How to tackle land shortage?



Land for Hong Kong: Our Home, Our Say!

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1.1 Insufficient Land Supply leading to Imbalance in Supply-Demand

Land shortage has been plaguing Hong Kong in recent years. The society at large is suffering from multi-faceted problems with "pricy", "tiny" and "cramped" living conditions, characterised by soaring property prices and rents; the difficulties in purchasing the first home; and all sorts of problems associated with overcrowded living space, inadequate community facilities, and high business operating costs. Insufficient land for housing, economic and other purposes has become one of the major issues of great concern to the public.

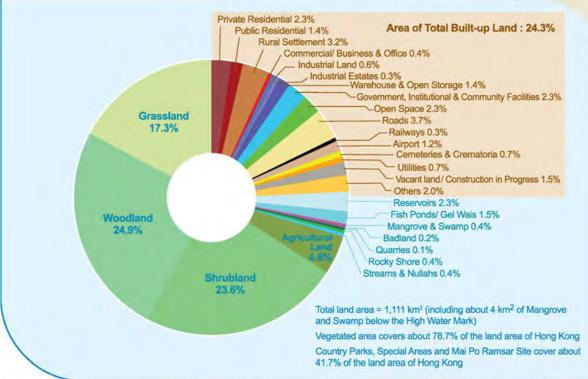
Hong Kong has a mountainous topography. Of the total land area of 1,111 km2, 24.3% (270 km2) is builtup area, with the remaining 75.7% (841 km²) being not-for-development or non-built-up area consisting mainly of country parks, wetland, reservoirs, fishponds, etc. The built-up area includes housing (6.9%), infrastructural facilities (5.9%), economic land (2.7%), government and community facilities (2.3%) and open space (2.3%) etc. (Figure 1). Over the decades, Hong Kong has undergone major shifts in social and economic structures. Planning and land development have always been challenging, not only in ensuring adequate and timely supply of land in tandem with the population, community and economic growth, but also in providing land to meet different development needs.

According to the Census and Statistics Department (C&SD)'s latest population and domestic household projections (Figure 2), Hong Kong's population and households are projected to continue to increase. As stated in the baseline case of population projections, the overall population is projected to increase until it peaks at about 8.22 million in 2043 and then to drop slowly to 7.72 million in 2066. Nevertheless, due to the declining average household size, the number of domestic households will increase at a faster rate than the population; this is estimated to rise from 2.51 million in 2016 to a peak of 2.97 million in 2046, and then down to 2.95 million in 2051.





William.



Remarks: The land use data was compiled using satellite images dated December 2016 and January 2017 (@AIRBUS DS (2016, 2017)), in-house survey information of the Planning Department up to end-2016 and other relevant information from various government departments. As definitions of some land use classes and methodology are updated from time to time, the figures this year may not be comparable directly to those provided in previous years.

Figure 2

Hong Kong Population (1966-2066), Domestic Households and Average Household Size (1966-2051) Source: C&SD and Task Force on Land Supply (TFLS) Paper No. 02/2017



Notes:

- (i) Projected population from the results of the Hong Kong Population Projections 2017-2066 published by C&SD in September 2017.
- (ii) Projected domestic households and average household size from the results of the Hong Kong Domestic Household Projections up to 2051 published by C&SD in October 2017. As such, the projection figures for 2056, 2061 and 2066 are not available.

Despite the demographic changes, Hong Kong's land supply has not kept up with the growth in population, number of households or the sustained economic and social development during the same period. Whilst the built-up land in Hong Kong has been rising steadily since 1970s to cater for the needs arising from the population and continuing economic growth, land development since the turn of the millennium has slowed down in response to the Asian Financial Crisis in 1997 and the subsequent economic downturn. As a result, the increase in developable land, housing flat supply and space for economic activities has been lagging behind the continued growth in population and households. Neither did land development keep pace with the economic recovery thereafter.

Land development has virtually come to a halt since 2005. Over the past decade, the area of built-up land has remained almost the same, leading to a shortage in different kinds of land.

As shown in Figure 3, land supply in Hong Kong continuously increased during the 1980s and the 1990s. The area of built-up land in Hong Kong had increased by 6,000 hectares (ha) (one ha is about the size of a standard football pitch) between 1995 and 2005, but the corresponding figure for 2005 to 2015 greatly shrunk to a mere 400 ha. Taking reclamation as an example, between 1985 and 2000, over 3,000 ha of land were created through reclamation, i.e. an average of about 200 ha (i.e. 2 km²) per annum. Over the next 15-year period between 2001 and 2015, only about 690 ha of land, or an average of some 40 ha per annum, were reclaimed, representing a decrease of 80% (Figure 4).

In fact, land development of Hong Kong is inextricably linked with the development of new towns. Six new towns, including Tsuen Wan and Sha Tin, were developed in the 1970s, while the second-generation new towns of Tin Shui Wai and Tseung Kwan O were developed in the 1980s. However, the pace of land

development started to slow down significantly in the 1990s, and only Tung Chung New Town, the smallest amongst these new towns, was completed in this period (Figure 5). After the 2000s, no more new town was developed in Hong Kong. Looking ahead, apart from the Tung Chung New Town Extension, the next new town (or new development area, "NDA") will be the Kwu Tung North and Fanling North NDAs, which are expected to be completed in stages starting from 2023.

Total Area of Built-up Land

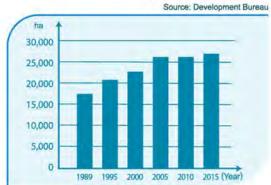


Figure 4
Statistics on Reclamation

Source: Civil Engineering and Development Department

1985-2000
Reclamation: 3,000 ha
Average 200 ha per year

2,000

1,500

Decreased
by

1,000
1985-89 1990-95 1996-00 2001-05 2006-10 2011-15 (Year)

Figure 5
Timeline of New Town Development in Hong Kong
(from the first completion onwards)

Tsuen Wan Tuen Mun Sha Tin Tai Po Yuen Long Fanling / Sheung Shui	Tin Shui Wai Tsueng Kwan O	Tung Chung	No more new town completion from 2000 onwards		
1970s	1980s	1990s	2000s		

1.2 Impact of Land Shortage

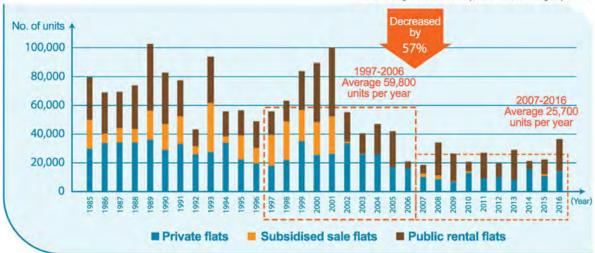
The severe shortage of land supply inevitably creates a series of livelihood issues that directly impact the daily life of citizens.

For housing, the insufficient land supply has directly led to a shortage of housing land; as a result, housing completion, whether public or private, have dropped dramatically.

Between 2007 and 2016, the average annual housing completions amounted to merely 25,700 units, down by over 50% from the corresponding figure for the preceding decade (an annual average of 59,800 units) (Figure 6).



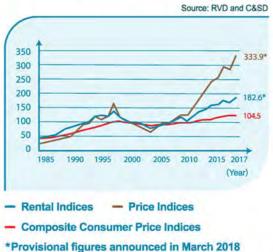
New Residential Unit Completions by Property Type Source: Rating and Valuation Department and Housing Department



Given the drop in housing completion, property rents and prices have seen substantial growth in the past few years.

According to the Rating and Valuation Department (RVD)'s March 2018 figures, the overall price and rental indices for private domestic properties reached a high point in 2017 of 333.9 and 182.6 respectively (100 in both indices in 1999) (Figure 7). As at end-2017, the vacancy rate of private domestic properties was about 3.7%, which was much lower than the long-term average vacancy rate of 5.0% from 1996 to 2015.





The problem is particularly acute in the public housing sector. The average waiting time for general applicants for public rental housing (PRH) is as high as 4.7 years.

As at end-December of 2017, there were about 155,100 general PRH applicants (i.e. family and elderly one-person applicants) and about 127,800 non-elderly one-person applicants under the Quota and Points System. The average waiting time¹ for general applicants is 4.7 years, exceeding the Hong Kong Housing Authority (HA)'s target of providing the first flat offer to general applicants at around three years on average. Meanwhile, public demand for subsidised sales flats remains strong. Since resuming the sale of Home Ownership Scheme (HOS) units by HA in 2014, all the projects have been oversubscribed. An example is the HOS project launched recently in 2017: the some 2,100 units offered were oversubscribed by almost 49 times.

Inadequate land supply and high property price have made housing in Hong Kong increasingly unaffordable.

According to the latest survey conducted by Demographia, an international public policy consultancy, Hong Kong has been ranked the world's least affordable city to buy a home for eight consecutive years. The property price is 19.4 times household income.

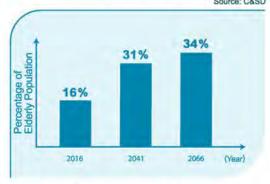
Given the high rent and shortage of affordable housing, some grassroot families are left with no choice but to rent sub-divided units (SDUs) in an unsatisfactory living environment, or even SDUs in industrial buildings; the safety of these units is questionable. According to the C&SD's 2016 Population By-census, there were close to 93,000 SDUs in Hong Kong as at 2016, accommodating a population of some 210,000.

While property prices and rents remained high, Hong Kong's per capita floor area of accommodation was only 161 square feet (sq. ft.) and the median floor area of accommodation of domestic households was about 430 sq. ft. in 2016, according to figures of C&SD.

As for Government, Institution or Community (G/IC) sites, it should be noted that Hong Kong's population is rapidly ageing, with the percentage of elderly persons (those aged 65 and above) expected to rise from 16% in 2016 to 31% in 2041 and 34% in 2066 (Figure 8). The ageing and growing population will further increase the demand for G/IC facilities such as hospitals, clinics, elderly care centres, elderly homes, parks, etc.



Figure 8
Elderly Population (aged 65 and above)
Source: C&SD



As for land for economic use, after a modest cumulative growth of 9% in real terms between 1997 and 2003, the Gross Domestic Product (GDP) of Hong Kong grew rapidly by about 33% in real accumulative terms between 2006 and 2016. However, during the same period, floor space for economic activities only recorded a modest increase.

Note

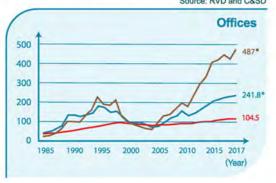
^{1.} Waiting time refers to the time taken between registration for PRH and first flat offer, excluding any frozen period during the application period (e.g. when the applicant has not yet fulfilled the residence requirement; the applicant has requested to put his/her application on hold pending arrival of family members for family reunion; the applicant is imprisoned, etc.). The average waiting time for general applicants refers to the average of the waiting time of those general applicants who were housed to PRH in the past 12 months.

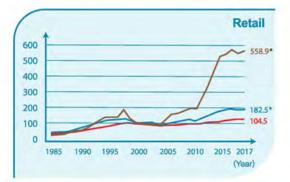
As such, rental and price indices for various types of commercial and industrial properties all showed an upward trend. In 2017, the rental indices of offices, retail and flatted factories were 241.8, 182.5 and 190.5 respectively, whereas the price indices of these properties were 487, 558.9 and 778.5 respectively; all these indices were very high as compared to those of recent years (Figure 9). Meanwhile, the vacancy rates of various types of commercial and industrial properties have been on a steady decline in recent years.

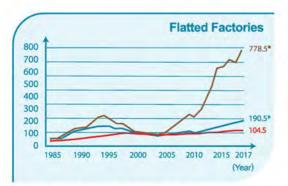
High rents for industrial and commercial properties drive up operating costs for businesses, and severely undermine the competitiveness of Hong Kong. According to the International Institute for Management Development World Competitiveness Yearbook 2017, Hong Kong ranked second-to-last in the "Prices" category among the 63 economies covered in the analysis. Meanwhile, according to a study by the global property consultant CBRE, the rent for Grade A Offices in Central of Hong Kong was the most expensive in the world for the past two years (Figure 10).

Rental and Price Indices for Industrial and Commercial Properties (1985 - 2017)

Source: RVD and C&SD







- Rental Indices Price Indices
- Composite Consumer Price Indices
- *Provisional figures announced in March 2018

Rental Cost of Grade A Offices in Major Cities
Source: CBRE

				1
Major City	Monthly rent per foot (HK\$)	2017 Ranking	2016 Ranking	
Hong Kong (Central)	197	1	1	
London (West End)	139	2	2	
New York (Manhattan)	132	3	9	
Hong Kong (West Kowloon)	124	4	5	
Beijing (CBD)	119	5	4	
Beijing (Finance Street)	111	6	3	
Tokyo (Marunouchi/Otemachi)	105	7	6	
New York (South Manhattan)	102	8	-	
New Delhi (Rajiv Chowk)	100	9	7	
Shanghai (Pudong)	87	10	10	

Remarks: Based on conversion rate of US\$1 to HK\$7.8





1.3 Increasing Land Supply: A Pressing Need

There is no quick fix for the land shortage problem of Hong Kong. Hong Kong has been adopting a multi-pronged approach to increasing land supply over the past few years. In the short to medium term, mainly by changing existing land uses and increasing development density, a total of over 380,000 residential units can be provided. In the medium to long term, various NDAs and new town extensions, as well as potential railway property development projects, can provide over 220,000 residential units and over 8.6 million m2 of commercial and industrial floor area.

On the one hand, the Government should continue to adopt a multi-pronged strategy to increase land in a sustained manner. On the other, we need to increase our efforts to make up for the lag of supply in the past and the current shortfall.

The society must come up with adequate land supply to satisfy different needs such as more public and private housing, commercial floor space including shops, offices and space for business startups, social welfare facilities including elderly homes, healthcare facilities, recreation space, etc. As we tackle the current problem of land shortage, we must not lose sight of the future and the needs of our next generation. As planning and major land development often take over a decade to come to fruition, there is an urgent need for us to act now to boost land supply for Hong Kong, in order to cater for our needs in the short, medium and long term. We cannot be shortsighted, seeing only the trees and not the wood.









Hong Kong's land supply is in shortage and land production takes time. There is no lack of ideas or strategies on how to increase land supply, but the society lacks a broad consensus on the pros and cons, trade-offs and priorities of the various land supply options. On this basis, the Task Force on Land Supply (the Task Force), comprising 22 non-official and eight official members appointed by the Chief Executive, was established in September 2017 for a term of one and a half years from September 2017 to February 2019. The Task Force is made up of members from various professional disciplines and sectors, including planning, engineering, architecture, surveying, environment, academia, think tanks, social services, housing development and district administration.

The Task Force recognises Hong Kong's land shortage problems at present and for the long term. It is making a macro review of the sources of land supply, evaluates land supply options, and has launched a public engagement exercise to engage the community in discussions on the pros and cons of different options and their priorities, as well as the trade-off between different options. The objective of the Task Force is to achieve the broadest consensus and draw up a broad framework of recommendations on the overall land supply strategy and a prioritisation of different land supply options for submission to the Government, based on the opinions collected in the public engagement exercise.

Task Force on Land Supply April 2018



Land Demand 2 of Hong Kong 2

• 2.1 Land Shortfall is Much Higher than 1,200 Ha

There is an obvious land shortage to meet the different needs of Hong Kong, as shown by the rising property prices and rents; average waiting time of 4.7 years for public rental housing (PRH); and some 93,000 sub-divided units in 2016.

The Task Force has reviewed the estimations of land supply and demand under "Hong Kong 2030+: Towards a Planning Vision and Strategy Transcending 2030" (Hong Kong 2030+). According to Hong Kong 2030+ study, the land requirement for the next 30 years will be no less than 4,800 ha. Taking into account the land supply of 3,600 ha or so from committed and planned developments, Hong Kong will still face a land shortfall of at least 1,200 ha in the long run up to 2046 (Figure 11). This is equivalent to the area of more than 60 Victoria Parks.



- In 2015, the Planning Department (PlanD) commenced the Hong Kong 2030+ study, mainly to update Hong Kong's territorial development strategy and spatial planning framework. This is to guide future planning, land and infrastructure development, as well as the shaping of the built and natural environment.
- A six-month public engagement exercise for Hong Kong 2030+ was initiated in late October 2016. The Government is analysing in detail the public views received and is conducting various technical assessments.

Figure11 to 2046 (hectares)

Estimation of Overall Land Supply and Demand up to 2046 (hectares)

	Up to 2026		2026 - 2046				
	Demand	Supply ⁽ⁱ⁾	Shortfall	Demand	Supply ⁽ⁱ⁾	Shortfall	Total Shortfall ^(v)
Landfor				I			
Land for (ii) Residential Uses	768	660	-108	902	780	-122	-230
Land for (iii) Economic Uses	196	61	-135	262	141	-121	-256
Land for Infrastructure (iv) and Facilities	1,661	1,089	-572	931	783	-148	- 720
Total	2,625	1,810	-815	2,095	1,704	-391	-1,206

Notes

- (i) The column on land supply assumes timely delivery (including funding, land resumption, compensation, rehousing arrangements and construction works, etc.) of all expected land supply developments. Land for residential uses involves a number of expected private development/redevelopment projects and their actual implementation progress is subject to market factors.
- (ii) The column on demand for land for residential uses does not take into account public aspiration for improvement in living space.
- (iii) Only the three market-driven economic uses expected to experience shortfalls (i.e. Central Business District (CBD) Grade A Offices, General Industries and Special Industries) and certain non-market-driven uses related to industries and businesses (i.e. industrial estates, science parks, port back-up facilities, convention and exhibition facilities and wholesale food markets) are included. Uses prone to the impact of external factors and thus being more susceptible to fluctuations in demand (e.g. retail), uses of which long-term land demand is not yet ascertained by relevant policy bureaux in assessments (e.g. convention and exhibition facilities), and uses of which land demand is to be ascertained by ongoing consultancy studies (e.g. facilities related to the construction and recycling industries) are not included.
- (iv) Various G/IC facilities, open space, as well as transport and infrastructure facilities are included. Additional land demand arising from updated policies (e.g. increase in demand for elderly service facilities as assessed by the Elderly Services Programme Plan) is not reflected.
- (v) As a result of (ii), (iii) and (iv), the total shortfall is the minimum figure.

Regarding the 4,800-ha land demand and the underlying assumptions adopted by Hong Kong 2030+, the Task Force notes that these estimations are on the conservative side, failing to give due regard to factors such as the public aspiration for improvement in average living space per person; faster-than-expected growth in the demand for healthcare and welfare services arising from an ageing population; possible need to speed up urban renewal; it also does not include land requirements of certain industries, etc.

Regarding the 3,600-ha land supply, the Task Force recognises the considerable uncertainty of its delivery. Firstly, as at end-March 2018, about one-third of the 210 or so sites with potential for housing development identified through land use reviews have yet to commence the rezoning procedures; development of some of the potential housing sites might have to be scaled down or even put on hold due to local objections to infill developments. Secondly, a number of challenges are expected for the implementation of NDA plans such as Kwu Tung North/Fanling North, Hung Shui Kiu and Yuen Long South. These hurdles include the funding application to the Legislative Council (LegCo), and the compensation and rehousing arrangements for those affected by land resumption and clearance. As a result, changes might be needed to the schedule and scale of development. these two main sources of land supply fail to materialise on schedule or even not at all, the final land supply will be less and available later than expected.

Considering that land demand may be higher than the estimate while the supply is subject to uncertainties,

the Task Force is of the view that the land shortfall of at least 1.200 ha is a conservative estimate, and that the actual shortfall may be much higher than 1,200 ha.

This will be taken as the basis for the public engagement.

The demand and supply of land is not only about areas but also about the timing of the land shortages; these two issues need to be considered together before the problem can be appropriately tackled.

For example, among the 1,200-ha shortfall, a shortfall of about 815 ha is expected to emerge before 2026 (Figure 11), which includes a shortfall of some 108 ha for housing (Figure 12). The problem of land shortage is real and needs to be resolved.

The currently committed or planned major development projects are expected to provide only 600,000 housing units2, but there is still a need of 230 ha of residential land to meet the housing demand over the next 30 years. This will particularly be the case in the later years, when the continual growth in population and household numbers, as well as urban renewal, will also contribute to the increase in housing demand.

Figure 12

Estimation of Supply and Demand for Land for Residential Uses up to 2046 Source: PlanD

Notes

(i) The column on demand for land for residential uses does not take into account public aspirations for improvement in living space.

(ii) The column on supply assumes timely delivery (including funding, land resumption, compensation and rehousing arrangements, construction works, etc.) of all expected land supply developments.

(IIi) The public and private housing demand for 2016-2026 is projected on the basis of the ten-year (2016/17 to 2025/26) housing supply target of the Long Term Housing Strategy (LTHS) Annual Progress Report 2015, including a total of 460,000 units that comprise 280,000 public housing units and 180,000 private housing units. Housing demand projection covers four main demand components, namely net increase in the number of households. households displaced by redevelopment, inadequately housed households, and miscellaneous factors.

(ly) Among these, estimation of land supply for private housing involves a number of expected private development/redevelopment projects at present and their actual implementation progress is subject to market factors.

(v) The projection methodology of the LTHS is largely adopted for the public and private housing demand for 2026-2046. The housing demand of inadequately housed households which already existed in 2016 has been included in the housing demand projection for the first ten years (i.e. 2016-2026). Conceptually, any additional housing demand arising from new households subsequently formed (including new inadequately housed households) will be reflected in the projection for "net increase in the number of households".

	Land for Residential Uses (ha)		
	Demand ⁽ⁱ⁾	Supply ⁽ⁱⁱ⁾	Shortfall
		Up to 2026(iii)	
Public Housing	257	208	-49
Private Housing	511	452	-59 ^(iv)
Total	768	660	-108
		2026 - 46 ^(v)	
Public Housing	300	228	-72
Private Housing	602	552	-50 ^(lv)
Total	902	780	-122
		2016 - 46	
Public Housing	557	436	-121
Private Housing	1,113	1,004	-109
Total	1,670	1,440	-230

Note:

^{2.} In the short to medium term, by way of changing existing land uses and increasing development intensity by the Government, a total of over 380,000 residential units can be provided. In the medium to long term, various NDAs and new town extensions, as well as potential railway property development projects, can provide over 220,000 residential units.

for 60% (i.e. 280,000 units), and private housing accounts for 40% (i.e. 180,000

units).

As of December 2017, there were about 155,100 general PRH applicants and about 127,800 non-elderly one-person applicants under the Quota and Points System. The average waiting time for general applicants was 4.7 years, exceeding the HA's target of providing the first flat offer to general applicants after around three years on average. In view of the persistently strong demand for

According to the projection model of the LTHS, members of the public who intend to form a separate household (e.g. newlywed couples) and fail to do so due to shortage of housing supply would normally stay at their current residence (e.g. living with parents). As they still intend to form a separate household, their housing demand will be reflected in the "net increase in number of households" category and counted in the total housing demand in the course of the rolling projection. If the abovementioned persons choose to move into inadequate housing (e.g. subdivided units) due to insufficient housing supply, their housing demand will be reflected in the "inadequately housed households" category and counted in the total housing demand. Therefore, the Government

holds that the abovementioned projection model will not underestimate long-term housing demand due to continued shortage in housing

The above-mentioned figures reflect to a great extent the reality of

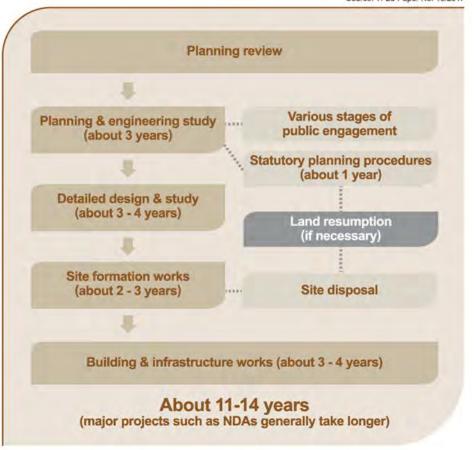
the lead time required to undergo the relevant planning, works preparation and construction even if housing land is identified. In fact, "spade-ready" sites for public housing development are increasingly hard to find.

The development of public housing on non-spade ready sites tends to involve more complex issues and uncertainties, including the need for (i) planning and engineering studies and public consultations; (ii) statutory planning and other judicial procedures; (iii) after detailed design, seeking funding approval for government works from the LegCo; (iv) undertaking land resumption, clearance, and relocation; (v) provisioning and reprovisioning of facilities; (vi) site formation works and building infrastructure; and (vii) construction (Figure 13).

Figure 13

General Procedures and Time Required for Housing Development on "Non-spade ready" Sites

Source: TFLS Paper No. 10/2017



^{4. &}quot;Spade-ready" sites are sites that have been properly zoned, and do not require resumption, clearance, reprovisioning of existing facilities, site formation or provision of additional infrastructure.



Kong 2030+ estimation at present. From the conservative point of view, if future land supply fails to make up for the shortfall of some 230 ha of housing land as estimated in Hong Kong 2030+ in a timely manner, coupled with the uncertainties of existing land supply projects, the land shortfall will aggravate, severely affecting the housing conditions and livelihood of

people.

more land; such additional demand for

housing land is not included in the Hong

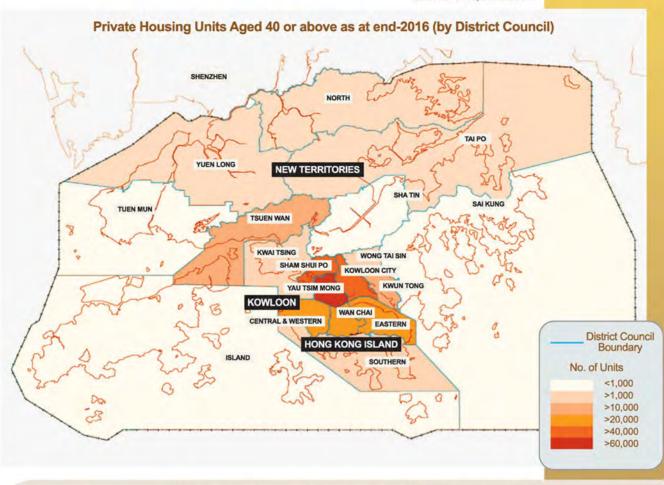
The average waiting time for PRH applicants will inevitably increase further. Rents and prices of private residential properties may continue to soar. It would also be more difficult to find ways to increase the average living space per person and improve the crowded living environment for Hong Kong in the long run.

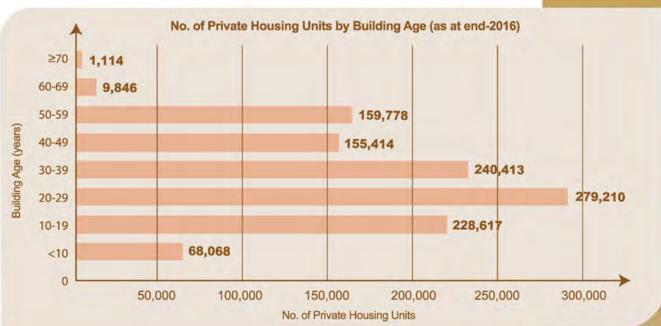
On the other hand, the need for and scale of rejuvenation or redevelopment of the urban areas may rise substantially over the years in future, especially in two or three decades when the bulk of the current stock of buildings is ageing fast. Based on the current age profile (Figure 14) and assuming that no housing units are demolished, it is estimated that there will be about 326,000 private housing units aged 70 years or above by 2046, up from about 1,100 units at present (i.e. an increase of nearly 300 times). Most of these buildings are concentrated in the

According to the estimation of Hong Kong 2030+, there will be 318,200 households being displaced by redevelopment in the next 30 years. Among these, 22,200 households will come from public housing units. The Task Force is of the view that the estimation might have underestimated the need for redevelopment of public housing estates. These public housing buildings will continue to age and generate the need for redevelopment, regardless of the redevelopment plan by the Government.

Redevelopment of private residential buildings takes a long lead time mainly due to the protracted process for amalgamating the fragmented ownership, compensation and rehousing tenants/ occupiers, and the considerable time required for going through the necessary development processes. Even though some redeveloped sites may contribute eventually to housing supply, the prolonged process and escalating scale of urban redevelopment will inevitably lead to additional demand for housing units. This may arise from units in buildings undergoing redevelopment being kept unoccupied for prolonged periods; reduction in housing units during the actual reconstruction; existing occupants being displaced upon redevelopment, etc. Some of the sites may be used for nonresidential purposes after redevelopment, resulting in a reduction in housing supply.

Figure 14 Age Profile of Existing Private Housing Stock Source: TFLS Paper No. 02/2017







Moreover, due to various factors, if the plot ratio of an old building exceeds the development intensity permitted under the prevalent town planning provisions and the Buildings Ordinance, the plot ratio of the redeveloped residential buildings may not necessarily be increased. Under this circumstance, redevelopment projects may increase the demand for vacant space and land.

The Task Force points out that, given the continued increase of ageing building stock and the current modest scale of urban regeneration, the community as a whole should step up its efforts to rejuvenate the extensive old urban fabric, especially in the older urban areas, in order to relieve urban decay and improve the living environment. The Government should proactively map out a strategy to address the issue of ageing buildings and introduce appropriate measures in a timely manner.

The pace of urban redevelopment may eventually be changed in response to new policies and initiatives. As such, the figures of land supply and demand projected under Hong Kong 2030+, which are based on assumptions over a certain scale of urban redevelopment, are subject to a number of uncertainties.



REFERENCER

(2) Economic land

The "Review of Land Requirement for Grade A Offices, Business and Industrial Uses" conducted under Hong Kong 2030+ mainly aims to project the future land/space demand for market-driven economic land uses. The overall economic land demand in the long term is estimated to be 200 ha in net site area.

The above-mentioned estimation does not take into account other market-driven land uses which are affected by external environmental factors and thus more susceptible to fluctuations in demand (e.g. retail and hotel). It is also difficult to estimate the demand from the cultural and creative industries. Moreover, the quantitative models adopted is relatively conservative and may not be able to fully reflect all the factors (e.g. the Mainland's actual GDP growth and its structural change in economy) that might affect the demand for such land/space in Hong Kong.

In fact, after a modest cumulative growth of 9% in real terms between 1997 and 2003, the GDP of Hong Kong picked up and rose by about 33% in real terms between 2006 and 2016. Nevertheless, during the same period, floor space for economic activities only recorded a modest increase. For example, from 2006 to 2016, the total private office stock increased by only about 17%. The vacancy rate of private offices was 8.2% in 2016, and that of private offices in Central was as low as 4.1%. The private office rental and price indices rose on a trend from 117.4 and 139.3 in 2006 to 232.3 and 426.9 in 2016 respectively. while it subsequently reached 241.8 and 487 in 2017.

The continued rise in rental level over the past few years reflects a shortage in supply of Grade A Offices. The Task Force notes that the projection made under Hong Kong 2030+ has yet to fully reflect the suppressed or unmet potential demand of Grade A Offices which resulted from the present situation of high rents and prices due to shortage of floor space for economic activities (e.g. foreign enterprises choosing not to set up offices in Hong Kong). In addition, new national policies such as the Development Plan for a City Cluster in the Guangdong-Hong Kong-Macao Bay Area and "Belt and Road" initiative will further boost the demand for offices (especially Grade A Offices) from mainland/foreign companies.

As such, the overall economic land demand of Hong Kong should exceed the projection under Hong Kong 2030+.

On the other hand, according to the demand projection for non-market-driven economic land/space under Hong Kong 2030+, it is estimated that the relevant long-term land demand will be 257 ha. But this has not included the long-term land demand which is yet to be ascertained by the relevant policy bureaux during the assessment stage (e.g. convention and exhibition facilities), and uses of which land demand is to be determined by ongoing studies (e.g. facilities related to the construction and recycling industries).

Together with market-driven (200 ha) and non-market-driven (257 ha) demand for economic land/space, the Hong Kong 2030+ forecasts that overall long-term demand for economic land will reach 457 ha, whilst supply will only amount to around 200 ha.

Note:

5. The review adopted a quantitative model based on statistical relationship between floor space, actual forecast growth rates of the GDP in Hong Kong and Guangdong, and adjusted according to cumulative potential demand, to assess the aggregate floor space demand of five types of the economic land uses (i.e. CBD grade A Offices, non-CBD Grade A Offices, General Business, Industries and Special industries) over the projection horizon in the short, medium and long terms.

If the future land supply fails to make up for the minimum shortfall of some 256 ha of economic land as estimated in Hong Kong 2030+ in a timely manner, coupled with the uncertainties of existing land supply projects, the shortfall of economic land will aggravate and jeopardise the sustained economic development and the employment situation of Hong Kong.

Specifically, due to the obvious shortage of floor space for economic activities. the current situation of high rents and prices is expected to worsen and further undermine Hong Kong's competitiveness.

Besides, emerging industries requiring cheaper floor space (especially innovative technology and startups) may not be able to develop fully in Hong Kong due to the continued shortage of economic land and high operating costs. This will in turn impair the structural change in Hong Kong's economy and employment opportunities for the people.







(3) Government, Institution or Community (G/IC) uses, open space and transport and infrastructure facilities

The Task Force notes that according to the estimation of Hong Kong 2030+, there will be a land shortage of 720 ha for G/IC uses, open space and transport and infrastructure facilities, on top of a shortfall of about 670,000 square metres (m2) floor space. However, this projection has yet to include: (i) land demand arising from the latest policies (e.g. new demand for elderly service facilities proposed under the Elderly Services Programme Plan; additional demand for space arising from kindergarten policies); and (ii) certain uses of which the long-term land demand is not yet ascertained by the relevant policy bureaus during the assessment stage (e.g. tertiary education and certain healthcare facilities).

In addition, the Task Force notes that Hong Kong 2030+ proposes to enhance the land and space provision for G/IC uses and open space for the future additional population, by adopting a higher ratio of 3.5 m2 per person and a minimum of 2.5 m² per person for the strategic planning of demand for G/IC facilities and open space respectively. However, it should be noted that this target of higher provision of G/IC land and open space per person is only adopted for the rough calculation of future land demand for relevant facilities from the new population growth. In fact, as the current population ages, there will naturally be greater demands for healthcare and elderly service facilities, as well as open spaces. As such, there is room for upward adjustment of the abovementioned planning standard.

In general terms, the future land demand for the relevant facilities in Hong Kong will likely exceed the current estimation. If the future land supply fails to make up for the land shortfall of some 720 ha for G/IC uses, open space and transport and infrastructure facilities as estimated in Hong Kong 2030+ in a timely manner, coupled with the uncertainties of existing land supply projects, the shortfall of such land will aggravate, thereby affecting the livelihood of the people and the provision of necessary facilities and services to cater for the needs of the society.

There may also be insufficient space to meet the needs of new facilities and services arising from the demands of an ageing population. The public aspiration and long-term vision for more open space and spaces for recreational activities will also be un-met.

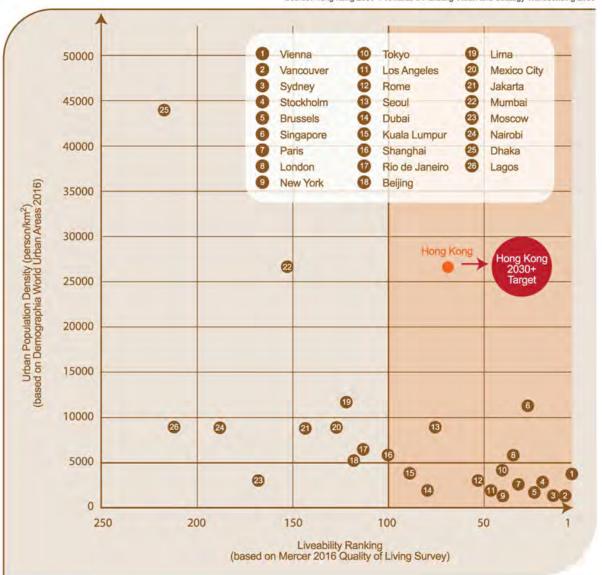




According to research conducted by an international institution, in general the higher the population density of a city, the lower the liveability ranking. In fact, as highlighted in Figure 15, all cities that come higher than Hong Kong in terms of liveability ranking have a population density of about 10,000 person per square kilometre (km2) or less on their developed land; that is far below Hong Kong's density of some 27,000 person per km2. Compared to international cities such as London, New York City and Tokyo, Hong Kong's population density is at least five times higher. As such, it would be very difficult to improve the liveability of Hong Kong without lowering our population density (through creating and developing more land). On the contrary, re-use of existing developed land (e.g. by converting existing open space, government facilities, etc. into residential units) will only drive up further the already high population density.

> Figure 15 Comparative Liveability Matrix

Source: Hong Kong 2030+: Towards a Planning Vision and Strategy Transcending 2030







It must be emphasised that the abovementioned data on land requirements is merely projections based on many assumptions about the future, which is hard to predict accurately.

It takes time to increase land supply. It is an impossible mission to fill any gap in land supply within a short span of time when there is no or low land reserve. On the contrary, the surplus in land as a result of over-estimating the land requirement can be set aside as a reserve to cope with changes in the market or social environment.

The current land shortage in Hong Kong shows vividly the consequences of underestimating land demand, which are much worse than that of an over-estimation.

To avoid a repeat of the past, the Government must pursue land supply initiatives regardless of the short-term economic fluctuations. Planning and development of land must also be taken forward well ahead of time in a sustained manner. Not only should the Government proceed aggressively to catch up on the shortfall in land supply and avert the current demand-supply imbalance; land use planning must also be pursued for Hong Kong's sustainable development, to formulate a stable development strategy and establish a land reserve.





3.1 Multi-pronged Strategy to Increase Land Supply

The Task Force considers that there is no single measure that could address the land shortage problem while providing sufficient land to meet all the foreseeable and unforeseeable development needs. When discussing with the community on the different land supply options and their priorities, the Task Force also takes note of the Government's continuing multi-pronged approach to implement various on-going land supply measures in full steam (Figure 17), with a view to increasing land supply.

Key measures in the short to medium term (a lead time of about 5 to 10 years)

providing

over 380,000

residential units

Key measures in the medium to long term (a lead time of about 10 years or above)

providing

over 220,000

residential units

As mentioned in Chapter 2, while some potential sources of new land/space that are still under discussion or studies [such as reclamation outside Victoria Harbour, potential development of rock caverns and underground spaces as well as two proposed strategic growth areas (SGAs) (i.e. East Lantau Metropolis and New Territories North)] are yet to be included in the estimation.

Hong Kong still lacks at least 1,200 ha of land even if the above multi-pronged measures and projects can be implemented smoothly and as scheduled.

The shortfall of some 800 ha in the short to medium term is particularly acute as a result of the slackening of land supply efforts in the past decade or so.

In face of the land shortage in the short to medium term, apart from the land supply options with the potential of bringing about additional land supply (see Chapter 4),

the Task Force has examined a number of ongoing initiatives currently pursued by the Government, and

considers that the Government should press ahead with the implementation of these measures that are key to the land supply in the short to medium term, including rezoning of some 210 potential sites for housing purpose. The Government should make its best endeavour to secure support from the stakeholders to ensure timely delivery of the land.

There are other initiatives, such as optimising use of vacant school premises and streamlining development control procedures. While they may not be capable of generating substantial supply of additional land, the Task Force considers that the Government should step up efforts on these fronts to narrow the gap in land supply and demand in the short to medium term. Details of these initiatives are set out in the following paragraphs.



	~	Figure 17	,
Overview of Current Land	Supply	Initiatives	
	5	Source: PlanD	,

Short-to-Medium Term Land Supply Initiatives					
	Estimated Developable Land Area (ha)	Estimated Flat Production/ Economic Use Gross Floor Area (GFA)	Included in the 3,600-ha land supply estimate?		
Land Use Reviews ⁽ⁱ⁾	500	Over 310,000 units	~		
Kai Tak Development	320	50,000 units Commercial GFA: 2.3 million m ^{2 (iv)}	~		
Diamond Hill Comprehensive Development Area Site	7.42	4,050 units	~		
Ex-Lamma Quarry Site	20	1,900 units	~		
Railway Property Developments(ii) - Committed Projects	18	12,000 units	~		
Urban Renewal Projects(iii) Implemented by URA	2.38	3,310 units	~		
Energising Kowloon East	7	Commercial GFA: 680,000 m ²	~		
New Central Harbourfront	19	Commercial GFA: 200,000 m ²	~		
tal in Short-to-Medium Term	Over 380	.000 units			

(estimate)

Economic use GFA: over 3 million m2

Medium-to-Long Term Land Supply Initiatives

	Estimated Developable Land Area (ha)	Estimated Flat Production/ Economic Use Gross Floor Area (GFA)	Included in the 3,600-ha land supply estimate?
Kwu Tung North and ^(v) Fanling North NDAs	320	60,000 units Commercial/Industrial GFA: 840,000 m ²	~
Tung Chung New Town Extension	196	49,400 units Commercial/Industrial GFA: 870,000 m ²	~
Hung Shui Kiu NDA ^(v)	441	61,000 units Commercial/Industrial GFA: 6.37 million m ²	~
Yuen Long South Development ^(v)	185	28,500 units Commercial/Industrial GFA: 570,000 m ²	~
Railway Property Developments ^(vi) - Potential Projects in Medium/Long Term	54	Over 21,000 units	~
Topside Development at the Hong Kong Boundary Crossing Facilities (HKBCF) Island of Hong Kong Zhubai-Macao Bridge	HKBCF: 150	Commercial GFA: up to 500,000 m ²	~

Total in Medium-to-Long Term (estimate)

Over 220,000 units Economic use GFA: 8.6 million m²

Other Long-Term Land Supply Initiatives

	Estimated Land Area Involved (ha)	Estimated Development Time	Included in the 3,600-ha land supply estimate?
Near-shore Reclamation Outside Victoria Harbour	Sunny Bay: 60 - 100	Sunny Bay/Lung Kwu Tan/Ma Liu Shui: before 2030 Tsing Yi Southwest/Siu Ho Wan: subject to study	×
East Lantau Metropolis (ELM) (vii)	1,000	Beyond 2030	×
New Territories North (NTN) (viii)	720	Beyond 2030	×
Tseung Kwan O Area 137	80	Subject to study	×
Cavern and Underground Space Developments	Sha Tin Sewage Treatment Works (STW): 28 Sai Kung STW/ Sham Tseng STW: 3.2 Tsuen Wan No. 2 Fresh Water (FW) Service Reservoir (SR), Diamond Hill FW & Salt Water (SW) SRs and Yau Tong Group FW & SW SRs: 14	Subject to study	×

Notes:

The estimated developable land area, flat production, economic use GFA, year of availability and time needed for development are subject to changes.

- (i) About 210 pieces of land with potential for housing development (including Ex-Cha Kwo Ling Kaolin Mine Site, Anderson Road Quarry Site and Kam Tin South Public Housing Development)
- (ii) Excluding West Rail Pat Heung Maintenance Depot site and potential property developments (e.g. Siu Ho Wan Depot).
- (iii) Based on URA's commenced residential projects with projected tender invitation timetable in the 5 years from 2017/18 to 2021/22.
- (iv) This is the estimated total commercial GFA in Kai Tak Development, which comprises about 1.8 million m² of commercial floor area, as well as about 0.5 million m² of government office floor space under planning and commercial/government office floor space currently in use. Kwu Tung North and Fanling North NDAs, Hung Shui Kiu NDA and Yuen Long South Development cover about 340 ha of brownfield sites.
- Including Pat Heung Maintenance Centre and Siu Ho Wan Depot.
- (vii) SGAs proposed under "Hong Kong 2030+".
 (viii) SGAs proposed under "Hong Kong 2030+". Around 200 ha of brownfield sites are covered by NTN.



• 3.2 Land Use Review

Land use review is a continuous process to identify sites suitable for housing or other uses amongst the existing land and reserved sites that have no development plan or for which the original purpose is no longer pursued, and to initiate change of their uses where planning terms permit. Through on-going land use reviews in the past few years, over 210 potential housing sites across 18 districts of Hong Kong (a total of approximately 500 ha) have been identified by the Government for providing over 310,000 housing units.



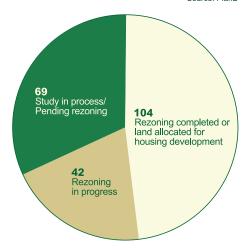
- These 210 sites include potential housing sites identified on government land currently under Short Term Tenancies or on sites in "G/IC", "Green Belt", "Recreation", "Agriculture", "Open Space", "Other Specified Uses" and "Industrial" zones.
- They also cover some sites "Undetermined" zones, which are transitional in nature and subject to land use reviews/studies before their longterm uses can be decided upon.

- Land use review involves different planning and technical factors, including traffic impact, environmental impact (e.g. noise and air quality), air ventilation and visual impact, infrastructural capacity, reprovisioning of affected facilities, etc.
- There are processes before the land can be converted to housing purpose and development. These involve necessary planning process (e.g. rezoning and submission of planning applications) and other statutory procedures (e.g. gazettal of road works). Land resumption, site clearance and infrastructural works (e.g. seeking funding approval for site formation, provision or upgrading of access road or other infrastructure) may also be required.

The potential housing sites amounting to 500 ha have been counted towards the estimation of land supply over the next 30 years under Hong Kong 2030+.

In terms of number of sites, the Government has completed rezoning work of nearly half of these sites (Figure 18). The Task Force expects an uphill battle for the rezoning of the remaining sites. These 500 ha of land are crucial to meet the housing needs in the short to medium term. Therefore, the Task Force asks the Government to spare no effort in addressing the concerns of District Councils, while calling on community support for the rezoning work in the wider interests of society.

> Figure 18 Progress of Rezoning over 210 Sites for Housing Development (as of early March 2018)



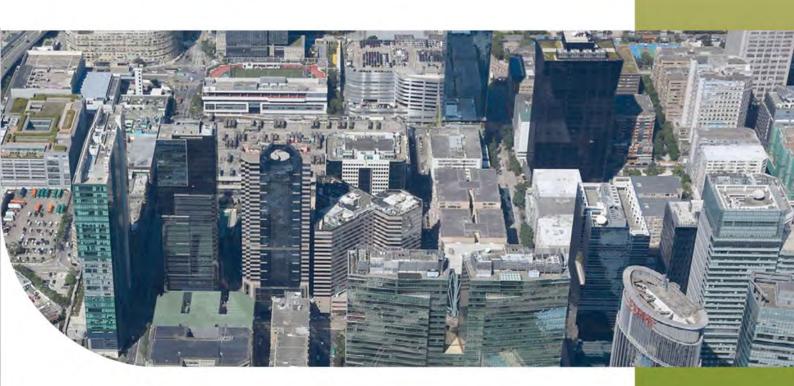
Another review is on the Comprehensive Development Area (CDA). CDA zoning seeks to encourage developers to assemble land for comprehensive planning and development. However, it has limited effect on increasing land supply. The Town Planning Board (TPB) will review regularly the development status of CDA sites and consider rezoning suitable sites for other uses or turning CDA site into smaller ones to facilitate the development process.

3.3 Increasing Development Intensity

Another method to expedite the housing supply is increasing development intensity. In fact, as announced in the 2014 Policy Address, except for the north of Hong Kong Island and Kowloon Peninsula which are more densely populated, the maximum domestic Plot Ratio that can be allowed for housing sites located in other Density Zones of the Main Urban Areas and New Towns could be raised generally by 20% where planning terms permit.

The increase in development intensity is subject to approval by TPB. The increase in plot ratio will be approved only when there is scope in terms of development capacity, and the impact so arising, if any, in particular the traffic load can be addressed or mitigated. Between mid-2012 and end-2017, TPB has approved applications to relax the development intensity of 49 housing sites, leading to an additional supply of about 10,540 units.

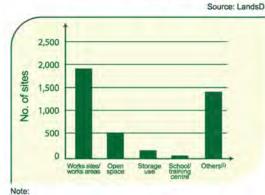






TGLA is the temporary allocation of government land to a government bureau/department for works or use. As at September 2017, of the 4,000 TGLAs with a total area of about 3,340 ha of land, most are being used for works sites/works areas (some 1,950 TGLAs with a total area of 2,850 ha) of Government works, such as construction of roads. Upon the expiry of the TGLAs, the works sites concerned would usually become part of the future infrastructure (as a ballpark, about two-thirds of the area used for works sites/works areas are expected to become part of the infrastructure). As for the remaining TGLA sites, they are currently used to support various government and public uses (Figure 21).

As at September 2017, there were a total of around 4,000 TGLAs

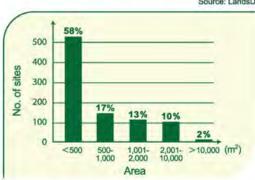


 Chemical waste treatment centres, driving test centres, helicopter landing sites, service reservoirs, vehicle detention pounds and other government facilities.



Any land that is not disposed of for private development (by land grant or STTs), not allocated for government uses (by Government Land Allocations or TGLAs) or any land that is not managed by government departments for specified use (examples of land managed by departments for specified use are country parks and public roads), etc. is considered vacant unleased and unallocated government land (UUGL). As at January 2018, there are 863 vacant UUGL sites (including 28 sites of vacant school premises) with a total area of some 100 ha. Many of these sites are left vacant as they cannot be put to gainful temporary uses due to their physical condition and technical constraints. A list of such sites has been uploaded onto Lands Department's (LandsD) website for application by non-government organisations (NGOs) for greening or community uses (Figure 22). Moreover, the 2018-19 Budget has earmarked 1 billion dollars to assist NGOs renting UUGL sites to undergo restoration works.





To conclude, as part of its continuous work on land use review, the Government would review the long-term use of STT sites, TGLA sites and vacant UUGL sites, to identify suitable land for housing and other purposes. Among these sites, most have long-term development plans to be implemented according to programme. Meanwhile, some sites are not necessarily suitable for high-density development as a major option of land supply due to their physical conditions (e.g. remote in location, small and piecemeal) and technical constraints (e.g. odd shape, uneven topography, involving slope).

3.5 Better Use of Vacant School Premises (VSPs

The Government reviews VSPs through a central clearing house mechanism to see if they can be optimised by putting them into suitable alternative long-term uses (Figure 23). As at May 2017, PlanD had conducted three rounds of review and confirmed the long-term uses of 183 VSP sites under the central clearing house mechanism (Figure 24). More than 70% of these sites are less than 3,000 m² each in area (Figure 25) and located in relatively remote rural areas lacking transport and infrastructure facilities.

The Task Force considers that there is room for PlanD to revisit the recommended long-term uses of certain VSPs taking into account their long-term uses and changes in circumstances, with a view to turning them to residential or other developments.

For VSP sites pending confirmation or implementation of their long-term uses, relevant departments will arrange temporary or short-term uses as appropriate. As mentioned above, LandsD publishes on-line the details of the VSPs available for application by NGOs for non-profit making uses.





Figure 23 Central Clearing House Mechanism for VSPs Source: PlanD

Education Bureau (EDB) will inform PlanD and other relevant departments of any VSPs no longer required for school or other educational uses

PlanD will conduct reviews to consider the suitable alternative long-term uses for the concerned VSP sites

Upon confirmation of the long-term uses of the VSP sites, PlanD will inform the departments concerned for their follow-up actions as appropriate

Figure 24 Overview of 183 VSP Sites (by Long-term Use) (as at May 2017)

Source: PlanD

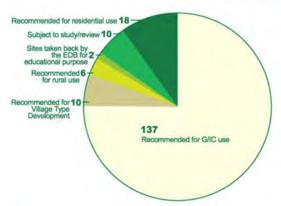
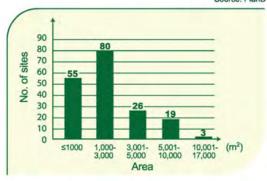


Figure 25 Overview of 183 VSP Sites (by Site Area) (as at May 2017) Source: PlanD





3.6 Better Use of G/IC Sites

Generally speaking, "G/IC" zones on outline zoning plans (OZPs) are designated to provide government and other public facilities serving the needs of local residents and/or the wider district, region or the territory. Most of the G/IC sites with low-to-medium rise developments serve as spatial and visual relief in the densely built-up areas; many of these sites are located within wind or visual corridors which are essential to maintain good air ventilation and visual permeability to the subject areas. When redeveloping or developing G/IC facilities, the Government will uphold the principle of making the best use of land, to optimise the development intensity and encourage multiple use of G/IC sites.

Some suggested that the development intensity of the existing G/IC sites should be increased, or that the sites be redeveloped to optimise the potential. This suggestion is worth considering, provided that the increase in development density does not cause an adverse impact on visual, air ventilation, traffic, environment and infrastructure capacity to the surrounding areas. Redevelopment of underutilised G/IC sites by substituting the original low-rise structures with high-rise buildings in order to provide more diversified G/IC services to the community is desirable. But due consideration has to be exercised as to how to reprovision those G/IC facilities to ensure that members of the public can continue to enjoy public services.

In order to facilitate the consolidation and provision of more G/IC facilities in a land-efficient manner, the Development Bureau (DEVB) and other bureaux and departments are considering ways to strengthen the existing mechanism of co-ordinating the planning of multi-purpose G/IC projects within the Government, with a view to effectively implementing a model of "single site, multiple use" multi-storey G/IC developments.



3.7 Better Use of Industrial Buildings

Arising from previous Area Assessments of Industrial Land in the Territory, about 260 ha of industrial land has been rezoned for other uses since 2001, including 179 ha of land rezoned for business use, 18 ha for residential use, 12 ha for "CDA" and 51 ha for G/IC, open space and other uses. In addition, the revitalisation scheme for industrial buildings running in 2010-2016 resulted in 99 approved cases for wholesale conversion and 14 for redevelopment so far; altogether, they provided a total of about 1.86 million m² of converted or new floor area for non-industrial uses (such as hotels, offices and residential development) upon completion of works.

While not necessarily bringing about a major net gain in land supply, the above efforts in rezoning and revitalisation can enhance land use efficiency and better utilise existing land resources to meet the current needs of the economy and the community.

As the Government is considering relaunching the revitalisation scheme for industrial buildings, the Task Force suggests that the Government should look into measures from different perspectives to facilitate the transformation of industrial buildings, with a view to releasing land resources. For example, advice on revitalisation in a safe and practical manner based on fire safety assessment may be offered by the Fire Services Department to the industry practitioners.



3.8 Reviewing and Streamlining Development Control Procedures

At present, PlanD, LandsD and the Buildings Department process applications for private developments under the planning, land administration and building control regimes respectively. Given their different objectives and loci and the evolution of the three regimes over the years, there should be room to consolidate and rationalise the standards and definitions adopted by the three departments in scrutinising development projects without prejudicing relevant statutory procedures and technical requirements.

The Task Force notes that the DEVB has set up a steering group to look into the matter and has been taking stock of the views and suggestions received from stakeholders over the years with regard to the development approval process. As for the next step, proposals will be drawn up to streamline or improve the existing development control regime; stakeholders in the industry will be consulted in the process.



• 3.9 Urban Renewal

Through comprehensive planning, urban renewal can restructure and replan urban areas to ensure rationalised land uses with more efficient and environmentally-friendly design for regional transport and road networks. During the process, community/ welfare facilities and open space can be introduced to the relevant areas, while buildings, sites and structures with historical, cultural and architectural values will be preserved and revitalised as far as practicable.

Depending on the circumstances of individual projects, the urban renewal process usually takes about 7 to 11 years from planning to completion. While the redeveloped buildings should contribute eventually to housing supply, the displacement of occupants for a prolonged period (a typical redevelopment project involves a time lag of at least 5 to 6 years between the displacement of households and completion of the new flats) gives rise to additional demand for housing and land. Moreover, as most of the sites with high redevelopment value have already been redeveloped in the past decades, there is a trend of diminishing plot ratio gains upon the redevelopment of old buildings. Therefore, the demolition and redevelopment of old buildings do not necessarily result in a substantial net gain in the number of new flats or total GFA.

According to the primary objectives of the Urban Renewal Strategy, urban renewal should be seen as a strategy to address the problem of urban decay and improve the living conditions of residents in dilapidated urban areas, rather than a major means of providing a secure and efficient source of land supply.

Land development takes time; there is neither a single option that can solve the overall land supply problem, nor a perfect solution. multi-pronged approach therefore required to increase land supply. The community as a whole has to balance the overall benefits and costs, the time required to provide land and other underlying issues pertinent to each land supply option.

Since its establishment in September 2017, the Task Force has examined over 20 land supply measures or options. Some of them are existing initiatives being implemented by the Government and thus may not substantially bring about additional land supply⁶. Details of these ongoing initiatives have been enumerated in Chapter 3. For the other 18 land supply options (see page 35), the Task Force considers that they have the potential to provide additional land. Among these options, the Task Force notes that the Government has conducted certain studies and planning on a number of these options and/or related land use policies. Public consultations were also carried out on a few individual proposals. There are also options that are proposed or advocated by different stakeholders; some are fairly conceptual at this stage and require further and detailed studies to ascertain their feasibility.

The lead time to provide land for each option varies. Some options may have the potential to provide additional land supply in the short to medium term or the medium to long term; the time required for materialising the conceptual options and the actual amount of land supply that these options can provide are uncertain. To meet the long-term demand for land and development needs, the community should also give views on these relatively conceptual options. In addition, certain options may involve more than one direction for development, and the relevant scale, challenges and expected lead time to provide the land of these variations would therefore be different.

For the 18 options which can potentially provide additional land, the Task Force has explored and examined their development benefits, costs, expected lead time to provide the land, challenges and factors to be considered, overseas experience, as well as the Government's relevant public engagement and consultation exercises, major studies' findings and proposals in the past. The Task Force groups these options into three categories:

- 1. Short-to-medium term options (with potential to provide additional land in around 10 years' time);
- 2. Medium-to-long term options (with potential to provide additional land in around 10 to 30 years' time);

3. Conceptual options (unable to confirm when and how much additional land can be provided for the time being).

Relevant facts and figures are enumerated in Chapter 5 for the public to consider and discuss.

The Task Force cordially asks members of the public to express views with regard to the following questions within the five-month consultation period, so that the Task Force's report can duly reflect the combination of land supply options the public prefers, thus resolving this difficult issue of land supply that has been plaguing Hong Kong for a long time with joined-up efforts:

- 1. All options to increase land supply bring different level of impacts to different stakeholders. In your opinion, how should the community take a holistic view to balance sustainable development and other needs, so as to identify a land supply model that can meet society's best interests?
- 2. According to estimates till 2046, there is a shortfall of at least 1,200 ha of land (equivalent to the total area of more than 60 Victoria Parks), while there is no single land supply option that can solve the land shortage problem. In your opinions, what kind of multi-pronged strategy should Hong Kong adopt?
- 3. The short-to-medium term land supply situation is the most acute. After striking a balance between factors such as development benefits and costs, and the time required to provide land, how should we prioritise and make trade-off between those practicable options?
- 4. Some suggest that Hong Kong need additional land to build a land reserve to meet various unforeseeable demands and continuously improve our living environment. Do you agree that we should kick start the study for building a land reserve, to prepare for the rainy days?
- 5. Some of the land supply options may still be conceptual at this stage with considerable technical constraints and uncertainties. It takes time to revolve those issues. In your opinion, how should the Government prioritise these options?
- Apart from the opinions in response to the options listed, do you have other suggestions to increase land supply?

Note:

^{6.} Additional land refers to the land which has not been included in the 3,600 ha of land supply in the forecast of the "Hong Kong 2030+" study.

Short-to-medium term options

(with potential to provide additional land in around 10 years' time)



Medium-to-long term options

(with potential to provide additional land in around 10 to 30 years' time)



Conceptual options

(unable to confirm when and how much additional land can be provided for the time being)



5 Land Supply Options



What is a "brownfield" site?

The term "Brownfield" is defined differently in different places. For example, in the United Kingdom and the United States, brownfield usually refers to former industrial land which has been left idle and contaminated. In Hong Kong, the term generally refers to former agricultural land in the New Territories (NT) which has been converted to other uses due to the decline of agriculture.

Brownfield sites are not idle and are commonly used for open storage, port back-up facilities (including container lorry parks and container yards), logistics operations, vehicle parking, vehicle repair workshops, recycling yards, rural workshops and storage areas for construction machinery and materials. Many of these operations are essential to our city and can hardly find suitable space in urban areas.

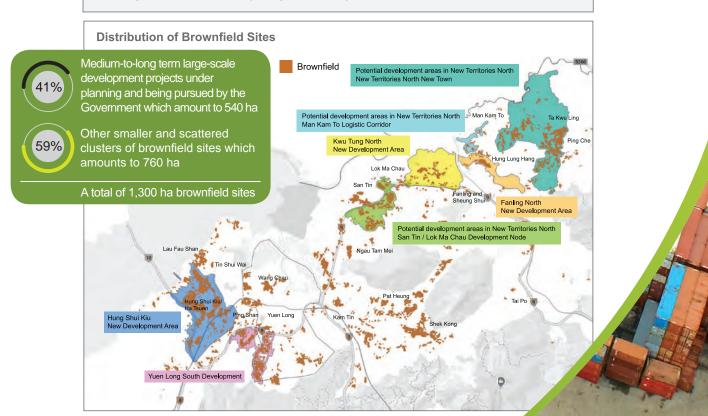
Besides, brownfield sites in Hong Kong are scattered in different areas, vary in size and are of irregular shape. They often intermingle with villages, squatters, active or fallow farmland and fish ponds; they lack infrastructure facilities needed to support high-density development such as roads and sewerage.

Current Size and Distribution of Brownfield Sites

- It is estimated that about 1,300 ha of land in the NT may be regarded as "brownfield sites", accounting
 for about 1% of Hong Kong's total land area. The data is subject to confirmation by the Study on the
 Existing Profile and Operations of Brownfield Sites in the NT being conducted by PlanD.
- Around 540 ha of brownfield sites have been covered by the large-scale development projects in the
 pipeline, including the Kwu Tung North / Fanling North NDA, Hung Shui Kiu NDA, Yuen Long South
 and NT North.

Large-scale development project	Estimated development area	Estimated area of affected brownfield sites	Estimated flat production / populationfor the whole project	Estimated year of population intake
Kwu Tung North / Fanling North NDA	320 ha	50 ha	60,000 units	2023 - 2031
Hung Shui Kiu NDA	441 ha	190 ha	61,000 units	2024 - 2038
Yuen Long South development	185 ha	100 ha	28,500 units	2027 - 2038
Potential development areas in NT North	720 ha	200 ha	Population: around 255,000 / 350,000	Beyond 2030
Total	Around 1,666 ha	Around 150,000 Around housing units 540 ha and around 255,000 / 350,000 population in NT North		

• The remaining 760 ha of brownfield sites are scattered in different parts of the rural NT, such as Ping Shan, Wang Chau, Kam Tin, Pat Heung, Shek Kong, Ngau Tam Mei, San Tin and Lung Kwu Tan, etc. The Government will explore the appropriate ways to handle these sites, taking into account the findings of the brownfield study being conducted by PlanD.





Benefits of Development

Developing brownfield sites rationalises rural land uses, improves the rural environment in the NT and brings environmental benefits.

Developing brownfield sites would have less conservation concerns. It is often inevitable to develop brownfield sites together with the adjoining farmland, squatters, fishpond etc; but, overall, it provides an easier option to create developable land without encroaching on ecologically sensitive

Certain industries commonly found on brownfield sites, such as construction, logistics, vehicle repair and recycling, still require land for their operations.

While developing brownfield sites, the Government has to reserve additional land for accommodating these operations in a more land-efficient manner (e.g. specially designed multistorey industrial buildings). Some operations (such as the storage of largescale construction equipment) may even need to continue their open-air operation.

After resuming brownfield sites for housing development, alternative land has to be identified for the operations of these businesses, hence the net gain in land would be decreased. Take Hung Shui Kiu NDA as an example; where around 190 ha of brownfield sites would be resumed, of which around 61 ha of land needs to be reserved within the NDA for port back-up, storage, workshops and modern logistics uses.

Costs of Development

As brownfield sites are mostly privately owned, the development of brownfield sites involves land resumption and compensation. Some of the brownfield sites may be contaminated and require decontamination.

Most of the brownfield sites lack proper infrastructure to support high-density development. Substantial investment in upgrading the relevant infrastructural facilities is required, such as road networks, drainage systems and flood control measures.

Some industries such as construction, logistics, recycling and vehicle repair have been relying heavily on the cheap rents of the open-air brownfield sites, at around several dollars per square feet per month on average. These industries in brownfield sites also provide employment opportunities to the population in the local districts. Developing brownfield sites would inevitably displace some of the existing operators. Some may close their business, while others may move and continue their business in multi-storey industrial buildings in other areas with higher operating costs. Some smallerscale or less profitable operators may be phased out, increasing the overall business cost of the whole industrial chain. Certain types of jobs will be lost. These economic and social costs would eventually be borne by the society as a whole.





Challenges and Uncertainties

Not every brownfield site has the potential for high-density development. Apart from the large-scale brownfield sites that have already been covered by various NDA projects, the remaining smaller-scale and irregularly shaped brownfield sites are scattered in the rural NT and intermingled with agricultural land. village houses and squatters. It will be difficult to achieve economies of scale in their development.

To unleash the development potential of brownfield sites to the fullest extent, there is a need to pursue large-scale comprehensive planning, which involves detailed engineering and environmental studies; various stages of community engagement exercises; statutory procedures such as environmental impact assessment, planning, building of roads and sewage infrastructure; funding applications to LegCo and the resumption of private land before construction can start. In total, this will require more than 10 years.

Most brownfield sites are privately owned, including those under collective ownership of Tso/Tong. The Government needs to follow relevant procedures when exercising its authority under the Land Resumption Ordinance (Cap. 124) and other laws to resume private land for public development. The process is bound to be lengthy and challenging.

It is never easy to identify alternative sites to accommodate brownfield operations and gain support from local residents. In addition, there are different views on whether the Government should subsidise the construction and operation of the proposed multi-storey industrial buildings. The society needs to reach a consensus on how to strike a balance between the tradeoffs of releasing land for development, reserving industrial operating space, taking care of the business of individual operators and prudent use of public money.

- 1. Brownfield sites are not idle. They are mostly used for industrial activities essential to Hong Kong which have difficulties in finding suitable space in the urban areas. As such, there is a need to consider how to accommodate those operators who want to continue their business if their sites are being resumed.
- 2. Around 540 ha of brownfield sites have been covered by the medium-to-long term largescale development projects in the pipeline, including Kwu Tung North / Fanling North NDA, Hung Shui Kiu NDA, Yuen Long South and NT North, forming one of the major sources of land supply.
- 3. As for the remaining 760 ha of brownfield sites, whether they have potential for housing development is not just about the size of the land. A number of other factors have to be considered, namely the capacity of transport and other infrastructural facilities; the compatibility of housing development and the surrounding environment; whether the site can accommodate other community facilities to support the daily needs of residents; and how to relocate existing brownfield operators. The Government will consider the potential for development of those sites based on PlanD's findings of the brownfield study.





Why Should We Explore **Public-Private** Partnership (PPP)?

According to information available in the public domain and rough estimates, major developers are believed to be holding no less than 1,000 ha⁷ of agricultural land in the NT. This is about one quarter of the existing built-up area8 for public and private housing flats. Land resources of this scale, if utilised properly, would have a major positive impact on Hong Kong's housing supply.

At present, there are two main approaches to unlock the potential of large-scale private agricultural land in the NT, namely (i) statutory resumption of the land under the Land Resumption Ordinance (Cap. 124) (LRO), as in the case of taking forward the NDA or other major development projects, and (ii) developers seek to change the use of their land in the NT (for example, to change agricultural land to residential use) through planning applications to TPB, and through lease modifications or land exchange applications to the Government, so as to enhance the site's development potential. In some cases, these planning applications have been unsuccessful mainly due to land use incompatibility or inadequate infrastructural capacity. For those cases which secured planning permission, the scale of development in terms of plot ratio is relatively low.

PPP is not a concept entirely new to Hong Kong. There are precedents, such as certain development projects for the Sha Tin New Town.



In the mid-1970s, private developers were invited via tender to participate in the development of Sha Tin New Town. A joint venture comprising four developers was responsible for the reclamation, formation and construction of a site of around 56 ha.

• Upon completion, 70% of the land was passed to the Government for public housing and infrastructure development, whilst the rest was retained by the private developers for developing a major private estate (City One Shatin), supplying a total of some 10,600 private housing units.

8. Excluding rural settlement.

^{7.} Some of them may overlap with NDAs or brownfield sites, hence the amount of potential new land supply could be lower.

Regarding the use of private land reserve under PPP to provide housing, the following factors have been suggested for inclusion in the proposed model:

Infrastructure to be provided by the Government

This would involve the construction of infrastructural facilities by the Government to make the local infrastructure better able to cope with the new housing on private land and the surrounding area. This would unlock the potential of the land for higher-density development, for example through increasing plot ratio, to more effectively realise the potential of existing land.

2. Contributions by developers

If the Government has to invest in infrastructure to make PPP possible, participating developers should ensure that higher-density development is compatible with the local existing and planning context and commit to building a certain portion of affordable housing (such as "Starter Homes" or HOS flats) in their projects. The construction and relevant costs for these should be borne by the developers. This model can utilise land owned by the private sector as well as their architectural and marketing expertise to provide more affordable housing. The proportion of public and private housing will depend on Government's policy and input of infrastructure.

3. Planning and lands procedures

The existing statutory procedures and land administration policies will continue to apply. Firstly, zoning of the private-owned agricultural lots will need to be changed to "Residential" or others and, where appropriate, the development density will need to be increased. TPB will then exercise its planning-related statutory rights as usual. Secondly, the designated use of the land as specified in the lease will need to be modified, after the developer has made payment of the full market value.

4. Fairness and transparency

All interested developers may apply to participate. There should be an open, fair and transparent mechanism to ensure that relevant applications are assessed objectively and consistently, with a view to ensuring the best use of public resources and the achievement of public interest and stated objectives of the Government's housing policy. The arrangement is to alleviate any public concerns about possible collusion between the Government and businesses.





Benefits of Development

The investment in infrastructural facilities under PPP models can help unlock private land resources for housing and public facilities, and benefit both the existing and new population.

Developing private land through PPP model should bring about more affordable housing in a more efficient manner, as well as offering diversity in building designs.

Costs of Development

The basic cost of private land development includes mainly supporting infrastructural facilities such as roads, water supply, sewage and flood control facilities.

The PPP arrangement may accelerate rural land development. Some suggest that this may affect the development of local agricultural industry, and may pose threats to areas with high ecological value.

Challenges and Uncertainties

Currently, there is no PPP model tapping into the private land reserve. Whether this can be materialised depends on the relevant policies, arrangements of the schemes and the willingness of the private sector.

The provision of infrastructural facilities by the Government would have to be subject to the approval of statutory processes, including planning, design, applications to fund the work, resumption of land, relocation and compensation. There are uncertainties surrounding the complexity, costs and time involved.

Some suggest that the PPP model will encourage developers to buy and hoard more agricultural land. They believe that the Government should make wider use of the statutory land resumption power provided for in the LRO and, by doing so, perform a leading role in development. However, invoking the LRO requires an established "public purpose". Unless the relevant "public purpose" is demonstrated, the Government cannot make use of the LRO to resume private land.



 Generally speaking, land resumption for a "public purpose" usually takes place in development projects for new towns, public housing, and community facilities under the Government's public works programmes such as schools, parks, hospitals and welfare service complexes.

There have also been suggestions that one of the guiding principles of the PPP model is that there should be an appropriate ratio between the social benefits generated by the increased housing supply of each project and the economic benefits gained by the developers.

Better use of private land for purposes with greater social benefits is built on a credible mechanism. If using the PPP approach to develop private land is preferred, the Government has to set up an open and fair mechanism in considering how to select the relevant sites for carrying out PPP projects, and for deciding the inputs of the Government as well as the proportion of public-private housing units.

The Government has to devise objective criteria to ensure that potential market players are on a level playing field, and avoid criticism of collusion between the Government and businesses. The Government also has to set clear criteria in deciding the details of the development projects, including the public works to be undertaken by the Government, the proportion of public and private housing units, and the subsequent property rights and management arrangements.



- 1. The community can explore whether the PPP approach should be adopted and how it can make better use of private land, in particular agricultural land in the NT, so as to bring greater social benefits. For example, whether the Government should provide infrastructural facilities on the periphery of private land to promote higher-density development in the whole area (including private land); and whether the Government should request private developers to provide affordable housing, in addition to private flats, to meet the housing needs of the public.
- If private land and the efficiency of the private sector can be optimised, it is believed that this can bring a positive impact to Hong Kong's housing supply, particularly in the short to medium term.
- 3. The discussion has to be built on a fair, open and transparent mechanism for the PPP approach established by the Government, to assess each application objectively based on the set criteria for selecting appropriate projects in the public interest.

Private Recreational Lease Sites

At present, there are a total of 66 Private Recreational Lease (PRL) sites in Hong Kong, which occupy around 408 ha of land in total. Of these, 39 sites occupying about 67 ha have been granted to social and welfare organisations, uniformed groups, "national sports associations" (NSAs), district sports associations (DSAs) and civil service organisations. These 39 sites are operated in a "quasi-public" nature, i.e. in general imposing no membership requirement for using the facilities; or if there is a membership requirement, the membership fee is relatively low and there is no limit on membership size. Typical uses of these sites include camp sites and youth hostels run by charitable, religious and youth organisations, sports facilities managed by NSAs and DSAs, headquarters/offices of uniformed groups and civil service union/staff recreational facilities.

The remaining 27 PRL sites, which occupy a total area of about 341 ha, are held by private sports clubs. Recently, some in the community have suggested that land occupied by private sports clubs should be released for housing development.

From the perspective of increasing land supply, the Task Force considers that the society should have an objective and rational discussion on this topic, rather than taking a simplified, generalised view that either all private sports club sites should be resumed for housing development or all should be retained.

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- In the past, in particular during the initial period, there was an acute shortage of public sports and recreational facilities in Hong Kong. Hence the Government granted sites to community organisations and private sports clubs under PRLs for developing sports and recreational venues at nil or nominal premium. This arrangement has been in place for many years; some of the PRL sites have over a century's history of operation.
- The Home Affairs Bureau (HAB) set up an inter-departmental working group to conduct a comprehensive review on the policy of PRL in 2014. HAB promulgated the recommendations of the policy review and launched a six-month consultation to solicit views of the public and stakeholders on those recommendations in March 2018
- In considering whether the PRLs concerned would be renewed upon their expiry, HAB proposed to review the contribution rendered by each of the private sports clubs towards sports development in detail and require the lessees to further open up their facilities so as to better complement and support sports development in Hong Kong. Meanwhile, the role of the Task Force, from the perspective of land supply, is to set out the basic information, benefits and costs of development, challenges and timelines of all potential land supply options (including PRL sites), so as to help the community to make a choice.

The Task Force believes that the society can consider different angles as to whether individual sites can be released for other purposes, while striking a balance between the contributions of individual sites to sports development and increasing land supply.

Other factors should also be taken into consideration, such as whether there is a limit to the development potential of the land; whether the surrounding infrastructure can cope with demand; and the views of different stakeholders. If a certain site has considerable development potential, but at the same time its existing use does contribute to sports development, an alternative site may need to be identified to relocate the facility. As such, it would take a considerable period of time to release the site for other developments.

"Land-extensive"Government Recreational Facilities

"Land-extensive" sports and recreational venues generally refer to those occupying an area of 3 ha or more each that are managed by the Leisure and Cultural Services Department (LCSD). A total of 95 LCSD sports and recreational venues are considered land-extensive. They can be broadly divided into four categories: (a) sports grounds and stadiums; (b) parks; (c) holiday camps, picnic areas and water sports centres; and (d) outdoor swimming pools as well as recreational and sports centres.

The 95 sports and recreation venues are generally well-utilised by the general public. The possibility of relocating individual facilities should not be totally ruled out, so as to achieve more optimal site utilisation. In addition, some have suggested that, where possible, the Government can also consider relocating existing facilities to restored landfill sites, so as to release the land for other uses.



Benefits of Development

The Task Force would like to use the case of Fanling Golf Course (FGC) to illustrate the factors to be considered when developing PRL sites for other purposes, and the benefits and limitations of development. This case has been selected because there are views in the community that the land occupied by FGC should be released for housing or other purposes, and the site is the largest among the 27 PRL sites held by private sports clubs. In addition, Government-appointed consultants have conducted a broad assessment on the development potential of the FGC site from a technical perspective under the Preliminary Feasibility Study on Developing the New Territories North (NTN Study).

The FGC site of 172 ha is held under a PRL by Hong Kong Golf Club. It has three 18-hole courses. Its current lease will expire in 2020. The closest point of FGC is about 800 metres to the west of Sheung Shui MTR Station. There are a number of low-density residential developments bordering the northern and western periphery of FGC. Adjacent to the northeastern boundary of FGC is a higherdensity public housing development, Ching Ho Estate. Towards the east and south of FGC, the land is still mostly undeveloped with a higher concentration of active agricultural land and a predominantly rural character. The FGC site is dissected by Fan Kam Road. Bounded by trees and with the Dongjiang water mains running alongside, Fan Kam Road is a rural road, more specifically a narrow, two-lane roadway with traffic operating in both directions. No sidewalk or bike lanes are provided along Fan Kam Road.



Two development options of FGC have been examined under the NTN Study:

- Partial Development Option: this would involve releasing only the eastern part of FGC, i.e. the eight-hole "Old Course", for housing development, which would involve the 32 ha of land to the east of Fan Kam Road. This is on the assumption that the rest of FGC, which covers 140 ha of land, could still have the capacity and supporting facilities to host international golf tournaments. Higherdensity residential developments are proposed in the north-eastern corner close to the existing Sheung Shui New Town while lower-density residential uses are proposed further away from the Sheung Shui New Town. The flat production in this option is 4,600, accommodating a population of about 13,000.
- Full Development Option: this would involve releasing the entire FGC for housing, commercial, government, institution or community, open space, and tourism/leisure uses. Highand medium-density residential developments are proposed in the northern and north-eastern parts of the FGC site closer to the Sheung Shui New Town. Apart from lower-density residential developments, commercial and tourism/leisure uses are proposed in the southern and western parts of the FGC site. The flat production from this option would be 13,200, accommodating a population of about 37,000. The commercial and tourism/ leisure uses would provide about 12,000 jobs.

The Task Force believes that there is room to adjust the number of housing units under the two options, subject to detailed transport impact assessment, as well as the impact on conservation of trees and heritage, etc.

Besides these two development options, there are views in society, in particular within the sports sector, that the whole FGC should be retained for golf activities and hosting international tournaments, and to serve as a base for elite sports development and the training of young golfers. There are also views that part of the FGC can be used for other sports or recreational facilities which are open to the public.

For "land-extensive" government recreational facilities, there have been suggestions that the Tuen Mun Recreation and Sports Centre, which occupies 12.5 ha and comprises a golf driving range, a riding school, an archery range and an adventure park, can be relocated to other sites not required for development, hence releasing the site for alternative developments. In addition, there may be room for redeveloping the 3.5-ha Tuen Mun Swimming Pool into a multi-storey complex with some indoor pools for better site utilisation. Where feasible, the Government will also consider restoring closed landfills for sports and recreational purposes.

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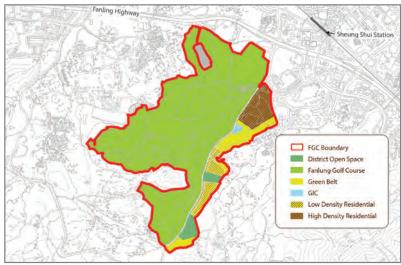
- There are 13 closed landfills in Hong Kong. To render these landfills suitable for beneficial use, the Environmental Protection Department (EPD) carried out restoration work on these closed landfills between 1997 and 2006.
- Currently, six of these restored landfills have been developed into various recreational facilities, including Jordan Valley Park and Sai Tso Wan Recreation Ground.
- To expedite the development of suitable facilities at the remaining seven restored landfills for beneficial uses, the Government has set up the Restored Landfill RevitalisationFundingScheme and earmarked HK\$1 billion to fund Non-Profit-making Organisations or NSAs to develop recreational facilities or other innovative uses at the restored landfills.

Two development options of FGC examined under NTN Study

	Partial Development Option	Full Development Option
Location	The area to the east of Fan Kam Road	The entire FGC
Land released	32 ha	172 ha
Housing units	4,600	13,200
Population	13,000	37,000
Jobs	840	12,000

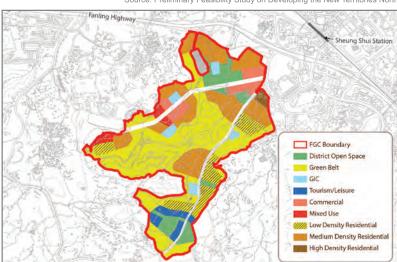
Partial Development Option

Source: Preliminary Feasibility Study on Developing the New Territories North



Full Development Option

Source: Preliminary Feasibility Study on Developing the New Territories North





Costs of Development

According to the consultants' broad technical assessment, the Partial Development Option of FGC may be implemented independent of the New Territories North development subject infrastructural improvements in terms of road interchange, sewerage, drainage and water supply. As FGC is located on Government land and lands resumption and clearance operations are not required, the Task Force considers that this could be a potential short to medium-term land supply option. Implementation of the Full Development Option will, however, necessitate improvement to the strategic transport networks and infrastructure, and is assumed to be taken forward together with the New Territories North development. Under the Full Development Option, there is also a need to consider whether the golf courses would be rebuilt elsewhere. Hence, the Task Force considers that this can only be a medium to long term land supply option.

The 95 land-extensive sports and recreation venues are generally wellutilised by the general public. Many are located close to residential or commercial areas to facilitate public enjoyment. Relocating or redeveloping such facilities would affect residents in the community. Relevant land searches for alternative sites, relocation and necessary feasibility studies would also take time.





Challenges and Uncertainties

Development of FGC for alternative uses is subject to a number of considerations:

- 1. There is a cluster of historical buildings including Fanling Club House (Grade 2), Fanling Half-way House (Grade 3) and Fanling Lodge (Grade 1). Its Old Course is the world's second oldest course outside Britain, after the Royal Calcutta Golf Club's course in India. In addition, there are over 100 graves and urns scattered throughout the FGC;
- 2. There are more than 30,000 trees in FGC, including some 160 potential Old and Valuable Trees and protected species;
- 3. Under the Full Development Option, the widening of Fan Kam Road would involve substantial tree felling and appropriate arrangement for the Dongjiang water mains; and
- 4. An annual international golf tournament (The Hong Kong Open) has been held at FGC since 1959. At present, FGC is the only venue in Hong Kong suitable for hosting this large-scale international tournament. The FGC is also the major training base for local elite and young

Detailed planning and engineering feasibility studies by the Government are required for whatever development option to be further pursued.

Restored landfills can be used for community recreational facilities. Nevertheless, development at restored landfills is subject to technical constraints. For example, the surfaces of restored landfills can only withstand limited loading and often exhibit uneven decomposition. Piling is also not allowed. Restored landfills in general do not have proper vehicular lanes, and the land use after restoration has to meet relevant planning and land use requirements.

- 1. Facilities run by private sports clubs make certain contributions to the sports development of Hong Kong. The review conducted by HAB in regard to the policy of PRL focuses on reviewing the contribution rendered by the facilities built on the PRL sites towards sports development. Meanwhile, the Task Force is concerned about whether the sites held by private sports clubs could be a feasible land supply option.
- 2. The Task Force uses the FGC as an example to help society deliberate on the issue from different angles, including the contributions of individual clubs to sports development; whether the site has been put in optimal use; whether there is limit to the development potential of the land; whether the surrounding infrastructure can cope with demand; and the views of different stakeholders. If certain sites have considerable development potential and at the same time their existing use does make a contribution to sports development, alternative sites may need to be identified to relocate these facilities. Hence it would take a considerable period of time to release the site for other developments.
- 3. Government-appointed consultants have proposed two preliminary development options for the FGC site for housing or other purposes. The Partial Development Option strives to balance the needs for both housing and keeping part of the FGC to host international tournaments. The Full Development Option, which proposes developing the entire site for housing, commercial, community facilities and open space uses, etc. involves considerations such as whether there is a need to relocate the FGC, the significant infrastructural improvements for supporting the development scale, and a longer implementation timeframe. Despite the considerable challenges of developing housing within the FGC site, the Task Force believes there is room to adjust the number of housing units under the two options, subject to considerations on conservation of trees and heritages, and the level of transport infrastructure support. On the other hand, there are views in society that the entire FGC should be retained; or part of it should be converted into sports venues or recreational facilities which are open to the public.

5.4 Medium to Long Term Option Near-shore Reclamation Outside Victoria Harbour Developing the East Lantau Metropolis



The Lung Kwu Tan reclamation is expected to provide developable land of about 220 to 250 ha for industrial and other uses.



The Sunny Bay reclamation is expected to provide about 60 to 100 ha of developable land for developing into a leisure, sports, recreational, entertainment and tourism hub.

• Why Reclamation?

Reclamation of land from the sea has long been used to provide land for Hong Kong in its transformation from a fishing village to an Reclamation international city. can generate a large piece of land with greater flexibility for land use planning to meet the needs of sustainable development of society. Unlike other land supply options, reclamation does not create major impacts on existing land use and usually does not require private land resumption and household resettlement. As at 2016, about 7,000 ha of land in Hong Kong had been formed by reclamation, representing 25% of the developed area, or about 6% of Hong Kong's total land area. Such reclaimed land is accommodating about 27% of Hong Kong's total population and 70% of its commercial activities.

Reclamation plays an important role in new town development.
Among the nine existing new towns in Hong Kong, six of them - Tsuen Wan, Sha Tin, Tuen Mun, Tai Po, Tseung Kwan O and Tung Chung - have been built to different extents on reclaimed land.

Reclamation not only provides land for housing and commercial uses, it is also a major source of land for transport infrastructure and other major facilities such as Hong Kong International Airport and the West Kowloon Cultural District.

Reclamation has long been an important source of land supply for Hong Kong as well as neighbouring cities. Between 1985 and 2000. the Government created over 3.000 ha of land through reclamation, i.e. an average of about 200 ha per annum. Over the 15-year period between 2001 and 2015. however, only about 690 ha of land has been reclaimed (mainly in relation to infrastructure projects). i.e. an average of some 40 ha per annum.

This has caused the land supply for housing and other uses to lag behind in recent years.





Total land area of Singapore increased by 24% (13,800 ha)



Total land area of Macao increased by 160% (1,900 ha)

 In recent years, Singapore and Macao have been actively reclaiming land from surrounding waters. As a result, the land area of Singapore has been increased by 24% (or 13,800 ha) while that of Macao has been increased by 160% (or 1,900 ha). In fact, the Marina Bay Financial Centre, Changi Airport, the Jurong Town Industrial Park and the East Coast Leisure Park in Singapore were all built on reclaimed land. Reclamation is carried out based on the needs at different stages of development. Take the Jurong Town reclamation project as an example; the project commenced in 1993 and it took 10 years to turn the site into a new industrial park. Today, Jurong Island is home to more than 100 petroleum, petrochemical and specialty chemical companies.

In Search of Suitable **Reclamation Sites**

The main concerns about reclamation are its impact on coastal habitats, marine ecology (for example, the Chinese White Dolphin and the habitat for coral), fisheries resources, port operations, marine and land traffic, and the local communities (including those living in waterfront developments). Hence, the Government has taken impact on the environment and the local communities as major site selection criteria when contemplating substantial new reclamation project.

Between 2011 and 2014, the Government conducted a study titled "Enhancing Land Supply Strategy - Reclamation outside Victoria Harbour and Rock Cavern Development" (ELSS). This included a citywide search to identify potential reclamation sites, and a two-stage public engagement (PE) exercise. The results of the Stage 1 PE revealed that there was broad support for a six-pronged approach9 to increasing land supply, which included reclamation. The public generally agreed on the site selection criteria for reclamation, with the impacts on the environment and the local community regarded as the most important criteria. There was also consensus that more land would be required to meet housing needs, improve people's living environment, enable infrastructural development, and support the building of a land reserve.

Based on the above criteria and the results of broad technical assessments, including environmental impact assessments, the Government has selected several potential reclamation locations outside Victoria Harbour. Five of these are near-shore sites at Lung Kwu Tan in Tuen Mun, Siu Ho Wan and Sunny Bay in North Lantau, Ma Liu Shui in Sha Tin, and Tsing Yi Southwest. In addition, the exercise has identified the potential for developing artificial islands in the Central Waters between Lantau and Hong Kong Island. Collectively, they are known as the "5 plus 1" reclamation sites. They were made known during the Stage 2 PE of ELSS; public views on individual sites were collected for further consideration.

On the other hand, there are suggestions for other reclamation locations outside Victoria Harbour from individuals or organisations, e.g. Castle Peak Bay of Tuen Mun and Tseung Kwan O.

Note:

^{9.} Include resumption of land in rural areas, urban renewal, change of land use, reuse of quarry sites, development of caverns and reclamation.



Benefits of **Development**

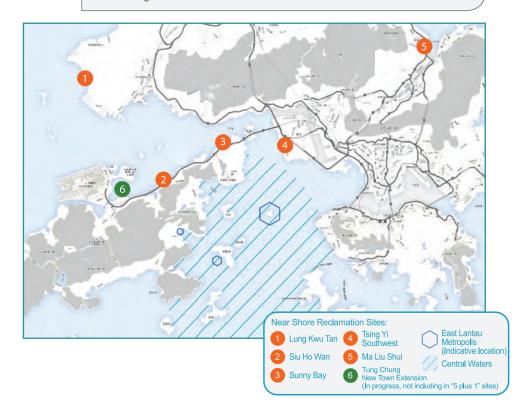
> Reclamation can generate a large piece of new land with greater flexibility for comprehensive planning of a new community.

In particular, reclamation can create smart, green and resilient development. In developed areas, newly reclaimed land can provide expansion space for a new town nearby, e.g. Tung Chung New Town Extension.

For relatively remote locations, the new land can be used as relocation sites to accommodate facilities affected by other land supply options, and provide space for moving special industrial or "Not-in-My-Backyard" facilities away from the urban areas.



- Reclamation at Lung Kwu Tan (1) in the map below), located at the west tip of Tuen Mun, is expected to provide developable land of about 220 to 250 ha for industrial and other uses, including special industries. Through consolidating and enhancing facilities, this can help rationalise the activities of existing brownfield areas.
- Reclamation at Siu Ho Wan (2) in the map below) on North Lantau is expected to provide developable land of about 60 to 80 ha for residential and education facilities.
- Sunny Bay (3) in the map below) on North Lantau, with proximity to the Hong Kong International Airport, is easily accessible to tourist spots on Lantau such as the Hong Kong Disneyland through connection to the North Lantau Highway and existing railway network. It is expected that Sunny Bay reclamation can provide about 60 to 100 ha of developable land. This project is positioned as a "North-East Lantau tourism gateway", planned for developing into a leisure, sports, recreation, entertainment and tourism hub.
- Tsing Yi Southwest reclamation (4) in the map below) is subject to review (including the size of reclamation and usage of land) as the site is close to a number of potentially hazardous facilities including industrial facilities and oil tanks. The proposed site is more suitable for port facilities according to planning at this stage.
- In an area with good transport and railway network connections and close to Hong Kong Science Park and the Chinese University of Hong Kong, the Ma Liu Shui reclamation (⑤ in the map below) is expected to provide developable land of about 60 ha for high technology and knowledge-based industries, housing and other uses.





The Ma Liu Shui reclamation is expected to provide developable land of around 60 ha of for high technology and knowledge based industries, housing and other uses.

The proposed artificial islands in the

Central Water are expected to provide

more than 1,000 ha of developable land.

Unlike other land supply options, reclamation does not have a major impact on existing land use, and generally does not require private land resumption or household resettlements. In addition, reclamation is a means for building land reserves to meet the ever-changing needs of society.

Reclamation is also an ideal outlet for handling locally-generated public fill.

Among the "5 plus 1" potential sites, the proposed artificial islands in the Central Waters can provide the greatest area of developable land with an area of about 1,000 ha; they can also avoid shorelines with high ecological value. The new land can be used for holistic land use planning and design for housing, commercial and industrial purposes. This also matches the innovative concepts of urban planning and design under the "Hong Kong 2030+" which advocates the development of a smart, liveable and low-carbon "East Lantau Metropolis" (ELM). Based on initial estimates, the ELM can accommodate a population of 400,000 to 700,000 and provide about 200,000 employment opportunities.

- The artificial islands in the Central Waters can provide sizeable flat land at a strategic location between Lantau and Hong Kong Island for the development of the ELM, including a new town and a Central Business District (CBD), to improve the spatial distribution of homes and jobs in Hong Kong.
- The construction of new connecting transport infrastructure also offers an opportunity to enhance transport connectivity between the urban areas, Lantau and the western NT, including constructing the Northwest NT - Lantau - Metropolis Corridor as proposed in the "Hong Kong 2030+" study. It also provides an alternative transport link to the Hong Kong International Airport. In addition, it will strengthen transport connections from the established CBD to the Pearl River Delta east and west, bringing significant social and economic benefits to the whole society.
- The development of the ELM together with the other nearshore reclamations along the northern coast of Lantau Island is therefore of strategic importance to the future development of Hong Kong as set out in the "Sustainable Lantau Blueprint".
- In addition, some suggest that the possibility of constructing artificial islands in the south of the Central Waters, in particular the southern water of Cheung Chau, can be considered. The Government plans to explore such possibility in the study on Central Waters artificial island.





Costs of **Development**

The cost of reclamation largely depends on the depth of water and area of development of the proposed site. Other costs include supporting infrastructural facilities (external connecting roads, water supply, sewage, flood control facilities, etc.); external transport infrastructure (in particular for artificial islands); compensation (including special allowances related to fishermen and marine fish farmers); and the expenses involved in relocating any existing facilities.

Reclamation projects usually require substantial capital investments. experience, however, shows that nearshore reclamation is a relatively costeffective land supply option, in particular at those sites which are close to existing transport network and can enjoy the benefits of shared use of supporting infrastructure (such as water supply and sewage facilities) already in place in nearby developed areas.

Regarding artificial islands, since they are constructed in the Central Waters without any transport or infrastructural facilities, relatively heavier investments will be Nevertheless, the proposed artificial islands in the Central Waters can bring enormous socio-economic benefits to the whole community. The 1,000 ha reclaimed land can be used to build a new town and a CBD. The external transport facilities built in connection with this development can also strengthen the transport network connection between western NT, Lantau and the urban areas.



- Based on the results of technical studies, the development cost reclamation of and infrastructure facilities for the five near-shore projects is estimated to be approximately \$15,000 to \$25,000 per square meter, based on price levels as at September 2017.
 - For the artificial islands in the Central Waters, where largescale external transport infrastructure facilities are likely to be required, the estimated development cost will be above the high end of the budget for near-shore reclamation projects.

Reclamation may affect the marine ecology, fishery resources, port operations, sea transport and road transport in the vicinity. Hence, it is necessary to fully consider the above factors, conduct detailed technical studies and consult relevant stakeholders when drawing up the reclamation plan, and adopt appropriate measures to avoid or mitigate these effects.

Challenges and **Uncertainties**

During the reclamation period, fine particles and sediments from seabed released from or stirred up during offshore construction work will affect water quality. Government adopts the most advanced and environmentally friendly reclamation methods for reclamation work where feasible and practicable, such as nondredged seawall design, and will actively explore the setup of "eco-shoreline".



- The "eco-shoreline" concept uses the waterways or artificial shorelines to plant mangroves, build mud flats and create artificial wetlands, so as to enhance bio-diversity in the waters nearby. It can provide a natural environment along the shorelines for the public to enjoy.
- The Government will also study appropriate locations for laying artificial reefs, in order to enhance biological habitats in the sea and boost fishery resources.

Inevitably, some fishery activities and operations near reclamation sites may be limited or constrained by the construction For engineering design and environmental impact assessment stages in the future, the Government will optimise design and construction options, and propose appropriate mitigation and compensation measures, to lessen the impact that may arise from reclamation on fish culture areas and fishery industries nearby.

The Government has conducted Strategic Environmental Assessments and Cumulative Environmental Impact Assessments for selected reclamation sites, and looked into possible mitigating measures. Among them, the bio-sensitivity of the Central Waters is lower than that of other nearby waters, rendering it more suitable for large-scale reclamation development. However, reclaiming land in the Central Waters could potentially impact the water quality, bio-sensitive receptors and fisheries nearby; these include coral groups, the Dibamus bogadeki lizard, the white-bellied sea eagle, finless porpoises and fish culture zones. The connecting transport infrastructure such as bridges and tunnels may also impact water flow and quality. The coastline of Kau Yi Chau is a growing site for coral reefs. During the development period, consideration can be given to relocating the coral reefs to other appropriate locations as a mitigation measure to compensate for the loss of coral communities.

Reclamation projects take a long lead time from initial planning to realisation. To reclaim a sizeable piece of land, it is necessary to carry out feasibility, planning and engineering studies that involve several rounds of public engagement. Coupled with other statutory and necessary procedures, and the detailed design and construction work, the process would normally take a decade or more to complete.

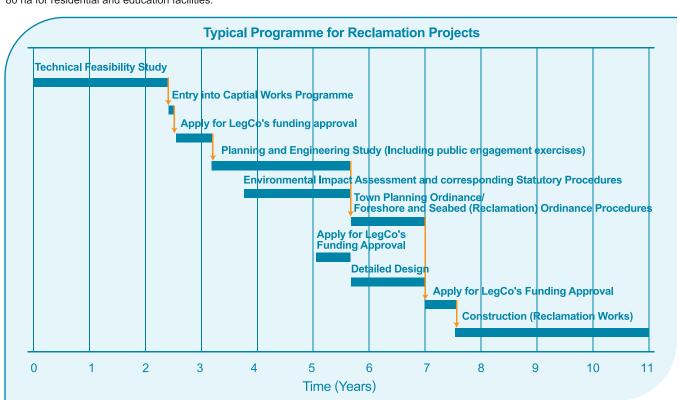


The Siu Ho Wan reclamation is expected to provide developable land of about 60 to 80 ha for residential and education facilities.



Key Points

- Reclamation has long been an important source of land supply. Among the nine existing new towns in Hong Kong, six of them, namely Tsuen Wan, Sha Tin, Tuen Mun, Tai Po, Tseung Kwan O and Tung Chung, were largely built largely on reclaimed land. However, large-scale reclamation has virtually come to a halt for more than 10 years, leading to the land shortage today.
- 2. Reclamation can generate a large piece of new land for comprehensive planning of a new community, to better meet the daily needs of Hong Kong citizens. Reclamation can also provide space for relocating special industrial or other facilities that have to be moved away from downtown areas; this will in turn release land in urban areas for other purposes.
- 3. Unlike other land supply options, reclamation does not have a major impact on existing land uses and generally does not require private land resumption or household resettlements. In addition, the new reclamation methods can minimise the impact on water quality and ecology nearby.
- 4. To carry out a reclamation project, it is necessary to conduct feasibility and planning studies, as well as going through other statutory procedures. The entire process normally takes a decade or more to complete. The studies should also take into consideration the impact on the marine ecosystem so that suitable measures can be taken to meet the requirements of relevant statutory procedures.



Note:

This figure only shows a typical programme of a reclamation project. The actual time required may vary depending on the project complexities and circumstances.



Is Cavern Development Feasible?

Hong Kong's hilly terrain and strong rock formations make it highly suitable for developing rock caverns, particularly on the urban fringes. The relocation of suitable existing Government facilities to caverns can release above-ground sites for housing and other beneficial uses. This would reduce the amount of land occupied by them, as well as relocate facilities which do not need to be above-ground and are incompatible with the surrounding environment and land uses nearby.

Existing Government facilities built in rock caverns, such as the Stanley Sewage Treatment Works, Island West Transfer Station, Kau Shat Wan Government Explosives Depot and Western Salt Water Service Reservoirs, demonstrate that developing rock caverns are a technically viable land supply option.

Since 2010, the Government has launched a number of strategic studies and pilot projects to explore the potential of utilising rock caverns and underground space to create capacity for Hong Kong's sustainable growth. The Government has identified a total of 48 "Strategic Cavern Areas", all with potential for cavern development.

The Government has also identified existing sewage treatment works and service reservoirs in the Tsuen Wan, Sha Tin and Kowloon areas to study the feasibility of relocating them to caverns nearby. These facilities are all located in built-up areas with an established infrastructure network. The released sites will therefore be of relatively high development potential and can create a synergy effect with the adjoining areas.



Underground Space Development

Hong Kong has been using underground space for commercial purpose and provision of community and transport facilities for many years. Most existing use of underground space for development purposes is related to individual projects such as basement car parks, shopping arcades, subways, railway stations and tunnels. A holistic planning strategy from a macro and multi-level perspective, including the consideration of underground space creation and connection, is currently lacking in the long term.

Good underground planning and effective use of underground space can enhance the connectivity with the surroundings, improve the urban environment at ground level, create space for different commercial and public facilities, and optimise the development potential of scarce land resources in the long term.

The Civil Engineering and Development Department (CEDD) has joined forces with the PlanD to commission a "Pilot Study on Underground Space Development in Selected Strategic Urban Areas - Feasibility Study". Four strategic urban areas, namely Tsim Sha Tsui West, Causeway Bay, Happy Valley and Admiralty/Wan Chai, have been selected for further study. The project aims at evaluating the overall merits of developing underground spaces and identifying the key issues involved; formulating Underground Master Plans for these areas; and drawing suitable conceptual schemes.

Benefits of Development

Moving suitable activities to underground space can release valuable above-ground resources.

Where there is shortage of surface land, rock caverns can provide space to accommodate suitable facilities, including some for which it is difficult to find suitable surface sites, such as maintenance depots, sewage treatment works and columbaria. Other facilities that can benefit from the stable and secure underground environment can also be set up, such as archives, warehousing, laboratories and data centres, reducing the amount of land required for them as a result.

In addition, there is potential for integrating underground quarrying with the development of a cavern land bank. With proper planning and design of underground quarries, usable cavern space can be formed to accommodate a variety of public or private sector facilities.

Underground space development can enhance connectivity and improve the above-ground pedestrian environment in congested districts through the formation of underground linkage networks. For instance, public parks and recreational spaces close to MTR stations in urban areas would offer the opportunity to develop the shallow underground spaces beneath them and connect them directly to transport and other facilities. In this way, additional walking space could be created, enhancing connectivity between different areas and helping to alleviate road congestion.

Where public acceptance and individual site situations permit, underground space development can also create additional space to accommodate suitable community, cultural and recreational facilities; provide covered public space where at-grade space is lacking; and offer space for retail and other commercial activities as well as space for other uses, complementing or even enhancing the existing urban context.



Overseas experience shows that cavern development can be successfully extended to a variety of uses such as (i) community and recreational facilities (e.g. sports centres, swimming complexes); (ii) storage facilities (archives, food/ wine cellars, oil and gas storage); (iii) commercial and industrial facilities (data centres, logistics/ warehouses, maintenance depots); and (iv) special facilities (columbaria, testing laboratories).





Costs of Development

The development cost of individual cavern projects may vary, depending on a host of factors including topographical and geotechnical conditions, and environmental considerations of the specific site. If the geotechnical conditions of the site are more complicated with environmental limitations, construction cost may be higher to allow for strengthening works and environmental mitigation measures. In addition, the height, size and structural layout of rock caverns will depend on the facilities moving into them. This will have direct implication on the structure of the cavern and tunnels. as well as the construction cost of the facilities and building services equipment within the caverns.

Compared with other land development options, cavern development is probably the most expensive in terms of per square metre cost (can be a few times higher than the cost of near-shore reclamation).



- Take the relocation of Sha Tin Sewage Treatment Works as an example, the development cost of the cavern as well as associated infrastructure cost is estimated to be about HK\$208,000 per square metre.
- Considering cavem engineering work alone, the development cost is approximately HK\$77,000 per square metre (assuming a cavern height ranging from 15 to 25 metres.)

The development cost for underground space is generally high as well. Besides, compared with above-ground structures and facilities, the operation, management and maintenance costs of underground structures and facilities are bound to be higher.

Various technical and implementation issues need to be resolved for underground space development, such as fire safety, land ownership and town planning issues, interfaces with existing underground uses (for example, railway stations), impact on above-ground facilities, and the high development cost.







Challenges and Uncertainties

Development of caverns is a costly and lengthy process. The development cost of individual cavern projects may vary, depending on site situations, geotechnical conditions, environmental considerations and the specific land use.

Rock cavern developments will likely involve statutory procedures (for example, those under the Environmental Impact Assessment Ordinance, Country Parks Ordinance and Town Planning Ordinance). Together with the construction and associated engineering works which may vary with project scale and technical complexity, a cavern development project may take a lead time of 10 to 15 years from conception to realisation. In terms of space creation involving similar levels of time and budget, cavern options are likely to create much less space than other land supply options such as rezoning and reclamation.

Cavern development cannot offer a quick fix to the imminent problem of a shortage of developable land, particularly when the sub-surface land created by caverns is not suitable for residential uses.

Rock caverns are therefore best seen as a source of long-term land supply.

To develop underground spaces, a number of issues have to be properly resolved beforehand. These include land use planning issues, engineering works (including the obstruction of existing underground pipelines and impacts on above-ground facilities), implementation and financial arrangements, and maintenance and management responsibilities. The amount of developable sites and scale of development is usually limited by various constraints arising from the built environment.

Other challenges in developing underground space include the possible disturbance to existing surface facilities during construction of underground space beneath them; the occupation of ground-level space by structures arising from the underground space development; the impact on traffic, pedestrian flow and surrounding environment; and the high development cost.

- 1. In view of the shortage of developable land, hidden land resources such as rock caverns and underground space may offer room to accomodate suitable public or infrastructural facilities, and to support the relocation of some above-ground facilities and reduce the amount of land occupied by them. This will in turn release surface land for housing and other beneficial uses. Rock caverns and underground space can therefore indirectly increase above-ground developable space in the long term.
- Development of caverns and underground space is a costly and lengthy process. The space so created is generally not suitable for residential use and may not be a suitable source of land supply for high-density development.

New Town Development

Since the 1970s, the Government has developed nine new towns, namely Tsuen Wan (including Kwai Chung and Tsing Yi), Sha Tin (including Ma On Shan), Tuen Mun, Tai Po, Fanling/Sheung Shui, Yuen Long, Tin Shui Wai, Tseung Kwan O and Tung Chung, in total amounting to about 17,000 ha of land area. Close to half of Hong Kong's population (about 3.5 million) live in new towns.

To ensure a steady and sizeable supply of land in the medium to long term, the Government has been taking forward New Development Areas (NDAs) and new town extension projects. These projects are all in the NT, including Tung Chung New Town Extension (TCNTE); Kwu Tung North (KTN)/Fanling North (FLN) NDAs; Hung Shui Kiu (HSK) NDA; Yuen Long South development area; and NT North (NTN) which is subject to further study. They are hereafter collectively referred to as "NDA Projects".

These NDA Projects are all comprehensive, large-scale land developments, while Tung Chung will have a new town extension primarily by way of reclamation. Except for NTN, they have mostly completed the planning and engineering study process, or are at the detailed design stage. Among them, KTN/FLN, HSK and Yuen Long South developments will involve converting sizeable brownfield sites, abandoned farmland and squatter areas into high-density development through comprehensive planning. These NDA Projects involve about a total area of 2,521 ha, representing 2.3% of Hong Kong's total land area.

Benefits of Development

Through comprehensive and integrated planning, NDA Projects such as KTN/FLN, HSK and Yuen Long South can optimise the use of land resources, promote high-density development, facilitate the rationalisation of land use incompatibility issues in the rural NT, and improve the rural environment.

For the TCNTE project, obtaining land through reclamation can reduce the uncertainties arising from impacts on the existing households and operators.

The NDA Projects in Tung Chung, KTN/FLN, HSK and Yuen Long South are among the major planned sources of Hong Kong's land supply in the medium to long term. It is expected that close to 200,000 housing units can be provided between 2023 and 2038 under these projects, supplying homes for almost 580,000 people. Over 860,000 square metres of industrial and commercial floor space will also be built, creating about 240,000 employment opportunities. These NDA Projects will optimise economic, industrial, commercial and tourism potential in these areas. The potential land supply of these projects has been taken into account in deriving the estimated land supply over the next 30 years under the "Hong Kong 2030+" study.

NTN is one of the two "Strategic Growth Areas beyond 2030" proposed under the "Hong Kong 2030+" study. The "Preliminary Feasibility Study on Developing the New Territories North" put forward three areas with development potential, namely the San Tin/Lok Ma Chau development node, Man Kam To logistics corridor and the NTN new town which includes Hung Lung Hang, Heung Yuen Wai, Ping Che, Ta Kwu Ling and Queen's Hill. These areas can provide a total developable area of around 720 ha; this can accommodate a population of 255,000 or 350,000 and provide over 210,000 employment opportunities. As the NTN development is still at a conceptual stage, it was not included in the land supply estimate of 3,600 ha under "Hong Kong 2030+".

NDA Projects can help resolve brownfields issues in a more cost-efficient manner, providing an opportunity to consolidate brownfield operations. For example, three development projects in KTN/FLN, HSK and Yuen Long South together cover 340 ha of brownfield sites. Another 200 ha of brownfield sites can be released through the development of NTN.

Costs of Development

For the NDA Projects that involve developing existing land, a substantial amount of time and cost will be required for land resumption, compensation, replacement and site formation, which may require decontamination works. A large number of transport, infrastructure and community facilities will also be needed. The Tung Chung project will require reclamation to create new land.

Apart from brownfield operators, NDA Projects that involve the development of existing land will also inevitably affect the existing users of the land concerned, including residents, farmers and business operators. Some of the existing houses and facilities may have to be demolished, which will affect residents' daily lives and their original community bonding. It is expected that three development projects in KTN/FLN, HSK and Yuen Long South will together affect around 3,600 households.

Challenges and Uncertainties

Large-scale comprehensive planning involves detailed planning and engineering studies, as well as multiple-stage community engagement. For NDA Projects that involve development of existing land, the entire planning and development process, from the study stage to the first population intake, usually takes at least 15 years. As such, they can only provide land in the medium to long term.

In addition, most of the existing land in the NDA Project areas is privately owned, including the collectively-owned land by Tso/Tong. Even if there is authority under relevant legislations to resume the private land for development of public purpose, the resumption process will be lengthy, and large-scale clearance will be involved.



- Take KTN/FLN NDAs as an example, the affected area within the development areas totals around 320 ha, among which 182 ha is private land, involving around 1,500 households, 50 ha of which is brownfield land, and 28 ha is farmland.
- For HSK NDA, the total affected area amounts to around 441 ha, including some 324 ha of private land; the main affected occupants are estimated to be over 300 brownfield operators, 1,600 households and farmers of 7 ha of farmland, as well as the users of the low-rise industrial buildings in Kiu Tau Wai.

Besides brownfield operators, the development projects will affect a number of residents, farmers and business operators. Some of those affected by the clearance process will request "no relocation, no demolition" or will ask for a decanting site for resettlement purpose. Some affected persons, who may be dissatisfied with the existing or special compensation and rehousing arrangement, may hold out for a better arrangement. As a result, more time will be required for clearance and land resumption process, which may have a direct bearing on the overall implementation timetable.

For reclamation-based NDA Projects, large-scale reclamation will raise concerns about environmental conservation and fisheries issues.

9

- Since the 1970s, the Government has developed nine new towns, providing a large amount of land for comprehensive development. The Government strives to continue pursuing NDA projects in Tung Chung, KTN/ FLN, HSK and Yuen Long South to ensure that a steady and sizeable land supply can be provided in the medium to long term.
- 2. NDA Projects that involve the conversion of existing land can be used for higher-density development, optimising the use of land resources, facilitating the rationalisation of land use incompatibility issues in the rural NT (including brownfield sites), and improving the rural environment. For reclamation-based NDA Projects, the impact and uncertainty of land resumption and relocation arrangements can be minimised.
- 3. The entire planning and development process for NDA Projects usually requires at last 15 years for the first population intake.
- 4. Unlike reclamation, NDA Projects that involve developing the existing land require land resumption, compensation, rehousing and reprovisioning arrangements. A substantial number of residents, farmers and business operators will be affected, which necessitate a longer period of time for the planning process.



River Trade Terminal

River Trade Terminal (RTT) in Tuen Mun West, occupying an area of 65 ha, is a privately-run terminal with 49 berths along 3,000 metres of quay front. It primarily handles and consolidates containers and cargos shipped from the Pearl River Delta region prior to dispatch to the Kwai Tsing Container Terminals (KTCTs) and other port facilities in Hong Kong for onward shipment and vice versa.

In recent years, due to the rapid development of port facilities within the Pearl River Delta region, the RTT's cargo handling volume has been dwindling. In 2017, the utilisation rate of the RTT berths was only 24% of its capacity. Discounting the throughput from double handling, the share handled solely by the RTT was roughly 3% of Hong Kong Port's total container throughput. If the RTT site is to be released for other developments, and with completion of all necessary procedures for the relevant sites and subject to upgrading of other port facilities, if required, there is a possibility that the throughput of the RTT can be absorbed by other port facilities, such as KTCTs, Public Cargo Working Areas and midstream sites, without giving rise to new land requirements.





Benefits of Development

Given the RTT's dwindling cargo handling volume, there is a suggestion to use the site which has a large area with good transport connections for other purposes to better meet the prevailing needs of the community.

Tuen Mun West where the RTT site is located is predominantly industrial in character, with a focus on modern logistics. special industries and industrial uses. Taking into account the compatibility with the adjoining uses. one suggestion is to accommodate industrial and brownfield-related operations in this 65-ha site, including logistics, vehicle repair workshops, environmental industry, etc. to release brownfield sites in the NT for development.

Apart from the compatibility with surrounding land uses, industrial uses generate less vehicular traffic than nonindustrial uses at peak hours and create less extra loading on the existing congested road network in Tuen Mun.

There are also suggestions that the RTT side should be used for housing development to meet the demand for housing land. Nevertheless, if developed on its own, land use compatibility between housing development and the existing industrial character of Tuen Mun West would be a major challenge. In particular, air quality and noise impacts arising from the nearby industrial developments and road infrastructures including the future Tuen Mun-Chek Lap Kok Link may seriously affect the residents.

The proposed Lung Kwu Tan reclamation10 provides an opportunity to rationalise the industrial land along the entire western coastal area of Tuen Mun. By relocating the adjoining incompatible uses to the Lung Kwu Tan reclamation, the feasibility of using the RTT site and adjoining land for housing development can be explored.

This comprehensive and thorough examination of the potential of the RTT site and adjoining land for housing development would achieve better economies of scale. It would also address the problem of land use compatibility, provide more space for better planning of the community, and facilitate strategic planning of transport infrastructure to expand the transport infrastructure network and create capacity to support the future development of the surrounding areas of RTT as well as northwest NT. Purely drawing reference from the TCNTE11 and without the support of technical studies, arithmetically speaking the 65-ha RTT site may produce about 22,000 housing units (as compared to the existing housing stock of about 170,000 units in Tuen Mun).



Please refer to page 52 for details.

^{11.} Under the TCNTE, about 121 ha of land will be reclaimed in Tung Chung East for development, providing about 40,800 housing units.



Costs of Development

Developing the RTT site for alternative uses may involve costs to upgrade other port facilities to absorb the RTT's throughput; site formation and decontamination costs (and reclamation costs if reclaiming the existing basin and near-shore for more developable land); and the costs to upgrade the existing infrastructure (including traffic and transport, water supply, sewerage, drainage, etc.).

If the adjoining incompatible uses are relocated to Lung Kwu Tan for comprehensive rationalisation of the entire western coastal area of Tuen Mun, the costs of relocating these facilities should be added. In addition, there could be opportunity cost for replacing some of the land uses already planned in Lung Kwu Tan.

Challenges and Uncertainties

The RTT site is a piece of private land with lease term up to 2047. Suitable arrangement will need to be explored for alternative use of the site before expiry of the lease term.

The road network in Tuen Mun and the MTR West Rail Line are reaching their capacities. In considering alternative use of the site, improvements to disperse the high traffic flow and public transport needs should be identified to avoid aggravating the current congestion. The issues of air quality, noise, provision of infrastructure and public utility, as well as land ownership, should also be addressed. The landfill in NT West is close to the RTT site; both use Lung Mun Road as the gateway. Developing the RTT site also requires resolving the environmental problem related to the landfill area. Besides, the RTT site is subject to the airport height restriction under the Three-Runway System of the Hong Kong International Airport. The technical feasibility of residential development on the RTT site, and its interface with the implementation programme of the immediately adjacent incompatible land uses, are yet to be ascertained by comprehensive

As it would take time to study these complicated issues, alternative use of the RTT site can only be regarded as a medium to long-term land supply option.

 The cargo handling volume of RTT in Tuen Mun West has been dwindling. There is a suggestion for alternative use of the RTT site to better meet the prevailing needs of the community. Land Supply Options 65

- 2. Taking into account the existing industrial uses in Tuen Mun West, the 65-ha RTT site may be used to accommodate industrial and brownfield-related operations to release brownfields in the NT for development. If the feasibility of developing the RTT side for housing development is to be studied, the proposed Lung Kwu Tan reclamation can provide an opportunity to rationalise the land uses along the entire western coastal area of Tuen Mun. By relocating the incompatible uses to the Lung Kwu Tan reclamation site, the feasibility of using the RTT site and adjoining land for housing development can be explored in a more comprehensive and holistic manner.
- As it would take time to study, alternative use of the RTT site can only be regarded as a medium to long-term land supply option. If the development of RTT is to be considered in the context of the Lung Kwu Tan reclamation in a holistic manner, feasibility studies and relocation of existing facilities will be involved, and a longer time is required.

River Trade Terminal



Medium to Long Term Option

Developing Two Pilot Areas on the Periphery of Country Parks

Conceptual Option

Developing More Areas on the Periphery of Country Parks Can the Land on the Periphery of Country Parks be Developed for the Provision of Public Housing and Public Facilities?

There are currently a total of 24 country parks in Hong Kong, covering about 40% of Hong Kong's total area. Most are located in remote rural areas, with about 55% encompassing water catchment areas, including natural landscapes and natural habitats of ecological value with steep slopes, woodlands and valleys without much flat land. There is also a lack of necessary infrastructure needed for large-scale development such as roads, water supply and drainage systems.

Benefits of Development

Country parks, with social and ecological values, are precious asset of Hong Kong as a city with good liveability. In his 2017 Policy Address, the then Chief Executive stated that, while increasing the total area of ecological conservation sites and country parks and enhancing their recreational and educational value,

the community should also consider allocating a small portion of land on the periphery of country parks with relatively low ecological and public enjoyment value for purposes other than real estate development, such as public housing and non-profit-making elderly homes.

• In May 2017, the last-term Government invited HKHS to undertake ecological and technical studies on land on the periphery of country parks. The purpose is facilitate rational deliberations by the community about the possibility of allocating a small portion of land on the periphery of the country parks with relatively low ecological and public enjoyment value for purposes other than real estate development, such as public housing and non-profit-making elderly homes.

 The scope of studies would cover two pilot areas in Tai Lam and Shui Chuen O (each covering an area of approximately 20 ha). These areas are on the periphery of Tai Lam and Ma On Shan Country Parks respectively. The Government does not have a comprehensive database on the ecological status of each and every country park. There is also no precise information on how much land in country parks has relatively low public enjoyment value. As such, there is no estimate of potentially developable land area or estimate of housing units that could be built on their periphery. Arithmetically (and purely for illustration purpose), 0.1% of the country park area would be equivalent to over 40 ha of land. Based on the estimated flat yield for the Kwu Tung North and Fanling North NDAs, 0.1% of country park area might yield some 7,500 flats.

Similar ideas were floated in 2015 when commentators suggested releasing certain areas on the periphery of the Tai Lam Country Park close to the Tai Lam Tunnel toll plaza for housing development. It was said that about 60 ha of platform area could be formed to provide homes for about 90,000 residents. Hong Kong Housing Society (HKHS) is conducting ecological and technical studies on developing the periphery of country parks. The studies will mainly look into the two pilot areas' ecological, landscape and aesthetic value; recreational and development potential; and the major technical factors and constraints of developing public housing and other public facilities thereon.

Costs of Development

Developing any part of the country parks for housing purposes is not compatible with the existing uses of country parks and is against the objectives of having country parks in the first place. If the integrity of country parks is affected, its ecological and public enjoyment value may be undermined. If handled improperly, irreversible changes will be made to the natural ecology, landscape and recreational potential.

Regardless of the size of the proposed developments in country parks, there is a need to carry out environmental studies, including ecological assessments, for any proposal to develop country parks as the starting point to confirm if the site concerned is suitable for development. If there is a need to revise the boundary of country parks, it must be subject to the statutory procedures as stipulated in the Country Parks Ordinance (Cap. 208) and Environmental Impact Assessment Ordinance (Cap. 499), including consulting the Country and Marine Parks Board and the Advisory Council on the Environment and seeking necessary consent from the Country and Marine Parks Authority before implementation.

The corresponding site formation, infrastructure and building works within country parks would be subject to the endorsement of Environmental Impact Assessments (EIAs) before commencement of construction. Detailed ecological surveys covering seasonal variations would be required as part of the statutory EIAs so as to ascertain whether each proposal is acceptable from nature conservation and ecological perspectives. The whole ecological survey might take at least 12 to 18 months (covering both dry and wet seasons). In addition to the requirements under the statutory EIA, any possible impact on the existing recreation facilities and associated potential, hence the public enjoyment value of the relevant sites, should also be thoroughly assessed in support of the proposal.

Development on the periphery of country parks, if confirmed, would involve the costs of land formation and providing infrastructural facilities such as roads, drainage, sewage and flood control measures. The proposed land use would also be subject to relevant statutory procedure according to the Town Planning Ordinance (Cap. 131).



From the engineering perspective, in considering the scope of country parks for development, important considerations include:

- (a) the impact on existing infrastructure (including sewerage, drainage, water supply, and transport networks);
- (b) geotechnical concerns (including site formation in hilly terrain and prevention of natural terrain hazards);
- (c) potential impact on existing water catchments/diversion channels and major above-ground or underground utilities (such as underground water tunnels and overhead transmission lines).

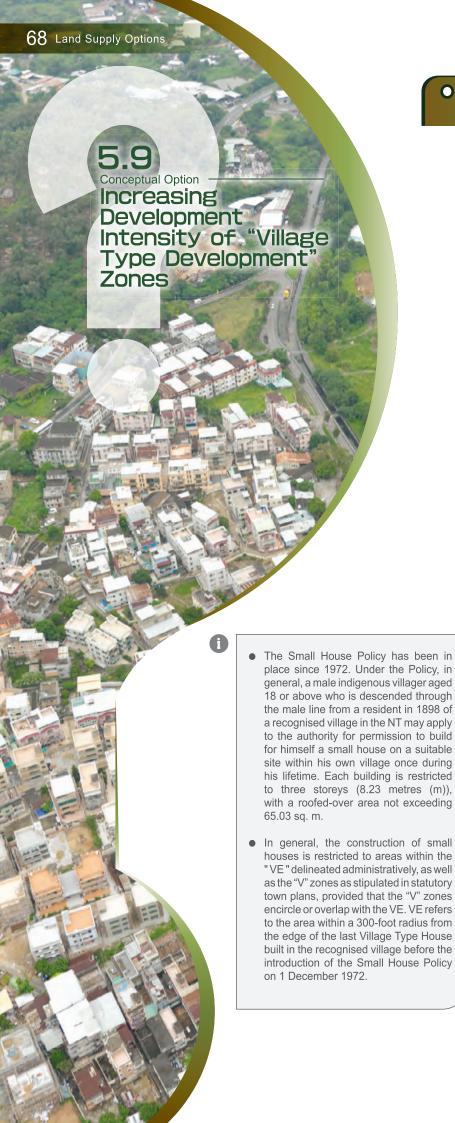
Challenges and Uncertainties

Land resumption or the relocation of existing households or facilities will normally not be necessary when developing country park sites. However, before the commencement of actual construction works such as enhancement of infrastructure and site formation, sufficient time would be required for the Government to conduct comprehensive planning and engineering feasibility studies; undertake several stages of public engagement to solicit the views of stakeholders; and make technical assessments including traffic and visual impact assessments. In addition, time would be needed to complete the necessary statutory and other processes related to country parks, environmental impact, town planning and infrastructure, as well as funding applications to the LegCo. Even if the development plan is confirmed, it will likely take no less than 10 years for the planning and land development processes. As such, this option can only be a source of land supply in the long term.

The suggestion of developing the periphery of country parks has triggered debates amongst different stakeholders in the community. There have been suggestions that the Government should first use land with relatively low ecological and public enjoyment value as a source of land supply. Some have suggested a compensation mechanism to make up for any loss of country park areas and facilities so as to strike a right balance between development and conservation. Meanwhile, some are opposed to any form of development in country parks.



- 1. Whether to develop the periphery of certain country parks with low ecological and public enjoyment value for public housing and other public uses will hinge on a number of detailed studies and assessments on ecology, environment, development feasibility and development potential. At this stage, the community should discuss whether or not developing part of the country park land to increase land supply is an issue worth exploring and what factors should be considered during the process.
- In considering whether to change any part of the country parks to serve as a possible source of land supply, the community should prudently strike a balance between the needs of development and conservation.
- 3. Even if developing part of the land of country parks is eventually considered to be one of the acceptable land supply options, relevant statutory requirements must be fully complied with prior to proceeding with development, including relevant legislations on country parks, town planning, environmental impact and infrastructure provisions. The Government will also need to consult relevant committees and other stakeholders. Hence, this can only be considered a land supply option for the long term.



• What is a "Village Type Development"?

At present, there are around 700 "Village Type Development" ("V") zones as stipulated in statutory town plans. Among them are a total of 642 recognised villages, mostly in the NT.

"V" zones, covering a total area of around 3,380 ha, are primarily intended for development of small houses by indigenous villagers. The development intensity of "V" zones is by nature low. In drawing up "V" zones, the authority will consider a range of planning factors, including the existing villages and Village Environs (VEs), the local topography, the existing settlement pattern, site characteristics and the surrounding environment, environmental constraints, as well as the estimate of demand for small houses in the coming 10 years. The boundaries of "V" zones may not necessarily coincide with those of VEs.

Areas of "Village Type Development"
Zones by District Council
(as at end-November 2017)

District	Total Area (ha)
Yuen Long District	1,236
North District	503
Tai Po District	448
Sai Kung District	349
Islands District	266
Tuen Mun District	226
Sha Tin District	219
Tsuen Wan District	96
Kwai Tsing District	20
Kwun Tong District	8
Southern District	5
Wong Tai Sin Distric	t 1
Total Abo	out 3,378

Benefits of Development

While there are over 900 ha of unleased and unallocated Government land within "V" zones12, a considerable portion of the land involves gaps or passageways between existing small houses, slopes and other fragmented or irregular land parcels. Even if individual land parcels are relatively more complete in shape, their development potential may be limited by factors such as topography, area and infrastructural constraints, making it difficult to combine them with other types of development or large-scale development. Therefore, the land available for further development is limited.

There have been suggestions that the Government should optimise the land use in "V" zones for housing development, including allowing "high-rise" small house developments to increase their development intensity.

Costs of Development

Increasing the development density of these land may change the existing rural setting of indigenous villages.

For developing the land within "V" zones, major costs would include site formation and supporting infrastructural facilities (roads, water supply, sewage, flood control measures, etc.).



To facilitate better planning of village developments and to cater for the housing needs of the indigenous villagers who do not own land, the Government introduced the Village Expansion Area (VEA) scheme in 1981. Under this scheme, the Government formed suitable sites on government land or resumed private land in accordance with village lavout plans for eligible villagers to apply for Private Treaty Grants of government land to build small houses. Over the years, the Government developed 36 VEAs for the provision of around 2,000 small house sites, out of which close to 1,800 small house grants were executed. The VEA scheme has been frozen since 1999, pending review of the Small House Policy.

Given the scattered and irregular parcels of land within "V" zones, extensive land resumption and clearance would be inevitable in order to realise the full development potential of the area, involving compensation and rehousing for eligible land owners and households in the villages.

Challenges and Uncertainties

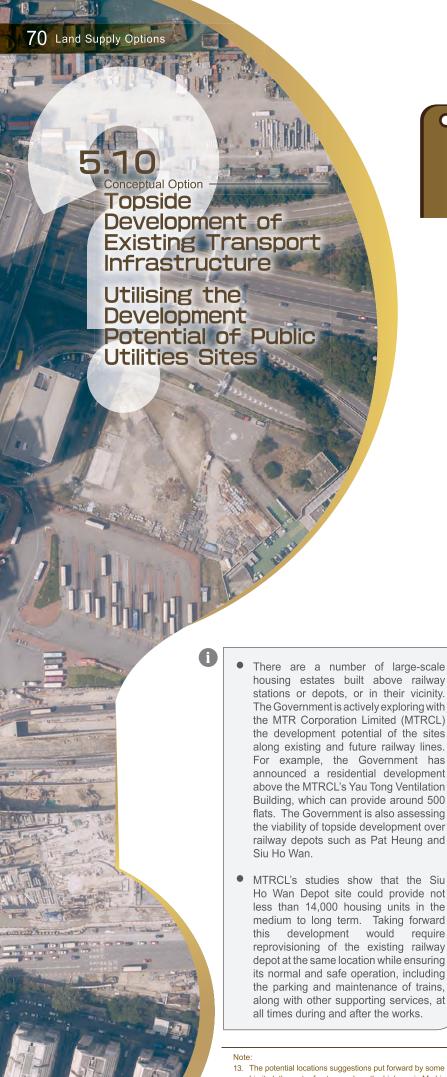
Upzoning and transformation of "V" zones, if pursued, would require detailed studies and assessments to confirm all aspects of its feasibility. Coupled with the necessary statutory processes of rezoning, road gazettal and environmental impact assessment, the proposed conversion of "V" zones would likely take at least 10 years to complete. Any proposal on upzoning/ transformation of "V" zones to the extent of releasing land for alternative uses should be considered in the light of the result of Small House Policy Review.

There are views suggesting that the Government should review the Small House Policy, having regard to the prevailing circumstances of Hong Kong. The existing Small House Policy has been in operation for a long period of time. Any review will inevitably involve complicated issues in areas such as the law, environment, housing, land use planning and demand for land, all of which require careful examination. Any proposed change to the Small House Policy will likely be a subject of intense debate and controversy that will take time to resolve.

In addition, given that the Small House Policy is currently subject to a judicial review, the Task Force is of the view that it is not in a position to make any public comment on issues that may prejudice the Government's handling of the case.



- 1. "V" zones are intended for indigenous villagers to build small houses (restricted to three storeys (8.23m)). The overall development intensity is relatively low to reflect the rural setting of indigenous villages. Changing the land use for high density development would be subject to certain constraints.
- Amongst the unleased and unallocated Government land within "V" zones, a considerable portion of the land involves gaps or passageways between existing small houses, slopes and other fragmented or irregular land parcels, rendering them unsuitable for large-scale development.
- 3. For redeveloping the land within "V" zones and rezoning for higher-density housing or other purposes, major costs would involve onsite formation and supporting infrastructural facilities. If relocating or re-establishment of recognised villages is involved, there would be land resumption, compensation and re-establishment costs. It would also call into question whether a similar amount of land is required for relocation or re-establishing those villages, thus leading to a zero-sum game in terms of land supply.
- 4. There have been suggestions that small houses should be allowed to appropriately raise their development intensity for higher-rise development for better use of the same amount of land, while taking into account the needs of indigenous villagers.



 How can the Space and Development Potential of the Sites for Transport Infrastructure and Public Utilities be Better Utilised?

Some members of the community have suggested that the space and development potential of transport infrastructure, such as roads, railways and railway maintenance depots; as well as public utilities such as telephone exchanges should be better utilised to increase land supply. One suggestion is to undertake topside residential development above transport infrastructure¹³ and public utilities.

There are in fact examples of topside housing development above transport infrastructure in Hong Kong. In general, however, the planning, design and construction of transport infrastructure is taken forward in parallel with topside housing development to better integrate the functional uses of both developments and miminise complicated interface issues. There are precedents of building housing over transport infrastructure after completion of the transport infrastructure, showing that the concept is not technically infeasible. Existing transport infrastructure would however pose considerable constraints to the planning, design and construction of topside development. Topside development after completion of transport infrastructure will therefore be more complicated than cases involving comprehensive planning in the initial stage. The impact of the topside development on the transport infrastructure underneath would also need to be carefully examined.

In terms of the sites for public utilities, the Government will in general review whether there is a need to retain the land for its original use in accordance with the existing mechanism before the expiry of the land leases. The Government will also review as appropriate the development potential of individual sites, including potential for topside development, in accordance with the planning studies for that area. This is especially the case if the site is larger or well-located.

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Telephone exchanges offer an example of public utilities. Most of the sites for telephone exchanges are relatively small, with only two with over 4,000 square metres and located in urban areas.

13. The potential locations suggestions put forward by some in the community include Pat Heung Maintenance Depot of the MTR Corporation Limited, the water front area along the highway in Ma Liu Shui close to the Chinese University of Hong Kong, Yau Mau Tei Interchange, the interchange at the south-east side of Mei Foo Sun Chuen, and the interchange between Mei Foo Sun Chuen and the container terminals.

Benefits of Development

Topside development above transport infrastructure and public utilities can better utilise the space and development potential of these sites. Even though various factors might make some sites unsuitable for housing development, other uses can be considered.

For example, the topside provision of recreational facilities or green space for public enjoyment and for enhancement of the urban environment.

For public utilities sites, releasing the sites for other purposes can be considered if it is not necessary to retain the land for its original use.

Costs of Development

As future topside development was not factored into the designs of existing transport infrastructure when built, there would be various constraints and challenges to overcome. These include technical issues such as the viability of constructing an elevated platform and its supporting structure, and issues such as compatibility of the land use, property rights for topside housing development, visual impact, as well as the impact on landscape, air ventilation, environment and transport facilities, etc.

In view of the scale and complexity of building an elevated platform and its associated structure, a longer construction period would be required, and the overall cost would be higher.

If topside development over public utilities is required, considerations similar to those of transport infrastructure will be involved.



Challenges and Uncertainties

Some of the transport infrastructure serve as major roads. A long-spanned elevated platforms over existing highways may be required. If all or part of the topside buildings are to be located on the longspanned elevated platform, the construction cost would be even higher.

Some of the major roads in the urban areas help improve ventilation, bring natural sunlight and disperse pollutants to a certain extent. Topside development along these roads may affect such functions and the view of the buildings nearby.

Topside development over transport infrastructure should be pursued in accordance with the Town Planning Ordinance (Cap. 131), including the necessary amendments to statutory plans. Gazettal procedures may also be required in accordance with the Roads (Works, Use and Compensation) Ordinance (Cap. 370).

Depending on the circumstances of the selected sites, even if it is proven to be technically feasible to undertake topside development over transport infrastructure and public utilities, it can only be a medium-to-long term land supply option.



- 1. The normal practice for topside development over transport infrastructure is to plan, design and construct the infrastructure and topside facilities in parallel. Undertaking topside development over a completed facility may pose considerable limitations and challenges on the topside development.
- 2. When building housing units or other facilities over transport infrastructure or public utilities, various factors have to be examined in detail, such as the viability of constructing an elevated platform and its supporting structure, the compatibility of topside housing development with its surroundings, and its impact on transport, environment and landscape. Relevant statutory procedures should also be complied with. Hence, it can only be considered a medium-to-long-term land supply option if it is proven technically feasible.
- 3. Development potential, including topside development, of public utilities sites that are relatively large and better located can be considered if it is no longer needed to retain the land for the original use.



Kwai Tsing Container Terminals

The Kwai Tsing Container Terminals (KTCTs) are the major sea port facility of Hong Kong. As the fifth busiest container port in the world, Hong Kong Port (HKP) handled 20.8 million twenty-foot equivalent units of container throughput in 2017, of which close to 80% was handled by KTCTs.

Located on the waterfronts of Kwai Chung, Tsing Yi and Stonecutters Island, KTCTs comprise nine terminals which are run commercially by five private operators under separate land leases. The nine terminals provide 24 ocean berths and altogether take up 279 ha of land. In the immediate vicinity of KTCTs, another 100 ha of land is primarily used for port back-up purposes. This land is mainly let out on short term tenancies (STTs) to operators for container vehicle parking and container storage/cargo handling to support the terminal operations.

Benefits of Development

There have been suggestions that the terminals should be relocated to other parts of the city to offer a chance to modernise and upgrade the port infrastructure, while at the same time freeing up the land at the existing terminals for other purposes to meet Hong Kong's other development needs.

The relocation proposal would free up some 380 ha of land in a prime urban location for other uses.

This can create an opportunity to enhance the port facilities, reconfigure the layout of the terminals to achieve greater efficiency, and provide enough berths and yard space for accommodating mega-vessels and handling trans-shipment cargo. These developments would help maintain Hong Kong's long-term competitiveness as a cargo hub.

Alternatively, it has also been suggested that if it is difficult to pursue the relocation of KTCTs, housing units can be built above the terminals by constructing elevated platforms, such that existing port operations can be maintained while the land they occupy can be utilised more optimally.

Costs of Development

If such a plan, be it relocating KTCTs or topside development over the terminals, is to be taken forward, the development costs involved would include land resumption, compensation and relocation costs (with reclamation quite possibly required to relocate the terminals); site formation (or the cost of constructing an elevated platform if topside development on the existing site is the preferred option); and supporting infrastructure facility costs including roads, navigation channels, water supply, sewage, drainage and flood control.

A detailed assessment on the economic and financial viability of the relocation proposal would need to be carried out to ascertain its cost-effectiveness. Factors to be considered include capital investment for possible land resumption/reclamation/site formation and supporting infrastructure facilities; the value of the vacated land; the costs of relocating KTCTs; and the impact of relocation on HKP's competitiveness in the long term. To ensure financial viability, factors need to be considered include the lease conditions of the new terminal, revenue from the operations of the new terminal, operating and labour costs, the market situation, the overall business environment, competition from neighbouring ports and the prospects of the container and port industries.

Challenges and Uncertainties

The 279 ha of land occupied by KTCTs is private land under separate land leases. If the KTCTs is to be redeveloped before 2047, i.e. the expiry of the land leases, it is necessary to secure an agreement with the lessees concerned on the proposal, including the value of the land.

For the port back-up land occupying some 100 ha outside the boundaries of KTCTs, whilst the Government has the right to terminate these STTs for long-term development, it should be noted that port back-up land is an integral part of port operations. Therefore the land should be considered in a holistic manner when planning for the relocation of KTCTs.

The key to the relocation proposal is the viability of securing a replacement site, which must be able to meet the industry's needs and evolving mode of operations. For example, the site has to be surrounded by waters deep enough to allow mega-vessels to berth, and must have good access to a deep marine channel. Each berth should have a length of no less than 400 metres and 25 ha of yard space to support terminal operations. Good connectivity of road transport linking the east and west coasts of the Pearl River Delta is also required. With reference to international port operation needs and situations, it is estimated that a relatively sizeable plot of land would be required to relocate the terminals, which might necessitate reclamation.

Currently, KTCTs operate around the clock and all year round. It would be of paramount importance to ensure a seamless transition in the port relocation process, such that port operations would not be compromised.

Relocation of KTCTs would require large scale and in-depth research. Planning and implementation of the relocation cannot be completed within a short period of time, given the possible reclamation involved and construction of new infrastructure facilities. In addition, consensus among relevant stakeholders and the community would be necessary. The relocation proposal can therefore be seen only as an option for long-term port development and land supply option.

In the case of topside development above KTCTs, this proposal can only be taken forward on the condition that terminal operations would not be affected. It can be expected that complex technical requirements and mitigation measures would be involved, and detailed studies would need to be carried out to look into the proposal's feasibility and cost-effectiveness. A number of potential concerns would also need to be considered carefully, including the development rights of the existing privately-owned land; the impact on the operations of the terminals and the port's competitiveness; the compatibility of topside development with the neighbouring environment; and the impact on traffic, the environment (including air, noise and glare) and the visual setting. It would also be subject to the rezoning procedure under the Town Planning Ordinance (Cap. 131).

- Container terminal operations are an important part of Hong Kong's economic development. The port sector employs 2.2% of Hong Kong's working population and underpins the trading and logistics sector. Due consideration to the impact on terminal operations and Hong Kong's economy would have to be given when considering any suggestion to change the land use of container terminals to increase land supply.
- The proposal for relocating KTCTs or constructing an elevated platform over the existing terminals to allow topside development would present considerable technical challenges, and large-scale in-depth research would be needed. Even if the proposal is to be taken forward, it could only be seen as a land supply option for the longer term.



Developing a New Town at **Plover Cove Reservoir?**

> Hong Kong currently has a total of 17 reservoirs, together covering a total area of 2,400 ha. Among them, 16 are located in country parks.

Located in Tai Mei Tuk in Tai Po, Plover Cove Reservoir (PCR) is Hong Kong's second largest reservoir in terms of storage capacity with an area of about 1,200 ha, which represents about half of the total area covered by all the reservoirs and amounts to about 2.8% of the total area covered by country

The PCR, accounting for about 40% of Hong Kong's total storage capacity, plays an important strategic role in the water supply of Hong Kong. Its key functions include collecting and storing rainwater, acting as a buffer or transient storage for Dongjiang water, regulating water supply to major water treatment works, and providing a

- The purpose of the strategic reserve is to cope with any unforeseeable water supply crisis, such as damage to the Dongjiang Water Supply System, or the occurrence of
- Reservoirs in Hong Kong have a total storage capacity of 586 million cubic metres (MCM), which can meet four to six months' water consumption in Hong Kong. The High Island Reservoir (storage capacity 281 MCM) and the PCR (storage capacity 230 MCM) are the two largest reservoirs, accounting for 87% of Hong Kong's total storage capacity.

There has been a suggestion to reclaim part of the PCR for development of a "Plover Cove New Town" (PCNT). The suggestion involves reclaiming around 600 ha of land.

It is suggested that 300,000 units could be built on the reclaimed land to house 0.8 to 1.2 million people. The remaining area would be used for open space and water storage purposes. The suggestion also involves building two more desalination plants with capacity similar to

Costs of Development

The suggested development of PCNT will undermine the stability and reliability of the water supply in Hong Kong, causing the strategic reserve to drop from a level of 4 to 6 months' consumption to only 3 to 4 months' consumption. This would affect the ability of Hong Kong to cope with water supply crisis, such as damage to the Dongjiang water supply system or the occurrence of extreme drought.

Like most of the reservoirs in Hong Kong, the PCR is located at areas of relatively high ecological and conservation value within a country park. The PCNT proposal may have impacts on the environment, including recognised sites of conservation and archaeological interests, historic buildings, ecologically sensitive areas, important habitats, as well as landscape and visual settings.

The costs of developing the PCR would mainly involve site formation works, necessary transport and other infrastructure facilities, including water supply, sewage, electricity supply and telecommunication facilities. Water supply works and infrastructure would also be required to compensate for the impact of reclamation of the reservoir; for example, the construction of a desalination plant, the reconfiguration of a substantial part of Hong Kong's water supply network, and necessary measures to mitigate the impact on neighbouring country parks and other environmental impacts.

The PCR is far from major transport networks, has a dam of more than 10 metres high, and has poor accessibility by land or sea. These would present significant constraints on reclamation work. It is estimated that the construction cost would be very high.

Challenges and Uncertainties

As the PCR falls within a country park area, the suggestion to develop part of the PCR would also be subject to a detailed Environmental Impact Assessment.

The PCR is within the published water gathering ground under the Waterworks Ordinance (Cap. 102). If the suggestion is taken forward, the Water Authority would need to alter the limits or areas on the relevant maps of the gathering ground. For any major development proposals involving country parks and special area, the consent of the Country and Marine Parks Authority would be required prior to implementation, in consultation with the Country and Marine Parks Board and the Advisory Council on the Environment. In case of reducing the area of a country park, statutory procedures as stipulated in the Country Parks Ordinance (Cap. 208) would have to be invoked. Based on initial assessments, it would be a great challenge for such a suggestion not to have an overall adverse impact on the environment. Post-reclamation development would also be subject to the rezoning procedure according to the Town Planning Ordinance (Cap. 131).

Reclaiming reservoir for development will reduce the strategic reserve and total water storage capacity of Hong Kong's reservoirs. Hong Kong will have to use other water sources, for example a desalinated plant or additional intake of the Dongjiang water supply to maintain the stability and reliability of its water supply.



- In exploring the use of desalinated water, due considerations have to be given to, amongst other things, the availability of a seafront site to build desalination plants, seawater quality at intake, ecological impacts at the outfall, and the associated water supply network and its operation mode.
- We also have to evaluate sustainability issues in terms of the high usage of electricity for the production of desalinated water and its associated environmental impact, as well as the security of the power supply.
- The feasibility and extra cost of the option of increasing the intake of Dongjiang water also have to be dealt with care as Dongjiang water resources are almost fully utilised.

The suggestion to reclaim a part of the PCR for development whilst keeping the remaining part of the reservoir for water storage is against the Government's multi-barrier approach in protecting water resources. Developing a new town of such scale in close proximity to the reservoir zone will pose significant risks of pollution to the water resource.

Even if the proposal to reclaim a part of the PCR gains public support and is found to be feasible, it is anticipated that the entire development process would take more than 20 years to complete feasibility study, planning and engineering study, public engagement and other statutory procedures (including amending the boundaries of reservoirs/country parks and planning process). Therefore, such a suggestion can only be considered as a very long-term land supply option.



- As the PCR falls within a country park area, the considerations in connection with developing the periphery of country parks as set out at pages 66-67 are also relevant to the suggestion of reclaiming a part of the PCR to build the PCNT.
- 2. Reservoirs play an important strategic role in the water supply of Hong Kong. The proposal to reclaim the PCR would have a far-reaching impact on the stability of water supply and the optimisation of water resources in the long run. Before taking forward the option, operation of the whole raw water supply system and the corresponding mitigation measures should be assessed and considered in a prudent manner.
- Even if the option to develop PCNT gains support and is found to be feasible, it is anticipated that the entire development process would take more than two decades to complete. Such a suggestion can only be considered as a very long-term land supply option.



Land for Hong Kong: Our Home, Our Say! The Task Force on Land Supply is conducting a five-month public engagement exercise. You are invited to consider the above-mentioned land supply options and provide your views on the options and relevant issues through the channels listed below during the public engagement period on or before 26th September 2018.

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Website	ebsite www.landforhongkong.hk		
Post	The Secretariat, Task Force on Land Supply 17/F, West Wing, Central Government Offices, 2 Tim Mei Avenue, Tamar, Hong Kong		
Fax	2868 4530		
Email	tfls@devb.gov.hk		
Telephon	e 3509 7737		

A range of activities will be held during the public engagement, including public forums, roving exhibitions, workshops, community outreach, youth sharing and corporate outreach. Please visit the above website for more details.

This booklet and other materials in relation to this public engagement exercise can also be downloaded from the above website.

Disclaimer: Individuals or organisations who have provided views and suggestions to the Task Force on Land Supply during the public engagement exercise will be seen as consenting to allow the Task Force to publicise some or all of the content of their views (including names of individuals and organisations). If you do not agree with such arrangement, please indicate when providing your views and suggestions.

Task Force on Land Supply www.landforhongkong.hk



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