms of determination depending on public discussion, unpaid premium under the SHS will no longer be linked to the fluctuating market value, rendering the settlement of the amount easier.

In brief the mechanism of the SHS for new public housing tenants is as follow:[2]

Having provided an overview of the public housing setting in Hong Kong, the following four chapters will focus on the consequences arising from the public housing programme. Each of the chapters will analyse an overarching theme: Inequity, Divorce, Poverty, and Injustice.

2 For a more detailed description of the SHS, please refer to Part One of our first Report on Land and Housing, "Maximising Land Use to Boost Development; Optimising Housing Resources to Benefit All".

3. The Inequality and Inequity of Housing Units

3.1 Equal Yet Unequal

A well-known result from the economics of housing demand is that households with higher incomes prefer or demand bigger homes (cf. Richardson, 2013; Becker, 2013; Arnott & McMillen, 2008), and the size of accommodation is expected to be positively correlated with income.

Figures for the median size of the various housing units are tabulated in **Table 5**. There is evidence that the size of PRH units have grown over time relative to private housing units, but the average size was still about 60% of private housing for the period from 1980 to 2015.

Table 5. Median size of existing stock of housing units by type, (in square meters)

Year	Existing Stock of PRH Units	Existing Stock of HOS Units	Existing Stock of private housing
1980	23.1	51.3	53.9
1985	24.5	51.8	46.1
1990	28.3	52.4	47.1
1995	29.6	53.7	48.0
2000	31.9	54.0	49.5
2005	34.0	56.0	50.4
2010	33.8	55.9	51.1
2015	33.5	56.0	51.5*

Note : (*) Data pertain to 2014.
Sources: Our Hong Kong Foundation, Housing Authority, and Rating and Valuation Department.

The small size of PRH units relative to other types of housing is a historical product of Hong Kong's resettlement housing programme introduced in the 1950s.[3] It initially targeted a limited number of squatters but quickly mushroomed into a massive PRH programme. Like all public sector programmes, it provided a uniform standardised product administered by one set of rules and regulations with limited flexibility, an approach intended to avoid criticisms of unfairness and corruption.

3 See **Appendix I** for a more detailed narrative on the history of the resettlement housing programme.

One important standard was the size of the accommodation. The initial standard was set with reference to the cramped conditions of the old private tenements. Nonetheless, once the standard was laid down, it became formally institutionalised and efforts to change the standard became a politically divisive issue, subject to criticisms and reservations across the board. Numerous protracted bureaucratic meetings were required to achieve consensus, thus leading to prolonged indecision.

As a result, the standard of accommodation in the PRH sector changed very slowly and lagged behind developments in the private market. This gap between the private and public sectors has not narrowed significantly since.

The government's public housing policy is therefore the direct reason why an unreasonably large proportion of housing units in Hong Kong are too small. Any public housing programme is unavoidably committed to building uniform-sized units for all. Yet when these units are small, then a considerable number of them will be occupied by better-off households who aspire to live in better and larger units, and the public sector provision has fallen short of this aspirations for the past 60 years.

3.2 The Inequity of Our Housing Policy

Given the large difference in the median size of the housing units between the private and public housing sectors, an efficient or optimal housing arrangement would require that there be very different income levels between the occupants of these sectors.

Table 6 presents figures on these income distributions in 1981 and 2011. All households are divided into four quartiles according to their monthly income, from the top 25% to the bottom 25%. They are then assigned into four categories according to their housing type: public tenants, private tenants, public homeowners, and private homeowners to each of the four quartiles and determine what percentages of their respective categories are in each of these household income quartiles.

Table 6. Distribution of working-aged households (household heads aged 20 – 65) by housing type and by income quartiles

(%)	Public tenants		Private tenants		Public homeowners		Private homeowners	
	1981	2011	1981	2011	1981	2011	1981	2011
Bottom quartile	23%	48%	31%	21%	4%	17%	20%	13%
2nd quartile	28%	32%	26%	21%	13%	30%	20%	20%
3rd quartile	29%	17%	22%	24%	36%	35%	24%	27%
Top quartile	20%	3%	21%	35%	47%	17%	36%	39%
Bottom 2 quartiles	51%	80%	57%	42%	17%	47%	40%	33%
Top 2 quartiles	49%	20%	43%	58%	83%	53%	60%	67%

Source: Census and Statistics Department.

The results are, quite simply, alarming. In theory, if those living in pulbic housing are indeed the poorest in the society, their combined share

in the bottom two income quartiles should be extremely high, while that for private tenants would be very low. Yet, among working-aged households, in 1981, 51% of the public tenants are in the bottom two income quartiles. For private tenants the proportion is 57%. There is an overlap of the two distributions. The overlap is also considerable even if we compare the percentage of households quartile by quartile from bottom to top.

The PRH programme clearly fails to achieve equity in housing consumption. In 1981, the incomes of the wealthy half of the public tenants were equal to the wealthy half of the private tenants. The bulk of the wealthy half of the public tenants was living in housing units that were about 60% of the median size of private housing units. Evidently, these public tenants were living in housing units that were too small relative to what they could afford in the private market. Those that stayed accepted their housing conditions only because of the exceptionally cheap rent.

By 2011, there was some improvement, but the problem of overlap in the distribution of public and private tenants remained substantial. Some 17% of public homeowners were in the top quartile, against 39% of private homeowners. In addition, 80% of PRH tenants were in the bottom two income quartiles, but so were 42% of private rental tenants. The proportion of lower-income households in public housing has grown simply because more of them have been admitted into the PRH programme than previously.

The failure to target housing benefits to the poorest in society is not surprising. The resettlement programme during the 1950s, which was the precedent of the current public housing programme, was aimed at rehousing squatters and was not means-tested in the beginning. Early squatters were unlikely to be the poorest members of society since they had paid market rents in squatter areas where housing units were more spacious than the old private tenements. Later, squatters were primarily those evicted when old private tenements were torn down or those who took advantage of the resettlement policy and turned themselves into squatters by exiting from old private tenements. There was no presumption that they would be the least well-off in society.

Well-off tenants on the other hand, are encouraged to buy property in the private market, but it creates a problem. These tenants see no reason to relinquish their PRH units, so they end up withholding these units from less well-off households and individuals in the society. Consequentially, property prices in the private market continue to rise, but old PRH units will not be released because there is no market for them.

Moreover, without harnessing the power of the market to meet the needs of households, the crucial long-term consequence of the PRH regime is that these occupants became tentatively, or even permanently, immobile and nailed to their units in estates that were far away from choice jobs, choice schools, and relatives and friends.

If some significant fraction of these households is not poor and can afford private housing units, then there will be pressure for private property to rise, due to unsatisfied demand for housing accommodation. In an odd

way the increase in private rents over time has provided perverse rationale for the smaller size of PRH units, since their rents have become lower relative to rents in the private sector.

A means-test and a double-rent policy was eventually introduced for those who were not squatters and well-off tenants ten years after they were admitted into the programme. This has had only a limited impact on recovering units from existing tenants although it has made tenants who did wish to be means-tested to pay higher rents.

3.3 Ineffective Flat Recovery

The HOS has been used to recover public housing units from well-off tenants alongside the use of means-testing and a double-rent policy. Progress has been painfully slow and is not very effective (see **Table 7**). This is to be expected, as administrative measures have limited effects unless they are draconian, but this is unlikely to be the approach adopted when the objective is not to drive out tenants but to entice them to leave with an HOS unit.

Table 7. PRH flat recovery by the Housing Authority, by reason

	2008/2009	2009/10	2010/11	2011/12	2012/13
Voluntary surrender by tenants	5,400	4,850	5,145	4,560	3,645
Issuance of notice-to-quite	1,683	1,518	1,359	1,403	889
Purchase of HOS flats sold by the Housing Authority	1,984	482	1,933	7	0
Purchase of HOS flats on the Secondary Market	1,176	1,228	1,500	1,181	908
Total Net recovery	10,243	8,078	9,937	7,151	5,442

Source: Government press release.

In summary, because of allocation decisions made in the past, many households in the public housing sector are well-off, but many households in the private sector are not. Well-off tenants consider the units they occupy to be too small given their income. Even though many well-off public tenants live in units that are too small for their needs, many poor households living in the private sector have no access to these same units, which would be more suitable for their case. Without a market, the re-matching of tenants and housing units cannot take place legitimately. If the status quo is kept, the malign forces of our inequitable housing regime will continue to foster social contentions for years to come.

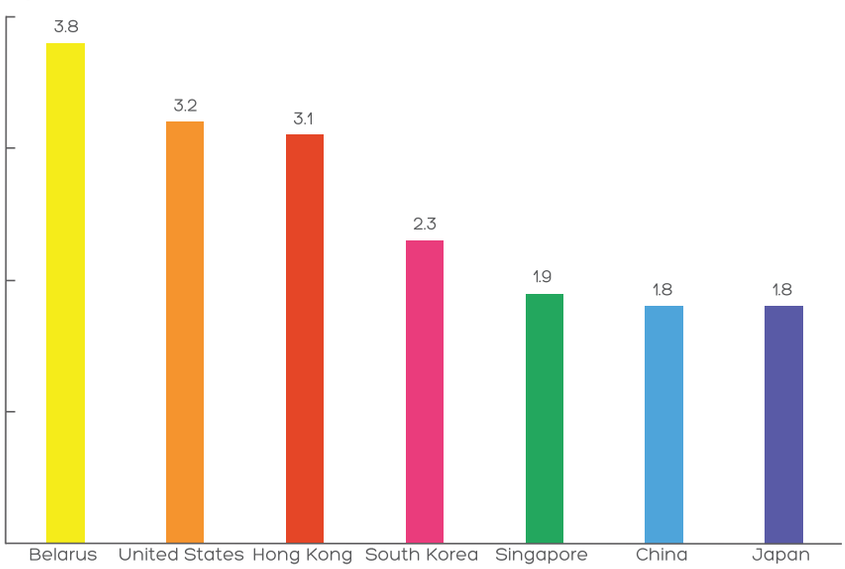
Nonetheless, inequity is but one of the many issues related to the current system. Another equally ferocious issue arising from the public housing programme: divorce and family breakdown.

4. Divorce and Family Breakdown

4.1 Public Housing and Divorce

It may be surprising to know that the crude divorce rate in Hong Kong was 3.1 per 1,000 people in 2013, nearly three times higher than that in 1991. This places Hong Kong in the top ten in the world in divorce, ahead of China, Japan, Singapore, and South Korea, but lower than the United States and top-placed Belarus (see **Figure 3**)

Figure 3. Divorce rates of selected economies per 1,000 people, 2013

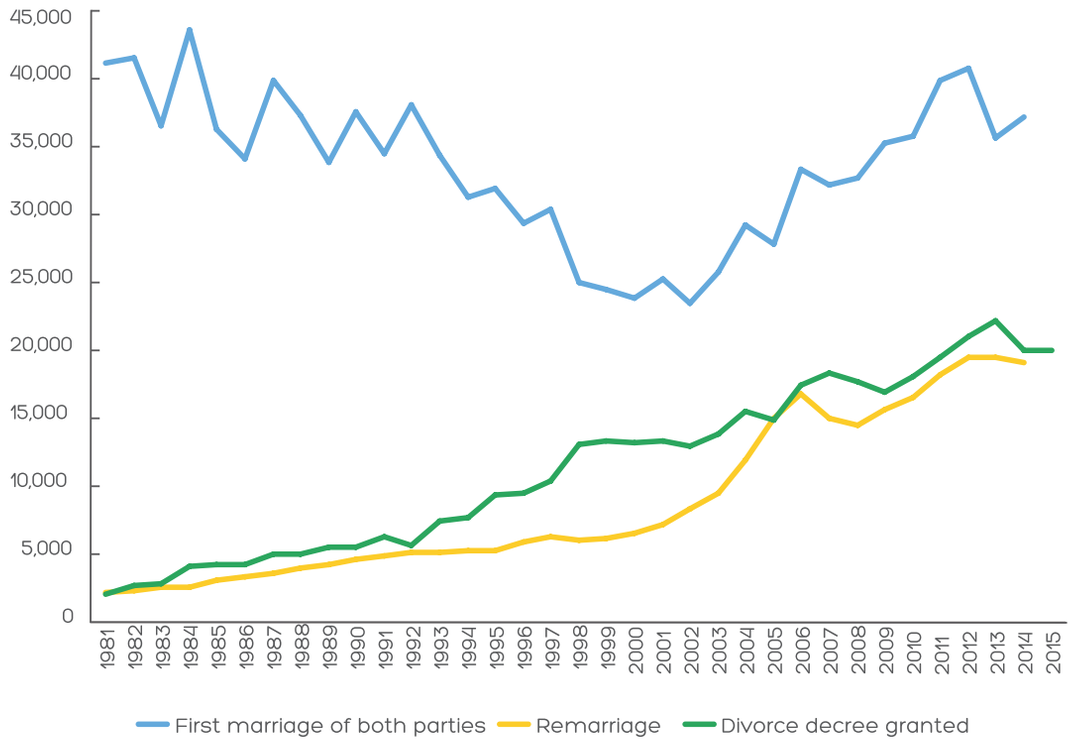


Note : Data for China pertains to 2012.
Sources: Census and Statistics Department, United Nations, and National Centre for Health Statistics.

Figure 4 shows that the number of divorces in Hong Kong has been rising since 2001. In 2014, there were about 20,019 divorces, 37,217 marriages, and 19,197 remarriages.

What explains the rise in divorce? The Report contends that a possible explanation is rooted in the PRH allocation criteria which may possess incentives for unhappy couples to initiate divorce. The following sub-chapter will lay out the evidence by providing a demographic analysis of the people residing in PRH.

Figure 4. First marriages, divorces, and remarriages



Source: Census and Statistics Department.

4.2 Demographics of Public Rental Housing

Existing studies have shown that divorce rates are higher among lower-income households than in high-income households (Bramlett & Mosher, 2002; Raley & Bumpass, 2003). This is also evident in Hong Kong. **Table 8** indicates that the number of divorced men and women has risen rapidly over time. In 1981 there were 12,580 and 11,160 divorced men and women. By 1991 these had risen to 21,700 and 28,920, and by 2015 to 90,800 and 179,600.

Combining the observations from **Tables 8** and **9**. It is apparent that divorced men and women are heavily concentrated in low-income PRH. In 2011, about 28% of married persons were living in PRH, while it was 44% of the divorced (See **Table 8**), and the situation even worsened in 2015. In the meantime, in 2011, divorced individuals are much more likely to be in the lowest income quartile in the society if they are PRH resident, compared with their counterparts who reside in other types of housing (See **Table 9**).

Additionally, as **Table 8** shows, the number of divorced women living in PRH has increased substantially compared to the number of divorced men living in PRH. It is likely that divorced women remain as PRH tenants while divorced men move out. Some of these divorced men who remarry subsequently would apply for PRH again, if their incomes still qualified. Hong Kong's public housing estates are transforming into areas of growing low-income divorced households. This observation would be investigated more thoroughly in **Chapter 5**.

Table 8. Housing tenure of married and divorced individuals, by sex ('000)

Marital status	Married	Year	Public renter	Private renter	Public owner	Private owner	All
Married	Male	1981	334	369	7	296	1,005
		1991	474	255	101	467	1,298
		2001	522	269	282	580	1,652
		2011	513	306	305	680	1,803
		2015	474	236	299	682	1,690
	Female	1981	342	324	7	306	979
		1991	464	206	103	476	1,249
		2001	480	242	278	570	1,570
		2011	490	290	303	681	1,763
		2015	468	270	316	797	1,851
Divorced	Male	1981	4	6	-	3	13
		1991	8	6	1	6	22
		2001	22	17	6	14	58
		2011	42	22	11	21	95
		2015	48	15	10	18	91
	Female	1981	3	5	0	3	11
		1991	9	7	2	11	29
		2001	33	25	11	25	94
		2011	79	35	23	42	179
		2015	85	30	32	42	180

Source: Census and Statistics Department.

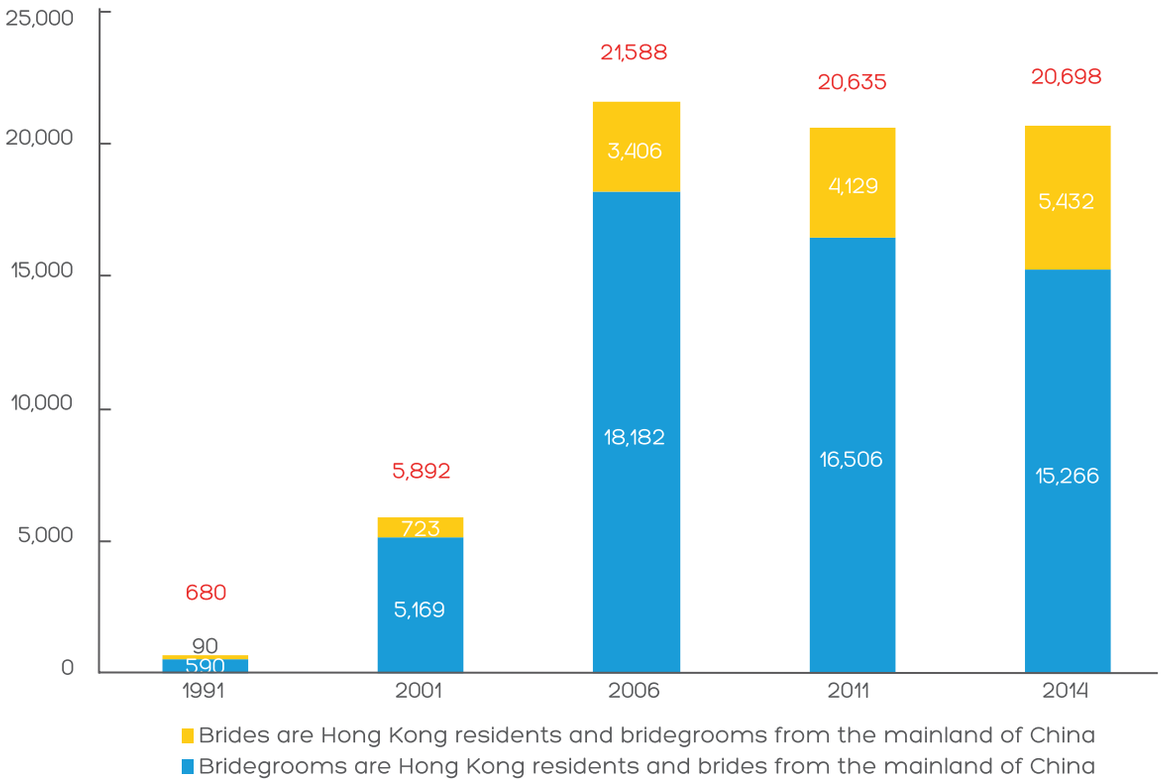
Table 9. Number of divorced individuals among households (aged 20 - 65) by income quartile and by housing type

	Income quartile	1976	1981	1986	1991	1996	2001	2006	2011
Number of divorced individuals in public renter households ('000)	Bottom	0.9	1.5	3.5	5.4	12.1	23.3	40.3	62.7
	2nd	0.5	0.7	2	2.8	6.4	8.8	17.1	19.1
	3rd	0.4	1	1.9	2.1	3.9	4.3	7.6	7.4
	Top	0.3	0.6	0.8	0.7	1.4	1.1	1.8	1.2
Number of divorced individuals per thousand households among public renters	Bottom	12	19	34	40	69	128	183	247
	2nd	6	7	15	19	41	64	106	113
	3rd	5	10	16	18	34	46	84	82
	Top	5	9	11	12	25	35	72	73
Numbers of divorced individuals in all other households ('000)	Bottom	3.2	4.3	7.5	7.5	12.3	25.5	30.3	34.3
	2nd	1.6	2.1	3.8	4.4	10.3	18.4	21.4	26.1
	3rd	1.0	1.7	3.2	4.1	9.7	12.4	18.6	21.4
	Top	1.3	1.9	3.8	4.8	7.8	10.8	14.5	17.0
Number of divorced individuals per thousand households among other types of housing	Bottom	23	23	36	40	59	110	134	153
	2nd	13	12	23	24	45	67	76	83
	3rd	8	10	17	20	36	39	53	55
	Top	8	10	16	18	24	28	34	37

Source: Census and Statistics Department.

After 2000, the number of recent immigrants in PRH picked up as a result of the accelerating pace of divorce and cross-border marriage (See **Figure 5**). This was in part triggered by the liberalisation of PRH allocation rules for recent immigrant households in 1998, which led to the rise in number of recent immigrant households (with at least one member having resided in Hong Kong for less than 20 years) living in PRH units from 129,000 in 1996 to 203,000 in 2011.

Figure 5. Number of marriages registered in Hong Kong with bridegrooms / brides from the mainland of China



Source: Census and Statistics Department.

4.3 Costs of Divorce

The growing number of divorced women living in PRH units implies a rising number of children growing up in broken families in PRH estates. This is not conducive to upward social mobility but sets the stage for the production of a new underclass that perpetuates intergenerational inequality and low social mobility. Children raised in divorced PRH households may lack good role models. While individual cases would vary, this is a plausible scenario. Children in broken families grow up with their mothers, possibly on welfare. They seldom see their fathers because some may have remarried and live in another PRH unit with a bride across the border. Siblings in broken families are sometimes separated with custody assigned to different parents so that both parents can be eligible to apply for PRH.

The literature on the socioeconomic impacts of divorce primarily focuses on two levels: the impact on the children of the divorcees and the impact on the divorced couples themselves. A meta-analysis involving 92 studies conducted by Amato and Keith (1991) found that compared to children whose parents are married, children of divorced parents were more likely to exhibit worsened measures of well-being such as school achievement, conduct, psychological and social adjustments, self-concept, and parents to child relations.

Divorcees themselves are subjected to economic hardship and social isolation, Biblarz and Gottainer (2000) concluded that divorced

individuals were more likely to exhibit symptoms of depression and anxiety, substance use, the deterioration of health and posed a greater risk of mortality.

Other studies have also shown the undesirable economic ramifications of divorce. Examining data in Utah in the United States, Schramm (2006) calculated the economic consequences for the 9,735 divorces in Utah during 2001 to cost the state and federal government nearly US$300 million in direct and indirect costs. In addition, the prospects of low-income and interpersonal insecurity may be passed on to the children of divorced parents, hence expanding the cycle of economic distress (Ross & Mirowsky, 1999).

4.4 Incentives to Divorce

The Report believes that implicit in the PRH allocation criteria is an in-built incentive that provides encouragement for unhappy couples or low-income households to initiate divorce and remarry across the border, where marital opportunities are relatively abundant. A low-income divorced parent could apply for readmission to the PRH programme, often with preferential consideration, if he or she had dependent children or remarried. The current PRH allocation criteria favour married couples but do not discriminate between first marriages and remarriages.

These perverse incentives further tilt the balance in favour of divorce among low-income families and generates a penalty on children who inevitably suffer from family breakdown. After divorce, they became single divorced parents with dependent children. One parent was able to remain in the PRH unit, while the other ended up renting housing in the private rental market. This aggravates the demand for both public and private housing where supply is limited.

Hence, because of the considerable demand for private housing, the divorce rate in Hong Kong is both a cause and an effect of higher housing prices and rents. Furthermore, it distorts the measured inequality in household incomes which has been significantly augmented through the PRH programme.[4]

The public housing regime has not only failed to protect the relative and absolute wealth position of families without property, but also, and worse still, has created perverse incentives that have increased the divorce rate among those who are poor. As a consequence, the combined effects of the PRH programme are forging powerful incentives that expedite family breakdown, worsen economic inequality, and create bad neighbourhoods in public housing estates.

4. See **Appendix II** for further details on the distortion of measured inequality of household incomes.

5. Intergenerational Mobility and Poverty

5.1 A Global Phenomenon

The rapidly rising number of divorces presented in the previous chapter is suggestive of some very real and alarming concerns about how poverty is being formed in Hong Kong and how it may affect social mobility and cause dynamic poverty across generations. Dynamic poverty differs from static poverty in that it concerns poverty across generations due to the lack of upward social mobility.

Low intergenerational mobility is evident across the globe. In Charles Murray's book, Coming Apart: The State of White America, 1960-2010, he showed that between 1960 and 1980, the divorce rate of working-class Whites rose from about 5% to about 15%. The trend continued and by 2010 had increased to 35%.

The well-educated saw a parallel rise between 1960 and 1980: their divorce rate rose from about 1% to about 7.5%, and was flat from 1980 to 2010. The difference between the two groups is reflected in the rates for children growing up in broken homes: a steady increase for the working class, a low plateau for the well-educated. Murray revealed that the percentage of well-educated people in happy marriages has sharply rebounded, while the percentage of working class in happy marriages has crashed.

While his findings are akin to the previous chapter of the Report, what is powerful about his thesis is the unusually high degree of family breakdowns associated with the origin and intergenerational transmission of poverty among unskilled low-income families. Their children suffer as a consequence and end up in poverty themselves.

By contrast college graduates do well not only economically but also in their family life. Their children have nurturing and secure childhoods, and lead productive, successful, and fulfilling lives when they grow up. Rising intergenerational inequality is produced when the poor have broken families and stay in bad neighbourhoods, while the rich have intact families and live in good neighbourhoods.

Striking a similar chord, political scientist from Harvard University Robert Putman reinforced Murray's thesis with his book Our Kids: The American Dream in Crisis. He showed that in the United States, children

access to core institutions to foster their development is increasingly unequal and separate. The children from well-off families grow up in family with two attentive married parents, they attend high-performing schools and are equipped with the necessary life skills to assist in navigating the future road ahead.

On the other hand, the children from low-income, working-class families have little chance of accessing the social capital abundant in well-off families, and thus are emotionally stunted and are unable to climb up the social ladder. Putnam cited a landmark study by Hart and Risley (2003) who estimated that by the time they enter kindergarten, the children from well-off families hears 19 million more words than the children from poor families and 32 million more words than the children whose parents are on welfare. The inequality of the 'haves' and the 'have-nots' results in children having dramatically different outcomes later in life.

5.2 The Problem in Hong Kong

The studies by Murray and Putnam of class division have important parallels in Hong Kong. In the past 30 years, the socioeconomic divide between low- and high-income households has grown progressively wider and economic inequality has segregated the rich and the poor into different neighbourhoods.

The figures in **Table 10** demonstrate that there is a larger concentration of children living in single parent households in PRH estates than in other types of housing. In 2001, 27,454 (or 44.7%) domestic households with single parents live in PRH. In 2011, it increased to 42,820 (52.4%). In 2015, the number rose to 50,100 or 55.8% of domestic households with single parents. Among all other housing types, the proportion has been decreasing over the years.

Table 10. Number / share of children (1-18 years old) living at home with a single parent by housing type

Year	Public rental housing	Subsidised sales flats	Private housing	Total
2001	27,454 (44.7%)	7,311 (11.9%)	26,666 (43.4%)	61,431 (100.0%)
2006	38,635 (50.6%)	8,458 (11.1%)	29,330 (38.3%)	76,423 (100.0%)
2011	42,820 (52.4%)	7,206 (8.8%)	31,679 (38.8%)	81,705 (100.0%)
2015	50,100 (55.8%)	7,500 (8.4%)	32,200 (35.8%)	89,900 (100.0%)

Source: Census and Statistics Department.

This is consistent with the observations discussed in the previous chapter that low-income, divorced men and women are heavily concentrated in PRH. It follows that the PRH estates have become a conglomeration of single parent households that will have an adversarial effect on a sizeable number of children. Their development is stunted causing both income inequality and poverty.

Hong Kong's public housing estates are transforming into areas

of concentrated poverty with more children living with a single parent. These children reside in poor neighbourhoods where there are no good role models to learn from and to emulate. This demotivates them, perpetuates dynamic poverty and affects their future likelihood of moving up the social ladder.

Since the existing public housing programme implicitly encourages divorce, especially among the poor, it is leading to the formation of a new underclass inflicted with reduced future prospects.

5.3 Income Inequality

Rising income inequality is linked with the problem of low social mobility among the less well-off families. It is made more difficult because many born into lower and lower middle-income families have made too little human capital investments because their parents are divorced.

Assortative mating further strengthens these effects as women have become better educated over time. Better-educated men are now more likely to marry better-educated women, and this is further worsening the human capital investment opportunities of the young generation in less well-educated families. They have fallen behind long before they could receive tertiary education. So despite subsequent efforts to catch up, they are still disadvantaged.

Their fate is in sharp contrast with the young generation from upper and upper-middle income classes whose parents are much less likely to be divorced and are able to make massive amounts of human capital investments from early childhood.

This problem can be remedied if more individuals become better educated. Investing in human capital would directly raise the incomes of more individuals by making them more productive. It would also indirectly increase the incomes of the less well educated in the population by reducing their relative supply. The rising income inequality is therefore a failure of society and government's public housing policies which discourage human and social capital investment in poor, single parent households.

Hence, empirical evidence will be presented in the following sub-section to attain the benefits of bona fide homeownership and its concomitance with borrowing on home equity to invest in children education.

5.4 Human and Social Capital Investment

This Report believes that extending homeownership is essential to family investment in both human and social capital. Indeed, many studies have shown families who are homeowners are more likely to invest in childhood development and neighbourhood stability.

In a linear regression analysis on intergenerational mobility in schooling attainment in Hong Kong (Wong, 2015b), it was found that children who grew up in families that were homeowners, either in the private or public sector, had significant schooling attainment advantages compared to those living private rental housing. This connotes that homeownership is a very powerful proxy for additional household wealth that is not adequately measured by parent's education and income. It was found that the schooling advantages among those living in subsidised sales flats, predominantly those in HOS units were as strong as those living in owned homes in the private sector for the census years between 1981 and 2001. However, the effects weakened significantly in the 2006 and 2011 census years.

Additionally, the findings also revealed strong evidence that children will experience significant education disadvantages if they were recent immigrants, had parents who were recent immigrants, and grew up in households with a single parent. The much discussed generational gap between young people born in the 1980s and 1990s and their elders may reflect the fact that a growing proportion of them grew up in single parent households. The study concluded that the role of education is an important factor for increasing productivity, and is by far the largest investment a person can make in human capital.

This phenomenon is not restricted to Hong Kong. The results of other earlier studies had also appeared to show that homeownership has a positive effect on childhood development and human capital investment. Green and White (1997) found that homeownership significantly raises the chance of teenage students staying in school and lowers teenage pregnancy compared to those in rental households in the United States. Aaronson (2000) found that parental homeownership in low-income neighbourhoods has a positive correlation on high school graduation. Huarin, Parcel, and Huarin (2002) concluded that owning a home compared with renting leads to a 13% to 23% higher quality home environment, better cognitive ability and lower children's behavioural problems.

Harkness and Newman (2003) indicated that among American children in families with income less than 150% of the federal poverty line, homeownership promoted educational attainment, earning, and welfare independence when the child reaches young adulthood. This was not the case for children of families with incomes more than 150 percent of the poverty line. Their findings suggested that homeownership effects are not only attributable to unobserved characteristics of homeownership, but have causal benefits on adulthood development of children from less well-off families.

The literature on the relation between homeownership and social capital investment is equally sanguine. Rohe and Stewart's (1996) analysis of U.S. census data on homeownership and neighbourhood development revealed that changes in homeownership rates are significantly associated with increased property values. They argued that this was because homeowners, unlike renters and landlords, have an economic and use interest to maintain high standards in their neighbourhood. Thus, the greater the security of their property, the greater the investment they

would make in it, and vice versa.

DiPasquale and Glaeser (1999) demonstrated that standard economic incentives from the effects of homeownership and tenure does influence investment in social capital. Areas with more homeowners have lower government spending, but have a larger portion of government budget on education and highways.

More recently, Chetty and Hendren (2015) illustrated that the effects neighbourhoods have on intergenerational mobility varies substantially. For each additional year a child spends growing up in an upwardly mobile neighbourhood in the United States, adulthood household income increases by 0.8% compared to the national average. In contrast, each year spent in a bad neighbourhood decreases earnings by 0.7%.

The socioeconomic ramifications of the public housing policy are dire and costly, the recommendation of OHKF to privatise future public housing units should therefore be heeded. Yet, any proposal to reform Hong Kong's public sector housing policy and to create a market in public sector housing units should consider whether justice is served by providing an asset on subsidised terms to less well-off households. This consideration will be discussed in the following chapter.

6. Public Housing Policy and Social Justice

6.1 The Injustice of Evaporating Resources

The current public housing policy is unjust because the society losses the value inherent in the public sector housing unit, the physical premises itself, and the land that it occupies. The evaporation of resources benefits no one.

First, the taxpayer hardly ever collects the unpaid land premium because, as stated in **Chapter 1**, very few households ever pay it. A receivable that cannot be collected after many years should be written off and not carried on the books.

What is even worse is that, 60 years after construction, many of these units will be so rundown that they will have to be redeveloped. By then, the unpaid land premium will most certainly reach an astronomical figure. The only party that could redevelop these units would be the government. The injustice is that taxpayers would be forced to foot the bill yet again.

It should be reminded at this juncture that the original public housing policy objective was to offer a way to establish a "housing ladder", with each rung of the ladder representing a stepping stone to "move up" from PRH to HOS and eventually to private housing. At the current setting, it is extremely difficult, if not entirely impossible to satisfy such a goal. There is virtually no hope of leaving the public housing system once a household enters it.

Second, the subsidy provided by taxpayers to the household is the difference between the market value of the unit and the price the household pays for its use as shelter. Over time, the amount of the subsidy will increase as land values increase. The odd situation is that the cost of the subsidy paid by the taxpayer is larger than the benefits perceived by the household because a market for such units does not exist. It is unjust that the taxpayer pays for the asset value of the unit, but the household receives only the shelter value of the unit.

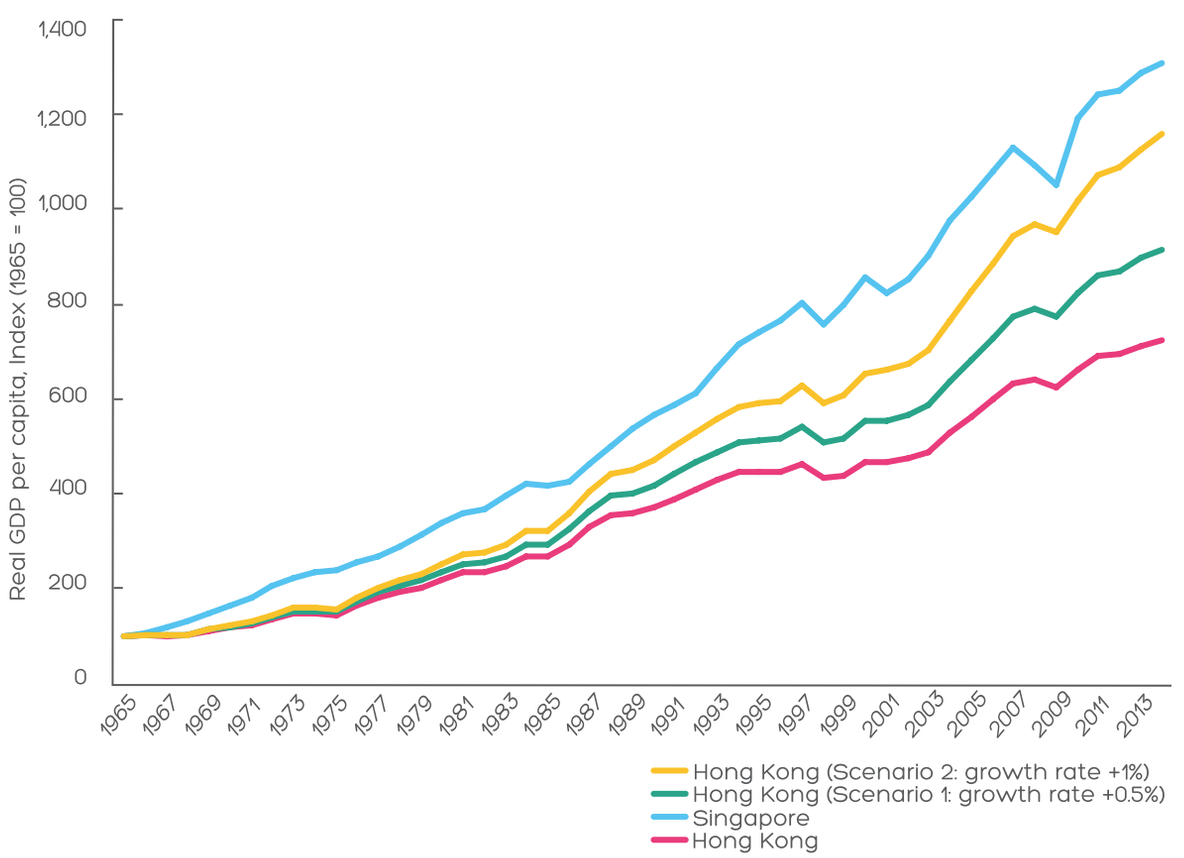
6.2 Different Economic Consequences of Housing Programmes in Hong Kong and Singapore

It is useful to consider what taxpayers lose when they give away a housing asset but then limit the recipient to using it only as a shelter. The difference is a loss to society and nobody gains. To demonstrate the magnitude of the losses, the per capita GDP growth rates of Singapore and Hong Kong is compared. **Figure 6** gives the real per capita GDP profiles for the two cities in their own currencies. Throughout the period, Singapore grew faster than Hong Kong at an average annual rate of approximately 1.35%. As a consequence, a Singaporean who started with $100 in 1965 was making $1,307 in 2014, but his or her Hong Kong counterpart was making only $725. The Singaporean had 80% more income.

This is because Singapore allows for an active market in public housing units. This means it does not suffer the kind of deadweight social welfare losses that are present in Hong Kong in both PRH and HOS units. The factor alone could easily account for most, if not all, of the differences in per capita real GDP growth. The same figure also plots the projected real GDP per capita profiles for Hong Kong under two scenarios. Scenario 1 adds 0.5% to the growth rate, and Scenario 2 adds 1%.

It is conjectured that both Scenarios 1 and 2 underestimate the losses to society of not allowing a market for public sector housing units

Figure 6. Real per capita GDP in Singapore and Hong Kong (including projected Hong Kong real per capita GDP), 1965-2014 (normalised to 100 in 1965)



Source: World Bank.

because they measure only static losses, those that result from denying households the ability to obtain the appreciation in land values.

To illustrate the size of the economic loss that our housing policy has potentially incurred, it is estimated that the gain in housing capital from privatisation and deregulation of the public housing stock would be $3.336 trillion, equivalent to 156.9% of GDP in 2013 (See **Table 11**). The average PRH unit would add $3.36 million to housing capital, the average HOS unit would add $2.05 million, and the average TPS unit would add $1.96 million.

Table 11. Estimates of the value of public housing capital after privatisation and deregulation

	Number of housing units ('000)	Estimated total value of housing units at TPS and HOS "Secondary Market" prices ($bn)	Estimated total value of housing units at open Market prices ($bn)	Estimated increase in value of housing capital (column III - II) ($bn)	Estimated increase in value of housing capital per unit (column IV ÷ I) (mn)
PRH units	728	0	2,448	2,448	3.36
TPS units	123	173	414	241	1.96
HOS uits	316	908	1,555	647	2.05
Total public housing units	1,167	1,081	4,417	3,336	2.86
Total estimated value as percent of GDP (2013)		50.9%	207.8%	156.9%	

Source: Wong (2014).

The dynamic losses have not been included for the calculations in **Figure 6** and **Table 11**; these would represent the forfeiture of potential gain that could have been realised if a person with more resources spent them on enhancing his or her productivity and that of others.

7. The Subsidised Homeownership Scheme

The malign consequences of our public housing programme necessitate a powerful solution. Hence, the Report contends that the SHS will serve as a highly effective panacea to the socioeconomic ills presented in the previous chapters. The capability of the SHS to ameliorate the four ills of our misguided public housing policy are subsequently presented below.

7.1 SHS and the Pursuit of Equality

The inequity in the allocation of PRH generates enormous economic inefficiency and stifles the social spectrum. It would be astute to look for policy alternatives.

A faster, less expensive and non-wasteful solution is the SHS. If it is implemented for future public housing units, more and more of public housing units would become available for rent in the open market. The SHS would lead to the creation of a single housing market rather than two separate markets. Doing so is a simple way to stimulate consumption and investment activities through an injection of property wealth. It would also meet the needs of those who are currently occupying sub-divided units and/or are on the Waiting List for PRH.

Moreover, a market for these units will then quickly emerge, and the economic inefficiencies would be ameliorated in one fell stroke. There would be an incentive for trading to take place and the re-matching of tenants' needs and housing units would come into effect and the problem of inequity could be rectified. With competition, housing units would also be more affordable. A thriving private rental market would provide the housing market with long-term stability.

The SHS would be a triple-win policy. First the Housing Authority would be able to collect more unpaid land premiums and at a much faster rate. Second, HOS owners would know with greater certainty what they actually owed the government from day one, rather than seeing unpaid land premiums fluctuate and over time escalate with market conditions. Third, some HOS units might then become available on the market for rent or sale. Aspiring new homeowners would not have to wait several years for new units to be built as proposed in various government initiatives.

7.2 SHS and a Rewarding Childhood

Additionally, the Report reiterates that the SHS can be a highly effective solution to the problem of divorce. The implementation of the SHS will allow public housing tenants to possess the same rights to that of a private homeowner. Bona fide homeownership in future public housing units would incentivise families to stay together and discourage family breakdown. This can therefore act as a barrier against the costs of a broken family among the children of the divorcees and prevent the build-up of bad neighbourhoods that fosters poverty and lowers social mobility.

The rationale behind the implementation of the SHS to tackle the problem of family breakdown and its adverse effects on children is not unfounded. According to the economics theory of marriage, homeownership functions as a financial and social resource before a marriage decision is made. Ending a marriage would incur a cost, the loss of a house as a major asset. Thus, homeownership can deter divorces.

Furthermore, there is a large body of research associating homeownership with family cohesiveness. In a longitudinal study conducted by Grinstein-Weiss et al. (2014), which examined the relationship between homeownership and the likelihood of marriage or divorce in the United States, it was found that among the study's sample population, the propensity to divorce in married homeowners are less likely than married renters. Similarly, in an earlier study by White and Booth (1991), using an American national panel of married individuals, it was established that homeownership and the possession of assets can act as a barrier to divorce.

These findings lend empirical support to the Report's proposition that by possessing a property asset, a home, it can play a significant role in mitigating the increasing trend of divorce. Moreover, because under our proposal, application for the SHS is restricted to once in a lifetime, this will mitigate the perverse incentive to divorce. As a result, the social, political, and economic costs of family breakdown can be allayed. Children would be less likely to bear the adverse consequences of a separated mother and father, and would experience a safer, more stable, and rewarding childhood.

7.3 SHS and Upward Mobility

Murray (2012) and Putnam (2015) had both shown that intergenerational inequality is an endemic problem in society. The situation in Hong Kong is not different. It is caused and exacerbated by our public housing policies that have divided the population into the 'haves' and the 'have-nots'. This dooms the 'have-nots' to a cheerless future, mired in poverty and crippled by social immobility.

A critical concern for Hong Kong to address in coming up with a long-term housing strategy is to appreciate the important role of housing assets as a store of value for upward social mobility and human capital investment. There is a possibility that social upward mobility would be greatly improved if property assets are held. The fundamental reason why social upward mo-

bility is lacking for those who are able and diligent is their inability to convince people to invest in their future.

The SHS is the most feasible choice to address this concern. The advantage of the SHS is that by allowing bona fide homeownership in future public housing units it provides a cheaper means for arranging finances. By borrowing against home equity, a parent can provide a better education for their children.

Furthermore, families have a stake to stay together when marriages come under pressure. By keeping families together, we prevent more children falling into a state of disadvantage that would be detrimental to their pursuit of upward social mobility. Since social mobility is closely associated with homeownership, the SHS would relieve Hong Kong of the bourgeoning problems of income inequality and poverty.

Bad neighbourhoods would also become a thing of the past. Owner-occupiers of public housing units will have an incentive to maintain the conditions of their dwellings and closely guard the status and security of their neighbourhood. It induces the investment of social capital into the neighbourhood and as a result, a better environment for social mobility can be realised.

Not only can families and stay together and children are benefited, the elderly population can also tap into the property asset and may use it as retirement protection. With a home, a reverse mortgage can allow the elderly population to use the home equity for their retirement in order to meet daily expenses.

7.4 SHS and Social Justice

Our present PRH programme is operated at a recurrent loss year after year. Developing more PRH units is a highly inefficient policy and it drains public spending. Historically, the cost of rental units was financed with cross-subsidies from the sale of HOS units. Since the HOS units are sold at a discount, the land values are not fully monetised. The HOS buyer pays for a fraction of the total land value and the Housing Authority holds onto the rest.

In essence, both PRH and HOS units are financed through monetising part of the land values of the public housing units. The land values are not fully monetised because parts of the land premium is still unpaid and not wholly settled with the government.

If we do not allow public sector housing occupants to trade their units on the housing market, then the society will lose the value inherent in that asset. What is happening is that well-off households are giving valuable assets to less well-off households, but their use is restricted to shelter only. The land values are partly dissipated and therefore lost to all. All households suffer a decline in income as resources are destroyed by limiting their use.

If instead we allow a market to exist, then less well-off households gain a share of the value of the land that would otherwise be lost, and in so doing they put the land resources to better use and raise the incomes of everyone. It is a win-win scenario. The outcome will be socially just.

It would therefore make good sense today to push for the adoption of the SHS so that units are available for both rent and purchase with tenants having the option of renting first and purchasing later.

Hong Kong's low-income households would be more willing to purchase these units if they were priced at an affordable level for them. As long as they are priced to cover at least full development and overhead costs, the government would be able to finance the entire cost of providing subsidised housing through monetising land values. These low income households would be able to benefit at nobody else's expense. This would drive government expenditure on housing down and would help reduce government spending pressure enormously, making scarce government revenues available for other uses.

The SHS would allow for a more just society where resources are yielded for all, allowing people to have greater freedom of choice, and build a better community. By turning Hong Kong into a city of homeowners, it will enable the government to redistribute more resources to other sectors in need.

While it is advocated in the first Report that the SHS should be implemented for newly constructed stock of public housing units only, there remains a potential for the existing stock to be also privatised. In light of the severity and urgency of the situation, it will be socially just for existing public housing occupants to also purchase their units and settle unpaid premium under get the SHS framework, provided that public reception of the SHS is positive.

8. Concerns

8.1 Property Prices

A major concern about the privatisation of PRH and HOS units is that it may lead to a flood of new housing units into the market and force property prices to go down. This may affect long-term asset investment and dissolve family savings. As reiterated in the first Report, the Scheme only covers newly-constructed public housing units and therefore will have little or no effect on the private housing market.

However, OHKF is of the opinion that in the long-term, the existing stock of PRH and HOS units should also be considered for privatisation. While the property price concern of privatising the existing stock is warranted, we believe that the possibility is minimal. This point can be illustrated with the privatisation of public community housing in the United Kingdom during the 1980s. A case study of this is presented to confute and ease the fears that property prices will be affected to the detriment of investors and families.

8.1.1 The Right to Buy

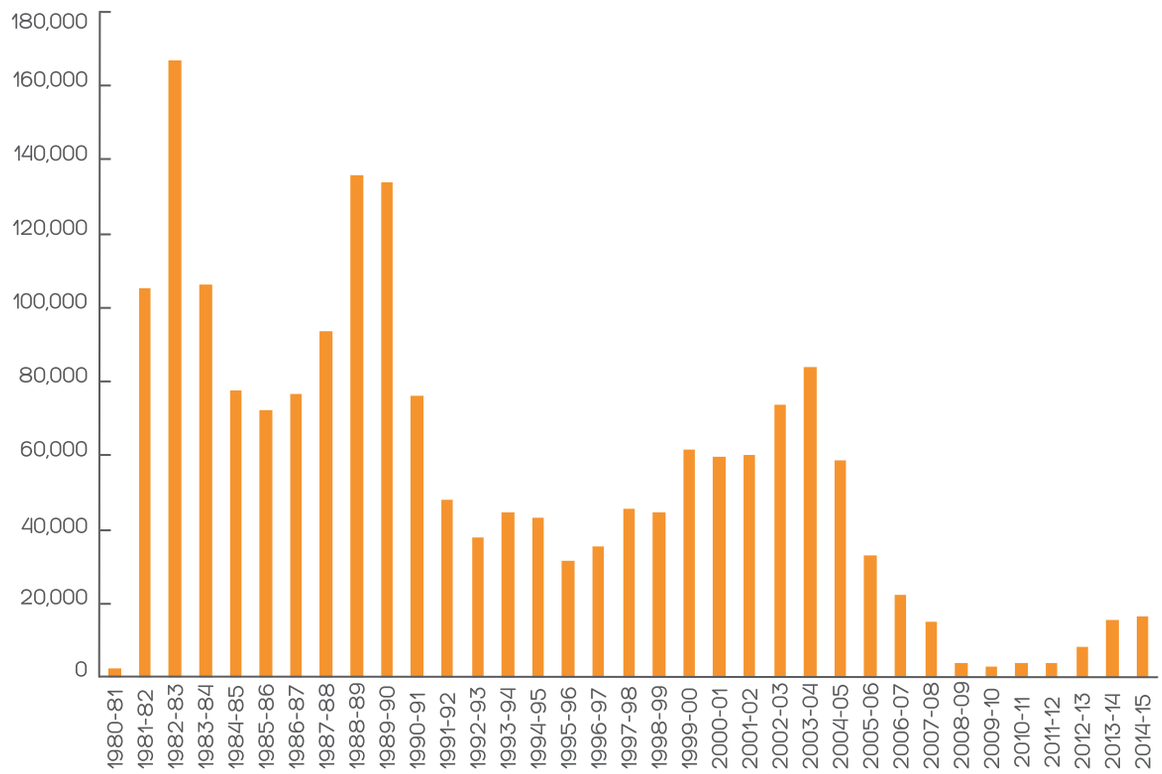
The UK Housing Act, more commonly known as the Right to Buy, was implemented on the third of October 1980. It was a major policy initiative of the Conservative Party led by the late Margaret Thatcher who swept to power in the UK general election of 1979.

By international standards, the UK in 1980 had a large social housing stock with council housing catering for 6.5 million households, or nearly one third of total UK households. The Conservative Party saw the Right to Buy as a mechanism for increasing owner-occupation and also as a response to the desire of some tenants to own their place of dwelling.

Since the introduction of the Right to Buy, more than 1.9 million council homes had been sold in England alone. **Figure 7** indicates that the initial reception of the Right to Buy was overwhelmingly positive with social housing sales breaching the 160,000 mark in 1983. It declined in the mid-1980s and rose again in the late-1980s. The second surge can be attributed to the extension of maximum discounts for properties.

Overall, in England, the total number of social housing sales under the Right to Buy was about one third of the cumulative stock of council housing units.[5]

Figure 7. Social housing sales: Annual Right to Buy sales for England: 1980-81 to 2014-15



Source: GOV.UK.

As a consequence, in 2003 household dwellings in the social rented sector dropped to 12% of household dwellings (see **Table 12**). The total number of owner-occupants rose from 12.44 million in 1981 to 18.14 million at its peak in 2003. This trend however, reversed slightly in the past decade due to declining affordability of homeownership.

Table 12. Dwellings by housing tenure in the UK (%)

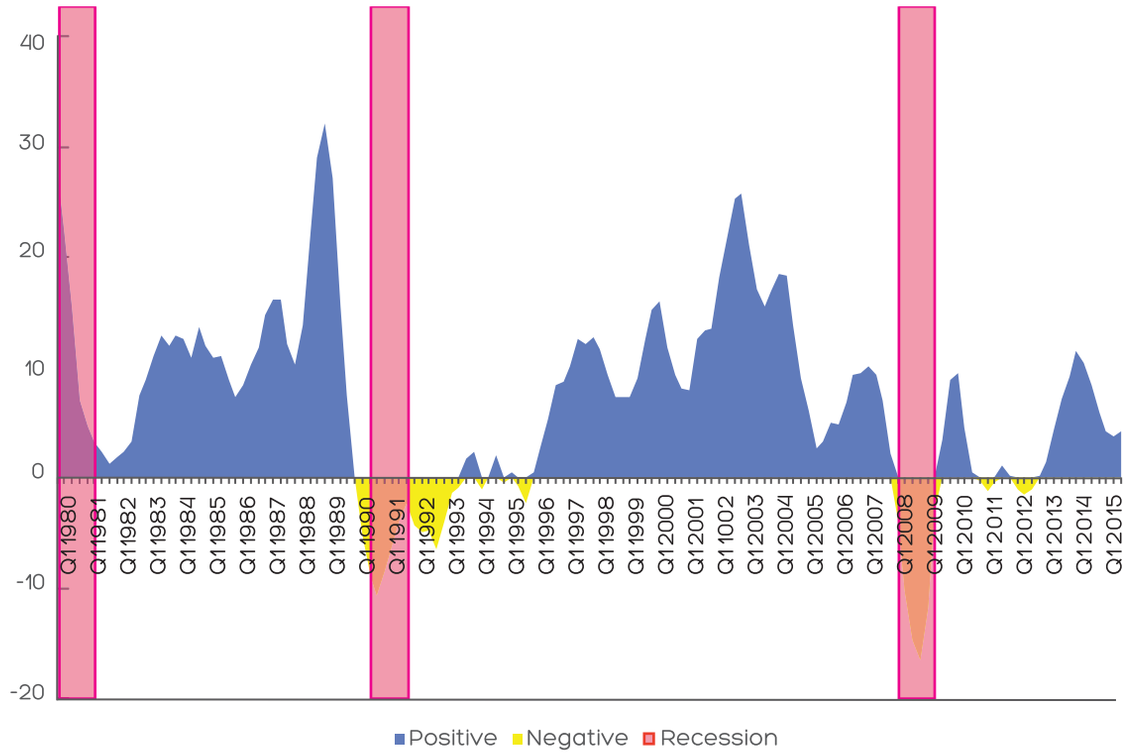
Housing tenure	1981	1991	1995	2001	2003
Homeownership	56.6	65.9	66.9	69.1	68.6
Local authority rented	30.5	21.8	19.1	14.5	12.2
Privately rented	10.8	8.5	9.4	9.6	11.2
Other	2.2	3.7	4.7	6.8	8.0

Source: GOV.UK.

Yet since 1980, UK property prices have fallen in only seven full years and these property down-cycles usually coincide with economic recessions (see **Figure 8**). Most of these occurred in the recession of the early 1990s and the biggest drop was sustained in the 2009 Financial Crisis. Though the first surge of Right to Buy sales in the early 1980s corresponded with a lower rate of increase of house prices (but still an increase); in the contrary, the second surge of Right to Buy sales in the late 1980s corresponded with the highest annual increase in house prices the UK had experienced from the period 1980 to 2015.

5. This figure was reached by dividing the number of social housing units sold as of 2015 (1,990,791) by the sum of the number of social housing units in 1980 (5,068,000) and the number of social housing units built from 1981 to 2015 (951,250).

Figure 8. UK house prices, percentage annual change, 1980-2015



Source: Nationwide.

After all, we hold that instead of changes in homeownership, ultimately property prices are governed by fundamental demand-and-supply factors over the long run, which should be captured by changes in economic variables. To illustrate this, we have conducted a fixed-effect panel regression using data from over 30 advanced economies. The results suggest that there is no statistically meaningful relationship between homeownership rate and housing prices.[6] In other words, granting more households the full property rights to their housing units will not necessarily lead to a drop in home prices.

8.2 Unfairness

Another major reservation to the SHS is the perception of unfairness, that public tenants will receive a 'double benefit' of a low rent and a discounted price from the government.

The rationale behind this reservation is flawed on two accounts. Firstly, the so-called 'discount' is not a genuine discount per se since the subsidised price from the SHS will be repaid in full. The government will merely be providing the financing, and the buyers will still have to pay off the down payment and mortgage loan. The SHS can even recover the full market price of the unit upon the settling of the unpaid premium, which would no longer be fluctuating with the market value under the SHS.

Secondly, the SHS subsidy on land values is not something that society loses to the household. The household already occupies

6. See **Appendix** III for further details on the results of the regression analysis.

the premises. The premises and the land it takes up cannot be used by anyone else, and therefore there is no cost to society. Providing a larger subsidy to the occupant-owners means they can then choose to sell those units on the open market and can therefore unlock the hidden value to be redeployed for a better use, a use that would not have been possible or permitted if the right to sell the units were infeasible. It is therefore not a double benefit. It is merely completing the other half of the benefit that was not initially provided.

As thing stands, the current PRH arrangement is a great subsidy in itself. The resource required to keep rents low among PRH tenants is considerable, and in actuality it is a long-term subsidy for generation after generation.

To illustrate this point, say a unit that is rented out for $20,000 per month in the open market is rented to a PRH tenant for $3,000 per month. The government monthly subsidy for the PRH tenants amounts to $17,000. In 20 years' time the accumulated subsidy, without accounting for rent and market adjustments, will be in excess of $4 million. In other words, subsidising the unit for 20 years is equivalent to covering the full cost of the unit.

Table 13 shows that from 2008 to 2013, the average annual PRH turnover rate was at 0.92%. This implies that there is effectively very little turnover of PRH units, and by continuing to subsidise sitting tenants of PRH it means that there is no residential mobility. The present mechanism of a rental subsidy ad infinitum is wasteful and illogical, instead the same amount of resources could be used through the SHS to provide a strong incentive for occupants of public housing units to strive for bona fide homeownership.

Table 13. PRH units' turnover rate, 2008-09 to 2012-13

	2008/2009	2009/10	2010/11	2011/12	2012/13
Net recovery of PRH	10,243	8,078	9,937	7,151	5,442
Stock of PRH units	741,200	744,600	747,100	768,100	772,100
Turnover rate	1.38%	1.08%	1.33%	0.93%	0.70%

Source: Government press release.

9. Conclusion

Due to globalisation and technological advancement, wealth and income inequality is a worldwide phenomenon and is not constrained to Hong Kong alone. Governments from all over the world have sought to tackle this problem with little headway. Fortunately, the future of Hong Kong is more optimistic than others. Due to the fact that nearly half of the population of Hong Kong resides in public housing, this provides a golden opportunity to mitigate the unequal distribution of capital by providing homeownership and therefore an asset, possibly the most valuable form of capital, for the relatively lower-class citizens living in public housing.

The Report has suggested that the effects of the current public housing programme divides the population into the 'haves' and the have-nots'. This perpetuates the inequity of housing allocation among older PRH units, the widening of the inequality gap among classes, as well as driving divorce and family breakdown that consequentially leads to intergenerational poverty and lower social mobility, and is an injustice to the population of Hong Kong. A practical solution to address these complications all at once would be to strive for bona fide homeowners and boost homeownership rate.

Therefore, the Report is optimistic that the SHS will bring about positive externalities for the society in Hong Kong as a whole. A city of homeowners with a more equal distribution of assets would unify Hong Kong and in the long-run the fissure between the 'haves' and the 'have-nots' would be reduced substantially. It is possible that the bellicose grievances brought about by the housing policy could also be significantly diminished. The pursuit of a more equal and a more unified Hong Kong could be achieved.

Appendix I: A Note on the Resettlement Programme

In most countries, governments are not involved in providing housing, and certainly not on the scale of Hong Kong, where some 50% of the population live in public housing units. This is a post-war phenomenon: until 1954, the Hong Kong government was not involved in building homes. The decision to adopt such an approach was the product of a set of unique circumstances and misguided government policy in the immediate post-war years.

First, housing supply could not be easily increased at that time. Private developers faced formidable constraints in redeveloping the urban housing stock. Rent control imposed on pre-war housing in 1947 made it difficult to evict tenants for redevelopment.

Second, the massive influx of immigrants increased the population from 600,000 in 1945 to 2.3 million in 1951 and led to an explosive growth in demand for housing. No society in peacetime had experienced such a phenomenon. It was a unique situation. Land available for development was invaded by about 300,000 squatters seeking alternative housing from the old private tenement apartments.

Third, the government was initially reluctant to facilitate housing development despite intensive lobbying from private business interests. There was general hostility towards private developers, many of whom took part in building squatter housing.

The old tenement blocks were packed with massive numbers of immigrants and returning residents. Most became subtenants. A small proportion of the new arrivals spilled over into squatter areas on the fringes of the urban areas by occupying land illegally. The government soon realised that development had become impossible because rent control had made it difficult to redevelop land within the urban areas, and land on the perimeter was illegally occupied by squatters. The only politically feasible to secure land for development was to resettle squatters into public sector housing units and reclaim the land they had occupied.

The Shek Kip Mei Christmas fire in 1954 provided an ideal opportunity for the government to introduce Resettlement Estates as a solution for dislocated households and to clear squatter areas.

The government therefore became a provider of public housing by default. This path may have been motivated in part by public relations reasons, to put a humanitarian face on its actions to clear squatter housing, but this secondary reason subsequently became the main justification for the continued growth of the public housing programme. After the social disturbances of 1967, the public housing programme became the centrepiece of a policy to restore public confidence and calm the community.

There could have been other strategies, but these were not explored. Hence, Hong Kong's housing strategy has lacked any forward-thinking goals. Moreover, it is characterised by a high level of government involvement in the housing market.

Appendix II: Measurement of Household Income Inequality

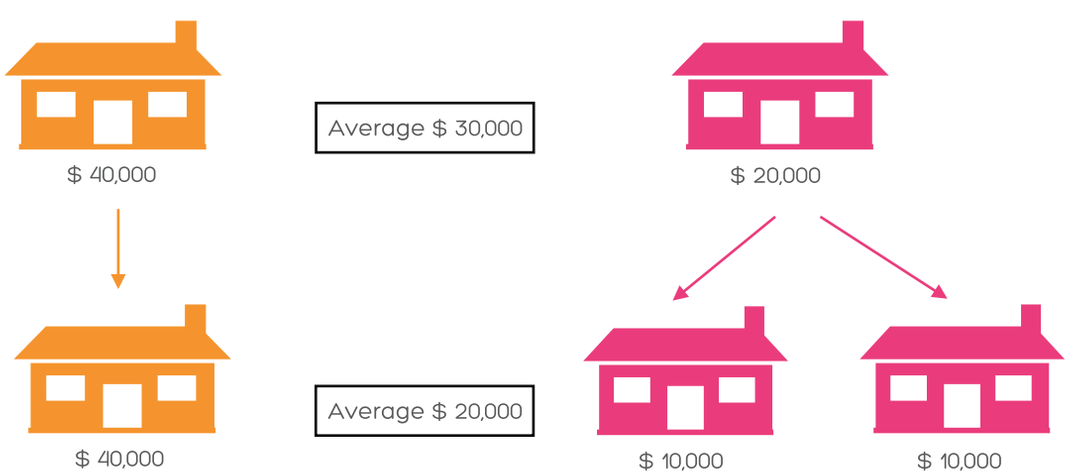
When the divorce rate is rising, especially when it is rising disproportionately for poorer people than for wealthier people, then the measurement of household income inequality could be fairly distorted. This is a purely statistical point about the way household income is measured. Below is a stylised example to demonstrate this.

Suppose there are only two households in society, each consisting of a working husband and wife. One household has an income of $40,000 (the husband and wife each earn $20,000), and one has an income of $20,000 (the husband and wife each earn $10,000). The average household income in this two-household society is $30,000.

Now suppose the husband and wife in the lower-income family gets divorced. They each keep their jobs. Now there are three households, one earning $40,000 and two earning $10,000. The average household income has fallen from $30,000 to $20,000, a drop of 33% even though everyone's income is unchanged.

This example shows that, during a time when individual income is actually unchanging, a rise in the divorce rate among families below the average income is going to pull down the measured rate of average household income.

Figure 9. Distortion of household income inequality



Appendix III: Homeownership Rate and Housing Prices

As discussed in Chapter 8, there have been concerns that an increase in homeownership upon the privatisation of public housing under the proposed SHS might trigger undesirable fluctuations in the property market. This unease warrants further study.

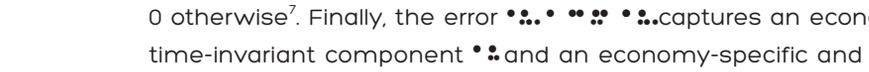
Methodology

To investigate into this concern, we have conducted a panel regression with fixed effect to explore the nexus between homeownership rate and home prices variation. Movement of home prices is modelled as follows:

represents the home price indicator, measuring the percentage changes of residential properties in a given economy *i* at time *t*, where *t* denotes a particular year. *X* is a vector of economy-specific control variables that would conceivably affect home prices, e.g. GDP growth, inflation and interest rate denotes the homeownership rate of economy *i* at time *t*.

To control for any omitted characteristics which are constant across economy yet are different across time, e.g. evolution of regulatory environment which might impact a group of nearby economy equally at a given year, a vector of binary variables Y representing different years is added. It equals 1 if the observation belongs to a given year, and is set to be 0 otherwise[7]. Finally, the error captures an economy-specific time-invariant component and an economy-specific and time-variant component .

Rewriting the above equation in time period t-1 gives:



where . A panel regression model with fixed effect is numerically equivalent to taking a first difference of the two equations, i.e. the two states of the economies in two adjacent periods of time. Differencing yields:

7. For example, if the observation is in the year 2004, then the variable representing the year 2004 will be set to 1, whereas those representing the years 2005 to 2014 will be set to 0.

• •denotes the differencing operator that takes the difference of the variables over time period *t* and *t-1*. During this process, unobserved economy-specific heterogeneity • :that may correlate with other economy characteristics that are included in the controls vector *X* is removed. Empirically, we are interested in the sign and statistical significance associated with • • !

Data

Our data is a set of annual statistics pertaining to 33 economies over the period 2004 (or whichever earliest year) to 2015, with a total number of observations of 310. The definitions and sources of each non-binary variable is summarised below.

The dependent variable is:

- *Home Price Index (HPI)*: Measures the percentage changes of residential property prices in a given economy in a given year. Data is retrieved from Eurostat and CEIC for overseas economies, and Rating and Valuation Department for that pertaining to Hong Kong.

The independent variables are:

- *Homeownership Rate (HOR*): Measures the ratio of owner-occupied units to total residential units in a given economy in a given year. Data is retrieved from Eurostat and CEIC for overseas economies, and Census and Statistics Department for that pertaining to Hong Kong.

- *Inflation rate (included in the vector X)*: Measures the percentage change of the consumer price level of a given economy in a given year. Data is retrieved from Eurostat and CEIC for overseas economies, and Census and Statistics Department for that pertaining to Hong Kong.

- *GDP growth rate (included in the vector X)*: Measures the percentage growth of GDP of a given economy in a given year. Data is retrieved from Eurostat and CEIC for overseas economies, and Census and Statistics Department for that pertaining to Hong Kong.

- *Nominal Interest Rate (included in the vector X)*: Measures the short-term base nominal interest rate or interbank interest rate of a given economy in a given year. Data is retrieved from CEIC. **Table 14** describes the proxy used for nominal interest rate in different economies.

Results

The formal regression results are presented in **Table 15.** In the baseline regression with no fixed time effect, as shown in Column (1), the coefficients associated with GDP growth and inflation rate are positive and statistically significant, whereas that for interest rate (which captures borrowing costs) is mildly positive but statistically insignificant, as is the impact of homeownership rate on home prices.

After fixed time effect is controlled for, as shown in Column (2), all coefficients attached to real economic variables are consistent with economic intuitions and are noticeably greater in magnitude when compared with Column (1), i.e. economic growth and inflation is positively related to home prices, while the opposite is true for nominal interest rate. In this model, homeownership rate again appears to have a positive impact on home prices, albeit statistically insignificant.

To explore further the nexus between homeownership rate and home prices, we presented a third regression result in Column (3) with a squared term of homeownership rate added. Interestingly, the coefficient associated with homeownership rate is still positive but becomes greater in value and even marginally statistically significant, whereas the relationship between home prices and real economic variables is preserved.

In conclusion, our empirical analysis shows that an increase in homeownership rate will not necessarily elicit a reduction of home prices.

Table 14: Proxy for nominal interest rates

Economies	Proxy for nominal interest rate
Austria, Belgium, Cyprus, Estonia, Finland, France, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia, Spain, Germany	Short Term (3-month) Interest Rate
Bulgaria, Croatia, Czech Republic, Denmark, Hungary, Poland, Romania, Sweden, United Kingdom, Singapore, Taiwan, Japan	Short Term (3-month) Interbank Offered Rate
Hong Kong	Short Term (3-month) Interest Settlement Rate
United States	Fed Funds Rate

Source: CEIC.

Table 15. Regression analysis of the effect of homeownership rate on housing price

Dependent variable: Home Price Index (HPI)			
Regressor	(1)	(2)	(3)
Homeownershio Rate (HOR)	0.043 (0.192)	0.150 (0.172)	0.502 (1.644)
Inflation rate	0.713** (0.303)	1.316*** (0.271)	1.330*** (0.293)
GDP growth rate	1.986*** (0.181)	2.054*** (0.247)	2.049*** (0.253)
Nominal Interest rate	0.250 (0.362)	-1.283* (0.662)	-1.273* (0.659)
$(HOR)^2$			-0.002* (0.011)
State effects ?	Yes		
Time effects ?	No	Yes	Yes
N	310		
Year	2004-2015		
F-statistics and p-values testing exclusion of groups of variables			
Time effects = 0		7.3 (0)	7.3 (0)
Inflation rate,GDP growth rate, Nominal interest rate = 0	45.27 (0)	40.8 (0)	40.83 (0)
Adjusted R^2	0.624	0.681	0.679

Note : These regressions were estimated using panel data for 34 countries from 2004 to 2015 (310 observations total), described in the Data Section. Standard errors are given in parentheses under the coefficients and p-values are given in parentheses under the F-statistics. The asterisks denote the statistical significance of each coefficient (* for 10% level, ** for 5% level, and *** for 1% level).

Source: Our Hong Kong Foundation.

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PART TWO:
Macro Considerations Surrounding Land Supply

Executive Summary

1. Housing and Land Supply Situation

Our Hong Kong Foundation (OHKF) forecasts that in the next four years the annual average completion of new private housing units will be about 18,000 units. This represents an approximately 60%-increase compared to the corresponding figure of the preceding decade (2006-2015) of approximately 11,000 units. However, in terms of total residential Gross Floor Area (GFA) completed, the corresponding increase is estimated to be less than 30%. In other words, we are expecting private homes that are increasingly smaller in size.

Despite the expected increase of short-term housing supply in the private sector, medium- to long-term land supply situation still warrants great concerns, and public housing supply still trails significantly. Whilst the expected average completion of 18,000 private homes per year during 2016 to 2019 will satisfy the corresponding supply target stipulated in the "Long Term Housing Strategy" (LTHS) of 18,000 units per year, it is expected that only less than 100,000 public housing units (Public Rental Housing (PRH) and Home Ownership Scheme (HOS) units) will be completed over the period 2016 to 2020. This falls 30% short of the of the public housing supply target prescribed by the LTHS, which is 140,000 public housing units over the next five years.

Expected completion of residential units

Type of housing		Completion (units)	2 Years 2016 - 2017	5 Years 2016 - 2020	10 Years 2016 - 2025
Public housing	Public rental housing	Target^	40,000	100,000	200,000
		Expected	28,600	80,100	?
	Subsidised sales flats	Target^	16,000	40,000	80,000
		Expected	3,100	19,800	?
Total supply of public housing		Target^	56,000	140,000	280,000
		Expected	31,600	99,900	255,000
Private housing		Target^	36,000	90,000	180,000
		Expected	33,700	70,400*	?
All housing		Target^	92,000	230,000	460,000
		Expected	65,300	170,900	?

Notes : (^) Assume that the total housing target stipulated in the Long Term Housing Strategy is evenly distributed over the 10-year period.
(?) Question marks denote unavailable information.
(*) Figures are OHKF projections for the four years 2016 to 2019.

Sources: Transport and Housing Bureau, Rating and Valuation Department, and Our Hong Kong Foundation.

Investigating into the land supply situation in detail, we find that in 2015, the total GFA sold in government land sales originating from reclaimed land and new towns encompassed only 50% of the overall figure, down from 73% in 2012. On the contrary, land that needs to go through town planning processes of rezoning for development such as slopes, government sites (such as former staff quarters), work sites etc. surged from 8% of the total residential GFA in 2012 to 41% in 2015. This reflects that readily developable government land is dwindling, and therefore the government is increasingly relying on change of land use as a means of land supply, as a consequence of the lack of large-scale land development project over the past decade.

2. The Demand: Land is Much More than Housing

The vacancy rate of private residential property market in 2015 was estimated to be 3.7%, at its lowest level since 1990, or over the past two and half decades. This clearly indicates that a significant supply-demand imbalance still exists in the market.

In fact, data analysis over the past 30 years suggests that the underlying forces for household formation has been fairly strong recently. From 2011 to 2015, the combined average annual number of first marriages, live births (only refers to babies whose both parents are permanent Hong Kong residents), and divorces is even higher than the corresponding figure for the period 1986 to 1995. However, comparing the two periods in question, overall housing completions plummeted by some 60%.

The undersupply situation in the commercial sector remains. New supply of Grade A office in Hong Kong from 2016 to 2020 is forecast to be an average of 1.6 million square feet per annum (sf p.a.), which trails the corresponding 20-year average absorption volume of some 2 million sf p.a., implying that office space shortage is likely to continue. Rising rents and declining vacancy rates have been observed in almost all sub-markets in the Grade A office sector, indicating across-the-board robust demand.

Since the onset of the millennium, the total retail sales value of the city saw a 1.5x increase, but private retail space over the same 15 years only grew by 23%. Such gap between supply and demand was particularly pronounced during the past few years, with retail sales value growing by 73% against new supply of private commercial space of merely 3% for the period 2009 to 2015. This has translated into soaring retail rents, sending general inflation higher as well.

As for industrial properties, the vacancy rate for private flatted factories in Hong Kong has actually been on a continual decrease since 1996 and was estimated to be 5.0% at the end of 2015, the lowest level since 1988.

The social need for space is equally, if not more acute. Statistics released by the Hospital Authority (HA) revealed that the average in-patient bed occupancy rates of all hospitals under HA during 10 days ended 17th February, from 2014 to 2016 were 105%, 101% and 110% respectively.

3. Practical Issues and Challenges in Land Supply

There is an emerging discourse in the community that land supply does not necessarily have to rely on reclamations or development of new towns. The said discourse argues that there is still a large amount of land resources that has not been efficiently used in Hong Kong. Therefore, the formulation of land supply strategy by the government should prioritise optimising inefficiency in the existing land resources.

An example of the inefficient use of land resources is brownfield sites. "Brownfield sites" refer to abandoned agricultural or rural land in the New Territories that are converted into various other uses such as open storage, container yards, warehouses, and industrial recycling yards etc., which are often incompatible with the surrounding environment.

OHKF believes that brownfield sites are only one of the many land supply avenues and are not enough to satsify all land demand. The vast majority of our brownfield sites are privately owned, and are with different operations. To develop brownfield sites, the process must involve such issues as land resumption, relocation, resettlement, and compensation. We have surveyed numerous public housing projects to be completed in the years 2015/16 to 2018/19 and established that whenever such issues are involved in these development projects, they all require an exceedingly long lead-time. Indeed, the several New Development Area (NDA) projects being pursued by the government cover a sizable area of brownfield sites.

In the United Kingdom (UK) where the "Brownfield First" principle is adopted, not only does the definition of brownfield differs from Hong Kong, most of their brownfield sites are vacant. It is estimated that while the UK would need up to 3.3 million new homes from 2015 to 2030 (15 years), total housing capacity of brownfield sites is only 1 million. In other words, if only brownfield sites are used for housing purpose, the country would see, on top of the shortage that it is already faced with, an additional shortfall of 2.3 million homes in the next 15 years. Another study has also estimated that the new homes to be built on brownfield sites in London (instead of the UK) would cost an average HK$10,000 psf (adjusted as 2015 HK$), which is more or less the market price of private residential property in Hong Kong.

Taking into account that Hong Kong has not seen any large-scale land development projects for an extended period of time, land supply policy must follow a multi-pronged approach instead of prioritising brownfield sites, or any particular avenue of land supply over others.

4. Land Reserve

While the decision to halt the supply of land and housing during the recession and property market slump of the late 1990s and early 2000s was justifiable given the circumstances; with hindsight, it makes one wonder that if the government were to start on the statutory planning requirements and works-related feasibility studies a decade ago, would the housing problem today be less severe. Indeed, a number of large-scale

NDA projects that were promulgated nearly 20 years ago but were shelved, were re-tabled again in the past few years.

For example, the tadpole-shaped NDAs of Kwu Tong North and Fanling North encompass virtually the same plots of land are present in both the old study in 1999 and the new study in 2014. The areas of Ping Che / Ta Kwu Ling to the north-east and Hung Shui Kiu to the south-west that were advocated in the older plans likewise correspond to the same areas of study in the newer plans re-tabled more than 15 years later.

Additionally, the quantity of planned housing units and population intake parallels each other nearly number by number, with the exception of the Kai Tak NDA.

Comparison of pre-2000 / early 2000s and post-2010 development plans

Strategic Growth Areas	Planned Flats Production/ Population*	
	Pre-2000 / early 2000 plans	Post-2010 plans
Tung Chung-Tai Ho	Flats: 95,000 Population: 274,000	Flats: 49,400@ Potential Population: 148,000
Kwu Tong North/ Fanling North	Population: 180,000	Flats: 60,000 Potential Population: 180,000
Hung Shui Kiu	Population: 160,000	Flats: 60,100 Potential Population: 180,300
Kai Tak	Population: 215,600	Flats: 41,100 Potential Population: 123,000

Notes : (*) The potential population is calculated under the assumption that the average number of persons in a household dwelling is three.
(@) Private and public flats built in the Tung Chung area by the end of 2015 totalled approximately 30,000 units.
Sources: Planning Department, Civil Engineering and Development Department, and Legislative Council.

Therefore, the government should make a determined effort to establish and sustain a land reserve for the purposes of planning for the provision of land, housing, and strategic development initiatives beyond the usual planning time horizon. The land reserve would help alleviate the problem of long lead-time and ensure that future forecast of medium to long-term land demands are met.

5. Lantau Development

Hong Kong has not witnessed the completion of any large-scale land development project for well over a decade. Looking ahead, the next large-scale land development project with an immense strategic value to be completed in the city would be the development of the Lantau Island, which is presented with its next development opportunity to become the intersection point between Hong Kong, Macau, and the Pearl River Delta (PRD) upon the completion of the few inter-city transportation infrastructures. Regarding the Lantau Development, we put forth five recommendations:

1. ***Prioritising transportation in urban development***: That the Tung Chung New Town has been constantly falling short of its original planned capacity is also partly due to the chronic shortage of supporting community facilities. Without notable improvements in transportation in Lantau, the existing problems of long commute time and high transportation costs, will be further exacerbated by the increased population intake of the Lantau Development. Worse still, the town may become a bottleneck after the completion of HKZMB. To avoid the city's past planning mistakes in developing new towns, transportation must be prioritised in the Lantau Development blueprint.

   Local stakeholders of Tung Chung and the Airport almost unanimously reflect that the existing network of public buses and roads fail to connect the two said locations effectively and efficiently. Indeed, whilst the distance between Tung Chung city centre and the Hong Kong International Airport (HKIA) is 4 km, similar to that between Central and Causeway Bay, the travelling time between the former is 30 minutes, which is three times that of the latter (10 minutes).

   In the short-term, we recommend an increase in the frequency of the current bus routes connecting the Tung Chung residential areas and the airport island. We believe a 10-minute interval between buses would help to provide a more reliable and predictable transportation services to the Tung Chung residents working on the airport island, such that the advantages of the proximity between the two locations could be fully realised.

2. ***Balancing the different aspirations in different regions***: Varying development strategies for different regions of the Lantau Island should be devised. In view of the large differences between northern and southern Lantau Island, we suggest adopting the principle of "development in the north, conservation in the south".

3 ***Maximising the "clustering effect"***: Lantau should be established as a world-class "showcase" under the planning concept of an "Aerotropolis" centres around HKIA, connecting the North Commercial District (NCD), AsiaWorld-Expo (AWE), Hong Kong Boundary Crossing Facilities (HKBCF) Island, Tung Chung and Siu Ho Wan. The complete industry chain within the "Aerotropolis" will transform Lantau into a world-class tertiary industry hub in the Pearl River Delta, providing such services as transportation, trade, logistics, tourism, healthcare, retail and education to visitors and businesses.

   In particular, the first phase of NCD development can provide 2 million sf of commercial space, which can support a large-scale commercial complex that provides a myriad of services to tourists visiting or transiting through Hong Kong. With enough transportation support, such as a new railway station, sufficient car-parking lots and park-and-ride/-fly facilities, tourists can plan their entire itinerary on the Lantau or even the airport island, thereby relieving the pressure on the transportation system between the Lantau and the city. The NCD development was proposed in the 2014 Policy Address by the Chief Executive. We suggest the government to work closely with the Airport

Authority (AA) to accelerate the said project.

. OHKF also supports the Lantau Development Advisory Committee's (LanDAC) proposal of reclaiming surrounding waters of Kau Yi Chau and the typhoon shelter of Hei Ling Chau for the construction of the "East Lantau Metropolis" (ELM) while connecting Lantau to the Hong Kong Island by roads and railways. ELM will be an important source of developable land and a long-term strategic growth area after 2030. We suggest that the government should adopt advanced reclamation techniques to minimise its ecological impact and reduce the degree of ground settlement of ELM.

Proposed transportation network on Lantau North

Source: Our Hong Kong Foundation.

. OHKF also supports the Lantau Development Advisory Committee's (LanDAC) proposal of reclaiming surrounding waters of Kau Yi Chau and the typhoon shelter of Hei Ling Chau for the construction of the "East Lantau Metropolis" (ELM) while connecting Lantau to Hong Kong Island by roads and railways. ELM will be an important source of developable land and a long-term strategic growth area after 2030. We suggest that the government should adopt advanced reclamation techniques to minimise its ecological impact and reduce the degree of ground settlement of ELM.

4. ***Setting great store by ecological conservation***: The Lantau Island measures 147 sq. km, 70% of which is Country Park. The Country Parks Ordinance protects the designated areas with stringent constraints on development. Yet, protection does not mean zero construction. Indeed, Section 4(c) of the Ordinance also states that the government should "encourage their (the Country Park's) use and development for the purposes of recreation and tourism" and "provide facilities and services for the public enjoyment of country parks and special areas". Hence, we recommend the government to enhance the accessibility to the country parks on the Lantau Island through road improvement.

5. ***Establishing a dedicated office***: The government should establish an office led by top government officials to coordinate issues surrounding the Lantau Development, to prevent duplicated efforts and conflicting departmental policies, and ensure the consistency and continuity of

the whole development plan.

The Lantau Development means much more than just another source of developable land supply. It embodies the last - and the next - bold, essential and visionary land development project of Hong Kong that would be critical for our long-term social and economic development.

6. Speeding Up Land Development

Increasing development density

In view of the chronic shortage of space, to maximise the supply of different types of properties, we suggest further relaxation of development density should be considered in future NDAs or new town development projects, e.g. Kai Tak and Tseung Kwan O.

According to a recent research published by the Faculty of Construction and Environment of the Hong Kong Polytechnic University, the expected additional impacts on such factors as day-light duration, air circulation, skyline and atmospheric temperature are only minimal even if the average domestic plot ratio of the sites in Kai Tak NDA were raised to 6.7. Such a proposed change, however, would potentially increase domestic and non-domestic GFA by some additional 1.6 million sf and 1.2 million sf respectively.

It should be reminded that in the 2001 development plan for the Kai Tak NDA, the original population intake exceeded 210,000. This is in stark contrast with the latest corresponding figure of 123,000. As a rough reference, even if the development density is further increased by 20%, the population intake would still be below 150,000, or 30% less than that in the 2001 development plan.

Similar situation exists in other areas. Take Tsueng Kwan O South as another example. In 2005 when the property market was much less heated and the issue of over-supply was constantly lingering in the community, the government has responded by significantly lowering the plot ratios in Tseung Kwan O South from 6.5 to the range between 2 and 5. This represented a reduction in population intake from 131,000 to 98,000, or roughly 10,000 residential units.

Optimising underused government sites

Our brief research on Government, Institution / Community (GIC) sites in the Kowloon urban areas shows there are certain GIC sites in these regions that are either underused or poorly managed with undesirable conditions. Such sites include cooked food hawker bazaars, refuse collection points, car parks and work sites and could be found in areas like Tsuen Wan, Cheung Sha Wan and Yau Ma Tei.

To fully realise their development potential, especially when they are located in the urban areas, one possible way is to redevelop these sites into composite buildings to accommodate the original use (e.g. the cooked food facilities) with other public uses atop (e.g. non-permanent

residence like youth hostels). Langham Place is one such precedence, at which the indoor cooked food centre is situated at the podium level in a tall development.

We suggest the government to further review such sites in the urban area and consider short-term solutions like the ones described above. We hope that these land resources could provide at least a temporary relief for the inadequately housed. Alternatively, these land resources can at least be considered to support a denser development of other public facilities, such as community centres.

Streamlining Approval Processes

We are glad to see that the Development Bureau has communicated with the industry to discuss a set of improvements to the current approval mechanism. Some of the discussed proposals are similar to what we have raised in our first Research Report, for example a set of clearly pre-defined parameters ("Core Points") to be included in the approval of the "Design, Deposition and Height" submission and a standardised format of "Master Layout Plan" in accordance with the Practice Note. We hope that the government could actively strive to follow-up with these proposals.

We also reiterate our concern with the existing mechanism of land premium determination. This is especially the case when the "Pilot Scheme for Arbitration on Land Premium" which was introduced back in 2014 has only completed the abitration for one such case to date, involving a small amount of $39.3 million. We suggest the government to comprehensively review the said mechanism such that it can reflect the impact on development costs in response to latest changes in market situations and / or regulatory environment.

During the six fiscal years 2010/11 to 2016/17, the recurrent expenditure in the area of Planning and Lands rose by 43.3%, whereas aggregate recurrent government expenditure actually expanded by 55.7% over the same period. We urge the government to review its budgetary principles and allocate sufficient resources in accordance with the increasing needs of the policy area.

7. Conclusion

Land supply is a policy issue that unavoidably touches every family of the society. It also understandably causes great controversies among the community. However, mere debates and arguments do little to improve the current circumstance of space shortage, nor do these ameliorate any hardship of those suffering such as families living in sub-divided units and elders awaiting nursing homes. We hope that our research could provide the necessary information and new perspectives through which the issues of land supply could viewed, that may however be absent or insufficiently discussed in the arena of public discussion.

1. Housing and Land Supply Situation

The first part of the Report started with an in-depth exploration of the complex socioeconomic issues surrounding the existing public housing system, and explained how our proposed "Subsidised Homeownership Scheme" (SHS) and in the longer-term, the privatisation of existing public rental housing (PRH) units, could be a set of possible solutions to these issues. This part of the study will focus on the latest supply-demand dynamics across different property sectors and an exploration and review of the intricacies of land supply, with a view to raising policy recommendations in this area.

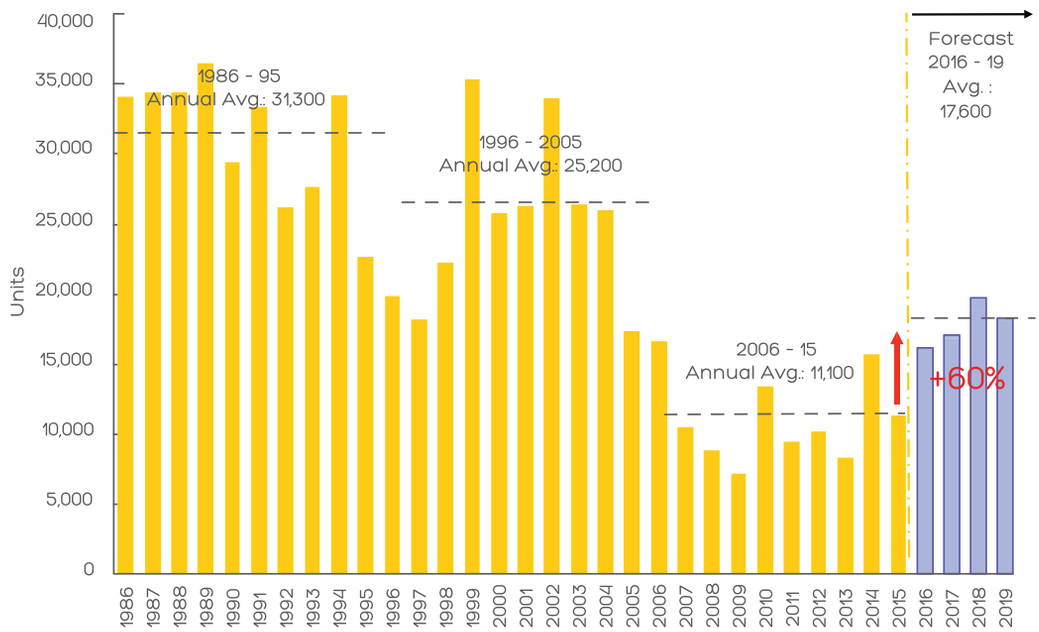
1.1 Statistics on the Housing Market

At OHKF, we believe that in the current arena of public discussion, there exists a certain degree of "information asymmetry" as far as housing market and land supply situation is concerned. There is a notable gap in terms of systematic, well-compiled and readily available data regarding land supply and housing market in the public domain.

It is true that the government and other organisations have been publishing statistics about certain aspects of the supply of first-hand private residential property. In particular, the Transport and Housing Bureau (THB) and Rating and Valuation Department (R&VD) estimate future private housing unit completions mainly based on notification of commencement of foundation and superstructure work received by the Buildings Department (BD). However, such figures usually only entail the forecast completions for the coming two years and are annual aggregate statistics without the information of each development project.

OHKF strives to bridge this gap by presenting a comprehensive forecast of future private housing supply in Hong Kong from 2016 to 2019, which is presented in the **Appendix**. We forecast that in the next four years the annual average completion of new private housing units will be about 18,000 units. This represents an approximately 60%-increase compared to the corresponding figure of the preceding decade (2006-2015) of approximately 11,000 units. In particular, the expected number of private units completed in 2018 will possibly approach 19,000 units, the highest since 2004 **(Figure 1).**

Figure 1. Completion of new private housing units



Sources: Rating and Valuation Department, and Our Hong Kong Foundation.

Table 1: Private residential units completed, 2015 to 2019

Year	Private residential GFA completed (million sf)
2015	10.00
2016	12.60
2017	12.99
2018	13.32
2019	11.83

Source: Our Hong Kong Foundation.

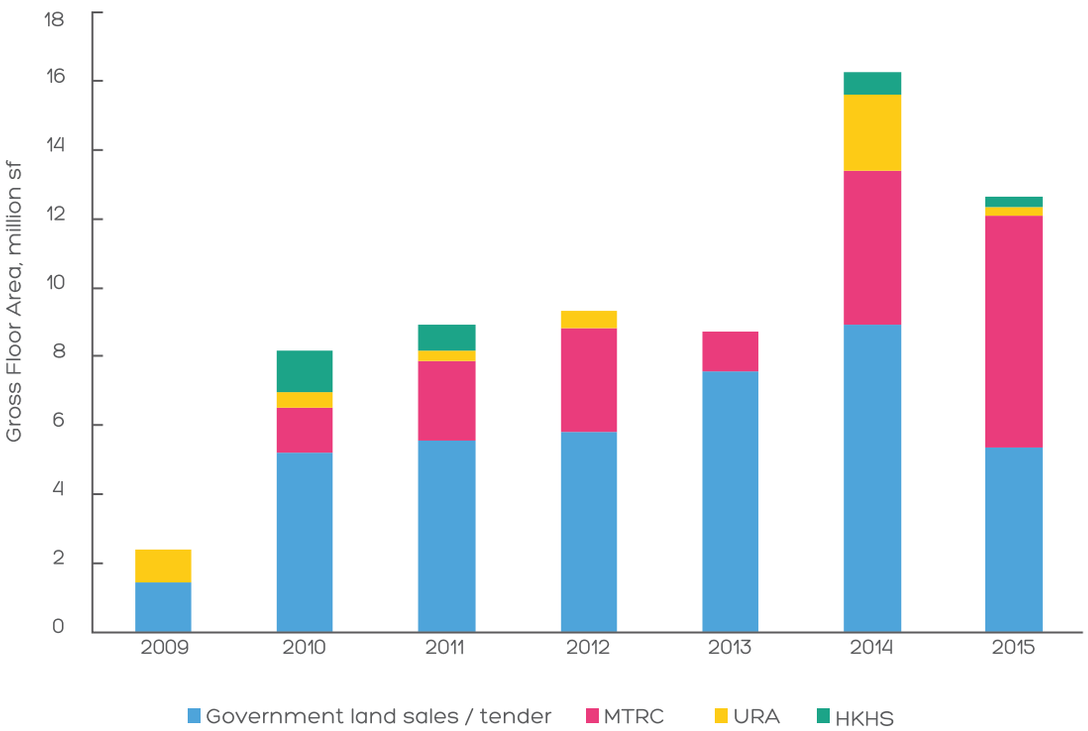
However, it should be noted that behind the increasing number of private housing units, the actual residential space, as measured in Gross Floor Area (GFA), has not actually increased significantly. Firstly, the estimated private housing space for the period 2016 to 2019 averages to be some 13 million sqaure feet (sf). This is only less than 30% higher than the figure in 2015, compared with the aforementioned 60%-increase in terms of number of units. Secondly, the estimated private residential GFA to be completed is 12.6 million sf in 2016, and is expected to register some slight but persistent declines afterwards to 11.8 million sf in 2019, notwithstanding the fact that the expected private housing unit completion is higher in 2018 and 2019. This shows that the average private housing unit is actually becoming smaller **(Table 1)**.

OHKF publishes the estimated completion of private housing units in the next four years and the information of each development project by

collecting and compiling public information from the BD, Lands Department (LandsD), and Town Planning Board (TPB); analysing projects held by different developers and conducting site inspection when necessary to determine actual construction progress. To the knowledge of the research team, this is the first set of such statistics available free of charge in the public domain.

The expected increase in completion of private homes echoes with the similar rising trends in residential land supply, commencement of housing construction and pre-sale consent approval.

Figure 2. Residential land supply (GFA) by different sources, 2009 to 2015



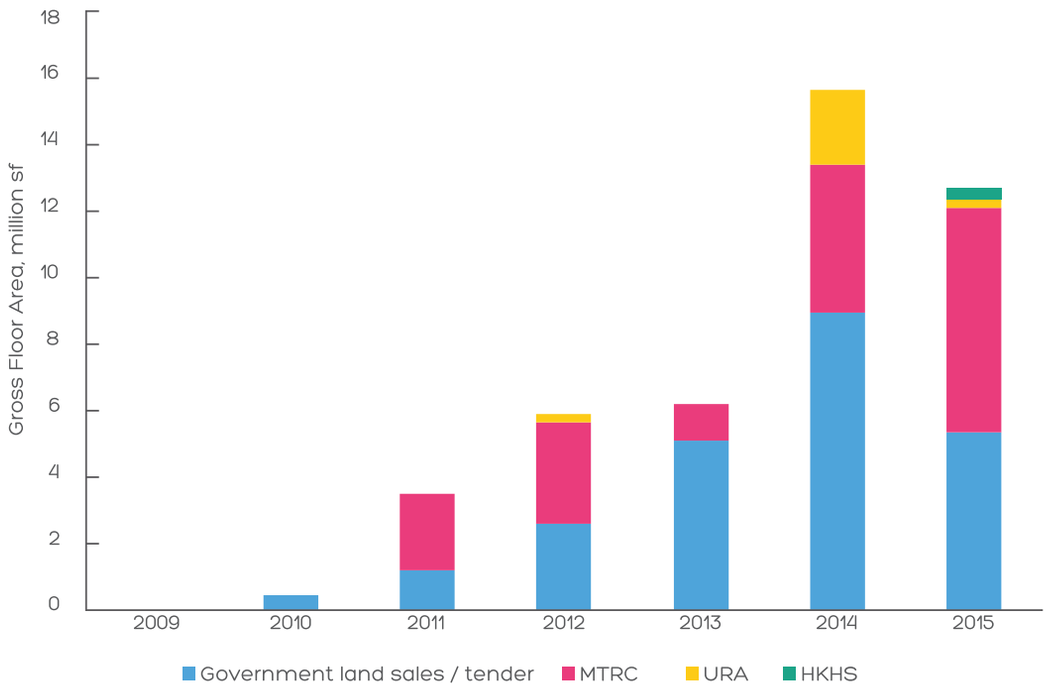
Note : Does not include private development (e.g. land exchange, lease modification, urban redevelopment project of private developers etc.).
Source: Our Hong Kong Foundation.

To start with, examining the four sources of government-led residential land supply, namely: land auction / tender, Mass Transit Railway Corporation (MTRC), the Urban Renewal Authority (URA), and the Hong Kong Housing Society (HKHS) in the past seven years (2009-2015), the two years of 2014 to 2015 saw an annual average of more than 14 million sf of residential GFA provided via these four channels. On an annual average basis, this is an increase of some 6 million sf (or 75%) from the preceding three years. Cumulatively, the years 2014 and 2015 alone provided nearly 30 million sf. This number is similar to the combined total of the preceding four years (2010-2013) which was 32 million sf **(Figure 2).**

Deducting the residential GFA of projects that have already been launched for presale or completed (as of May 2016) from that provided by the aforementioned four sources of residential land supply of the past seven years, there are at least an estimated 40 million sf of residential GFA that has yet to reach the market, an observation consistent with the

expectation that the number of private housing units completed would gradually increase from 2016 onwards **(Figure 3)**.

Figure 3. Residential land supply (GFA) yet to reach the market as of May-2016



Note : Does not include private development (e.g. land exchange, lease modification, urban redevelopment project of private developers etc.).
Source: Our Hong Kong Foundation.

In addition, the number of private units with superstructure work commenced in 2015 hit a 10-years high, whereas the first half of 2016 saw the said figures amounting to over 60% of its counterpart in 2015. Similar patterns were also observed in the number of private housing units obtaining pre-sale consent approval **(Figure 4)**.

Figure 4. The number of private housing units with pre-sale consents issued and private housing flat under construction

Note : (*) 2016 first half figures.
Source: Lands Department, and Buildings Department.

Whilst the expected increase of short-term housing supply in the private sector is certainly encouraging, public housing supply still trails significantly. More specifically, the expected average completion of 18,000 private homes per year during 2016 to 2019 will satisfy the corresponding supply target stipulated in the "Long Term Housing Strategy" (LTHS) of 18,000 units per year, despite an increasingly smaller unit size as we have illustrated in **Table 1**. However, it is expected that only less than 100,000 public housing units (Public Rental Housing (PRH) and Home Ownership Scheme (HOS) units) will be completed over the period 2016 to 2020. This falls 30% short of the of the public housing supply target prescribed by the LTHS, which is 140,000 public housing units over the next five years.

Table 2. Expected completion of residential units

Type of housing		Completion (units)	2 Years 2016 - 2017	5 Years 2016 - 2020	10 Years 2016 - 2025
Public housing	Public rental housing	Target^	40,000	100,000	200,000
		Expected	28,600	80,100	?
	Subsidised sales flats	Target^	16,000	40,000	80,000
		Expected	3,100	19,800	?
Total supply of public housing		Target^	56,000	140,000	280,000
		Expected	31,600	99,900	255,000
Private housing		Target^	36,000	90,000	180,000
		Expected	33,700	70,400*	?
All housing		Target^	92,000	230,000	460,000
		Expected	65,300	170,900	?

Notes : (^) Assume that the total housing target stipulated in the Long Term Housing Strategy is evenly distributed over the 10-year period.
(?) Question marks denote unavailable information.
(*) Figures are OHKF projections for the next four years (2016-2019).
Sources: Transport and Housing Bureau, Rating and Valuation Department, and Our Hong Kong Foundation.

Table 2 displays that over the medium- and long-term, the land supply situation in Hong Kong, even if we only focus on housing, still warrants great concerns especially in the public housing sector. The 30%-shortfall expected in the immediate five years is undoubtedly a cause for concern, but what is equally, if not more important, is that even though the government currently forecasts that it could deliver 255,000 public housing units over a ten-year horizon, it must be noted that this is a best-case scenario outcome that depends on, among other things, (a) successful attempts of change of land use in the immediate few years; and (b) the timely delivery of large-scale development projects such as the New Development Areas (NDAs) in the New Territories, both of which are bound to face a myriad of difficulties and challenges, adding severe uncertainties to the land supply situation in the medium- and long-term.

1.2 An Analysis of Recent Land Supply

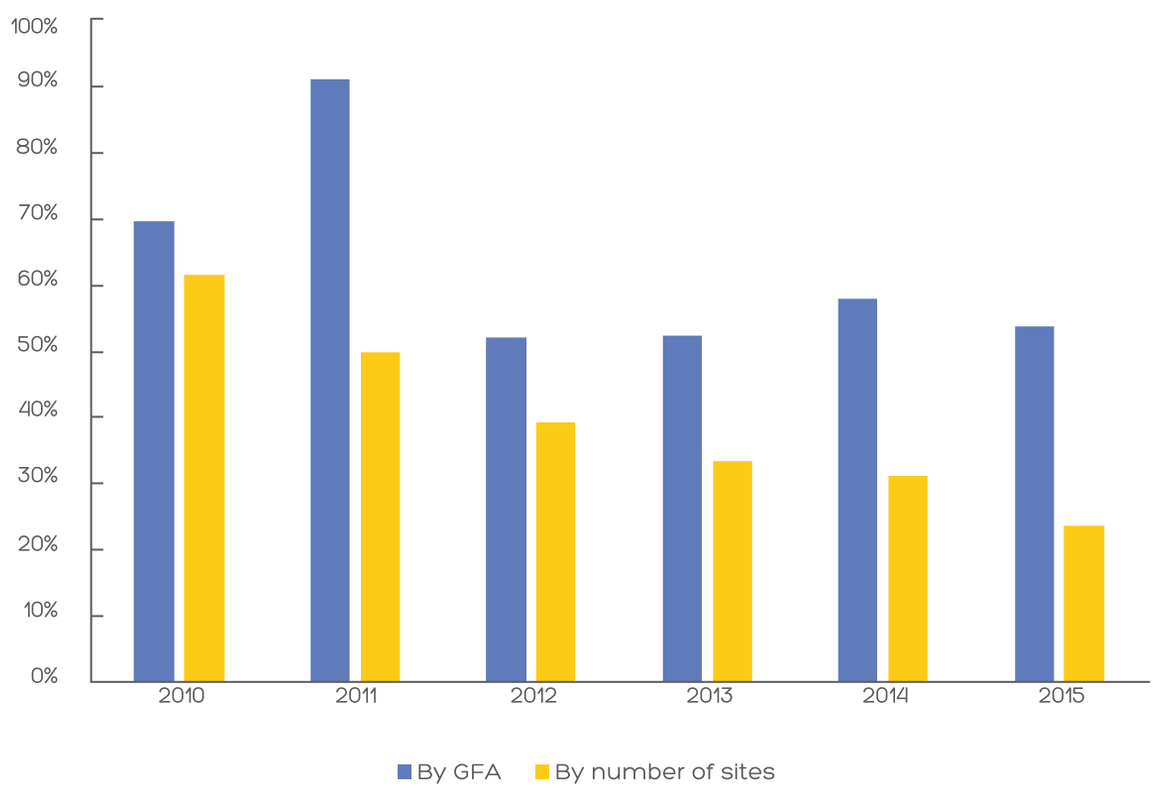
Further analysing the land supply from recent land auction and tender from 2009 to 2015, at least two insights could be drawn.

1.2.1 An increase in market competition

It is found that there is a significant increase of market participants. In the period from 2009 to 2015, the share of the total residential GFA successfully sold or tendered to the three largest participants decreased from about 70% to 90% to about 50% **(Figure 5).**

In the period concerned, the government has implemented a number of policy measures to reinforce its control over the supply of private residential first-hand properties, including the "dual track system" in 2010/11 under which regular land sales and the "Application List System" concurrently existed. Subsequently, the government in 2013/14 announced the abolishment of the "Application List System". The government has also recently preferred to use tendering (instead of auction) to execute land sales, as well as providing more small- to medium-sized sites with a view to encouraging new and smaller developers into the market. An increase in the number of market participants in the past six years should have produced a positive effect in the forms of enhanced market competition and market efficiency, hopefully creating more incentives for developers to speed up housing production and sales.

Figure 5. The share of the largest three participants in the land auction / tender market

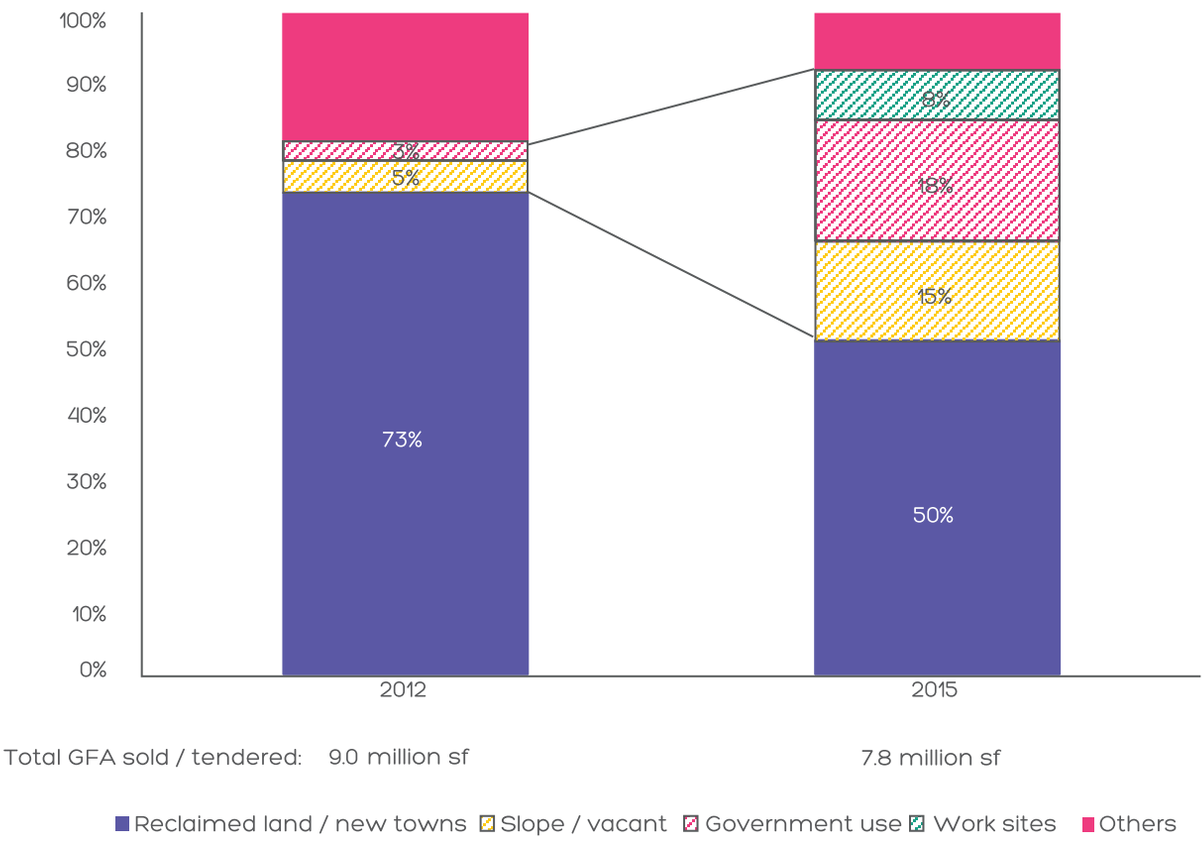


Note : Only include residential sites.
Source: Our Hong Kong Foundation.

1.2.2 Dwindling reserves of developable land

Delving into the former uses of developable land, it is discovered that over 70% of GFA sold in government land auction / tender in 2012 originated from reclaimed land from the 1990s, e.g. Area 66 in Tseung Kwan O, and from developable land in the previous generations of New Towns, e.g. Tuen Mun East and Kau To, Shatin **(Figure 6).**

Figure 6. Government Land Sales 2012 and 2015, by former use of sites

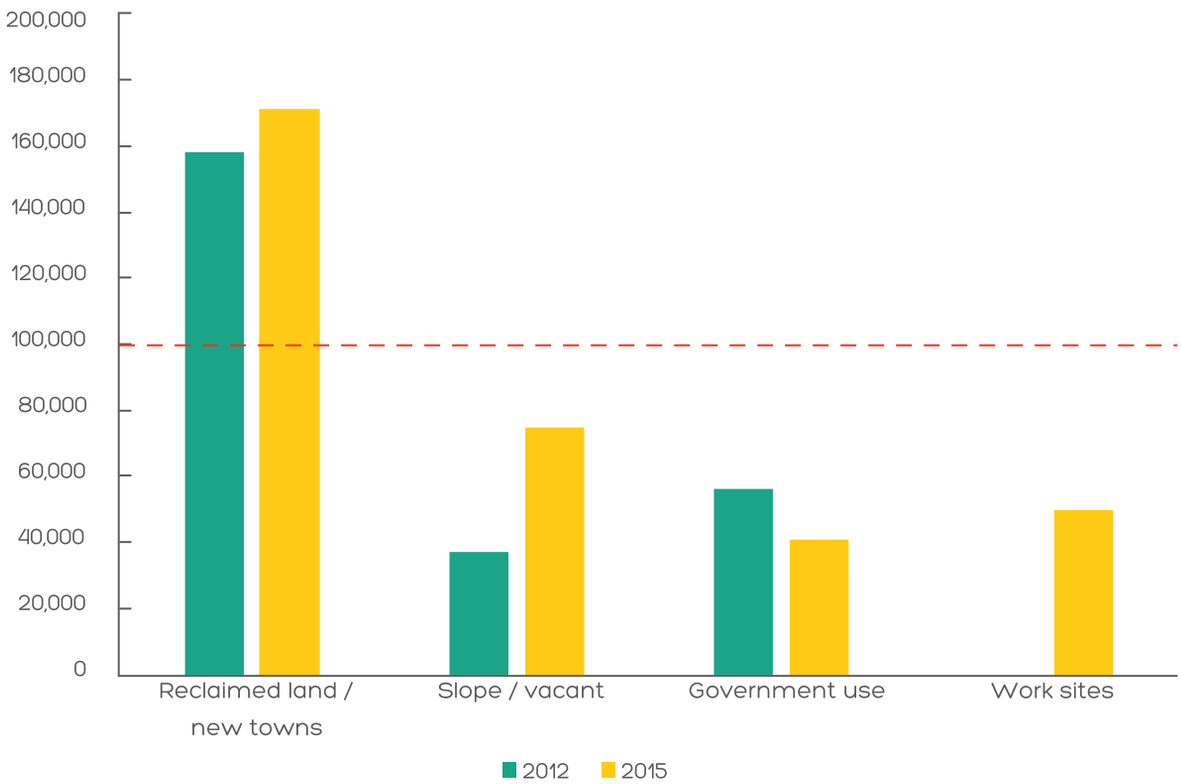


Note : Including non-residential sites.
Source: Our Hong Kong Foundation.

By 2015, the total GFA originating from reclaimed land and developable land in the New Towns encompassed only 50% of the overall figure. On the contrary, land that needs to go through town planning processes of re-zoning for development such as slopes, government sites (such as former staff quarters), work sites etc. surged from 8% of the total residential GFA in 2012 to 41% in 2015. This reflects that readily developable government land is dwindling, and therefore the government is increasingly relying on change of land use as a means of land supply (**Figure 6**).

If further comparison is made, the site area of reclaimed land and developable land from the previous generation of new towns are generally larger, with an average size of more than 160,000 sf. On the other hand, the average area of rezoned sites is significantly smaller, with an average site area of about 50,000 sf (**Figure 7**).

Figure 7. Average site area (sf) by selected former use of sites, 2012 and 2015



Note : Including non-residential sites.
Source: Our Hong Kong Foundation.

As we have emphasised in our first Research Report, land with a larger site area will not only generate economies of scale by lowering average costs for large-scale developments, it is also conducive to a more comprehensive and optimal planning. For instance, it can more easily accommodate development of large-scale commercial and residential complexes with adequate transport facilities such as transport terminals and car parks to be placed near residential areas. On the contrary, in addition to being unable to enjoy the benefits above, the shapes of smaller sites are usually unconducive to development, indirectly raising construction costs, which will ultimately be reflected on housing prices.

The analysis above sheds light on the wider problem of the lack of a land reserve in Hong Kong, which will be discussed in-depth in **Chapter 4**.

2. The Demand: Land is Much More than Housing

After reviewing in-depth the latest situation of housing supply, this Chapter gauges the demand for different types of properties, including residential, commercial and social "hardware", with a view to assessing the latest demand-supply dynamics across various property sectors of the city.

2.1. Housing Market

As discussed in the previous Chapter, with the current-term government stepping up its efforts in the provision of residential land supply, the potential supply of residential units in the next few years is expected to register some significant increases compared with the previous decade (2006 to 2015). Yet, having examined the end-user housing demand, we believe such an increase does not necessarily mean an excess supply in the residential property market. It is more likely to be a catch-up to the unsatisfied housing needs in the market.

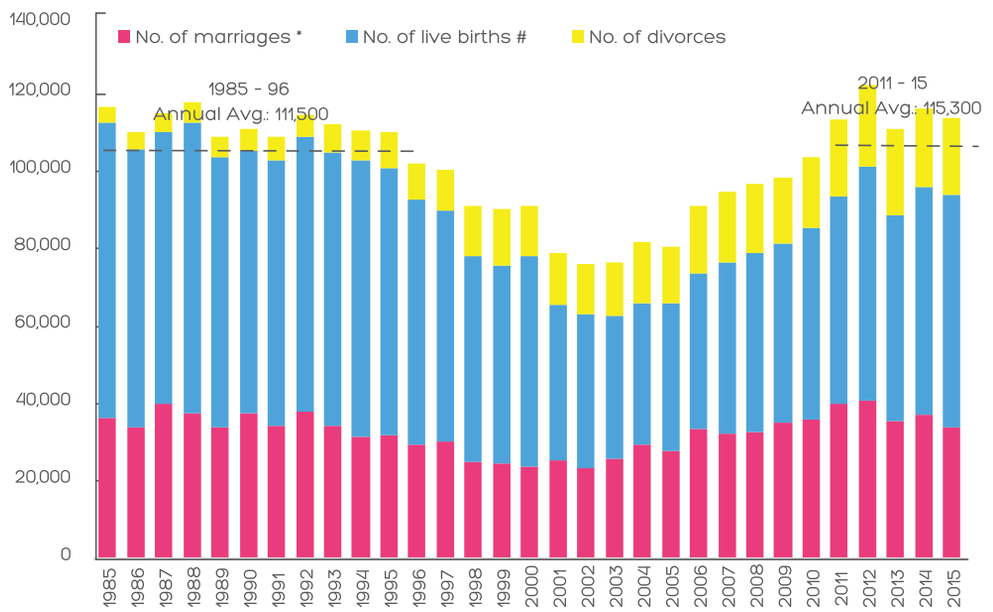
In fact, the recently released statistics revealed that the vacancy rate of private residential property market in 2015 was at its lowest level since 1990, or over the past two and half decades. This clearly indicates that a significant supply-demand imbalance still exists in the market (**Figure 8**).

Figure 8. Vacancy rate of private residential property market

Source: Rating and Valuation Department.

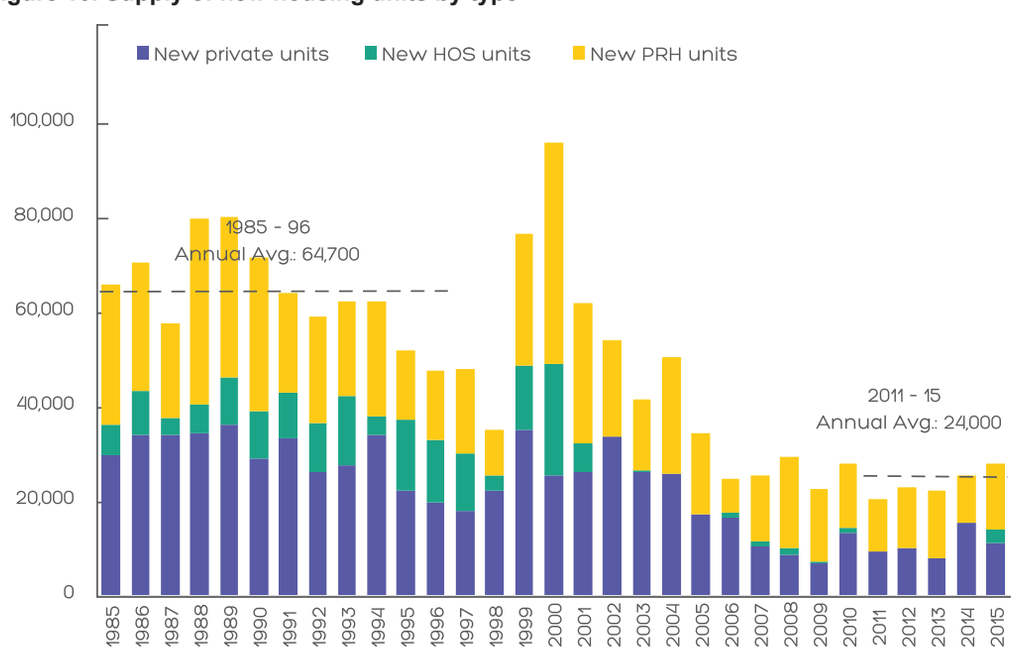
Household formation is an important factor for housing demand. Data analysis over the past 30 years suggests that the underlying forces for household formation has been fairly strong recently. For example, from 2011 to 2015, the combined average annual number of first marriages, live births (only refers to babies whose both parents are permanent Hong Kong residents), and divorces is even higher than the corresponding figure for the period 1986 to 1995 (**Figure 9**). These three factors are conceivably the most important drivers for family formation. In other words, the underlying demographic-driven housing demand in recent years should have been substantial. However, comparing the two periods in question, overall housing completions plummeted by some 60% (**Figure 10**).

Figure 9. Selected demographic events



Notes : (*) First marriages only.
(#) Refer only to babies whose both parents are permanent Hong Kong residents.
Source: Census and Statistics Department.

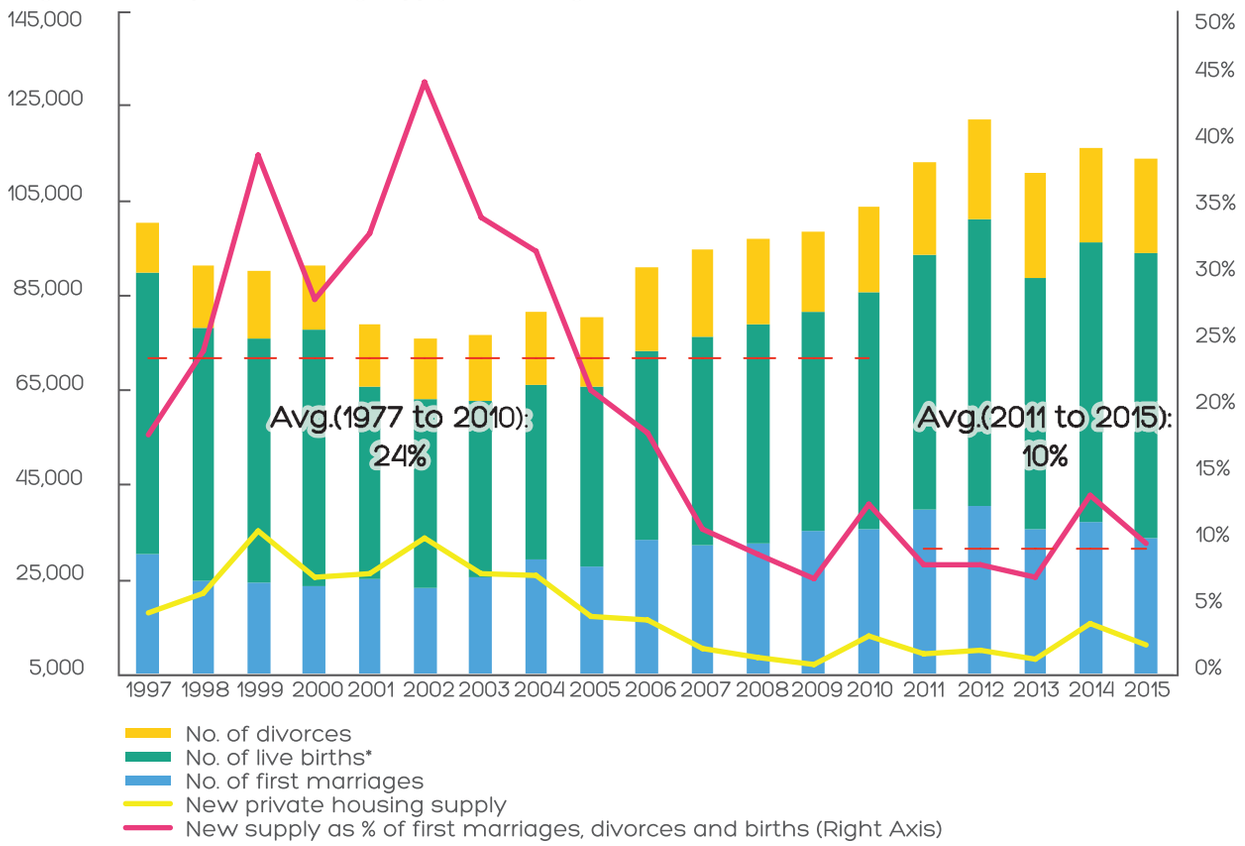
Figure 10. Supply of new housing units by type



Source: Census and Statistics Department.

To provide some context and illustrate the magnitude of undersupply, it should be noted that during 1997 to 2010, for every 100 first marriages, live births and divorces combined every year, there were on average 24 new flats completed. Such ratio has drastically fallen to a mere 10% during 2011 to 2015 (**Figure 11**). .

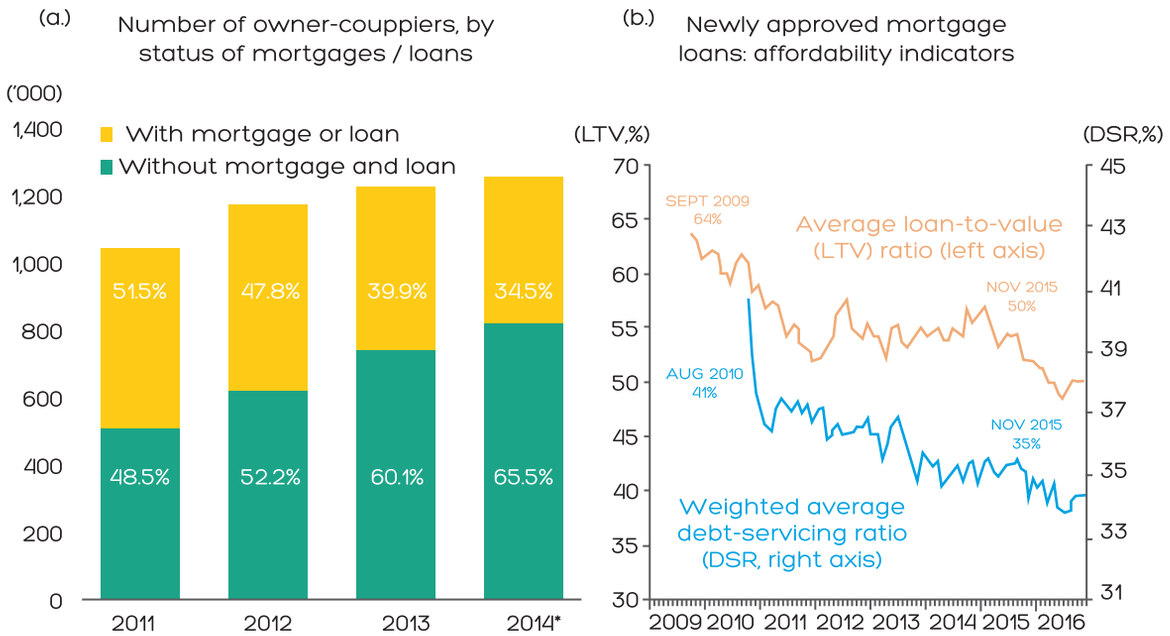
Figure 11. New private housing supply vs. marriages, births and divorces



Note : (*) Refers only to babies whose both parents are permanent Hong Kong residents.
Sources: Census and Statistics Department, Rating and Valuation Department, and Legislative Council.

Adding to the layer of underlying demand is a decent balance sheet of the residential property market. Latest figure shows that nearly two-thirds (65.5%) of owner-occupiers in the city have paid off the mortgages on their properties (**Figure 12(a)**). In terms of gearing, the average loan-to-value ratio of new mortgages has been steadily on the decrease, from 64% to less than 50%, since the Hong Kong Monetary Authority (HKMA) has tightened mortgage requirements in 2009. Similarly, the average debt-servicing ratio of these new mortgages has been hovering around 35%, which is the lowest level since 2010 (**Figure 12(b)**). Whilst short-term fluctuations are inevitable, the strong balance sheet position and fine affordability combined indicate a resilient fundamental housing demand in the market.

Figure 12. Selected affordability indicators of private residential property



Note : (*) Estimated using data from the *Hong Kong Poverty Situation Report 2015*.
Sources: Census and Statistics Department, Hong Kong Poverty Situation Report and Hong Kong Monetary Authority.

2.2 Non-Residential Property Markets

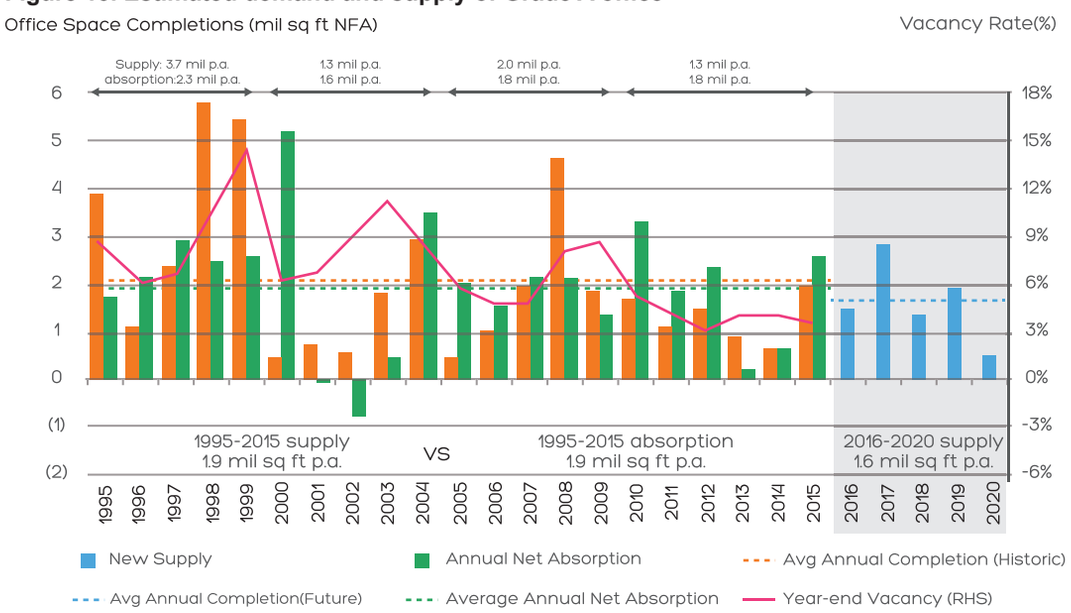
As we have emphasised in our first Research Report, Hong Kong faces a chronic shortage in land supply not only in housing, but also in accommodating a wide array of development needs in the economic and social aspects.

2.2.1 Office

We have previously quantified that the extent of undersupply in our Grade A office market during 2010 to 2014 totalled some 2.25 million sf (Net Floor Area), or one International Commerce Centre (ICC) atop the Kowloon Station, whilst no marked increase in near-term supply is expected, according to the research of international real estate consultant CB Richard Ellis. The firm puts the forecast new supply of Grade A office in Hong Kong from 2016 to 2020 at a total of less than 8 million sf, i.e. an average of 1.6 million sf p.a., which trails the corresponding 20-year average absorption volume of some 2 million sf p.a. (**Figure 13**), meaning the said situation of office space shortage is likely to continue.

CB Richard Ellis also pointed out that monthly rents for the Grade A office market has registered an 8.8%-growth for the whole year of 2015, bringing average rents to their highest level since mid-2008, which saw another increase of 2.3% in the first half of 2016.

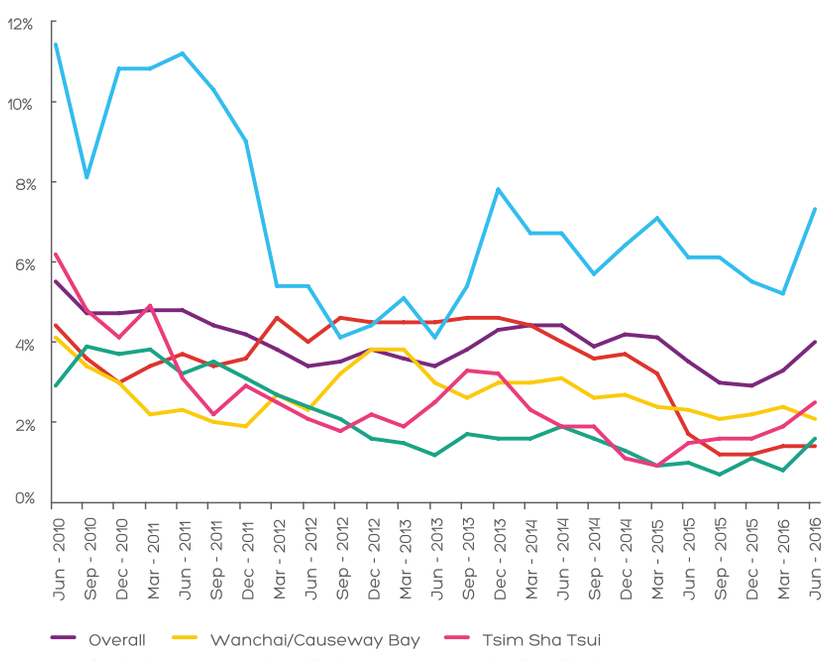
Figure 13. Estimated demand and supply of Grade A office



Source: CB Richard Ellis.

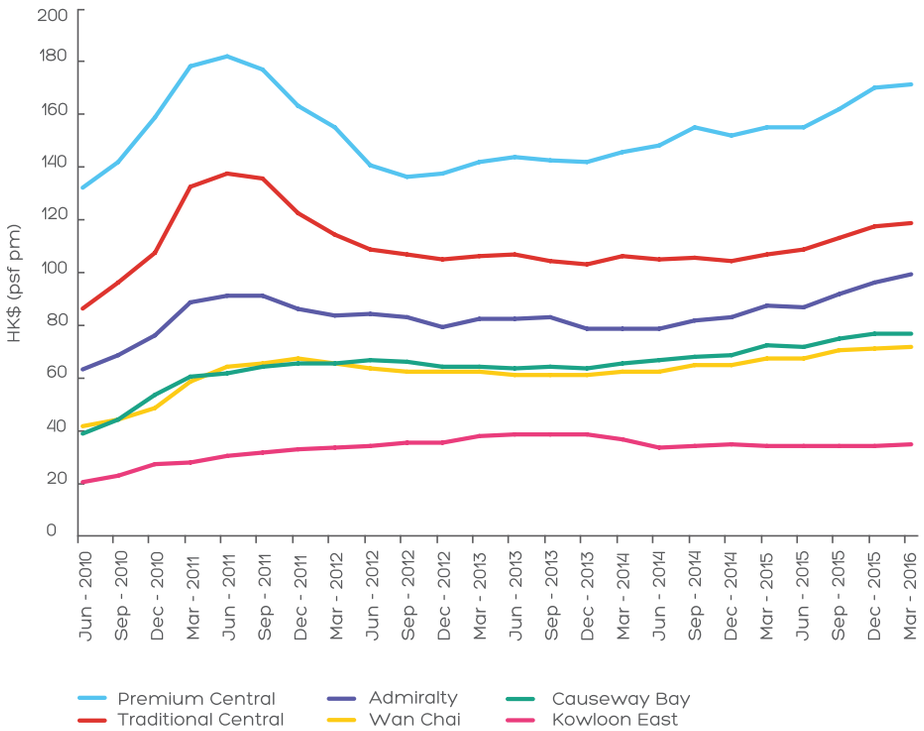
In the meantime, vacancy rate for the said market edged further down by 1.3 percentage points throughout 2015 to 2.9% as at the end of 2015, according to Jones Lang LaSalle. Despite some recent pickups, the figure is still subdued at 4.0% as at mid-2016, whereas that for Central still hovered around the 1.5%-level, meaning effectively every Grade A office building in the region is fully occupied. As **Figure 14** shows, the persistent downward trend of vacancy rates since mid-2010 cannot be clearer.

Figure 14. Vacancy rate of Grade A office by sub-market



Source: 'Hong Kong Property Market Monitor', Jones Lang LaSalle.

Figure 15. Grade A office rents by sub-market

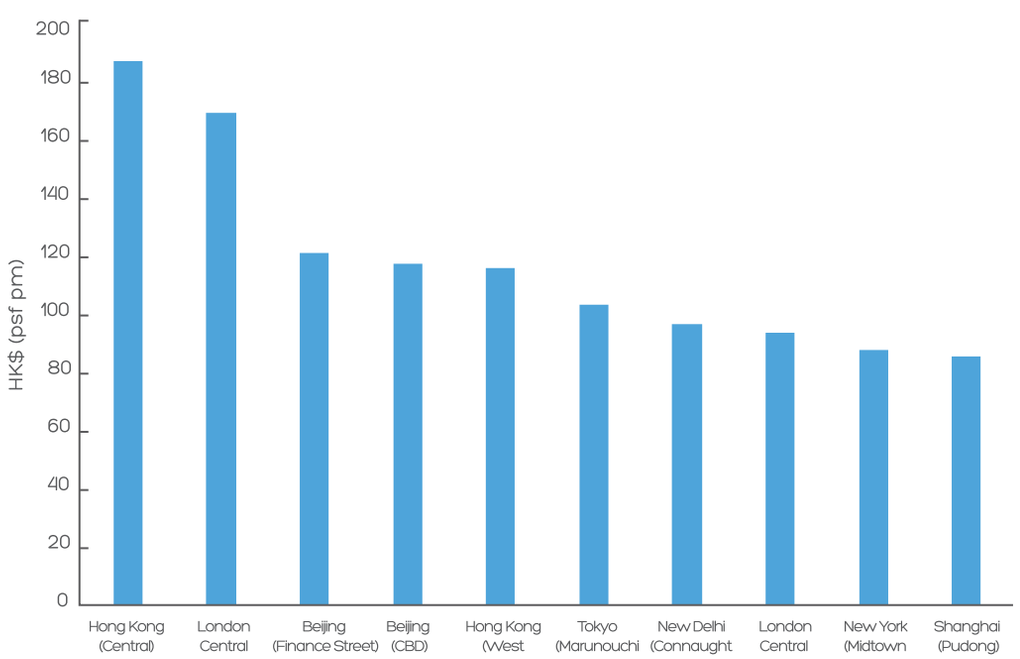


Source: 'Hong Kong Monthly', Knight Frank.

It should also be noted that the rising rents and declining vacancy rates have been observed in almost all sub-markets in the Grade A office sector, indicating across-the-board robust demand (**Figure 15**).

Elevated rental levels are detrimental to our competitiveness. The research of CB Richard Ellis has put the occupancy cost of Central, Hong Kong at nearly HK$190 psf pm, which topped the global league table, leapfrogging West End, London as the costliest Grade A office market in the world in March 2016 (**Figure 16**).

Figure 16. Top 10 most expensive office markets (March 2016)



Source: 'Global Prime Office Occupancy Costs Survey', CB Richard Ellis.

2.2.2 Retail

Against the backdrop of declining visitor arrivals and retail sales value, the retail property market in 2015 has visibly softened in core locations. Specifically, overall rents for high-street shops retreated by 17% for the whole year, with Causeway Bay recording a full-year drop of 24%.

Putting aside the higher-end segment, overall demand in the retail property market remained relatively stable. The territory-wide average rentals for private commercial properties in 2015 still registered a year-on-year (y-o-y) growth of 5.1%, notwithstanding a quarter-on-quarter (q-o-q) decrease of 2.2% recorded in Q4 2015 (**Figure 17**). It sustained another drop of 2.6% during the five months ended May 2016.

Figure 17. Rental index of private retail properties

Source: Rating and Valuation Department.

What is more noteworthy though, is the long-term development of the said market. Since the onset of the millennium, the total retail sales value of the city saw a 1.5x increase, but private retail space over the same 15 years only grew by 23%. Such gap between supply and demand was particularly pronounced during the past few years, with retail sales value growing by 73% against new supply of private commercial space of merely 3% for the period 2009 to 2015 (**Figure 18**).

Given virtually no response from the supply-side, the startling growth in demand has almost fully translated into the rental levels, spurring private commercial rents by some 80% from 2000 to 2015, and among this, 84% of the said growth was recorded during 2009 to 2015 (**Figure 17**).

Figure 18. Retail sales value and retail space

Sources: Rating and Valuation Department, and CEIC.

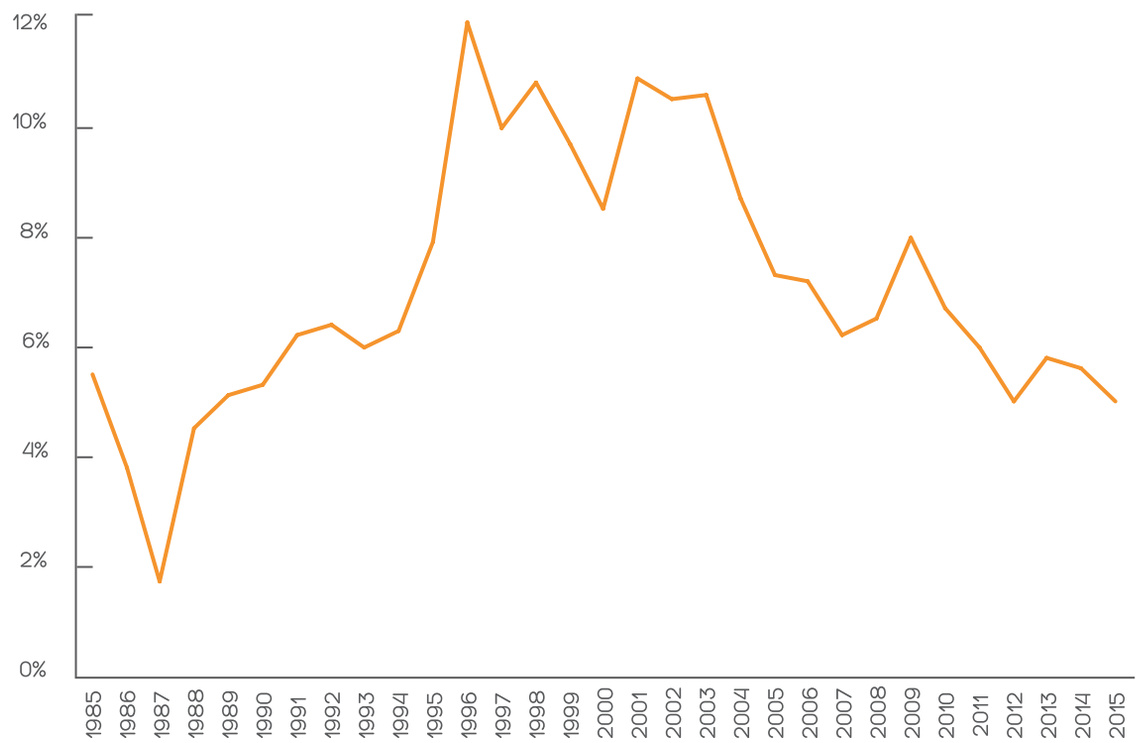
Soaring commercial rents do not only hinder Hong Kong's competitiveness as a global service capital, but also directly impact the livelihood of our people as well. We estimated that more than 40%[1] of the city's general inflation was contributed by domestic and commercial rental growth. Hence, the lack of commercial space supply, which in turn drives up rents, indeed adds to the burden of the average consumer, particularly those with lower incomes and retirees living off their nest eggs.

2.2.3 Industrial

The industrial property market was no looser than other sectors, and the latest figures have confirmed such trend. The vacancy rate for private flatted factories in Hong Kong has actually been on a continual decrease since 1996 and was estimated to be 5.0% at the end of 2015, the lowest level since 1988 (**Figure 19**).

1. Assuming the rental component accounts for 25% of the cost of meals away from home, clothing and footwear, durable goods, miscellaneous goods and services in the Consumer Price Index basket.

Figure 19. Vacancy rate of private flatted factories



Source: Rating and Valuation Department.

Indeed, as highlighted in our first Research Report, the demand for industrial space has been so strong that the Development Bureau had stopped receiving applications for the scheme "Optimising the Use of Industrial Buildings", as the Bureau found that "more and more economic activities as well as a number of emerging industries choose to run business in industrial buildings, such as showrooms, data centers, research and development / test centers, cultural and creative arts studios and even hydroponics or aquaculture farms"[2] in their latest review of industrial land.

Overall, the persistently falling vacancy rates for different types of properties testify that our business operators and entrepreneurs, wherever practical and commercially viable, have already been optimising originally inefficiently used spaces. Hong Kong urgently needs more developable land to produce space for our economy to sustain vibrancy and prosperity.

2.3 Social Needs: Healthcare Capacity as an Illustration

Compared with commercial real estate, the demand for land to support capacity expansion is clearly more prominent and pressing from the social sector. To illustrate the urgency of such social needs, one only needs to review the chaos in our public hospitals during the winter surges

2. *"Report on 2014 Area Assessments of Industrial Land in the Territory".*

over the past few years.

Specifically, statistics released by the Hospital Authority (HA) revealed that the average inpatient bed occupancy rates of all hospitals under HA during 10 days ended 17th February, from 2014 to 2016 were 105%, 101% and 110% respectively (**Table 3**). It should take no medical expertise to comprehend that an occupancy rate over 100% for public hospitals is certainly undesirable from the perspective of public health.

Table 3. Medical inpatient bed occupancy rate at midnight

Year / Date	2014	2015	2016
February 6	103%	105%	91%
February 7	102%	103%	90%
February 8	102%	110%	96%
February 9	108%	108%	104%
February 10	107%	106%	113%
February 11	106%	103%	117%
February 12	105%	104%	115%
February 13	106%	100%	115%
February 14	103%	100%	121%
February 15	104%	107%	120%
February 16	112%	105%	116%
February 17	114%	98%	114%

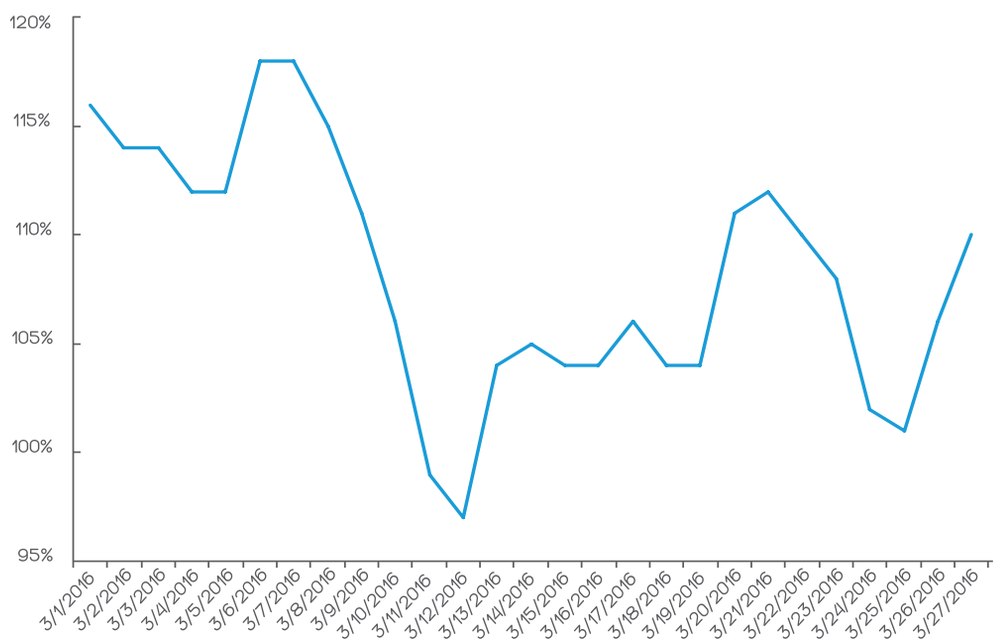
Source: Hospital Authority.

To put the chronic shortage of hospital capacity for Hong Kong in the regional perspective, the bed occupancy rates for the busiest public hospital in Singapore during the week of March 13, 2016 averaged to be 96.4%, with other hospitals in the city-state averaging around 85% (**Figure 20**). In comparison, not even a single day during the whole month ended 31 March, 2016 had Hong Kong's public hospitals witnessed an occupancy rate lower than 97%, and the average figure for the month of March was a staggering 108% (**Figure 21**).

Figure 20. Bed occupancy rate in Singapore hospitals during the week of March 20

Source: Singapore Ministry of Health.

Figure 21. Hong Kong's medical inpatient bed occupancy rate at midnight in March 2016



Source: Hospital Authority.

2.4 Land is Not Sufficient, but Necessary

It should be reiterated that we do not attempt to establish the discourse that each and every socioeconomic problem is originated from and could be solved solely by land supply.

However, we hold that land supply is a critical and necessary element in the set of policy solutions to many, if not all, of our social and economic problems. In the particular case of the healthcare system, whilst enhancement and optimisation are essential and necessary, we do not believe that these measures alone without sufficient land for capacity expansion, would be enough to cope with our social needs on the grounds that (1) the growth in demand that we are dealing with is not in percentages, but in multiples as we have demonstrated above; and more importantly, (2) our healthcare system is already at the brink of collapse now.

Whilst the government and the public have focused primarily on land supply for housing for the past few years, little, if not none, was discussed concerning the land supply to build space both for our economic and social developments. It should not be overlooked that the construction of a large scale public hospital could take up to a decade to complete. If plans are not devised now, it is highly unlikely that we will be able to catch up with the rocketing medical demand, not to mention other elderly care facilities including nursing homes and district-based community care centres, which are all in severe shortage now.

3. Practical Issues and Challenges in Land Supply

In the previous two Chapters we have examined the latest demand and supply situation across different property markets and have established that the city is still facing a severe shortage of land and space for all sectors of our society and economy, from housing and commercial to basic support structures like healthcare.

On this premise, it is natural to ask the question "how should we increase land supply?" As we have reviewed in detail in our first Research Report, Hong Kong has long been relying on avenues including land reclamation and the development of new towns to provide developable land for the city. This model of development, however, is met with doubts in recent years.

3.1 Exploring the Intricacies of Land Supply Policy

There is an emerging discourse in the community that land supply does not necessarily have to rely on reclamations or development of new towns. The said discourse argues that there is still a large amount of land resources that has not been efficiently used in Hong Kong. Therefore, the formulation of land supply strategy by the government should prioritise optimising inefficiency in the existing land resources.

An example of the inefficient use of land resources is brownfield sites. "Brownfield sites" refer to abandoned agricultural or rural land in the New Territories that are converted into various other uses such as open storage, container yards, warehouses, and industrial recycling yards etc., which are often incompatible with the surrounding environment. The concept of "Brownfield First" means that such land should be the first option to take as a source of land supply before considering other options, including land reclamation and land within the green belt.

OHKF does not agree with the said discourse. The vast majority of our brownfield sites are privately owned, and are with different operations. This means that to develop brownfield sites, the process must involve such issues as land resumption, relocation, resettlement, and compensation. We have surveyed numerous public housing projects to be completed in the years 2015/16 to 2018/19 and established that whenever such issues are

involved in these development projects, they all require an exceedingly long lead-time.

3.2 Exceedingly Long Lead-time of Development

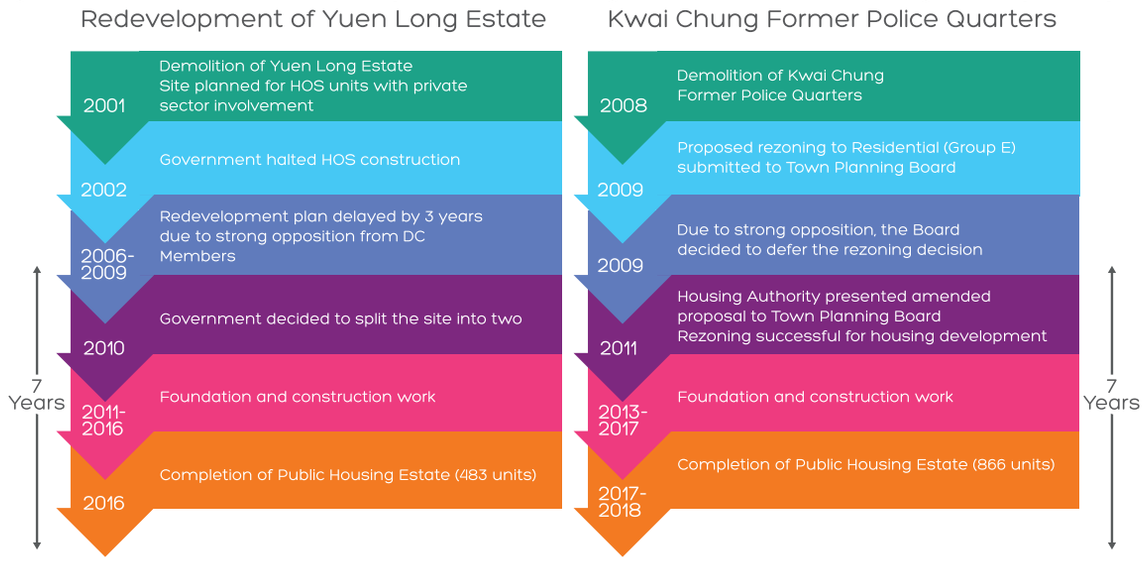
As **Table 4** shows, currently the development lead-time, defined as the time needed from the project being tabled for the District Council's consideration to its completion, for public housing projects exhibits a wide range from 55 months (4.6 years) to 139 months (11.6 years).

Table 4. Development lead-time of selected public housing projects

Year of completion	District	Project	No. of Units	Site area (ha)	Lead-time* (months)
2017	Kwun Tong	Anderson Road (A-E)	18,000	11.51	111
2018	Sham Shui Po	So Uk (Phase 1-2)	6,985	7.76	139
2016	Sha Tin	Sha Tin District 52(Phase 2-4)	6,725	13.3	84
2016	Tai Po	Bo Heung	483	0.51	85
2015	Yuen Long	Hung Shui Kiu District 13 (Phase 1-3)	1,800	6.4	108
2016	Yuen Long	Ex-Au Tau Departmental Quarters	1,203	3.71	116
2016	Yuen Long	Former Yeung Long Estate	483	1.2	119
2016	Tung Chung	District 56	3,600	3.25	92
2018	Eastern	Lin Sing Rd	288	0.18	83
2017	Kwai Tsing	Ex-Kwai Chung Police Quarters	866	1.0	104
2018	Kwun Tong	Eastern Harbour Crossing Site Phase 7	500	0.19	55
2017	Kwun Tong	Sau Ming Road	300	0.28	82
2020	Eastern	Wing Tai Road, Chai Wan	800	0.35	62
2020	Kwai Tsing	Tsing Hung Road Tsing Yi Phase 1	1,600	4.0	62
2018	Sham Shui Po	Lai Chi Kok Road - Tonkin Street (Phase 1 and Phase 2)	3,800	2.34	57
2018	Sham Shui Po	Shek Kip Mei (Phase 3,6 and 7)	1,500	1.43	58
2019	Sha Tin	Fo Tan Phase 1	4,800	4.4	62
2018	Sha Tin	Shek Mun (Shek Mun Estate Phase 2)	3,000	2.27	59
2018	Islands	Tung Chung Area 39	3,900	3.15	72
2019	North	Choi Yuen Road	1,100	1.16	108
2018	North	Fanling Area 49	900	1.0	87
2019	Sham Shui Po	Northwest Kowloon Reclamation Site 6 Phase 1	900	4.49	109
2018	Sham Shui Po	Pak Tin(Phase 7, Phase 8 and Phase 11)	3,100	6.16	74
2019	Wong Tai Sin	Tung Tau Estate Phase 8	1,000	0.8	58
2019	Wong Tai Sin	Fung Shing Street, Wong Tai Sin	800	0.3	87

Note : (*) Refers to the time between consultation with the District Council and completion of the project.
Sources: Transport and Housing Bureau, Legislative Council, District Council, and press reports.

Figure 22. Timeline for the redevelopment of Yuen Long Estate and the Kwai Chung former police quarters

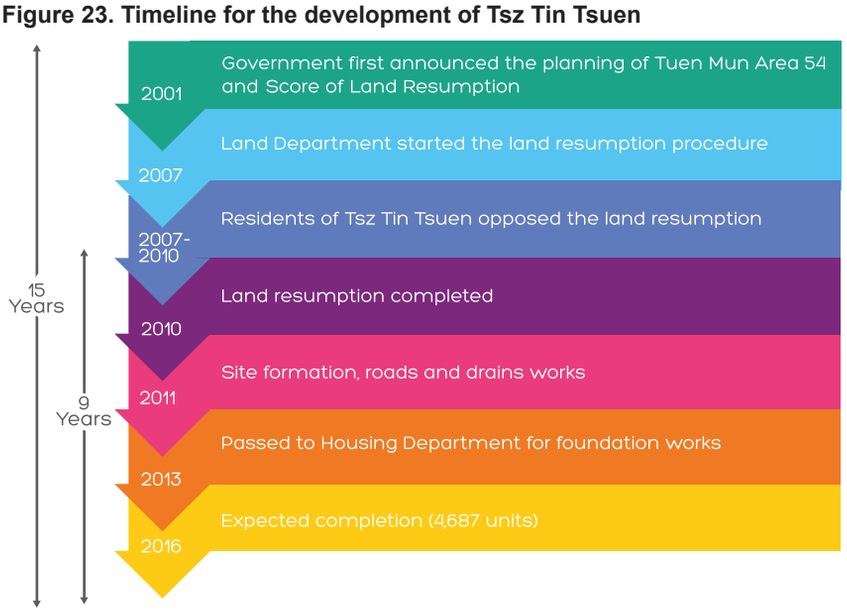


Sources: District Council, Legislative Council, and press reports.

It is observed that the situation generally gets more complicated if the projects are met with opposition of any kind at the community level. For example, the redevelopment of Yuen Long Estate and the Kwai Chung former police quarters were objected by local residents. Although the scale of the projects is small, at about 500 and 900 public rental housing units respectively, the lead-time starting from the consultation with the District Council to their completions could take up to a decade (**Figure 22**).

Another similar example is the development of Tsz Tin Tsuen with a local population of about 80 to 100 households and a mixture of warehouses and storage yards. The government first announced the development proposal in Tuen Mun Area 54 back in 2001. By 2007, LandsD began land resumption but was met with opposition from the local residents. It was only until 2010 that land resumption was completed and site formation and roads and drains works began. The development is expected to be completed in 2016 with approximately 5,000 public rental housing units. The lead-time of the entire process from land resumption to the completion of the project took nearly 10 years (**Figure 23**).

Figure 23. Timeline for the development of Tsz Tin Tsuen



Sources: District Council, Legislative Council, and press reports.

As the aerial photos demonstrate, the site in question accommodated a mixture of houses and warehouses in 1999, which are currently public housing estates under construction.

Figure 24. Photos of Tsz Tin Tsuen in 1999 and 2016

Sources: Lands Department, and Google.[3]

Two points should be reiterated and clarified at this juncture. First, we value procedural justice and support civic participation in the town planning process. Hence we are not advocating for a diminished level of community engagement in such processes as changes of land use.

Second, given the chronic shortage of land, we fully support the notion that the utilisation efficiency of land resources must be improved, and hence a comprehensive review of the existing use of brownfield sites. However, we are not in favour of a policy prioritising any particular source of land supply. This is because any method to increase land supply will ultimately be faced with an assortment of challenges and difficulties.

Take brownfield sites as an example, such large-scale, systematic development will naturally involve an abundance of land resumption and resettlement procedures. This is time-consuming, and thus it is exceedingly difficult to prioritise any method for the supply of land. In fact, several NDAs proposed by the government cover sizeable areas of brownfield sites (**Table 5**).

Table 5. The size and share of brownfield of three NDAs

NDA	Development scale (Hectares)	Brownfield involved (Hectares)	Share of brownfield in the NDA
Yuen Long South	223	100	45%
Hong Shui Kiu	714	190	27%
Kwu Tung North/ Fanling North	614	50	8%

Source: Legislative Council.

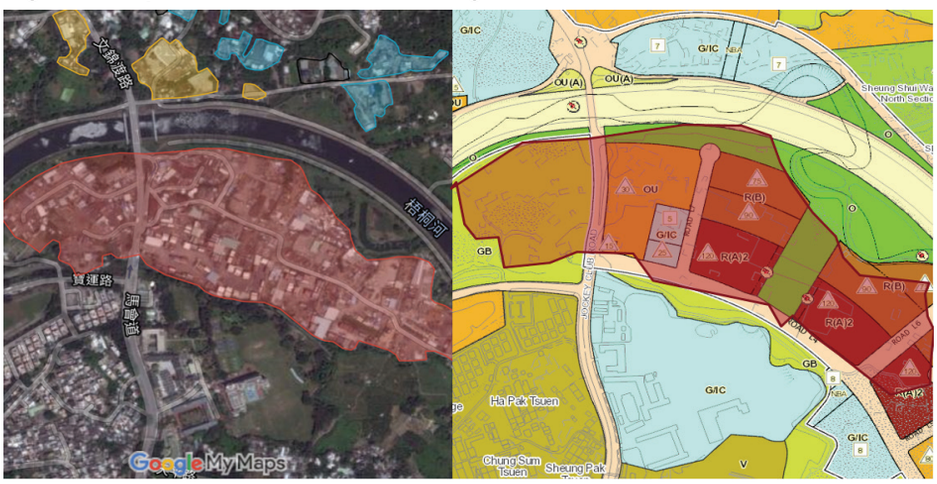
To provide a fuller context, it should be noted that the site for the redevelopment of Kwai Chung Former Police Quarter measured about 1 hectare, whereas the development of Tsz Tin Tsuen involved some 4 hectares of land. The discussion furnished above has demonstrated that even the development of sites with such limited scale could be extremely lengthy. It follows that in the few NDAs currently under planning, which occupy up to a few hundred hectares each, would involve such processes as land resumption, resettlement, compensation of plots of land that are even larger, and hence, more

3. The aerial photo reproduced with permission of the Director of Lands.

time-consuming.

As an illustrative example, **Figure 25** display how a plot of land within the Fanling NDA currently used as container yards and warehouses, i.e. typical brownfield sites (Left), with the size over 10 hectares, is designated with different land uses such as residential, open space, government uses, etc. under the latest Outline Zoning Plan of the Fanling North NDA (Right).

Figure 25. A plot of land within the Fanling NDA



Sources: Google, Liber Research Community, and Town Planning Board.

3.3. The United Kingdom Experience on Brownfield Sites

Advocates of the "Brownfield First" principle often quote the United Kingdom (UK) as an example of advanced economies adopting the said policy. However, we doubt if the UK is an appropriate benchmark for comparison in terms of the development of brownfield sites in particular, and in land supply policy in general.

Firstly, the definition of "brownfield" is very different in the UK compared with that in Hong Kong. For the former, "brownfield" is loosely defined as "previously developed land" which is currently vacant or derelict with a potential of redevelopment, according to the Department for Communities and Local Government of the UK. In contrast, in Hong Kong where no official definition exists yet, it usually refers to abandoned agricultural or rural land in the New Territories that are converted into various other uses such as open storage, container yards, warehouses, and industrial recycling yards etc., which are often incompatible with the surrounding environment (**Table 6**).

To illustrate the difference, any previously used train depots, railway stations or industrial buildings could be defined as brownfield in the UK. And by the same token, if such definition is applied in Hong Kong, the former Kai Tak International Airport would then be a large brownfield site, which differs markedly from the conventional definition quoted above.

Table 6. Definition of brownfield in the United States, the United Kingdom and Hong Kong

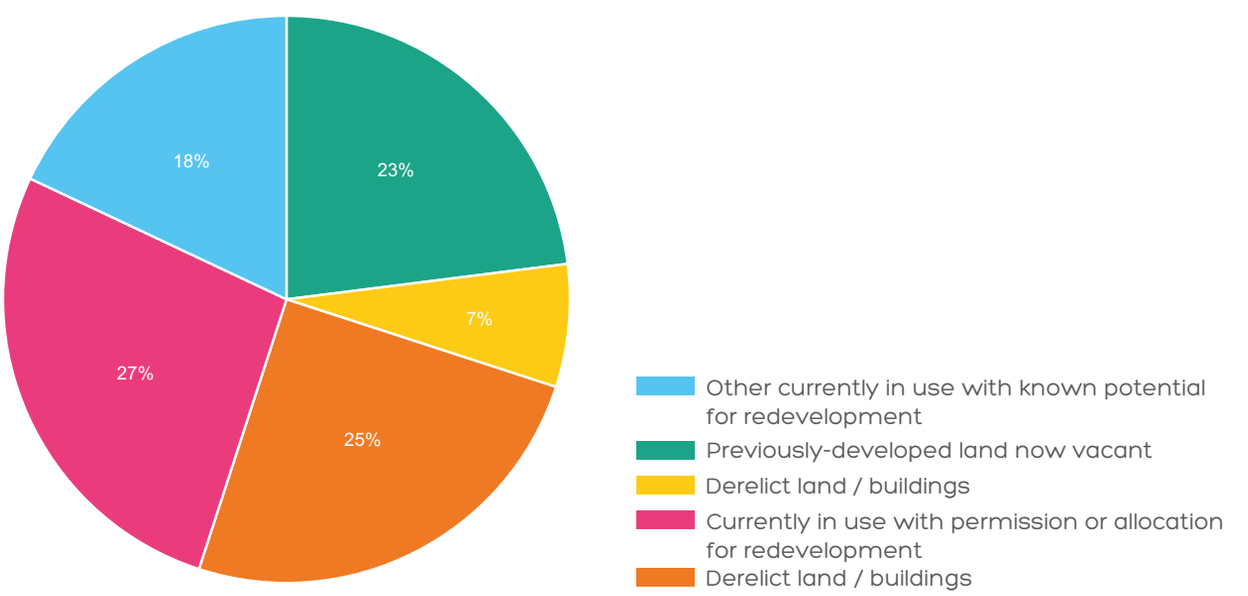
Jurisdiction	Definition
United Kingdom	Previously developed land with future potential for being redeveloped
United States	Abandoned industrial land which has been contaminated
Hong Kong	Agricultural land in the rural New Territories occupied by various haphazard industrial operations, which are often incompatible with the surroundings.

Sources: Development Bureau, Department for Communities and Local Government (UK), and the US Environmental Protection Agency.

Given the set of differing definitions, it follows naturally that brownfield sites in the UK and Hong Kong are very different as well. For instance, as highlighted in **Section 3.1**, the vast majority of brownfield sites in Hong Kong are privately owned and are currently with specific operational usage, be it a carpark or recycling yard. Whilst this admittedly generates debatable efficiency of land resources utilisation and hence room for improvement, the fact remains land resumption, resettlement and compensation are called for before large-scale and systematic development of these brownfield sites could be carried out.

In contrast, brownfield sites in the UK are predominantly vacant or derelict. According to the National Land Use Database 2010, local planning authorities identified an estimated 68,910 hectares of brownfield in UK, an estimated 37,940 hectares of which were vacant or derelict, 55% of the total. The remaining 30,980 hectares were in use but with potential for redevelopment (**Figure 26**).

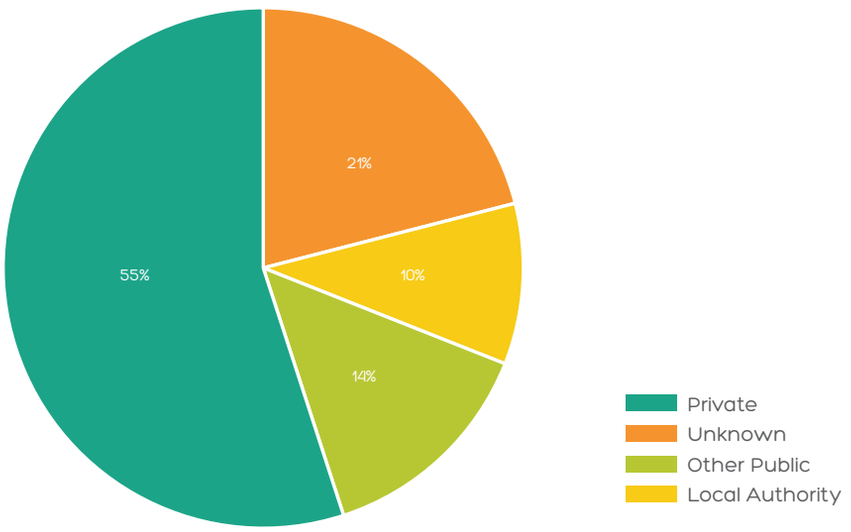
Figure 26. Status of brownfield sites in the United Kingdom.



Source: UK National Land Use Database 2010.

In terms of ownership, private owners own 55% of the brownfield sites in the UK, whereas public sector bodies, including central government but excluding local authorities, own 14% and local authorities own 10% (**Figure 27**). In other words, brownfield sites in the UK are mostly vacant and much less concentrated in private ownership. Both of these characteristics could possibly lead to an easier process of brownfield development, which are both sorely missing in the case for Hong Kong.

Figure 27. Ownership of brownfield in the United Kingdom

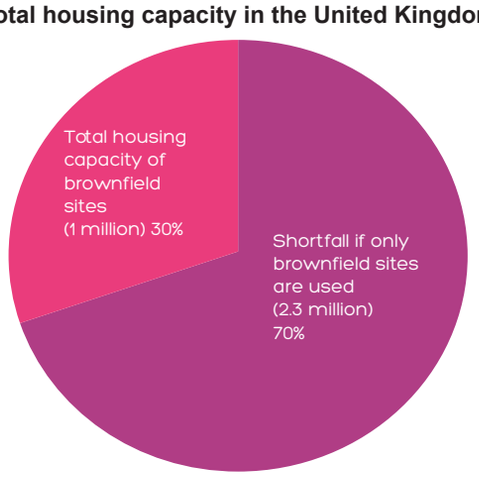


Source: UK National Land Use Database 2010.

Furthermore, while UK has committed in 1998 to the "Brownfield First" Principle, setting a national target of building 60% of new housing on brownfield sites, this policy has apparently lent little help to alleviating the chronic problem of housing shortage in the UK. In May 2014, independent urban planning consultancy Nathaniel Lichfield & Partners (NLP) published a research note on the housing capacity of brownfield sites in the UK.

NLP estimated in the study that, while the UK would need up to 3.3 million new homes from 2015 to 2030 (15 years), total housing capacity of brownfield sites is only 1 million. In other words, if only brownfield sites are used for housing purpose, the country would see, on top of the shortage that it is already faced with, an additional shortfall of 2.3 million homes in the next 15 years (**Figure 28**).

Figure 28. Total housing capacity in the United Kingdom



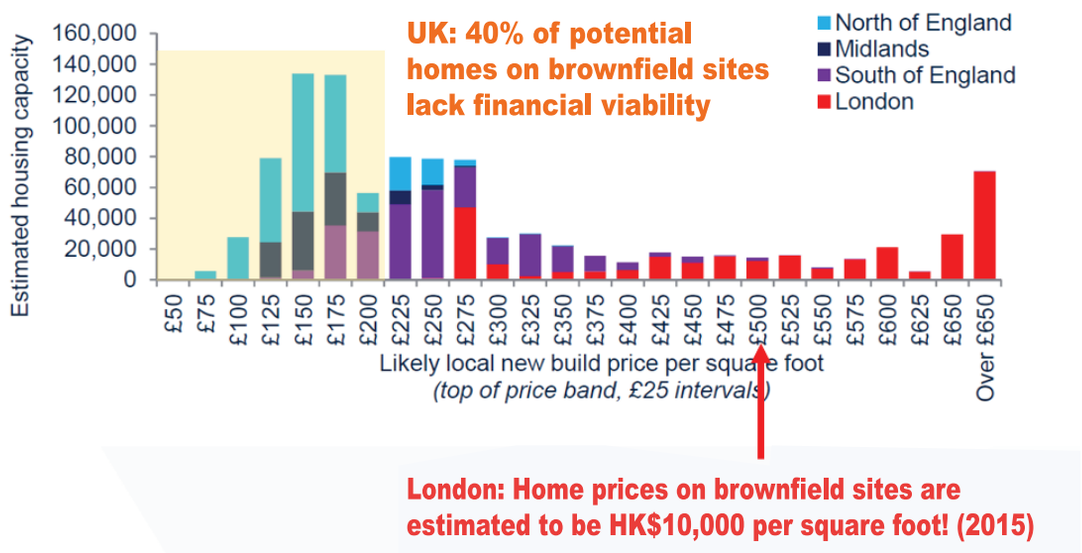
UK - Total housing capacity required up to 2030 : 3.3 million homes

Source: 'Brownfield Land Solution?', Nathaniel Lichfield and Partners (May 2014).

Another research conducted by international real estate consultancy Savills in 2015 demonstrates that assuming all available brownfield sites are developed in the UK, the development cost of up to 40% of the potential homes to be built on the brownfield sites would be higher than the prevailing market price, making these developments financially unviable. This reflects the sometimes hefty costs of converting these brownfield sites into development-ready sites before actual housing construction could be carried out.

And to make an arguably fairer comparison, Savills estimated that the new homes to be built on brownfield sites in London (instead of the UK) would cost an average HK$10,000 psf (adjusted as 2015 HK$), which is more or less the market price of private residential property in Hong Kong (**Figure 29**).

Figure 29. Estimated housing capacity in brownfield sites in the United Kingdom, 2010



Source: 'Land for New Homes', Savills (August 2015).

Taking into account that Hong Kong has not seen any large-scale land development projects for an extended period of time, land supply policy must follow a multi-pronged approach. For example, in the short-term, the government will rely on changing land use by rezoning sites near urban areas or transportation networks to obtain developable land, before NDAs (covering large areas of brownfield sites) could be delivered to meet housing demand in the medium term. In the long-term, land reclamation and new town development are, at any rate, important sources of land supply.

4. Land Reserve

For any large-scale land development projects, a long-term vision is needed to pursue an efficient and successful development process. Hence, it is within this underlying principle that the following chapter points to the necessity of a land reserve to satisfy Hong Kong's spatial capacity and housing demand in the future.

4.1 Consistency and Persistence in Land Supply Strategy

As evident in the analysis of the previous chapter, the lead-time from statutory planning process to the completion of building for medium to long-term large-scale land development initiatives could be exceedingly lengthy. Change of land use and other related statutory processes could be very complicated. Issues like land resumption, relocation, resettlement, and compensation have become increasingly convoluted. As discussed in **Chapter 3**, for brownfield sites development in the New Territories covering extensive expanses of private plots with varying operational usage, lead-times may take upward of 10 years, hence our disagreement with any land supply strategy that prioritise brownfield sites, or any other particular avenue of land supply over others. Instead, we support a multi-pronged approach to increasing land supply, encompassing short-, medium- and long-term measures.

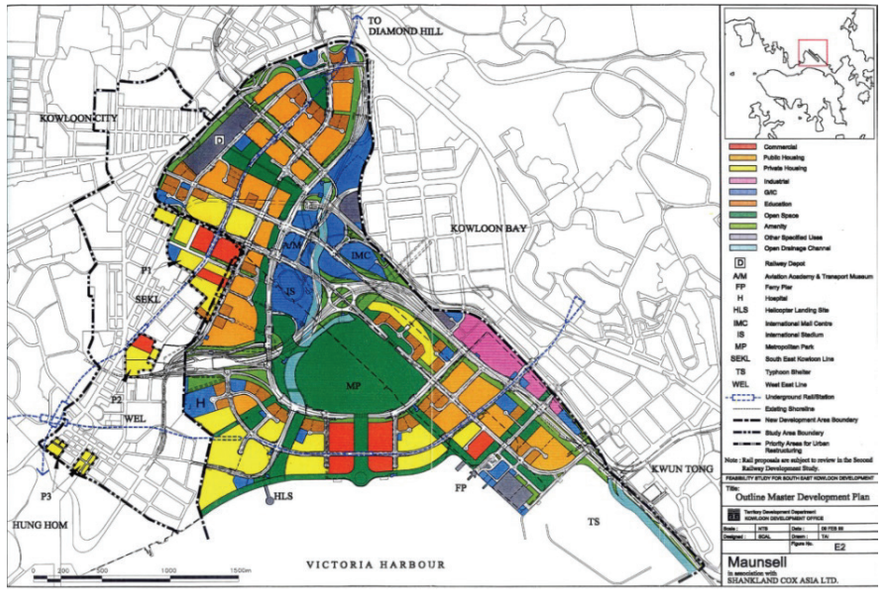
With the lead-time of large scale, medium- to long-term projects requiring an extended period for comprehensive planning and building construction, it is prudent that the government embarks on a systemic and persistent approach to land development. However, during the mid-2000s when the housing market began to rebound from its trough, much was left to be desired in terms of the consistency and persistence in the land supply strategy.

We have already analysed in our first Research Report how the Hong Kong community as a whole, has paid an immense price because of such a protracted lag in land supply in response to market changes. The first Research Report indicates that this has led to rapidly rising home prices and the surge in both residential and commercial rents, consequentially weakening Hong Kong's economic competitiveness. Moreover, the healthcare system is also overburdened because of a shortage of land.

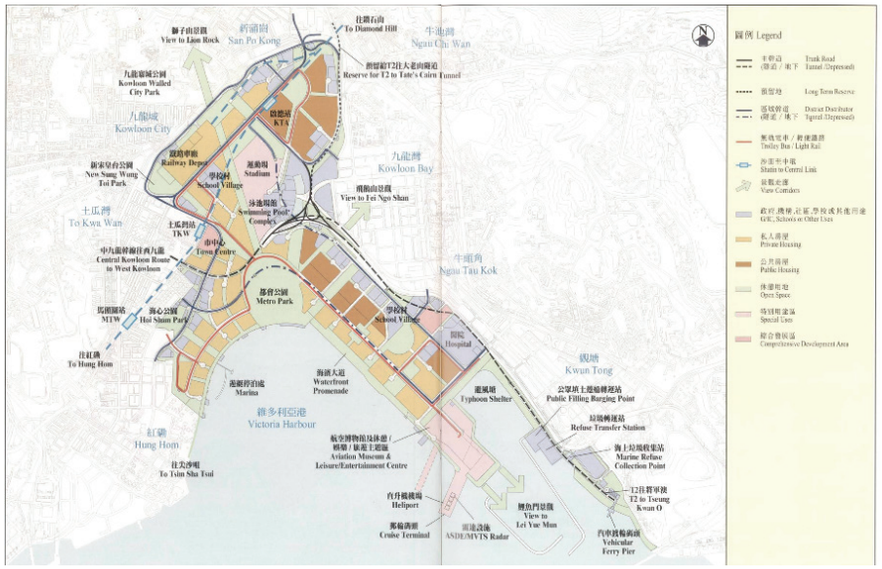
While the decision to halt the supply of land and housing during the recession and property market slump of the late 1990s and early 2000s was justifiable given the circumstances; with hindsight, it makes one wonder that if the government were to start on the statutory planning requirements and works-related feasibility studies a decade ago, would the housing problem today be less severe. Indeed, a number of large-scale NDA projects that were promulgated nearly 20 years ago but were shelved, were re-tabled again in the past few years.

To provide some examples, large-scale land development initiatives that were recommended in the late 1990s as an extension of the Territorial Development Strategy Review (TDSR) in 1996, and development plans of recent years are compared below (**Figures 30, 31 and 32**).

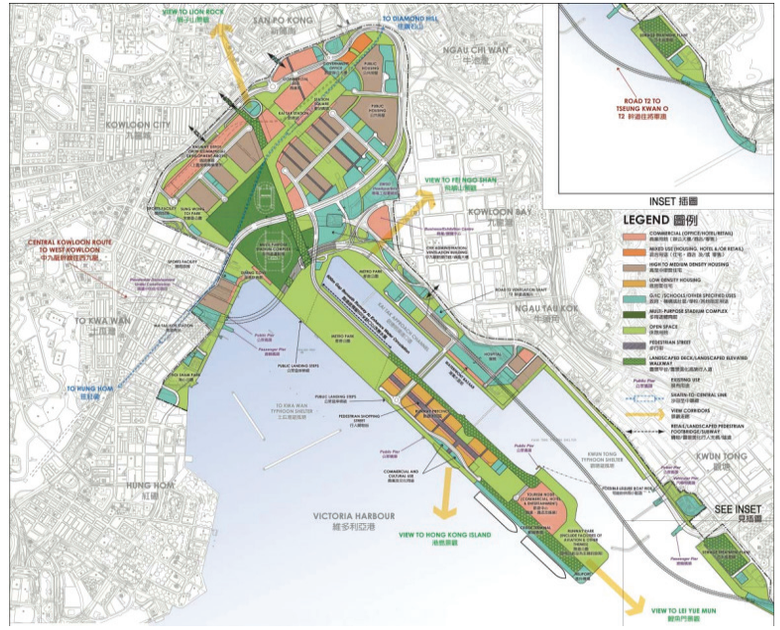
Figure 30. Comparison of development plans of Kai Tak



Feasibility Study For South East Kowloon Development, 1998



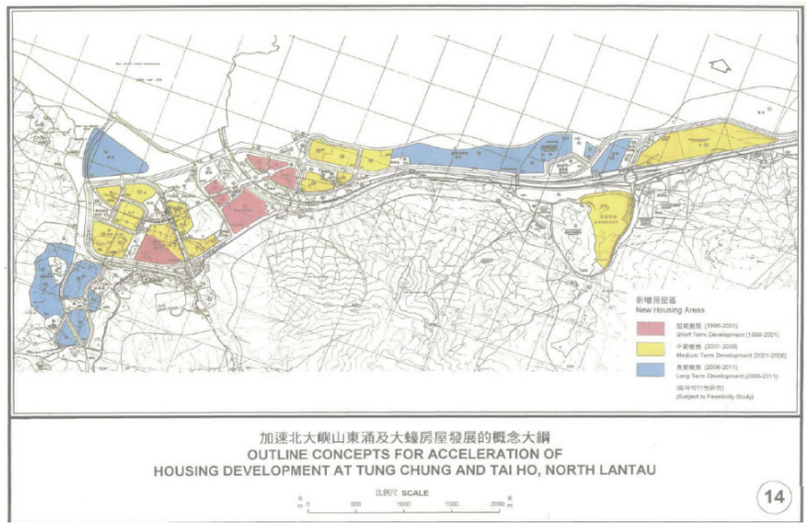
Comprehensive Feasibility Study for the Revised Scheme of South East Kowloon Development, 2001



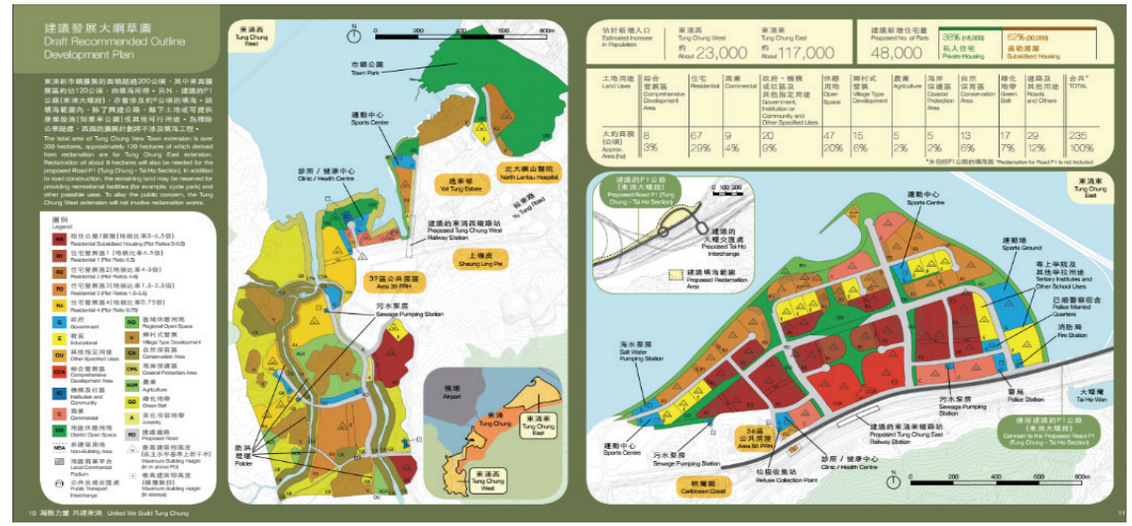
Kai Tak Development Plan, 2013

Sources: Territory Development Department, Civil Engineering and Development Department, and Planning Department.

Figure 31. Comparison of development plans of Tung Chung



Territorial Development Strategy Review - Final Executive Report, 1998

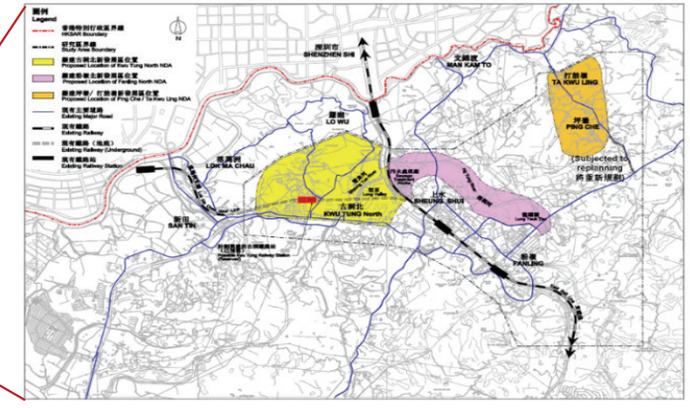


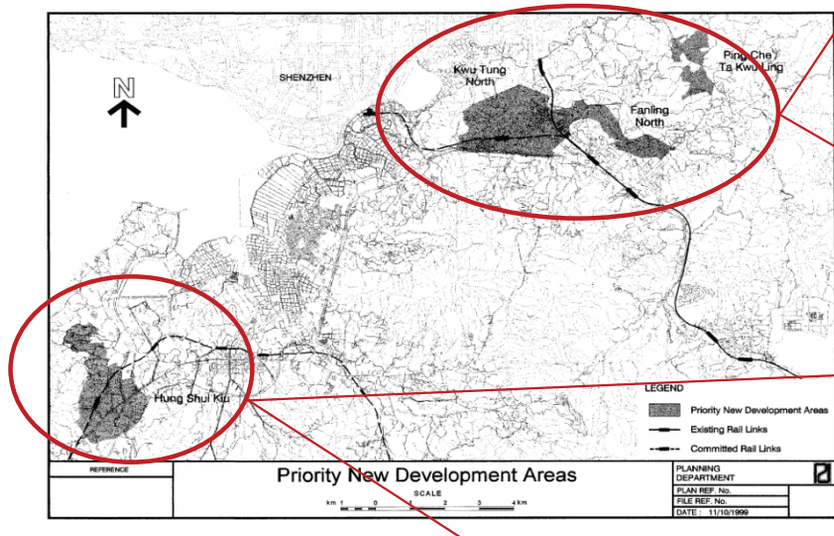
Tung Chung New Town Extension Study, 2014

Sources: Planning, Environment and Lands Bureau, and Development Bureau.

Figure 32. Comparison of development plans of New Territories NDAs

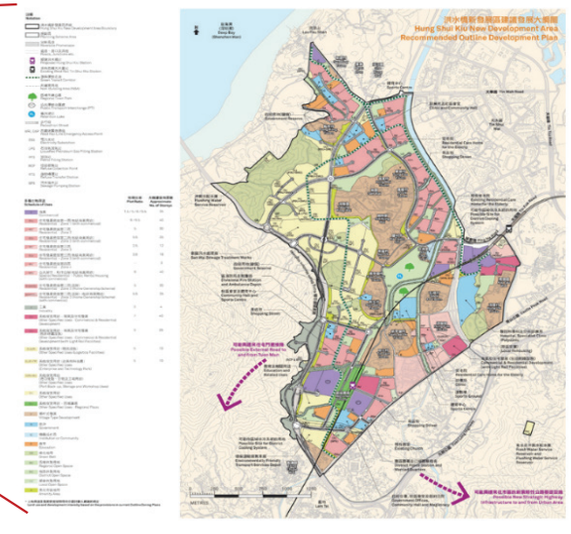
The North East New Territories New Development Areas Planning and Engineering Study, 2014





Studies on North East and North West New Territories - Development Proposals for Kwu Tong North, Fanling North, Ping Che/Ta Kwu Ling and Hung Shiu Kiu, 1999

Recommended Outline Development Plan of Hung Shui Kiu New Development Area, 2015



Source: Planning Department, and Civil Engineering and Development Department.

The similarities between the plans are uncanny. The tadpole-shaped NDAs of Kwu Tong North and Fanling North encompass virtually the same plots of land are present in both the old study in 1999 and the new study in 2014. The areas of Ping Che / Ta Kwu Ling to the north-east and Hung Shui Kiu to the south-west that were advocated in the older plans likewise correspond to the same areas of study in the newer plans re-tabled more than 15 years later.

The comparability of the old and the new is not restricted within areas of north-eastern and north-western New Territories. Development plans for the Tung Chung area of Lantau Island and the site of the former airport in Kai Tak that are currently in process were tabled almost two decades ago. However, for the case of Kai Tak a major revision was made in which plans to reclaim land were permanently shelved after strong public opposition and the establishment of the Protection of the Harbour Ordinance which prohibited land reclamation to all areas of Victoria Harbour in 1999.

Additionally, the quantity of planned housing units and population intake parallels each other nearly number by number, with the exception of the Kai Tak NDA (see **Table 7**). The combined population intake for Kwu Tong North and Fanling North in the 1999 Planning and Development Studies on North East and North West New Territories was 180,000. In comparison, according to the paper tabled by the government at the Legislative Council Panel on Development in January 2016, it was estimated that a total of 60,000 flats will be produced in Kwu Tong North and Fanling North, which implies a population intake of exactly 180,000 as envisaged in the previous plan made in 1999, assuming an average household size of three.

The old and the new projections of the Hung Shui Kiu NDA, Kai Tak development, and Tung Chung extension plans are also very similar. For instance, the proposed population in Hong Shui Kiu in the 1999 plan was 160,000, whereas the corresponding estimate in the 2016 plan would be 180,300, assuming again an average household size of three.

The exception is Kai Tak. Whilst the Comprehensive Feasibility Study for the Revised Scheme of South East Kowloon Development in 2001 envisaged a population north of 210,000. As of January 2016, the total planned units in the Kai Tak NDA was only 41,000 flats. Multiplying this by three leads to 123,000, about half of its 2001 counterpart.

Finally, it was envisaged in the Final Executive Report of the TDSR in 1998 that by 2011, the Tung Chung-Tai Ho area would have 95,000 flats built for a population of 274,000. By the end of 2015 the number of flats built in the area was around 30,000. The Tung Chung New Town Extension Study in 2014 plans for 49,400 flats to be built. Seemingly the new plan, allowing for slight revisions, is merely the construction of the remaining unbuilt flats from the original target of 95,000 as advocated by the Final Executive Report of the TDSR nearly two decades ago.

Table 7. Comparison of pre-2000 / early 2000s and post-2010 development plans of Strategic Growth Areas

Strategic Growth Areas(Name of Plan)	Planned Flats Production/Population	Planned Flats Production / Potential Population* (Legislative Council Panel on Development, Overview of Land Supply 2016)
Tung Chung-Tai Ho (Territorial Development Strategy Review-Final Executive Report,1998)	Flats: 95,000 Population: 274,000	Flats: 49,400@ Potential Population: 148,000
Kwu Tong North/ Fanling North(Planning and Development Studies on North East and North West New Territories,1999)	Population: 180,000	Flats: 60,000 Potential Population: 180,000
Hung Shui Kiu (Planning and Development Studies on North East and North West New Territories,1999)	Population: 160,000	Flats: 60,100 Potential Population: 180,300
Kai Tak (Comprehensive Feasibility Study for the Revised Scheme of South East Kowloon Development, 2001)	Population: 215,600	Flats: 41,100 Potential Population: 123,000

Notes: (*) The potential population is calculated under the assumption that the average number of persons in a household dwelling is three.
(@) Private and public flats built in the Tung Chung area by the end of 2015 totalled approximately 30,000 units.
Sources: Planning Department, Civil Engineering and Development Department, and Legislative Council.

The reason behind the uncanny resemblance between the pre-2000, early 2000 plans and the post-2010s plans is not difficult to conceive. Development plans that were tabled nearly 20 years ago and then shelved in the early 2000s were re-tabled with minor adjustments made.

If ample lead-time was allowed for planning and development, the NDA projects in Kwu Tong North and Fanling North might not have stalled until 2014 with an updated version of a plan that was completed nearly two decades ago. Reviewing past experience, it seems to suggest that preparatory measures should have been made once it was noted that the property market had rebounded. As such, these aforementioned large-scale housing projects may have already been delivered.

4.2 A Case Study: The Marina Bay

An example that may shed light on the importance of a land reserve is the land supply strategy adopted by the Singapore government. The case is the development of Marina Bay located in the Central Area of Singapore. The area is an extension of the Central Business District with word-class facilities catering to business, commercial, financial, recreational, and sporting needs.

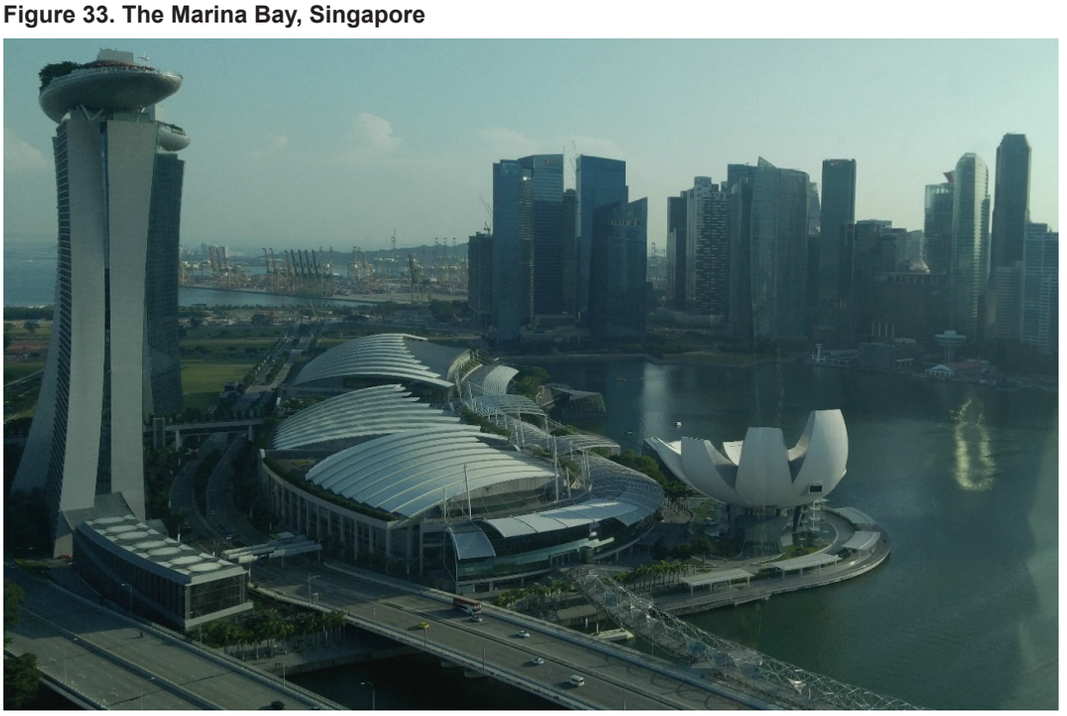
The development history of Marina Bay is succinct and well laid out. Land reclamation of 360 hectares, which was comparable to Hong Kong's new town Tin Shui Wai (430 hectares), commenced in 1969 and was completed in 1992. The commencement of land reclamation actually

preceded the Master Plan which was published in 1983 by the Urban Renewal Authority, and well ahead of public inspection of the Draft Plan for the development which was presented in 1988. The entire timeline of the development of Marina Bay is indicative of the systemic and persistent mentality to land supply in the part of the Singapore government. Furthermore, whilst the land reclamation work was completed in 1992, the actual construction work of the current Marina Bay Financial District (MBFD) did not start until mid-2000s. It is planned that MBFD will ultimately house a total office space of more than 30 million sf, equivalent to the size of Central, Hong Kong (**Figure 33**).

A remotely relevant comparison in Hong Kong would be the West Kowloon Cultural District (WKCD), yet its size and investment is not comparable to Marina Bay. The WKCD, at 40 hectares, is one-ninth of the size of Marina Bay. Furthermore, investment in the WKCD is around $21.6 billion while investment for Marina Bay Sands itself (the landmark entertainment complex located at the Marina Bay), already totaled S$3.85 million (approximately $21 billion).

The case of Singapore clearly shows that the existence of a land reserve is propitious for long-term land supply, and also to maintain the competitive advantage that Hong Kong still enjoys. We agree that requiring the government to outmaneuver the market is extremely challenging, but the example of Marina Bay serves to show that having a land reserve makes a policy response to market changes, whilst still admittedly difficult, is within the realm of possibility.

Figure 33. The Marina Bay, Singapore



Source: Our Hong Kong Foundation.

4.3 Need for a Land Reserve

With hindsight, too little land is made available for development, and too few new houses are being built. A critical lesson that should be drawn from the past 20 years is that over the long-term, there is a strong demand for land in Hong Kong, notwithstanding fluctuations in the property market in between.

For example, as we have illustrated in the first Research Report, Hong Kong's per capita living space is only two-thirds, if not less, of other advanced cities such as Singapore, Shenzhen and Shanghai. In addition, a rapidly ageing society may render a substantial amount of our hardware obsolete: our public housing needs more spacious corridor and bathroom designs, more barrier-free facilities are called for, not to mention the enormous increase in demand for healthcare and community elderly care services. As far as our economy is concerned, 93% of Hong Kong's GDP is contributed by services. And services, regardless of their industry, customer group and value-added, all require sufficient space to grow. In other words, as long as we wish to support our socioeconomic development and enhance our living standard in general, land supply is always an integral and indispensable element of the solution set.

Needless to say, the acceleration of housing and land provision is one of the most salient matters facing the population of Hong Kong in the future. Hence, we need to find ways to expedite the process of land supply and infrastructure provision. It is clearly evident that because land development pressures have augmented remarkably, in order to achieve any medium- to long-term development targets, it is a necessity to truncate lead-times as much as possible.

Moreover, in light of the overall extended lead-time required for the completion of the planning process before any sites (including brownfield sites) could be made available for development, provisions should be made for the establishment of a consistent and persistent land bank to mollify any unanticipated future requirements. A land reserve can ensure sufficient time for development and meet demands for spatial capacity.

Therefore, the government should make a determined effort to establish and sustain a land reserve for the purposes of planning for the provision of land, housing, and strategic development initiatives beyond the usual planning time horizon. The land reserve would help alleviate the problem of long lead-time and ensure that future forecast of medium to long-term land demands are met.

5.Lantau Development

As this Report has reiterated, Hong Kong has not witnessed the completion of any large-scale land development project for well over a decade. Looking ahead, the next large-scale land development project with an immense strategic value to be completed in the city would be the development of Lantau Island. As such, this Chapter presents our view on the Lantau Development and discusses some important aspects surrounding the project, with several policy recommendations.

5.1 Background

Following the successful completion of the "Hong Kong Airport Core Programme" during which the Hong Kong International Airport (HKIA), Tsing Ma Bridge, North Lantau Highway, and Tung Chung New Town were built, Lantau is presented with its next development opportunity to become the intersection point between Hong Kong, Macau, and the Pearl River Delta (PRD). With the completion of the Hong Kong-Zhuhai-Macau Bridge (HKZMB) and the Tuen Mun - Chek Lap Kok Link (TM-CLKL), it will put most of the cities in the Pearl River Delta within a three-hour commute radius of Hong Kong.

5.2 Overall recommendations

Regarding the Lantau Development, we put forth 5 recommendations as follows:

1. **Prioritising transportation in urban development**: The efficiency of transportation system is instrumental to the success of new town development. To avoid the past planning mistakes, improving existing transportation network to cater for future needs should be at the top of the development agenda;

2. **Balancing the different aspirations in different regions**: The government should examine the development constraints and needs, and tailor various development strategies for different regions of Lantau Island;

3. **Maximising the "clustering effect"**: Lantau should be established as a world-class "showcase" under the planning concept of an "Aerotropolis", such that a complementary economic ecosystem incorporating different regions could be formulated, propelling Lantau into a smart

and low-carbon community for living, work, business, leisure and study;

4. **Setting great store by ecological conservation**: The predominant part of Lantau is recommended to be reserved for conservation, leisure, cultural and green tourism. The development plan should encompass the enhancement of accessibility of Lantau under the principle of respecting nature and conservation, to unleash the full potential in the fields of education, recreation, and green tourism.

5. **Establishing a dedicated office**: The government should establish an office led by top government officials to coordinate issues surrounding the Lantau Development, to prevent duplicated efforts of departments, and ensure the consistency and continuity of the whole development plan.

5.3 Suggestion 1: Prioritising Transportation in Urban Development

New towns are an integral part of Hong Kong's socioeconomic development. Currently, the nine new towns of Hong Kong accommodate a total of 3.4 million people (45% of the total population). Efficient intra- and inter-town transportation is the key to new town development, but Tung Chung is weak in both. As the first priority, transportation within northern Lantau Island, especially the one connecting Tung Chung New Town to the airport island and Disneyland, must be improved.

Furthermore, the fact that the population of Tung Chung New Town constantly falls short of its original planned capacity is also partly due to the chronic shortage of supporting community facilities. Without notable improvements in transportation in Lantau, the existing problems of long commute time and high transportation costs, will be further exacerbated by the increased population intake of the Lantau Development. Worse still, the town may become a bottleneck after the completion of HKZMB. To avoid the city's past planning mistakes in developing new towns, transportation must be prioritised in the Lantau Development blueprint.

5.4 Suggestion 2: Balancing the Different Aspirations in Different Regions

Lantau is a complexing island. On one hand, it accommodates a world-class international airport, Hong Kong's ninth new town and the renowned theme park Disneyland. On the other, it encompasses extremely valuable ecological treasures and cultural heritage. As each part of the island exhibits different characteristics in terms of development potential, transportation infrastructure, community facilities, carrying capacity etc., It is of utmost importance to tailor various development strategies for different regions, balancing the different aspirations in different regions.

In view of the large differences between northern and southern Lantau Island, we suggest adopting the principle of "development in the

north, conservation in the south". The government should establish Lantau North as an "Aerotropolis" (See Suggestion 3 for details), while avoiding large-scale development and explore the potential of culture, conservation, recreation and green tourism in Lantau South.

OHKF supports the Lantau Development Advisory Committee's (LanDAC) proposal of reclaiming surrounding waters of Kau Yi Chau and the typhoon shelter of Hei Ling Chau for the construction of the "East Lantau Metropolis" (ELM) while connecting Lantau to Hong Kong Island by roads and railways. ELM will be an important source of developable land and a long-term strategic growth area after 2030. We suggest that the government should adopt advanced reclamation techniques to minimise its ecological impact and reduce the degree of ground settlement of ELM. Eco-shoreline should be introduced along suitable coastline of the reclaimed land for conservation.

Noise and air pollution may pose problems to the future "Aerotropolis". Although the areas of Siu Ho Wan and Sunny Bay are not within the coverage of the Noise Exposure Forecast (NEF) 25 contour, they, as well as Tung Chung, will be affected by aircraft noise (similar to Ma Wan). If sites in the relevant areas were to be converted for residential use, the government should establish guidelines on acoustic designs so as to ameliorate aircraft noise disturbances on the residents. In the areas within coverage of the NEF25 contour, serviced apartments with full-day air-conditioning can be developed to minimise the noise impact.

To attract talents, existing community facilities alongside living and working environment must be improved. We support diversified educational services to be developed to attract families to settle in Lantau, so that parents could find employment opportunities while children could receive education in the same neighbourhood of their residence, lowering transportation costs and shortening the commute time. It could also alleviate the stress on the public transportation system. Moreover, the development must ensure the provision of sufficient facilities including hospitals, nursing homes and community centres.

Vocational centres should be set up on Lantau to provide post-secondary education programmes closely related to the industry development of the Lantau, such as aviation services, engineering and tourism.

5.5 Suggestion 3: Maximising the "Clustering Effect"

LanDAC proposes the North Lantau Corridor for transportation, economic and housing development to accommodate the population and employment in the same area. With the completion of the several large-scale transportation infrastructure projects, Lantau will transform from a remote outlying island to the gateway of Hong Kong. It will be the very first place that greets visitors arriving the city from around the globe, rendering it an effective "showcase" of Hong Kong. As such, Lantau should serve the arriving tourists as a concourse of our globally renowned top-notched service industry.

OHKF supports the concept of an "Aerotropolis" that centres around the HKIA, connecting the North Commercial District (NCD) on the airport island, AsiaWorld-Expo (AWE), Hong Kong Boundary Crossing Facilities (HKBCF) Island, Tung Chung and Siu Ho Wan. The complete industry chain within the "Aerotropolis" will transform Lantau into a world-class tertiary industry hub in the Pearl River Delta, providing such services as transportation, trade, logistics, tourism, healthcare, retail and education to visitors and businesses. There are already numerous examples of successful "Aerotropolies" around the world, such as the Incheon International Airport of Seoul, South Korea, the Dubai International Airport of the UAE, the Amsterdam Airport Schiphol of the Netherlands and the Zurich Airport of Switzerland.

Figure 34: Site of the North Commercial District at the Hong Kong International Airport

Source: Hong Kong Airport Authority.

In particular, the first phase of NCD development can provide 2 million sf of commercial space, which can support a large-scale commercial complex that provides a myriad of services to tourists visiting or transiting through Hong Kong (**Figure 34**). With enough transportation support, such as a new railway station, sufficient car-parking lots and park-and-ride / -fly facilities, tourists can plan their entire itinerary on Lantau or even the airport island, thereby relieving the pressure on the transportation system between Lantau and the city. The NCD development was proposed in the 2014 Policy Address by the Chief Executive. We suggest the government to work closely with the Airport Authority (AA) to accelerate the said project.

The land adjacent to AWE can be developed into convention centres or world-class auction rooms to attract high value-added business visitors. Meanwhile, the HKBCF Island can flourish as a self-sustaining industry cluster that would enjoy the geographic advantage of the proximity to the boundary.

As a major job provider for Tung Chung residents, the airport currently provides 150,000 employment opportunities, which is expected to double by 2030. The development will create more jobs for northern Lantau. In other words, on the premise that sufficient housing development is in place to match employment growth in the region, Lantau is most likely to

become the first region in the Hong Kong development history that could see citizens working in the same neighbourhood as their residence.

As mentioned in our first Research Report, only a small portion of the population works and lives in the same area. Specifically, only 9% of the working population in Tung Chung works and lives in the same area. Prevalent cross-district commute brings about high transportation costs, heavy traffic and air pollution. Close employment-residence connection on Lantau can contribute to a carbon-neutral commute and save personal and family time for commuters.

However, the prerequisite of such a rosy picture is an efficient intra-district transportation network within the Lantau region, particularly that between the airport island and Tung Chung. Local stakeholders of Tung Chung and the Airport almost unanimously reflect that the existing network of public buses and roads fails to connect the two said locations effectively and efficiently. Indeed, whilst the distance between Tung Chung city centre and the HKIA is 4 km, similar to that between Central and Causeway Bay, the travelling time between the former is 30 minutes, which is three times that of the latter (10 minutes) (**Table 8**).

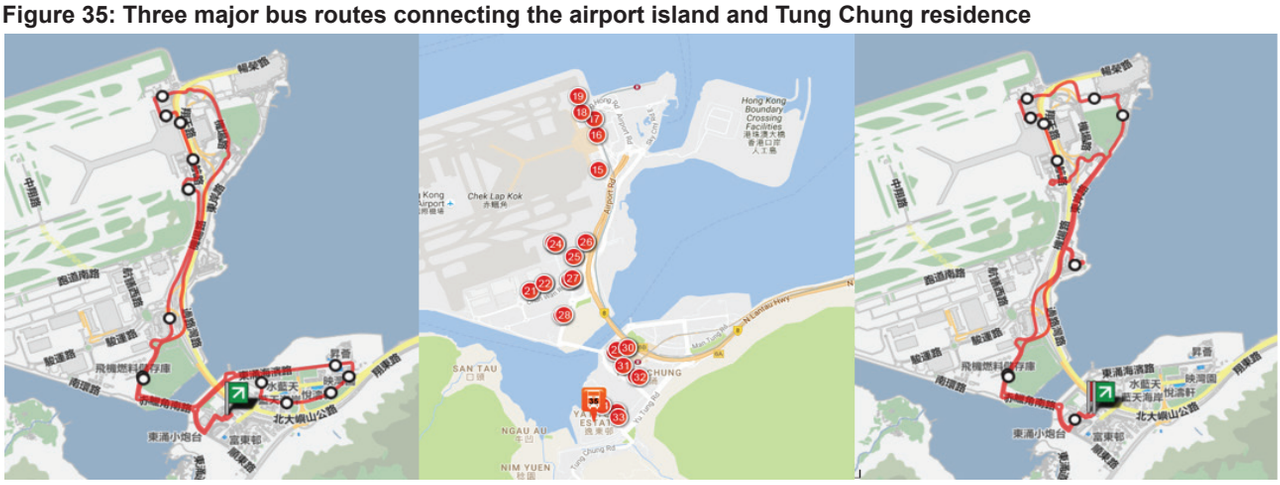
Table 8: Commuting on Lantau and in urban areas

Lantau Island			Urban area	
From Asia World-Expo	Distance	Travel time	Distance	Travel time
Tung Chung	4 km	30 mins	From Central to Causeway Bay	10 mins
Yat Tung Estate	6 km	45-60 mins	From Central to North point	13 mins
Disneyland	14 km	50-60 mins	From Central to Ocean Park	20 mins

Source: Press reports.

The current predicament stems from that the North Lantau Highway, the primary transportation artery linking Lantau and the city, is not connected to the residential hubs of Tung Chung New Town. Consequently, public buses travelling to and from Tung Chung New Town and the airport island, i.e. the employment hubs, are currently taking fairly indirect routes, making the journeys much more time-consuming than they should be (**Figure 35**).

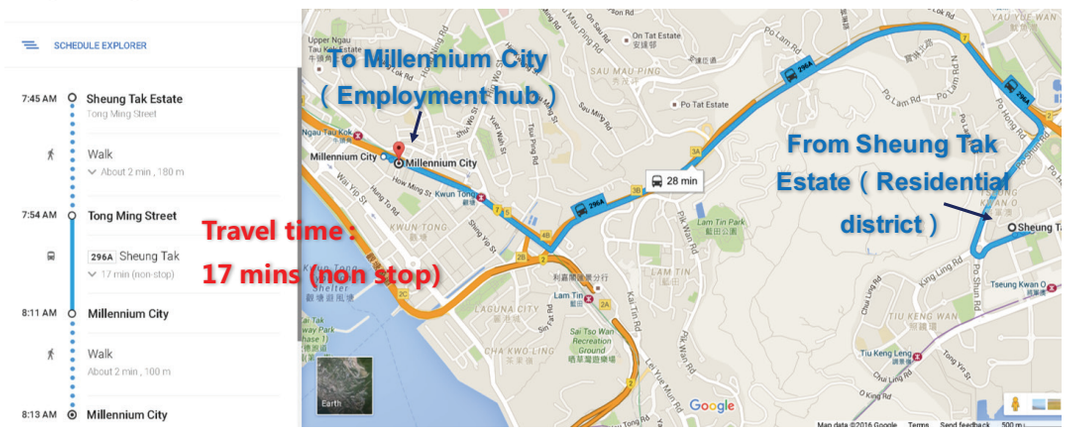
Figure 35: Three major bus routes connecting the airport island and Tung Chung residence



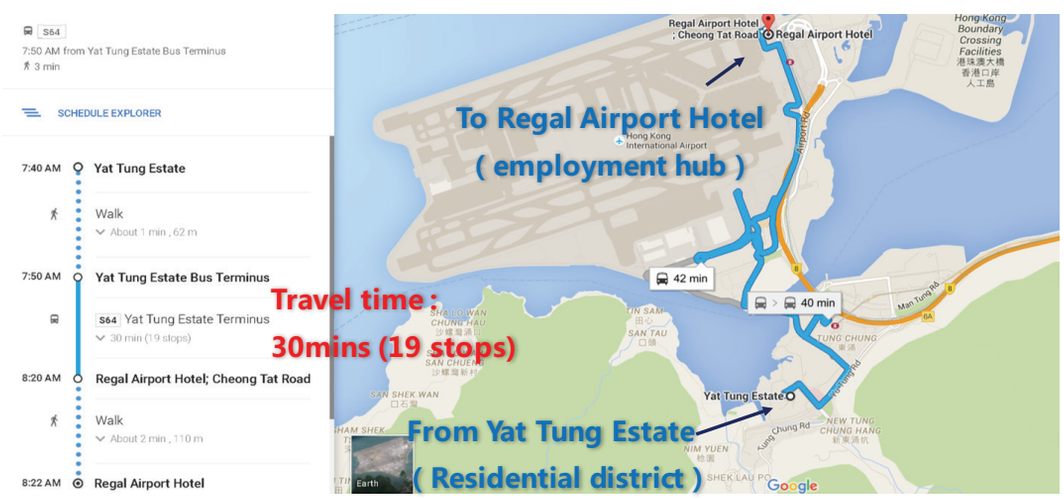
Sources: Citybus and Kowloon Motor Bus.

As another illustrative example, a citizen residing in Sheung Tak Estate, Kwun Tong, can travel to Millennium City, the district's major employment hub, in 17 minutes upon boarding the bus with no intermediate stop, whereas the bus ride from Yat Tung Estate, Tung Chung to Regal Airport Hotel would take 30 minutes, with 19 stops in between. Astonishingly, the driving distance between the residence and employment hub for the case of Tung Chung is slightly shorter, at 6.5 km, while the corresponding distance for the case of Kwun Tong is 6.9 km **(Figure 36)**.

Figure 36: Comparison of bus routes – Sheung Tak Estate, Kwun Tong and Yat Tung Estate, Tung Chung



Distance by self-driving: 6.9 km
Available Public Transport: Bus, MTR, Taxi



Distance by self-driving: 6.5 km
Available Public Transport: Bus

Source: Google.

In the short-term, we recommend an increase in the frequency of the current bus routes connecting the Tung Chung residential areas and the airport island. We believe a 10-minute interval between buses would help to provide a more reliable and predictable transportation services to the Tung Chung residents working on the airport island, such that the advantages of the proximity between the two locations could be fully realised.

Figure 37: Proposed transportation network on Lantau North

Source: Our Hong Kong Foundation.

We also suggest the government to consider restructuring the current bus routes so that each of the three residential areas, namely Tung Chung West, e.g. Yat Tung Estate; Tung Chung city centre, e.g. Fu Tong Estate and Tung Chung Crescent; and Tung Chung North, e.g. Caribbean Coast, has a direct access to the employment hubs on the airport island. In addition, where permissible under the transport policy, the introduction of green minibus routes providing late night or overnight services would be valuable to the employed population on the airport island **(Figure 37)**.

In the medium-term, OHKF suggests linking up the "Aerotropolis", including the airport terminals, NCD, AWE, southern cargo and services precinct, HKBCF Island, Tung Chung New Town and its Extension, Siu Ho Wan Depot retrofitting development zone and the proposed Logistics Park by a mass transit railway system, for instance a Light Rail System, alongside interchange services between the existing railway and bus network. This would be conducive to employment within the "Aerotropolis", as well as better connectivity within Lantau and with other parts of Hong Kong.

As argued in **Chapter 4**, over the long-term, Hong Kong needs to establish a land reserve. OHKF recommends the government to explore the possibility of connecting the road networks between Tung Chung and Tai O, and reclaiming in the areas of San Shek Wan for land reserve. Apart from improving the accessibility of Tai O, the above development can provide sufficient land to support the development of the "Aerotropolis" and other industries.

5.6 Suggestion 4: Setting Great Store by Ecological Conservation

LanDAC suggests the predominant part of Lantau to be planned for conservation, recreation, culture and eco-tourism. OHKF recommends the preservation of existing natural habitats of high ecological values, cultural heritages and areas yet to be conserved, allowing citizens to appreciate

the natural environment of Lantau through education, recreation and eco-tourism.

Lantau Island measures 147 sq km, 70% of which is Country Park. The Country Parks Ordinance protects the designated areas with stringent constraints on development. Yet, protection does not mean zero construction. Indeed, Section 4(c) of the Ordinance also states that the government should "encourage their (the Country Park's) use and development for the purposes of recreation and tourism" and "provide facilities and services for the public enjoyment of country parks and special areas". Hence, we recommend the government to enhance the accessibility to the country parks on the Lantau Island through road improvement.

OHKF also supports the idea of designating a coastal park on southern Lantau Island, with the southern shoreline preserved as a Coastal Protection Area to protect the natural coastline from development.

5.7 Suggestion 5: Establishing a Dedicated Office for Lantau Development

The Lantau Development involves a myriad of different issues, ranging from land, housing, commerce, population, education, to environment, conservation and transportation. However, these inextricably linked issues that should be considered holistically transcend the purviews across multiple policy bureaux and cannot always be dealt with solely by the Development Bureau, which is in charge of land policy. In the implementation of the Lantau Development, a centralised and dedicated office should be established to coordinate the project in a cross-bureau manner to minimise the inefficiencies that might emerge due to bureaucracy.

Furthermore, it may take more than a decade for the development to be completed. A centralised unit, chaired by a top official (possibly led by the Chief Secretary for Administration or the Financial Secretary at the initial stage), should be set up to oversee the development. The unit should be supported by bureaux and departments across the Administration and given the authority to carry out all policy measures related to the Lantau Development. As a reference, the Energising Kowloon East Office is an example of a dedicated office, which comprises of members from various government departments to steer the development of Kowloon East in a "one-stop" manner.

5.8 The Lantau Development: a "mission-critical" project for Hong Kong

Lantau Island houses Tung Chung New Town, the last new town established in the city, which was completed at around the turn of the millennium. As discussed in **Chapter 4**, the said new town unfortunately

fell victim to a land supply strategy that was insufficiently persistent and consistent, the consequences of which include its population intake constantly trailing the original planned capacity, as well as a chronic shortage of supporting facilities including hospitals, schools, and shopping space.

Nonetheless, Lantau Island also carries overwhelming significance in the development history of Hong Kong, in that it accommodates the few important large-scale infrastructure projects in the "Hong Kong Airport Core Programme", or more commonly known as the "Rose Garden Project", e.g. the HKIA and the North Lantau Highway.

Looking ahead, Lantau Island continues to bear crucial implications for the long-term development of Hong Kong. Needless to say, it is the potential source of an abundant amount of developable land to meet our needs. Equally importantly, situated at the heart of the Pearl River Delta, Lantau Island enjoys a strategic developmental advantage that is unprecedented in the history of the city. The massive flows of businesses and people upon the completion of the large-scale inter-city transportation infrastructure imply the investments in land formation, infrastructure and community facilities that we are making today will easily pay for themselves.

Moreover, given the several major land reclamation projects involved, the Lantau Development, unlike the NDAs in the New Territories, could see much higher development density in the way we establish our previous generations of new towns via reclamation. High-density development is desirable given Hong Kong's famously efficient public transportation system. This is also conducive to the piloting of a wide array of schemes that improves urban living quality, including food waste recycling in public housing estates, centralised water-cooled air conditioning system and numerous smart-city initiatives such as the use of real-time statistics on road usage and bus route operations.

In a nutshell, the Lantau Development means much more than just another source of developable land supply. It embodies the last - and the next - bold, essential and visionary land development project of Hong Kong that would be critical for our long-term social and economic development.

6. Speeding Up Land Development Processes

We agree that whilst creating developable land through land reclamation and new town development are of utmost importance in resolving the acute shortage of land in Hong Kong, much more needs to be done to maximise the efficiency of our precious land resources, as well as to provide different types of space in a timely manner in face of the current problems. In this Chapter, we lay out three directions in which more space could be made available in a speedier manner for various types of properties in the short- and medium-term.

6.1 Increasing Development Density

As pointed out by the Secretary for Development Mr. Paul Chan, boosting housing supply cannot solely rely on long-term land development projects. Hence, almost immediately after the current-term government assumed office, it has rolled out policy measures to increase land and housing supply including heightening development density, Thi is to provide more housing units in a timely manner on plots of developable land that have already completed town planning and other statutory procedures.

Indeed, as of August 2016 the government has successfully sought the approval of the TPB to relax the development controls (in the forms of higher domestic plot ratios and / or building height) on 42 residential sites since 2013. These relaxation has contributed to a total additional GFA of some 3.4 million sf, or the equivalent of some 8,000 units **(Table 9)**.

Table 9: Sites with which the government relaxed development density

42 cases in which Government relax the development density in the past three year s			
District	No. of sites	Additional GFA(sf)	Additional Flat (units)
2013			
Tseung Kwan O	4	341,010	433
Kwai Chung, Tsuen Wan	3	130,370	164
Tuen Mun, Yuen Long	2	91,380	170
Kai Tak	4	365,450	1,020
2014			
Sha Tin, Ma On Shan	5	645,320	1,338
Tuen Mun, Yuen Long	4	158,330	246
Fanling, Sheung Shui	3	97,670	209
Kwai Chung	1	7,800	14
2015			
Kai Tak	13	1,397,830	3,900
Yuen Long	1	4,310	2
Sheung Shui	1	149,620	260
2016			
Kwai Chung	1	37,670	91
Total	42	3,426,760	7,847

Source: Town Planning Board, and Hong Kong Economic Times.

As **Table 9** shows, the Kai Tak NDA contributes a significant portion of the additional space as a result of the relaxed development density. 17 (or 40%) out of these 42 sites are located in the Kai Tak NDA, constituting some 1.76 million sf (or 51%) of additional residential GFA over the past four years.

We believe, however, that further relaxation should be considered in Kai Tak and in general, other NDAs or new town development projects. First of all, to reflect the said policy change, the Planning Department has also recently published the latest version of Planning Standards and Guidelines, which represents the first revision in the past 16 years. The revised guidelines raise the maximum domestic plot ratios of selected urban areas by 20% (**Table 10**).

Table 10: Revised "Planning Standards and Guidelines"

Main Urban Area			
Density zoning of residential developmemt	Location	Original maximum plot Ratio	updated maximum plot Ratio
Zone 1	Island	8/9/10 times^	8/9/10 times^
	Kowloon and New Kowloon	7.5 times	7.5 times
	Tsuan Wan,Kwai Chung and Tsing Yi	8 times	8 times
	NDA and CDA	6.5 times	6.5 times
Zone 2		5 times	6 times
Zone 3		3 times	3.6 times
New Town			
Zone 1		5/ 8 times*	6/ 8 times*
Zone 2		5 times	5 times
Zone 3		3 times	3.6 times
Zone 4		0.4 times	0.8 times

Notes : (^) Depending on the type of sites.
(*) Only those near large-scale transportation networks can adopt plot ratio of 8 times.
Source: Planning Department.

Nevertheless, it should be noted that according to the guidelines, although no changes were made in this latest edition, the maximum domestic plot ratio applicable to the Kai Tak NDA has been 6.5. This compares with the average domestic plot ratio of the 21 sites in the Kai Tak NDA with relaxed development densities, which saw an increased from 4.5 to 5.5. Additionally, there are a total of 43 sites in the Kai Tak NDA that have seen / are subject to the increase in development density. Yet, the revised / proposed domestic plot ratios for these remaining sites average to be less than 6 **(Table 11).**

Table 11: Selected sites in the Kai Tak NDA that are subject to relaxation of development density

Site Reference No.	Site Area(m^2)*	Land Use Zoning		Maximum Plot Ratio	
		Existing	Proposed	Existing	Proposed
1E1	17,127	Mixed Use(3)	Mixed Use(3)	7 (Domestic:4.75 Non-domestic:2.25)	8.2 (Domestic:6.0 Non-domestic:2.2)
1F1	16,235	Mixed Use(2)	Mixed Use(2)	7 (Domestic:5.0 Non-domestic:2.0)	8.1 (Domestic:6.1 Non-domestic:2.0)
1E2	14,139	C(6)	C(6)	6	7.2
1G1(B)	5,710	R(B)2	R(B)2	5	6
1I1	8,780	R(B)2	R(B)2	4.5	5.5
1I2	9,314	R(B)2	R(B)2	4.5	5.5
1I3	10,149	R(B)2	R(B)2	4.5	5.5
1K1	9,719	R(B)2	R(B)2	4.5	5.5
1K2	9,700	R(B)2	R(B)2	4.5	5.5
1K3	11,265	R(B)2	R(B)2	4.5	5.4
1L1	7,318	R(B)2	R(B)2	4.5	5.4
1L2	9,482	R(B)2	R(B)2	4.5	5.4
1L3	8,803	R(B)3	R(B)3	3.5	4.2
2A1	19,750	CDA(3)	CDA(3)	5	6
2A2	6,270	CDA(4)	CDA(4)	4.5	5.2
2A3	5,968	C(3)	C(3)	4.5	5.7
2A4	6,555	C(3)	C(3)	4.5	5.5
2A5	7,112	C(3)	C(3)	4.5	5.2
2A6	3,976	C(3)	C(3)	4.5	5.5
2B1	13,828	CDA(5)	CDA(5)	5	6.4
2B2	12,008	R(B)1	R(B)1	5	6.1
2B3	11,210	R(B)1	R(B)1	5	5.7
2B4	11,386	R(B)1	R(B)1	5	5.9
2B5	11,386	R(B)1	R(B)1	5	5.7
2B6	11,003	R(B)1	R(B)1	5	5.7
4A1	13,524	R(C)	R(C)	3	3.4
4B1	9,578	R(C)	R(C)	3	3.8
4B2	9,050	R(C)	R(C)	3	4.4
4B3	9,704	R(C)	R(C)	3	3.9
4B4	9,694	R(C)	R(C)	3	3.7
4A2	12,784	C(4)	C(4)	4	5
4C1	9,481	C(4)	C(4)	4	5
4C2	9,771	C(4)	C(4)	4	5.9
4C3	10,956	C(4)	C(4)	4	5
4C4	10,694	C(4)	C(4)	4	5

Note : (*) Subject to detailed survey.
Source: Planning Department.

According to a recent research published by the Faculty of Construction and Environment of the Hong Kong Polytechnic University, the expected additional impacts on such factors as day-light duration, air circulation, skyline and atmospheric temperature are only minimal even if the average domestic plot ratio of the sites in question was raised to 6.7 instead of 5.5. Such a proposed change, however, would potentially increase domestic and non-domestic GFA by some additional 1.6 million sf and 1.2 million sf respectively.

It must also be reminded that as discussed in **Table 7** in **Chapter 4,** in the 2001 development plan for the Kai Tak NDA, the original population intake exceeded 210,000. This is in stark contrast with the latest corresponding figure of 123,000. As a rough reference, even if the development density is further increased by 20%, the population intake would still be below 150,000, or 30% less than that in the 2001 development plan.

Similar situation exists in other areas. Take Tsueng Kwan O South as another example. In 2005 when the property market was much less heated and the issue of over-supply was constantly lingering in the community, the government has responded by significantly lowering the plot ratios in Tseung Kwan O South from 6.5 to the range between 2 and 5. This represented a reduction in population intake from 131,000 to 98,000, or roughly 10,000 residential units.

As property prices soared in the subsequent years, in November 2012, the government has relaxed the plot ratios of 4 residential sites in the said area by 0.3 to 0.4, increasing residential flat supply by a mere 433 units. This and the case of Kai Tak seem to suggest a common phenomenon that in chalking up large-scale development plans, it is more difficult to raise development density than reducing it, although in the first place the original plan was to accommodate a higher-density development.

We urge the government to take the opportunities before the actual commencement of these large-scale land development projects to raise development densities wherever permissible, such that the herculean efforts spent in the planning processes could yield as much space as possible. Such areas as the Kai Tak NDA, District 137 Tseung Kwan O, and the extension of the Tung Chung New Town are all projects worth further consideration on development density. This is particularly important as these development projects could accommodate large-scale transportation infrastructure (e.g. railway stations, bus terminus), which is the key to high-density development.

Along the same line, we also suggest the Planning Department to explore the possibility of relaxing development density in urban areas upon urban renewal. This would maximise the new units provided upon redevelopment and render the projects financially more viable.

6.2 Unleashing Potential from Existing Land Resources

Admittedly, upon the two rounds of territory-wide land use review conducted by the government, a remarkable number of sites originally zoned as "Government, Institution or Community" (GIC) have been submitted for rezoning. We would like to point out certain land resources in the urban area that command the potential for more optimised development.

Our brief research on GIC sites in the Kowloon urban areas shows there are certain GIC sites in these regions that are either underused or poorly managed with undesirable conditions. Such sites include cooked food hawker bazaars, refuse collection points, car parks and work sites and could be found in areas like Tsuen Wan, Cheung Sha Wan and Yau Ma Tei (See **Figure 38** for an example).

Figure 38: The junction of Temple Street and Pak Hoi Street, Yau Ma Tei

Source: Our Hong Kong Foundation.

To fully realise their development potential, especially when they are located in the urban areas, one possible way is to redevelop these sites into composite buildings to accommodate the original use (e.g. the cooked food facilities) with other public uses atop (e.g. non-permanent residence like youth hostels). Langham Place is one such preceding case, in which the indoor cooked food centre is situated at the podium level in a tall development.

Undoubtedly, much more procedures are needed before such redevelopment could be carried out. For example, Section 12 rezoning applications may be required to relax the building height to accommodate a taller building structure; Section 16 applications may be necessary to change the land use of the relevant sites; and the relevant terms in the land lease may need revisions as well.

In terms of actual construction, a detailed transportation impact assessment may be called for. Special considerations may also be needed

in architectural design to avoid source of noise and / or air quality nuisance. But the key is there are land resources still available in the urban areas, the location of which might not be commercially viable enough to be converted into private residential (or mixed) development, yet with the potential of more optimised development for public uses.

For instance, in view of the severe problem of inadequate housing situation (e.g. sub-divided units) particularly in the urban areas, these sites may be used to support the construction of composite structures that contains the original use and with NGO-operated low-rent accommodation, or even centres for the homeless atop.

When there is a will, there is a way. In fact, the government has already carried out similar rezoning initiatives. For example, the GIC site containing a temporary car park and a temporary refuse collection point at the junction of Fuk Wing Street and Camp Street, Cheung Sha Wan has been rezoned for Residential (Group A) use, with the requirement that a minimum of 70 public car-parking spaces and a refuse collection point to be provided (**Figure 39**).

Figure 39: The junction of Fuk Wing Street and Camp Street, Cheung Sha Wan

Source: Our Hong Kong Foundation.

We acknowledge that the environmental factors surrounding these sites may not always be the most ideal as housing units, e.g. noise and air quality may be of concern. However, given the quickly deteriorating situation of the housing problem like the sub-divided units in recent years, we suggest the government to further review such sites in the urban area and consider short-term solutions like the ones described above. We hope that these land resources could provide at least a temporary relief for the inadequately housed. Alternatively, these land resources can at least be considered to support a denser development of other public facilities, such as community centres.

6.3 Aggressively Streamline Approval Processes and Development Procedures

As things stand, we are of the view that the land and housing development process are simply too lengthy and time-consuming. For private sector development, we reiterate our call for an in-depth review and optimisation of the approval processes of the relevant government departments.

In this regard, we are happy to see that the Development Bureau has communicated with the industry to discuss a set of improvements to the current approval mechanism. Some of the discussed proposals are similar to what we have raised in our first Research Report, for example a set of clearly pre-defined parameters ("Core Points") to be included in the approval of the "Design, Deposition and Height" submission and a standardised format of "Master Layout Plan" in accordance with the Practice Note. We hope that the government could actively strive to follow-up with these proposals.

We also reiterate our concern with the existing mechanism of land premium determination, as it has long been criticised that the said process has slowed down private development and redevelopment. This is especially the case when the "Pilot Scheme for Arbitration on Land Premium" which was introduced back in October 2014 has made a total of 14 invitations, among which only one has undergone abitration, involving a total of $39.3 million. As argued in our first Research Report, we suggest the government to comprehensively review the said mechanism such that it can reflect the impact on development costs in response to latest changes in market situations and / or regulatory environment.

The approval mechanism aside, there are more structural issues at play. Firstly, whilst multiple government departments have their own spatial / geographical database about different aspects of the city, e.g. the Planning Department has one that oversees land uses; the Highways Department has one that supervises all roads; the Drainage Services Department's is concerned with our drainage system, etc. Yet, these digital systems are not compatible with each other. As such, currently developers are submitting their development plans for approval in hard copies, whereas the government departments would comment on the physical scanned copies of the submission. We have analysed this issue in-depth in our Research Report on Innovation and Technology published in December 2015.[4]

4. Please see pages 99 to 111 of *"The Ecosystem of Innovation and Technology in Hong Kong"*, Our Hong Kong Foundation.

In comparison, as early as 2001, Singapore has launched the Construction and Real Estate Network (CORENET), an internet-based system that enables AEC professionals to submit project related plans and documents to regulatory authorities for various kinds of approvals, including planning approvals, building plan approvals, structural plan approvals, temporary occupation permits, fire safety certificates, and so on. It also helps create a central repository of building and construction related information accessible anytime, online, replacing heterogeneous information from multiple sources in varying formats and different versions.

We urge the Hong Kong government to actively review the relevant procedures in land development, and where possible, take advantages of the latest technological development to streamline the existing processes. We hope that the newly established Innovation and Technology Bureau could provide the necessary policy support to these initiatives, which will be crucial for the longer-term goal for Hong Kong to become a "smart city".

Obviously, this cannot be done without extra resources, for example to increase the manpower dedicated for approving development plans and related works, as well as integrating the different systems across multiple departments and providing training for relevant officers. This is especially necessary as the government has significantly stepped up its efforts in land and housing supply. It is natural to expect more resources to be channelled in this aspect of work.

However, statistics on government expenditure seem to paint another picture. We have collated the data about the recurrent expenditure on Planning and Lands under the Development Bureau over the past years, and have found that during the six fiscal years from 2010/11 to 2016/17, the said expenditure rose by 43.3%, whereas aggregate recurrent government expenditure actually expanded by 55.7% over the same period. In terms of annual average growth, the former grew at a rate of 6.2% p.a., lagging notably behind the corresponding figure of 7.7% for the latter (**Table 12**).

Table 12: Recurrent government expenditure on Planning and Lands

	2010/11 (Actual, HK$ bn)	2016/17 (Budgeted, HK$ bn)	Total Growth	CAGR*
Recurrent expenditure on Planning and Lands	3.36	4.81	43.3%	6.2%
Recurrent government expenditure	223.2	347.5	55.7%	7.7%

Note : (*) Compound annual average growth rate.
Sources: Government Budget and Development Bureau.

Given that housing is one of the most salient livelihood issues of the city and has been among the government's priority policy task, we urge the government to review its budgetary principles and allocate sufficient resources in accordance with the increasing needs of the policy area.

7. Conclusion

This research started with the publication of the first set of publicly available and transparent statistics on the supply of housing on the primary residential property market over the next five years and concluded that whilst the current-term government's effort in stepping up land supply has seemingly started to bear fruit in terms of private housing supply, the supply situation of public housing, especially in the medium- to long-term, still warrants great concerns. Any hiccups in the attempts of change of land use and / or implementation of the NDA projects in the New Territories might result in significant delay of housing completions both in the public and private sectors in the medium term.

We then reviewed in-depth the demand and supply situation of different property sectors over the past year and have established that instead of showing signs of alleviation, the acute shortage of space across all categories of "hardware", has generally remained severe or even worsened. More worryingly, such shortage does not only exhibit itself in the residential aspect through sky-rocketing domestic rents and home prices, but also exuberant commercial rents, which seriously hinders Hong Kong's competitiveness. On top of these, a rapidly ageing population also necessitates ample land resources to support aged-related facilities including hospitals and elderly community centres, whilst the latest planned capacity increase of which is apparently insufficient.

It is against this backdrop that we explored the intricacies and practical issues surrounding land supply strategy, and have argued that while any optimisation or increase in land resources utilisation efficiency should be supported, including brownfield sites, we are not in favour of any land supply policy that prioritise any particular land supply avenue over others, as all methods of land supply would face their own challenges and difficulties and take a varying length of time to deliver developable land. Hence, we hold that land supply strategy should follow a multi-pronged approach, encompassing short-, medium- and long-term land supply avenues.

After all, the current predicament of space shortage that transcends different sectors of the society originated from the absence of large-scale land development projects over the past decade or so. This is the result of a crashing property market during 1998 to 2003, which triggered the government to halt on-going land supply initiatives and housing production back then. Our analysis showed that the major land

development programmes currently under planning or implementation, such as the Tung Chung New Town Expansion and Kai Tak NDA, were already tabled for deliberation two decades ago, but were apparently shelved when the housing market tanked. We believe the events in the past two decades have underscored the critical importance of a persistent and consistent land supply policy that ought to survive volatility of property and business cycles, as well as political regimes. We have also raised the example of the Marina Bay development of Singapore to highlight the importance of having a land reserve so that a policy response to market changes, whilst admittedly difficult, is within the realm of possibility.

In this connection, we have presented our views and suggestions on the Lantau Development, which in our view, is the next large-scale land development project that could possibly not only provide an abundant supply of developable land, but is also a critical project for our long-term social and economic development, given its unparalleled strategic geographical location.

We close our research with the acknowledgement that an increase in land supply does not necessarily mean a timely increase in supply of housing or other types of space, because there is still a lengthy process between land and housing production. In this connection, we made a few suggestions to expedite the land and housing development process and to maximise the space provision on existing land resources. We hope that these measures could serve as some "quick fixes" to the current predicament of space shortage in the city, including increasing development density especially in NDAs, and a more optimised development for vacant GIC sites in urban areas. We have also reiterated our call for the government to streamline the existing approval procedures of land development, with a corresponding increase in resources allocated in this area.

Land supply is a policy issue that unavoidably touches every family of the society. It also understandably causes great controversies among the community. However, mere debates and arguments do little to improve the current circumstance of space shortage, nor do these ameliorate any hardship of those suffering such as families living in sub-divided units and elders awaiting nursing homes. At OHKF, we believe the first step to solving the problem is the recognition of the severity of the problem and the realisation that any solution would necessitate one type of compromise or another. We hope that our research could provide the necessary information and new perspectives through which the issues of land supply could viewed, that may however be absent or insufficiently discussed in the public discourse.

Appendix: Details of private housing development projects to be completed in 2016-2019

Forecast of Future Private Housing Supply (2016)#					
District	Development Name	Developer*	No. of Units @	Residential GFA (sf)	Source
Yuen Long	Ngau Tam Mei	Cheung Kong	67	101,290	Land Auction
Sai Kung	The Wings IIIA	SHK	960	721,000	Land Auction
Yuen Long	Yuccie Square	Cheung Kong	1,129	610,310	Land Tender
Tuen Mun	8 Kwun Fat Street	Emperor	14	38,840	Land Tender
Sai Kung	Twin Peaks	K Wah	372	270,500	Land Tender
Islands	Century Link (Phase 2)	SHK	932	546,990	Land Tender
Islands	Century Link (Phase 1)	SHK	1,407	819,990	Land Tender
Sai Kung	Corinthia By The Sea	Sino	536	417,310	Land Tender
Islands	18 Peng Lei Road	Sino	54	36,840	Land Tender
Islands	Tung Wan, Peng Chau	Sino	10	14,370	Land Tender
Sai Kung	The Wings IIIB(e)	SHK	326	234,220	Land Tender
Sai Kung	The Beaumont II	Cheung Kong	872	548,810	Private
Sai Kung	18 Pik Sha Road(e)	Chinachem	10	31,680	Private
Yuen Long	Tan Kwai Tsuen, Hung Shui Kui	Far East	24	48,360	Private
Sai Kung	Mount Pavilia	New World	680	1,057,080	Private
Yuen Long	Grand YOHO (Phase 1)	SHK	1,128	739,990	Private
Yuen Long	Park Vista Phase 2A(e)	SHK	1874^	1,072,990	Private
Sha Tin	Double Cove	Henderson	474	387,170	Private
Sha Tin	Double Cove	Henderson	176	330,660	Private
New Territories Sub-total			11,045	8,028,400	
Sham Shui Po	Heya Aqua	HKHS	275	172,270	HKHS
Sham Shui Po	Heya Crystal(e)	HKHS	350	211,030	HKHS
Kowloon City	Homantin Hillside	Wing Tai	173	153,080	Land Auction
Kowloon City	Ultima (Phase 2)	SHK	271	454,500	Land Auction
Kowloon City	The Zumurud	Cheung Kong	228	394,530	Land Auction
Kowloon City	Inverness Park	Chinachem	134	229,590	Land Auction
Kowloon City	La Lumiere	Cheung Kong	216	105,070	Land Tender
Yau Tsim Mong	Paseo	Rykadan Capital Limited	66	21,100	Land Tender
Kowloon City	Kadoorie Avenue	CITIC	77	153,440	Private
Kowloon City	298 Prince Edward Road West(e)	Lamma	56	61,330	Private
Sham Shui Po	Giovane	Conqueror Wealth Limited	80	29,880	Private
Kowloon City	The Grampian	Hanison	14	35,050	Private
Yau Tsim Mong	Upper West	Kowloon Development	104	63 000	Private

Sham Shui Po	High One	Henderson	187	56,800	Private
Kowloon City	Billionaire Luxe	Chinachem	38	28,110	Private
Kowloon City	18-38 Junction Road	Winfull group holdings limited	94	76,240	Private
Kowloon Sub-total			2,363	2,245,020	
Wan Chai	103 Mount Nicholson Road (Phase 2-3)	Wheelock	50	235,850	Land Auction
Southern	Marina South	China Overseas	114	230,070	Land Tender
Wan Chai	138, 140, 142 Johnston Road(e)	Park Hotel and Hang Seng Bank	78^	56,670	Private
Southern	90 Repulse Bay Road	Cheung Kong	11	71,180	Private
Central and Western	Eivissa Crest	Far East	106	45,170	Private
Eastern	Parker 33	Henderson	188	65,860	Private
Wan Chai	7 Shan Kwong Road Redevelopment	Kerry	106	81,320	Private
Eastern	Fleur Pavilia(e)	New World	611	573,290	Private
Central and Western	The Morgan	Phoneix	108	149,310	Private
Southern	South Coast	Kowloon Development	150	63,320	Private
Central and Western	Imperial Kennedy	SHK	161	117,200	Private
Central and Western	The Hudson	Henderson	134	75,680	Private
Central and Western	Parkcrest	Henderson	48	25,600	Private
Wan Chai	COHO	Soundwill	46	20,930	Private
Central and Western	Kensington Hill	Wheelock	75	69,180	Private
Central and Western	Kennedy Road 2, 6 & 8	Li Kwok Po's family or related parties	32	61,820	Private
Central and Western	AVA 128	Lo Wah or related person	63	21,560	Private
Central and Western	7-9 Ying Wa Terrace(e)	Gavin Development Ltd	48^	38,700	Private
Wan Chai	3-7 Wing Hing Street(e)	Wu Yi	61	24,890	Private
Wan Chai	Greenhill(e)	Graceland Pacific Ltd	86	34,790	Private
Wan Chai	Regent Hill	Circle	82	51,880	Private
Wan Chai	No.12 Shiu Fai Terrace(e)	Chinese Estate	24	40,680	Private
Central and Western	Nova	China Overseas	255	174,570	URA
Hong Kong Sub-total			2,637	2,329,520	
Total			16,045	12,602,940	

Notes : * Refers to the developer who leads the project. Other developers or investors may be involved.
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(e) Completion date is based on OHKF's estimates. Figures are for reference only. Please refer to information released by developers.
Source: Buildings Department, Lands Department, Town Planning Board, various developers, and site inspection.

Forecast of Future Private Housing Supply (2017)#					
District	Development Name	Developer*	No. of Units @	Residential GFA (sf)	Source
Sha Tin	Lok Wo Sha, Ma On Shan	Cheung Kong	452	562,400	Land Tender
Sha Tin	Mount Vienna	Hanison	12	26,870	Land Tender
Sha Tin	La Cresta	HK Resort, Nan Fung	61	134,730	Land Tender
Tuen Mun	18 Rosewood	K&K	18	13,660	Land Tender
Tuen Mun	The Bloomsway	Kerry	1,100	938,600	Land Tender
Sha Tin	Kau To Shan	SHK	59	130,730	Land Tender
Sai Kung	Ocean Wings	SHK	628	483,170	Land Tender
Yuen Long	Twin Regency	SHK	523	231,580	Land Tender
Sai Kung	CAPRI	Wheelock	428	344,030	Land Tender
Sha Tin	Lai Ping Road, Kau To Shan	Wing Tai	158	318,340	Land Tender
Sha Tin	Kau To Shan	Wing Tai	69	142,630	Land Tender
Islands	Peng Lei Road, Peng Chau	Agile or related parties	40	34,420	Land Tender
Sai Kung	The Mediterranean	Sino	297	249,350	Land Tender
Sai Kung	Park Mediterranean	Sino	285	174,040	Land Tender
Sai Kung	SAVANNAH[(e)]	Wheelock	804	494,590	Land Tender
Yuen Long	The Spectra[(e)]	K Wah	912	523,930	MTR
Tsuen Wan	Tseun Wan West 5 (Bayside) (Phase 1)	Cheung Kong	970	685,540	MTR
Yuen Long	Grand YOHO (Phase 2)	SHK	828^	650,990	Private
Yuen Long	Park Vista Phase 2B&C[(e)]	SHK	499^	439,000	Private
New Territories Sub-total			8,143	6,578,600	
Kowloon City	One Kai Tak (I)	China Overseas	545	406,470	Land Tender
Kowloon City	One Kai Tak (II)	China Overseas	624	448,760	Land Tender
Kowloon City	Mantin Heights	Kerry	1,429	1,140,330	Land Tender
Yau Tsim Mong	78 Sai Yee Street	Li Kwok Po's family or related parties	128	46,700	Private
Sham Shui Po	Nam Cheong Station	SHK	2,200	1,601,990	MTR
Kowloon City	VIVA	Cheung Kong	75	33,160	Private
Kowloon City	AXIS	Henderson	120	38,100	Private
Kwun Tong	Peninsula East	Wheelock	256	213,280	Private
Kowloon City	139-147 Argyle Street[(e)]	CLP Power	172	309,700	Private
Yau Tsim Mong	Eltanin Square Mile	Henderson	448	134,400	Private
Kowloon City	The Zutten	Henderson	275	85,480	Private
Yau Tsim Mong	AVA 62	Lo Wah or related parties	88	27,980	Private
Kowloon City	128-130 Nga Tsin Wai Road[(e)]	Fu Chu Investment Ltd	26	18,670	Private

Kowloon City	City Hub	Chevalier	175	75,160	URA
Yau Tsim Mong	Sky Park	New World, URA	439	186,710	URA
Kowloon Sub-total			7,000	4,766,890	
Central and Western	Borrett Road 21, PH1	Cheung Kong	181	435,610	Land Auction
Eastern	Java Road and Tin Chiu Street (Phase 1)	SHK	353	318,540	Land Tender
Wan Chai	Jones Hive	Henderson	119	65,270	Private
Wan Chai	47-49 Perkins Road	CSI	18	68,160	Private
Southern	H Bonaire	Henderson	106	61,180	Private
Central and Western	Bohemian House	New World	191	90,140	Private
Central and Western	King's Hill	SHK	166	76,990	Private
Central and Western	22 Staunton Street	Sino	57	28,450	Private
Central and Western	Alassio	Swire	197	195,530	Private
Central and Western	97 Belcher's Street(e)	SHK	128	73,240	Private
Central and Western	23 Babington Path	SHK	78	66,470	Private
Wan Chai	12-24 Lun Fat Street(e)	Vanke	105	52,730	Private
Eastern	Island Residence	Wheelock	170	78,460	Private
Wan Chai	Sit On Street	Sino	21^	11,191	Land Tender
Southern	28-32 Aberdeen Street(e)	Joint Rise International (HK) Ltd	41	25,460	Private
Hong Kong Sub-total			1,931	1,647,421	
Total			17,074	12,992,911	

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Source: Buildings Department, Lands Department, Town Planning Board, various developers, and site inspection.

Forecast of Future Private Housing Supply (2018)#

District	Development Name	Developer*	No. of Units @	Residential GFA (sf)	Source
Tuen Mun	2 Tsing Min Path[(e)]	Chun Wo	355	85,170	Land Tender
Sai Kung	Alto Residences[(e)]	Lai Sun	605	458,420	Land Tender
Tuen Mun	Ka Wo Li Hill Road[(e)]	Wah Yip	50^	47,720	Land Tender
Sai Kung	The Papillons	Chinachem	857	679,730	Land Tender
Sha Tin	Yu Sha Road, Whitehead, Ma On Shan	CCCG	503	386,690	Land Tender
Tuen Mun	Siu Lam, Tuen Mum	Emperor	20^	28,690	Land Tender
North	Junction of Shun Lung Street and Shun Cheong Street, Sha Tau Kok	Far East	263	116,740	Land Tender
Tuen Mun	2GETHER	HKRI	222	105,820	Land Tender
Tuen Mun	Ori	Nan Fung	370	179,650	Land Tender
Sha Tin	Kau To, Area 54A	Regal Hotel	160	360,300	Land Tender
Tuen Mun	Leung Tak Street, Area 2	SHK	321	141,570	Land Tender
Sai Kung	Hong Kin Rd, Tui Min Hoi	Sino	80^	51,580	Land Tender
North	Commune Modern	Sino	296	135,890	Land Tender
Sha Tin	Hang Kwong Street, Ma On Shan	Wang On	364	115,350	Land Tender
Sha Tin	M Kam Street, Ma On Shan	Wang On	640	200,480	Land Tender
Sai Kung	Tseung Kwan O, Area 68 B2	Wheelock	926	708,630	Land Tender
Tuen Mun	So Kwun Wat Road, Area 56	Wheelock	460	377,130	Land Tender
Islands	Kau Yuk Road, Peng Chau	Agile Property	10	14,060	Land Tender
Sha Tin	Mei Tin Road Sha Tin[(e)]	Far East	118	41,680	Land Tender
Sha Tin	Yu Sha Road, Whitehead, Ma On Shan	SHK	421	430,820	Land Tender
Tsuen Wan	Tsuen Wan West 5 (Cityside)[(e)]	Chinachem	949	711,920	MTR
Tsuen Wan	Tsuen Wan West 6	New World	983	675,280	MTR
Tsuen Wan	Tseun Wan West 5 (Bayside) (Phase 2)	Cheung Kong	1,440	1,113,110	MTR
Tuen Mun	76-92 Tuen Mun Heung Sze Wui Road	New World	100	69,960	Private
North	Shun Hing Street Sha Tau Kok[(e)]	HKHS Ltd	140	79,440	HKHS
New Territories Sub-total			10,653	7,315,830	
Kowloon City	Kai Tak, Area 1I Site 2	K Wah	924	551,290	Land Tender
Kowloon City	1 Muk Ning Street	K&K	822	520,040	Land Tender
Kowloon City	9 Muk Ning Street	Poly	931	600,780	Land Tender
Kowloon City	ONE HOMANTIN	Wheelock	561	388,000	Land Tender
Sham Shui Po	Nam Cheong Station	SHK	1,210	708,990	MTR
Wong Tai Sin	Aspen Crest	Far East	234	80,460	Private
Sham Shui Po	Harbour Park	Henderson	161	48,920	Private

Kowloon City	2 Grampian Road	K Wah	62	66,040	Private
Kowloon City	Upper East	Kowloon Development	1,008	330,850	Private
Sham Shui Po	The Ascent	Regal Hotel	157	64,140	URA
Kowloon City	93 Pau Chung Street	Lai Sun	209	94,490	URA
Kowloon City	301 Prince Edward Road West (e)	Easy Knit	86	40,300	Private
Kowloon Sub-total			6,365	3,494,300	
Wan Chai	15-18 Stubbs Road	SHK	72	180,890	Land Auction
Eastern	Oil Street	Cheung Kong	378	432,710	Land Tender
Southern	Junction of Shouson Hill Road West and Wong Chuk Hang Path	Emperor	20	87,670	Land Tender
Southern	8-12 Deep Water bay Drive	Nan Fung	54	248,600	Land Tender
Eastern	Junction of Oi Kan Road and Oi Tak Street	Wing Tai	150^	46,140	Land Tender
Central and Western	Wellesley	Henderson	90	156,900	Private
Eastern	Island Garden	Nan Fung	470	457,600	Private
Central and Western	University Heights (e)	Chinachem	64	153,080	Private
Southern	55-57 Bisney Road (e)	Chinachem	21	77,160	Private
Central and Western	1-17 Sai Yuen Lane (e)	New World	250	82,660	Private
Eastern	Lime Gala	SHK	650	315,840	Private
Southern	128 Pok Fu Lam Road (e)	Tam's Family	32	62,660	Private
Eastern	Comfort Terrace 3 (e)	Kwai Hung Group	37	22,950	Private
Eastern	Java Rd 22, Yuet Yuen St 1-5 (e)	Henderson	128	29,340	Private
Central and Western	19-31 Graham Street , 15-25 Gage Street , 6-18 Peel Street	Cheung Kong	185	159,410	URA
Hong Kong Sub-total			2,601	2,513,610	
Total			19,619	13,323,740	

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Forecast of Future Private Housing Supply (2019)#					
District	Development Name	Developer*	No. of Units @	Residential GFA (sf)	Source
Yuen Long	Junction of Ngau Tam Mei New Roadand Maple Gardens 1st Street(e)[(e)]	L'Avenue or related parties	16^	45,220	Land Tender
Sha Tin	Kau To Shan, Site 3	Kingboard	105	323,300	Land Tender
Tuen Mun	S Wun Wat Road, Area 56 [(e)]	Vanke	1,100	841,740	Land Tender
Islands	Fa Peng Road, Cheung Chau [(e)]	Ming Hing Waterworks	20^	29,360	Land Tender
Tsuen Wan	Tsing Lung Tau Tsuen Wan[(e)]	MCC	208	132,020	Land Tender
Tsuen Wan	Yeung Uk Road [(e)]	Billion	845	423,720	Land Tender
Tuen Mun	Yip Wong Road, Area 18	Chuang's	290^	117,080	Land Tender
Tuen Mun	Yan Ching Street, Area 10 [(e)]	CSI	150^	67,840	Land Tender
Tai Po	Fo Yin Road, Pak Shek Kok [(e)]	Great Eagle	970^	730,920	Land Tender
North	Castle Peak Road, Kwu Tung	Henderson	590	555,660	Land Tender
Kwai Tsing	178 HING FONG ROAD, KWAI CHUNG, NEW TERRITORIES [(e)]	Nan Fung	100^	46,800	Land Tender
Tuen Mun	Castle Peak Road Castle Peak Bay Area 48	Poly	150	114,600	Land Tender
Tai Po	Junction of Fo Chun Road and Pok Yin Road	SHK	1100^	900,510	Land Tender
Tuen Mun	King Sau Lane, Area 4	SHK	800^	475,670	Land Tender
Tuen Mun	Junction of Hoi Wing Road and Hang Fu Street Area 16	SHK	580^	286,000	Land Tender
Sha Tin	Tai Po Road, Tai Wai	Wang On	343	147,920	Land Tender
Tuen Mun	Castle Peak Road - Tai Lam, Area 55, Siu Sau	Wing Tai	89^	158,200	Land Tender
Yuen Long	Long Ping South [(e)]	Chinachem	720	451,960	MTR
Sai Kung	Lohas Park Package 4	SHK	2,184	1,316,450	MTR
Yuen Long	Yuen Long Station	SHK	1,876	1,361,150	MTR
Sai Kung	Lohas Park Package 5	Wheelock	1,600	1,101,530	MTR
Yuen Long	Grand YOHO (Phase 3)	SHK	552^	453,000	Private
New Territories Sub-total			14,388	10,080,650	
Sham Shui Po	Lung Cheung Road, Beacon Hill [(e)]	Kerry	180^	116,370	Land Tender
Kwun Tong	Lei Yue Mun Path	Kowloon Development	505	215,680	Land Tender
Kowloon City	Kai Tak, Area 1H, Site 3	Wheelock	648	403,880	Land Tender
Kowloon City	7 Victory Avenue [(e)]	Henderson	250	73,840	Private
Kowloon City	18-24 Ko Shan Road [(e)]	BONDS	80^	26,970	Private
Kowloon City	195 Prince Edward West	SHK	60^	45,000	Private
Sham Shui Po	229A-G Hai Tan Street	Far East	72	34,820	URA
Kowloon City	Pak Tei Street and San Shan Road	SHK	160	88,000	URA

Kowloon City	Junction of 43-43J and 45A-45J Ma Tau Wai Road, 6-8 Hok Yuen Street and 1-23 Chun Tin Street	URA	493	218,770	URA
Kowloon City	420-422 Prince Edward Road West (e)	Chow Tai Fook	33	20,290	Private
Kowloon Sub-total			2,481	1,243,620	
Wan Chai	Schooner Street (e)	Hopewell	40^	14,530	Land Tender
Eastern	Java Road and Tin Chiu Street (Phase 2)	SHK	349^	258,000	Land Tender
Wan Chai	53 Ship Street and 1-5 Schooner Street (e)	Hopewell	56^	18,400	Private
Central and Western	30 Po Shan Road	K Wah	45^	39,830	Private
Central and Western	5-6 Hing Hon Road	Kerry	60^	38,530	Private
Central and Western	18-20 Caine Road	SHK	200^	138,110	Private
Hong Kong Sub-total			750	507,400	
Total			17,619	11,831,670	

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