This subject paper is intended to be a research paper delving into different views and analyses from various sources. The views and analyses as contained in this paper are intended to stimulate public discussion and input to the planning process of the "HK2030 Study" and do not necessarily represent the views of the HKSARG.

WORKING PAPER No. 25
REFERENCE SCENARIO – QUANTITATIVE PARAMETERS

Purpose

1. This working paper describes the quantitative parameters of the Reference Scenario which have been developed on the basis of socio-economic trends, existing policies, as well as strategic responses aiming to achieve Hong Kong's long-term vision.

Contents of Reference Scenario

2. The different requirements under the Reference Scenario are reflected by the various quantitative and qualitative parameters. Quantitative parameters include population and housing, employment, economic land needs, and strategic infrastructure and facilities.

3. The parameters can either be elements for which spatial options could be considered and evaluated (assessable elements) or those with specific or locational requirements pre-determined under other contexts or are guided by other studies.

4. This working paper describes the quantitative parameters and how they are derived. Qualitative parameters such as urban design, landscape and community building are not included in this paper. Internal vehicular trips and cross-boundary trips (indirect parameters) are resultant from other activities and are dependent on the spatial distribution of these activities. These parameters will therefore be dealt with when the development options have been prepared.

5. Assessable quantitative parameters are first generated by an assessment which is broadly trend-based, making reference to the projections made by the Census and Statistics Department (C&SD) where applicable.
6. **Vision targets**, as expressed in the document of the Commission on Strategic Development\(^1\), the Chief Executive's various Policy Addresses, the Financial Secretary's various Budgets, the Population Policy or other relevant Government documents, or those which reflect mainstream public opinions, are then incorporated.

7. **Assessment results** are presented for the benchmark years of 2010, 2020 and 2030. Generally, short-term forecasts up to 2010 reflect little change to the assessments which assume that existing policies and conditions continue to prevail. Vision targets are rather manifested in the medium-term and long-term assessments. Impending policy changes and issues widely discussed in the community would be taken up in the assessment under “what if” scenarios.

**Quantitative Parameters**

(A) **Population and Housing**

**Trend-Based Assessment**

8. Government population projections are carried out by C&SD on the basis of Census results. The latest assessment based on the 2001 Census has projected Hong Kong's population up to 2031. The methodology adopted by C&SD is outlined in [Annex A](#). While C&SD's forecasts are not made by mere extrapolation of past trends (as reference to other economies’ experience as well as expert opinions have been taken into account), it is noted that they are based on existing and committed policies.

**Vision Targets**

9. It is widely acknowledged that world-class human resources are critical if a location wants to enhance its competitiveness. A true world city should be able to attract a mass of people and resources and thereby build up its strength over a long period. It is therefore very important that a set of policies be developed to readily attract highly skilled knowledge workers and other skilled professionals both from the Mainland and overseas.

\(^1\) Reference: Commission on Strategic Development, *Bringing the Vision to Life - Hong Kong's Long-Term Development Needs and Goals*, 2000
10. One of the implications of this vision target on our population would be a higher growth in the number of skilled and professional persons admitted to Hong Kong as migrants. Many of these skills and talents are expected to be in their prime, thus their admission to Hong Kong would help to slow down the rate of population ageing and slightly raise the overall fertility level. We also expect growth in the size of our expatriate community from all over the world. Apart from quality workers, a world city should also offer plenty of investment opportunities to attract investors and capital.

11. Moreover, we see that an interactive city-region is gradually taking shape in the Pearl River Delta (PRD). One key characteristic of a city-region is a high volume of movements within the region, of people, goods and vehicles, indicating a high level of social and economic integration. Based on this notion, we would expect more visitors and short-term stayers in Hong Kong from the PRD Region, for leisure, business as well as social purposes.

12. We will also see more Hong Kong people, for various reasons, choosing to reside elsewhere in the PRD Region. This will increase the mobility of Hong Kong people. In terms of implications on our population figures, frequent travellers (e.g. those who work in the Mainland and return to Hong Kong for weekends) will become Mobile Residents (MRs). Those who return to Hong Kong only infrequently (e.g. during long holidays) will no longer be counted as Usual Residents (URs) of Hong Kong, i.e. they will offset some of the population growth. On the other hand, for those persons spending, say, one or two days a week in the Mainland with the rest of the time in Hong Kong, there will be no impact on their status as URs of Hong Kong.

13. Furthermore, this trend will have a direct impact on the housing land requirements in Hong Kong, not only in terms of absolute quantity, but also in terms of flat size and location. It also has an implication on the filtering-up process we have experienced in the housing market in the last two decades. The rising trend in buying a second home in the Mainland for enjoyment during vacations may shift the preference of some people

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2 Mobile Residents are defined as Hong Kong Permanent Residents who had stayed in Hong Kong for at least one month but less than three months during the six months before or for at least one month but less than three months during the six months after the census moment, regardless of whether they are in Hong Kong or not at the census moment.

3 URs refer to (i) Hong Kong Permanent Residents who have stayed in Hong Kong for at least three months during the six months before or for at least three months during the six months after the reference time-point, regardless of whether they are in Hong Kong or not at the reference time-point, and (ii) Hong Kong Non-Permanent Residents who are in Hong Kong at the reference time-point.
(when considering acquiring property in Hong Kong) from an emphasis on the living environment to a focus on convenience. However, this should not imply that we could compromise on the objective to provide a good quality living environment. Rather, we should be more sensitive to the users' choice of location and device practical and innovative means to further enhance convenience and accessibility.

14. As regards the request from some members of the public for the delineation of a “population limit”, it is considered not practical or meaningful to establish such a limit. This is because the population capacity of an area is affected by the interplay of many factors (e.g. amount of “developable” land available, intensities of development, population densities, investments in infrastructure and community facilities, state of technology, demand management policies and the amount of resources the community is prepared to afford etc.), not least is how we manage our city’s growth.

15. In sum, the following changes to the input assumptions have been made in the vision-based assessment:

(a) a faster increase in the inflow of expatriates;

(b) more skilled/talented workers and foreign investors together with their families will migrate to Hong Kong in the medium to long term; and

(c) more Hong Kong URs will become non-URs and MRs.

Assessment Results

16. Based on the above assumptions, the Reference Scenario assumes a population of 7.6 million by 2010, 8.5 million by 2020 and 9.2 million by 2030. The breakdown in various categories and the comparison with C&SD’s projections are as follows:

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4 In C&SD’s projections, it has been assumed that the population of MRs will maintain certain fixed proportions to the population of URs. For the Reference Scenario, it is explicitly assumed that there will be a steady net outflow from URs to MRs.
<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident Population</td>
<td>C&amp;SD</td>
<td>6.72 M</td>
<td>7.45 M</td>
<td>8.16 M</td>
</tr>
<tr>
<td></td>
<td>Ref. Scen.</td>
<td>6.72 M</td>
<td>7.55 M</td>
<td>8.47 M</td>
</tr>
<tr>
<td>Usual Residents</td>
<td>C&amp;SD</td>
<td>6.54 M</td>
<td>7.18 M</td>
<td>7.79 M</td>
</tr>
<tr>
<td></td>
<td>Ref. Scen.</td>
<td>6.54 M</td>
<td>7.27 M</td>
<td>8.03 M</td>
</tr>
<tr>
<td>Mobile Residents</td>
<td>C&amp;SD</td>
<td>0.18 M</td>
<td>0.27 M</td>
<td>0.37 M</td>
</tr>
<tr>
<td></td>
<td>Ref. Scen.</td>
<td>0.18 M</td>
<td>0.28 M</td>
<td>0.44 M</td>
</tr>
<tr>
<td>Sex Ratio (Males per 1 000 Females)</td>
<td>C&amp;SD</td>
<td>956</td>
<td>873</td>
<td>819</td>
</tr>
<tr>
<td></td>
<td>Ref. Scen.</td>
<td>956</td>
<td>872</td>
<td>815</td>
</tr>
</tbody>
</table>

17. The amount of housing land required depends on the choice of development intensities. This will be further elaborated in the working paper on “Development Options under the Reference Scenario”.

(B) Employment

18. In the HK2030 Study, employment refers to the number of jobs within Hong Kong, classified by the major economic activities of the employing establishments. C&SD has produced forecasts of employment of different employment groups up to 2010. The projected employment for each employment group is derived from a statistical model, supplemented by expert views on the future employment trends. The HK2030 Study has adopted C&SD’s forecasts of 2010 and derived the figures for 2020 and 2030 by extrapolation.

Vision Targets

19. As Hong Kong aspire to become Asia’s World City, we must understand the characteristics of a world city. We note, for instance, that world cities have a distinctive economic structure and exert a level of influence which is far greater than their size might suggest. This is because they have developed tremendous strengths in internationally oriented service industries and other high-level corporate service functions, which generate significant levels of added value as well as good employment...
opportunities.

20. We can therefore expect that employment in high-value-adding services, such as finance, business services as well as transport and communications and personal services to have the highest growth. On the other hand, employment in manufacturing is projected to continue to shrink, although employment in some sub-sectors, such as technology-related industries, could see some expansion. As these assumptions have already been incorporated in C&SD’s forecast, the Reference Scenario has assumed the same.

Assessment Results

21. The total employment is projected to increase from 3.3 million in 2001 to 4.0 million in 2030, with higher growth in the initial years and levelling off as the Hong Kong economy matures. Detailed breakdown of the results is as follows:

<table>
<thead>
<tr>
<th>Broad Employment Group</th>
<th>2001</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>0.22M</td>
<td>0.13M</td>
<td>0.10M</td>
<td>0.09M</td>
</tr>
<tr>
<td>Transport, storage and communication</td>
<td>0.36M</td>
<td>0.42M</td>
<td>0.49M</td>
<td>0.56M</td>
</tr>
<tr>
<td>Import/export</td>
<td>0.51M</td>
<td>0.50M</td>
<td>0.52M</td>
<td>0.53M</td>
</tr>
<tr>
<td>Financing, insurance, real estate and business services</td>
<td>0.48M</td>
<td>0.63M</td>
<td>0.72M</td>
<td>0.74M</td>
</tr>
<tr>
<td>Construction</td>
<td>0.30M</td>
<td>0.32M</td>
<td>0.32M</td>
<td>0.32M</td>
</tr>
<tr>
<td>Wholesale and retail</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hotels, restaurants and boarding houses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community, social and personal services</td>
<td>1.23M</td>
<td>1.44M</td>
<td>1.58M</td>
<td>1.66M</td>
</tr>
<tr>
<td>Electricity, gas and water supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture and fishing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mining and quarrying</td>
<td>0.16M</td>
<td>0.13M</td>
<td>0.13M</td>
<td>0.12M</td>
</tr>
<tr>
<td>Public administration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3.26M</strong></td>
<td><strong>3.58M</strong></td>
<td><strong>3.87M</strong></td>
<td><strong>4.03M</strong></td>
</tr>
</tbody>
</table>

*Note: Figures may not add up to the total due to rounding.*
(C) Economic Land Needs

Market-Driven Economic Land Uses

22. A new land use typology\(^5\) has been developed in the HK2030 Study to reflect the changing importance of individual sectors and to provide scope for a simplified land use categorisation to meet the requirements of modern business activity. The land use typology covers "market-driven" categories of economic land only. The new two-tier typology for forecasting and reservation purposes is shown at Annex B.

23. Various econometric models\(^6\) have been established for employment use floorspace demand forecast, and detailed application and testing of these models were carried out. The results indicated that some of the statistical relationships tested were fragile for use in the medium and long term especially with the increasing instability of key economic data in Hong Kong in recent years. As a result, new models were proposed for estimating the employment use floorspace demand for the Reference Scenario. Under the new models, an econometric approach is recommended for the medium-term forecasting while a vision based, non-econometric approach drawing on international experiences is proposed for the long-term forecasting.

24. The models take into account the floorspace demand of different types of employment uses, including private offices, private flatted factories, industrial/office and private storage etc. These are known as the “dependent variables”. The models also include a number of “independent variables”, including Hong Kong’s gross domestic product (GDP), persons engaged in various sectors, Guangdong’s GDP, population, employment and worker density etc.

Special Economic Uses

25. Strategic land requirements related to special economic uses such as the port, the logistics industry, the tourism industry and the innovation and technology industry etc.


\(^6\) Details refer to Information Note on “Models and Results of the Employment Use Floorspace Demand Forecast for Reference Scenario”.
will mainly be guided by other studies. Where information is available, the HK2030 Study will adopt the figures directly. If the relevant studies have not provided forecasts up to 2030, we will make our own assumptions.

Vision Targets

26. The Government has, through various venues, indicate that the areas of financial services, logistics, tourism and producer and professional services are of particular importance, as they can foster the development of other sectors, give impetus to our economy, and create employment. It is also important to support the growth of creative industries and other industries which make up our local economy.

27. In terms of land provision, identification of these sectors as our key areas of growth implies that Hong Kong needs to ensure an adequate supply of prime office land to support the expansion of our finance and business services sector, as well as to attract the setting up of regional headquarters by international corporations. Appropriate adjustments are made to the relevant independent variables (e.g. persons engaged in the finance and business services sectors) of the demand assessment models to reflect these vision targets.

28. At the same time, suitable, and possibly dedicated, areas will be required to meet the needs of the information services and telecommunications industry, the innovation and technology industry as well as the logistics industry. Land provision also needs to tie in with the overall strategy for arts and culture and the strategy for tourism, although it is noted that many aspects within these strategies may concern the development of soft infrastructure and hence do not have a strategic land use angle.

29. Specifically on the logistics industry, the Chief Executive announced in his 2001 Policy Address the Government's plan to pursue the "Logistics Hong Kong" initiative. To facilitate public/private sector joint efforts, the Hong Kong Logistics Development Council was set up in December 2001. The Reference Scenario has taken into account project initiatives considered by the Council.

30. On tourism, the Chief Executive announced in late August 2001 that the Government has plans to develop five major tourism clusters to further enhance the attractiveness of Hong Kong as a tourist destination, namely: Lantau, Sai Kung, Kowloon, Central and Hong Kong Island South. These clusters cover a wide range of short- to medium-term
initiatives, including projects already in hand for building new attractions and plans or concepts for additional facilities or infrastructure. The implementation of these initiatives is being co-ordinated by the Tourism Task Force headed by the Financial Secretary. The Reference Scenario has also taken into account these initiatives.

**Assessment Results**

31. The average of forecasts yield by the models for deriving market-driven economic land requirements has been computed. The average floorspace demand forecast in 2030 based on the models is estimated to be 46.1 million m².

32. As per the new typology shown at Annex B, the forecasted total economic activities related floorspace is divided into two categories, i.e. “CBD Grade A Offices” and “General Business”. The forecasted results are as follows:

<table>
<thead>
<tr>
<th>Economic Land Category</th>
<th>GFA (million m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2001</td>
</tr>
<tr>
<td>CBD Grade A Offices</td>
<td>4.1</td>
</tr>
<tr>
<td>General Business</td>
<td>33.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>37.5</td>
</tr>
</tbody>
</table>

**Land Requirements for Special Economic Uses**

**Airport**

33. In 2001, the Airport Authority Hong Kong (AA) conducted a series of studies (collectively known as the Master Plan Study) to assess the future needs of the aviation industry. Based on the results of the demand forecast and the recommendations of the Master Plan Study, the AA has formulated a new master plan (known as Master Plan 2020) to take the Hong Kong International Airport (HKIA) forward in the next twenty years.

34. Broadly speaking, Master Plan 2020 has found that aviation demand up to 2020 can largely be met by enhancements within the confines of the existing airport. These include enhancement of the passenger terminal building, development of a new
concourse and in the Midfield Area, construction of additional air cargo handling facilities, development of a commercial area (including exhibition facilities). Moreover, the development of off-airport logistics facilities in North Lantau is also recommended to enhance Hong Kong’s position as a regional logistics and supply chain management centre. Multi-modal transport including direct and efficient air, land and sea links between the HKIA and the Mainland, in particular the PRD, will enhance the airport’s accessibility and is essential for Hong Kong’s further development as a passenger and cargo hub. Co-operation with other airports in the PRD could help to expand the HKIA’s catchment area, including development of multi-modal links. The Reference Scenario will take on board the forecasts in air services demand and the recommendations in Master Plan 2020.

35. For the purpose of conducting initial assessments, we have taken on board AA’s forecasts up to 2020. For the period between 2020 and 2030, we believe that a moderate annual growth of 2% is a reasonable assumption. This will however be reviewed when new information from AA is available.

<table>
<thead>
<tr>
<th>Growth in Air Services Demand</th>
<th>2001</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passengers (million)</td>
<td>32</td>
<td>53</td>
<td>87</td>
<td>105</td>
</tr>
<tr>
<td>Freight (million tonnes)</td>
<td>2</td>
<td>5</td>
<td>9</td>
<td>14</td>
</tr>
</tbody>
</table>

Port

36. Demand for additional port facilities is assessed in the Port Development Strategy Review (PDSR) 2001, taking into account the Port Cargo Forecasts (PCF) 2000/01 Study. PCF 2000/01 anticipated that the total container throughput of the port will increase to 40.6 million TEUs (twenty-foot equivalent units) in 2020, about three-quarters of which being ocean cargo and the rest being containerised river cargo. To accommodate this volume of throughput, PDSR 2001 recommended that 13 new container terminal (CT) berths would be required by 2020.

37. Moreover, the PDSR 2001 has recommended that new CT facilities will be required towards the end of this decade based on the current prediction on cargo forecast and capacity of the Kwai Chung CTs. Four sites, namely Tuen Mun West, Lantau Northwest, Lantau East and Tsing Yi Southwest, are identified to have potential for CT development.
38. The Economic Development and Labour Bureau has commissioned a Study on Hong Kong Port - Master Plan 2020 (HKP2020 Study) in July 2002 as a follow up study recommended by PDSR 2001. The HKP2020 Study aims to formulate a competitive strategy and master plan for port development in the coming 20 years and beyond and to finalise the preferred location for major container port and related infrastructure. Major tasks of the HKP2020 Study include port cargo forecasts and assessment of port facility requirements up to 2020. It has also conducted an initial assessment of possible port location to reduce the number of potential CT sites before carrying out detailed assessment. However, as the results of the HKP2020 Study are not yet available, under the HK2030 Study, we have adopted the forecasts of the PCF 2000/01 for years 2010 and 2020. For the period between 2020 and 2030, we believe the assumption of a moderate 2% annual growth is reasonable for the purpose of conducting initial assessments. This will give a throughput of about 49.5 million TEUs by 2030. When the forecasts of the HKP2020 Study are available, suitable adjustments will be made.

<table>
<thead>
<tr>
<th>Port Cargo (million TEUs)</th>
<th>2001</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ocean Trade</td>
<td>13.2</td>
<td>21.0</td>
<td>30.2</td>
<td>36.8</td>
</tr>
<tr>
<td>River Trade</td>
<td>4.7</td>
<td>8.7</td>
<td>10.4</td>
<td>12.7</td>
</tr>
<tr>
<td><strong>Total Port Cargo</strong></td>
<td>17.9</td>
<td>29.7</td>
<td>40.6</td>
<td>49.5</td>
</tr>
</tbody>
</table>

**Logistics**

39. The Reference Scenario assumes the following strategic land requirements related to logistics industry:

- value added logistics facilities within the airport island and at Tai Ho; and
- port backup and logistics facilities adjacent to Container Terminal Number 9 at Tsing Yi.

Other factors which have no direct bearing on strategic land use, such as streamlining of customs procedures, may be taken into account in other assessments, such as the assessment of cross-boundary traffic flows.

**Tourism**

40. While many forms of development (shopping centres, museums and concert halls,
The Reference Scenario assumes the following major projects for completion before 2020:

- Hong Kong Disneyland
- Tung Chung Cable Car System
- Hong Kong Wetland Park
- Repositioning of Ocean Park and Development of Tourism Node at Adberdeen
- West Kowloon Cultural District
- Cruise Terminal at the former Kai Tak Airport

Apart from tourist attractions, hotels of various forms at different locations are also required to support the industry. The supply of visitor accommodation will be regularly reviewed to ensure that relevant Government policies and the land use planning framework will facilitate timely response to the needs of visitors by the market.

The growth in the number of tourists also has an impact on our transportation infrastructure, whether air-based, land-based or sea-based. This will be considered in the calculation of cross-boundary travel demand as well as the requirement of transport infrastructure, including parking spaces for coaches.

Visitor Arrivals

In the assessment of visitor intake, consideration has been given to the abolition of quota system on Mainland tourists with effect from January 2002, the expected growth resultant from the opening of the Disneyland in 2005 and a gradual levelling out in the growth pattern for the longer term. The forecasts are as follows:
<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Visitors(^7) (annual total)</td>
<td>13.73 M</td>
<td>34.84 M</td>
<td>54.91 M</td>
<td>74.17 M</td>
</tr>
</tbody>
</table>

45. However, the forecasts have not taken into account new factors, for example, introduction of the Individual Visit Scheme for independent visitors from Guangdong, Shanghai and Beijing to visit Hong Kong and the Closer Economic Partnership Agreement (CEPA) between the Mainland and Hong Kong as the impacts of these factors are yet to be fully established. The forecasts will therefore need to be reviewed regularly to take on board new circumstances and trends.

**Innovation and Technology**

46. The development of technological infrastructure to facilitate development of innovation and technology activities is one of the key tasks of the Innovation and Technology Commission under the Commerce, Industry and Technology Bureau. Current technological facilities with major land requirement include the 22-hectare Hong Kong Science Park at Pak Shek Kok, Tai Po which will be developed in three phases over a period of 9 years from 1999. Phase One (8 hectares) was officially opened in June 2002 with the construction scheduled for completion in early 2004. Planning work on Phases Two and Three (7 hectares each) is underway. Phases Two and Three are estimated to be completed in 2006 and 2008 respectively.

47. The Cyberport, a joint public-private venture, provides an important infrastructure to create a strategic cluster of leading information technology (IT) companies and a critical mass of professional talents in Hong Kong. There is no plan for further facilities of a similar nature.

48. The three industrial estates at Tai Po, Yuen Long and Tseung Kwan O, with a total area of 216 hectares, accommodate manufacturing and service operations with new or improved technology and processes which cannot operate in multi-storey factory or commercial buildings. In addition, they are complemented by the supply of business/office/industrial premises from the private sector. As these industrial estates are not yet fully occupied and some of the earlier uses could be converted to meet new demands, it is anticipated that additional land for the development of large-scale
industrial estate/premises would not be required in the foreseeable future.

**Telecommunications**

49. Another important infrastructure supporting the growth of the innovation and technology sector is our telecommunications network and facilities. To this end, a world-class teleport have been developed at Chung Hom Kok to facilitate the installation of external telecommunications link. In future, we anticipate that an additional 5 hectares of land will be required for teleport development. This should preferably be located at coastal areas suitable for submarine cable landing and satellite earth station.

**Creative and Cultural Activities**

50. In this working paper, only the strategic “hard” infrastructure related to creative and cultural activities is considered. Other cultural and heritage aspects, e.g. developing a cultural “street-life”, will be taken separately.

51. There are a number of proposals for developing cultural and arts clusters for performing arts (e.g. performing stadiums, concert halls and theatres, public spaces for street performances) and/or visual arts (museums, art galleries) either as new development or enhancement to an existing development. The Tsim Sha Tsui Cultural Belt will be upgraded to provide better access and connectivity. Another major project for a 40-hectare integrated arts, cultural and entertainment district at West Kowloon is also planned. The Wan Chai to Central Waterfront, anchored by the existing cultural developments from the Convention and Exhibition Centre, Arts Centre, Hong Kong Academy for the Performing Arts to the City Hall, is another potential cluster.

52. An important creative activity for Hong Kong is the broadcasting and film industry and it is one of Government's development goals to champion the growth of broadcasting and film production centre. Two sites in Tseung Kwan O Area 106, totalling some 4.5 hectares, were awarded to private companies respectively in 1998 and 2000 for the development of film studios and post-production facilities. A site at Tseung Kwan O Area 86 has also been earmarked for RTHK's new broadcasting house. Current and foreseeable Government support to the industry mainly focuses on regulation, financial assistance, overseas promotion, human resources training, enforcement against

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The visitors include both land-based and marine-based.
piracies etc. which do not have strategic planning implications.

53. The provision of facilities of a local scale, e.g. libraries and civic centres etc., as well as private-sector proposals will be considered at more detailed level of planning. It is also noted that many facilities may serve (or have the potential to serve) multiple functions, e.g. using a school/university hall for public performances. Land requirements for commercial forms of creative and cultural activities, such as multi-media, fashion and product design, are considered under “innovation and technology”.

(D) Strategic Infrastructure and Facilities

54. While the need for strategic infrastructure and facilities is dependent on population and/or economic growth, the development of these facilities as well as their timing and forms are guided by other studies. The HK2030 Study will incorporate all committed projects in its Reference Scenario as common elements.

55. Requirements for strategic infrastructure and facilities including power supply facilities, water supply and treatment facilities, solid waste handling and disposal facilities, as well as sewage treatment and disposal facilities are detailed in Annex C.

Attachments

Annex A  C&SD’s Method for Population Projections
Annex B  New Employment Land Use Typology for Forecasting
Annex C  Detailed Requirements for Strategic Infrastructure and Facilities

PLANNING DEPARTMENT
NOVEMBER 2003
ANNEX A
C&SD’S METHOD FOR POPULATION PROJECTIONS

1. In the standard method of population projection, the "component method" is used. The size and age-sex structure of the projected population in each of the projection years are obtained by incrementing each individual's age year after year, starting from the base year (i.e. 2001), bringing in the assumptions on fertility, mortality and migration, and allowing the various demographic factors to interact with each other. All fertility, mortality and migration assumptions are applicable to the Usual Residents (URs). URs refer to (i) Hong Kong Permanent Residents who have stayed in Hong Kong for at least three months during the six months before or for at least three months during the six months after the reference time-point, regardless of whether they are in Hong Kong or not at the reference time-point, and (ii) Hong Kong Non-Permanent Residents who are in Hong Kong at the reference time-point.

2. As for the projection of Mobile Residents (MRs), a separate methodology is used. The MRs are divided into five categories as follows:

(a) Persons staying 5 to 6 days each week in the Mainland and staying regularly in Hong Kong during the weekends;
(b) Persons staying for a major proportion of time in the Mainland/Macau and returning to Hong Kong from time to time;
(c) Elderly persons (aged 60 or over) staying for a major proportion of time in the Mainland/Macau;
(d) Persons in school-attending age returning from overseas to stay in Hong Kong for several periods of time in a year; and
(e) Persons staying in overseas countries/territories but also staying frequently in Hong Kong for business, work or family reasons.

The projection of the five categories is associated with the change in the expected ratio of the relevant category to the respective age group of the URs.
ANNEX B
NEW EMPLOYMENT LAND USE TYPOLOGY FOR FORECASTING

Existing Property Products  Typology for Forecasting  Typology for Reservation

Private Office
Private I/O
Private Flatted Factories
Private Storage
Specialised Industrial Uses (1)
Government Offices / Other
Government Uses
Independent Uses (2)

"Employment" Use

CBD Grade A Offices
General Business
G/IC
Independent Uses

“Market-Driven”

“Policy-Driven”

(1) Specialised Factories, Industrial Estates, Science Parks and Business Parks
(2) Ports, airports, utilities, etc.
ANNEX C
DETAILED REQUIREMENTS FOR
STRATEGIC INFRASTRUCTURE AND FACILITIES

Power Supply Facilities

1. Our energy policy is to ensure that the energy needs of the community are met reliably, efficiently, safely and at reasonable prices and to promote the efficient use and conservation of energy and the minimisation of the environmental impact of energy production and use. Hong Kong currently relies on two electricity supply companies to meet market demands using a mix of fuel (including coal, natural gas, nuclear energy and pumped storage) for electricity generation. For environmental thermal efficiency reasons, it is expected that any new power generators to be built in Hong Kong in the longer term will be fuelled by natural gas, where feasible and economically viable.

2. As for gas supply, Towngas is supplied by the Hong Kong and China Gas Company from its plants at Tai Po and Ma Tau Kok and transmitted to users via a pipeline network. Liquefied petroleum gas (LPG) is supplied by five private companies to residential and commercial/industrial premises and for automotive purposes. The Government has encouraged the installation of piped-gas supplies in new buildings to discourage the use of LPG cylinders.

3. New technologies are likely to have a bearing on the form, and therefore land requirements, of new power supply facilities. The Government is keen to study the viability of wider use of water-cooled air conditioning systems and using new and renewable energy technologies (such as solar energy, wind energy and landfill gas etc.) in Hong Kong to reduce pollution arising from energy use and to reduce reliance on fossil fuels, bearing in mind that adoption of any new technology must not impose an unacceptable financial burden upon stakeholders and the public, nor dampen economic development. In this regard, a two-staged consultancy study on the feasibility of wider application of new and renewable energy technologies in Hong Kong was commissioned in November 2000. Stage 1 Study, which has recently been completed, has evaluated the potential of various forms of new and renewable energy technologies for wide-scale application.

local use, and related legal, institutional and promotional issues. It also makes recommendations for formulating an implementation strategy. Stage 2 Study will conduct a pilot project to demonstrate the applicability of Building Integrated Photovoltaic (BIPV) systems. Whether such technologies would be broadly adopted in both public and private buildings, hence substantially altering the mode of power supply, is still uncertain.

Water Supply and Treatment Facilities

4. Water from Dongjiang is the major source of water supply for Hong Kong (about 75% in 2002). The rest is collected through our system of local water gathering grounds (comprising about one third of Hong Kong’s land area) and stored in impounding reservoirs. Raw water from both sources has to go through a treatment process at the water treatment plants before reaching consumers.

5. Water demand is derived largely from domestic use and, to a much lesser and decreasing extent, industrial/commercial uses. Domestic water demand is dependent on population growth and per capita consumption. Hong Kong consumed about 949 million m³ of fresh water in 2002, and expects to increase to 1,104 million m³ by 2021. With the Dongjiang supply, which can be increased when needs arise, together with local sources, Hong Kong’s water supply could be secured in the foreseeable future.9

6. Nevertheless, with a view to explore alternative renewable water sources to ensure a stable and sustainable long-term water supply, the Water Supplies Department (WSD) in December 1999 commissioned a “Review on the Development of New Fresh Water Resources in the Future for the Hong Kong Special Administrative Region”. The review identified that apart from importing raw water supply from Guangdong Province, desalination could be a source of fresh water for Hong Kong in the long term. In January 2001, WSD further conducted a “Feasibility Study on Development of Desalination Facilities in Hong Kong”. The study identified that the use of reverse osmosis (RO) technology is the most cost-competitive desalination technology with the added benefit of a secure source. Coastal site for desalination installation may be required subject to further study.

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Solid Waste Handling and Disposal Facilities

7. Hong Kong's three existing strategic landfills together with a network of refuse transfer stations handled some 6.1 million tonnes of solid waste in 2001. Over the past 15 years, municipal solid waste (MSW) has increased by about 50% while the population has increased by about 20%. The Government has devoted considerable effort to encourage people to reduce waste. A Waste Reduction Committee was formed in 1999 to introduce new initiatives. A target was set to recycle 40% of MSW by 2007.

8. However, even if the waste reduction targets are achieved, there will still be a significant amount of waste to be disposed of at landfills. It is anticipated that all existing landfills will be full in 8 to 12 years if waste levels continue to increase at current levels.

9. The Government has recently completed a study on how to extend the useful lives of the existing landfills. Potential extensions to the NENT and WENT Landfills are identified to be feasible. Totally the landfill extensions would provide 90 million m³ of landfill capacity. In addition, a small extension of SENT Landfill in the adjacent Tseung Kwan O Area 137 is being considered. A territory-wide constraint analysis and strategic environmental assessment study has been undertaken to identify feasible new landfill locations. A preferred site is identified at Pillar Point Valley North. Feasibility studies, including environmental impact assessment, on the potential extensions to the existing landfills and the Pillar Point Valley North site will be conducted before committing to the development of any of these sites.

10. Thirteen closed landfills are being restored to minimise potential safety and health risks. In view of the restoration works, these sites are landscaped to provide green zones or are developed into different public recreational uses, such as golf driving range, multi-purpose grass pitches etc. When restoration is fully completed in 15 to 30 years, other more intensive uses can also be considered for some of the sites.

11. Construction and demolition (C&D) materials are separated and inert materials are used as fill in reclamation sites (public filling areas managed by the Civil Engineering Department and the Territory Development Department). A study has been commissioned by the Civil Engineering Department to identify long-term accommodation arrangements for inert C&D materials and uncontaminated dredged mud. Currently, two sites of 10 hectares each at Tuen Mun Area 38 and Tseung Kwan O Area 137 are temporarily used for the sorting of waste and recyclable materials from mixed C&D
materials. The C&D wastes would be disposed of at landfills while the recyclable materials would be processed into aggregates for construction. Public filling barging points are provided for bulk marine transshipment of inert C&D materials to remote dumping areas. A network of strategically located barging points is thus absolutely important if inert materials were to be beneficially reused/recycled.

12. As for recovery of municipal and commercial/industrial wastes, a number of sites have been allocated to local waste recyclers on a short-term basis. Twenty hectares of land in Tuen Mun Area 38 have been set aside for a permanent waste recovery park. Additional land and berthing areas in Tseung Kwan O will also be required to support waste recovery in the eastern side of Hong Kong.

13. To deal with the large amount of waste with anticipated shortage of landfill space, the development of integrated waste management facilities (IWMF) is needed. IWMF is used to reduce the volume of non-recyclable municipal solid waste (MSW) before their final disposal at landfills so as to reduce the future demand for resources in landfill provision. The choice of technologies would be a key factor in determining the number and the size of sites required for establishing IWMF. It is anticipated that a total area of 30 ha will be required for the facilities by around 2007/08. The required site(s) should have good marine and road access, environmentally and ecologically acceptable and compatible with planning use of neighbours.

14. It is anticipated that 3.5 hectares will be required for centralised hazardous waste treatment facilities by 2010. A site at Tuen Mun Area 38 has been preliminarily assessed as a possible location for the facilities. The required site should have good marine and road access, be compatible with neighbours, environmentally and ecologically acceptable, and preferably (but not necessarily) close to other waste disposal facilities.

15. Special wastes (including clinical waste, animal carcasses, livestock waste, radioactive waste, grease trap waste and waterworks/sewage sludges) are treated separately. Some livestock waste is treated at the Sha Ling Composting Plant.

**Sewage Treatment and Disposal Facilities**

16. To cope with the continuous growth of population and to improve the water quality of the Victoria Harbour, the Government proceeded with the Harbour Area Treatment Scheme
(HATS) (formerly known as the Strategic Sewage Disposal Scheme). At the regional/district level, 16 Sewerage Master Plans are being implemented in phases to provide new sewage infrastructure to match with the development needs of the territory.

17. Apart from upgrading the existing preliminary treatment works (PTWs) around the Victoria Harbour, and collection of the screened sewage from these PTWs via deep, tunnelled interceptions for delivery to Stonecutters’ Island Sewage Treatment Plant for advanced treatment before discharge to the sea, the original HATS also included long submarine outfalls for the disposal of effluent to the western and southern waters of the territory.

18. Stage I of HATS, which was already completed in 2001, comprises a deep tunnel system conveying sewage from Tsuen Wan, Kwai Tsing, Kowloon, Tseung Kwan O and Hong Kong East to the Stonecutters Plant, together with a submarine outfall to the western approaches of the Harbour. With the completion of Stage I, 70% of sewage discharging into the Harbour is intercepted and treated prior to disposal.

19. In view of the diverse public views on the original of HATS, an Independent Review Panel was set up in 2000 to review subsequent stages of HATS. The Panel recommended four alternative treatment and discharge options, all involving the use of Biological Aerated Filters for treatment, deep tunnels for transfer and short outfalls for disposal. The Government is carrying out the necessary environmental studies and trials of compact treatment technologies to determine whether it is environmentally acceptable to discharge treated effluent into the harbour. These studies and trials are expected to be completed by late 2003/early 2004.