Urban Planning Strategy for the Development of Logistics Industry in Hong Kong

FINAL REPORT

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Executive Summary

Logistics is one of the four Hong Kong’s pillar industries. The high revenue generation, job creation and stable provision for commodity needs of the logistics sector have strived prosperity in Hong Kong in the past decades. The opening up of Mainland China and improvements of regional competitors have posed challenges to the logistics industry of Hong Kong in recent years. A lack of comprehensive study and integrated planning for the industry has hindered its capacity for growth and development. This Study will look into the key trends and issues of the logistics industry in Hong Kong and put forward spatial and policy strategies to maintain a competitive edge.

Hong Kong’s position as a regional distribution centre and international trading hub is constituted from its close proximity and well-connected linkages dense connections with the manufacturing bases in the Mainland, simplified custom clearance procedures and a free trade zone status. To further capitalise on these advantages, Hong Kong needs to create capacity for the growth of high value logistics services and reinforce Hong Kong’s status as a global premier logistics hub.

The Study has identified a number of key issues hampering the sustainable growth of the industry in long term, which includes the limited capacity to support cargo handling and city logistics activities, the need for enhancement of facilities to fit in latest trends, scattered land-use functions, inadequate government initiatives in facilitating growth, ageing and insufficient labour supply, and the lack integrated of development strategy for logistics industry. To mitigate the abovementioned perils to the industry, the government should plan and implement relevant strategies accordingly together with rising market trends of e-commerce and specialised cargo handling to maintain sustainable growth for the industry.

The recommended comprehensive plan, based on the four guiding principles of land allocation for future growth, optimisation of existing functions, well-connected freight movement network and sustainable logistics development, consists of the Aviation Cluster that capitalises on the Hong Kong International Airport, the Maritime Cluster which enhances operational efficiency of port facilities, Tuen Mun West Logistics Cluster that agglomerates diversified logistics activities strategically, Northern Logistics Belt which exploits the proximity to the Boundary Crossing Points and enhancement of road networks. Policies addressing development mechanisms, labour productivity, technological enhancement and regional competition will enable the effective implementation of spatial strategies and promote industry development from an institutional and regulatory approach.

The proposed strategies can alleviate challenges and capitalise dynamic market trends to enhance the competitiveness of the logistics industry of Hong Kong while maintaining the sustainability of the city. The study ultimately aims to contribute towards the development of Hong Kong as an efficient and competitive logistics hub.
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<td>Three Runway System</td>
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<td>AAHK</td>
<td>Airport Authority Hong Kong</td>
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<td>Air Cargo Clearance System</td>
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<td>AGR</td>
<td>Agriculture Uses</td>
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<td>B2G</td>
<td>Business-to-Government</td>
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<td>BCPs</td>
<td>Boundary Control Points</td>
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<td>Big Bay Area</td>
<td>Guangdong-Hong Kong-Macau Big Bay Area</td>
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<td>CEPA</td>
<td>Hong Kong Closer Economic Partnership Arrangement</td>
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<td>Central People’s Government</td>
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<td>Development Bureau</td>
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<td>Digital Trade and Transportation Network System</td>
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<td>Emirates SkyCargo</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>Gross Floor Area</td>
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<td>General Industrial Use</td>
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<td>ha</td>
<td>Hectares</td>
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<td>Hactl</td>
<td>Hong Kong Air Cargo Terminals Limited</td>
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<td>HK2030+</td>
<td>HK2030+: Towards a Planning Vision and Strategy Transcending 2030</td>
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<td>HKBCF</td>
<td>Hong Kong Boundary Crossing Facilities</td>
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<td>HKIA</td>
<td>Hong Kong International Airport</td>
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<tr>
<td>HKCTOA</td>
<td>Hong Kong Container Terminal Operators Association Limited</td>
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<td>HKMOA</td>
<td>Hong Kong Mid-Stream Operators Association</td>
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<td>HKMPB</td>
<td>Hong Kong Maritime and Port Board</td>
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<td>HKSARG</td>
<td>Hong Kong Special Administrative Region Government</td>
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<td>HKTDC</td>
<td>Hong Kong Trade Development Council</td>
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<td>HSK</td>
<td>Hung Shui Kiu</td>
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<td>Hung Shui Kiu New Development Area</td>
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<td>HZMB</td>
<td>Hong Kong-Zhuhai-Macao Bridge</td>
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<td>Information Technology</td>
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<td>IT Training Programme</td>
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<td>Kwu Tung North</td>
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<td>L/UL</td>
<td>Loading/Unloading</td>
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<td>Lantau Development Advisory Committee</td>
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<td>Lung Kwu Tan</td>
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<td>LMC</td>
<td>Lok Ma Chau</td>
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<td>LT/HYW</td>
<td>Liantang/Heung Yuen Wai</td>
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<td>LOGSCOUNCIL</td>
<td>Hong Kong Logistics Development Council</td>
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<td>MKT</td>
<td>Man Kam To</td>
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<td>mPD</td>
<td>Metre(s) above the Hong Kong Principal Datum</td>
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<td>MSS</td>
<td>Mid-stream sites</td>
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<td>NDA</td>
<td>New Development Area</td>
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<td>NTN</td>
<td>New Territories North</td>
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<td>NWNT</td>
<td>North West New Territories</td>
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<td>OBTIS</td>
<td>On-Board Trucker Information System</td>
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<td>ODP</td>
<td>Outline Development Plan</td>
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<td>OU(PBU)</td>
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<td>PlanD</td>
<td>Planning Department</td>
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<td>PPP</td>
<td>Public-private partnership</td>
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<td>Pearl River Delta</td>
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<td>Qualifications Framework</td>
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<td>RAR</td>
<td>Regulated Agent Regime</td>
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<td>ROCARS</td>
<td>Road Cargo System</td>
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<td>River Trade Terminal</td>
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<td>SCM</td>
<td>Supply chain management</td>
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<td>Specification of Competency Standards</td>
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<td>Small and medium enterprises</td>
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<td>STT</td>
<td>Short Term Tenancy</td>
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<td>TEU</td>
<td>twenty-foot equivalent unit</td>
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<td>Transport and Housing Bureau</td>
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<td>Tuen Mun-Chek Lap Kok Link</td>
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<td>TPB</td>
<td>Town Planning Board</td>
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<td>TVP</td>
<td>Technology Voucher Program</td>
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<tr>
<td>UN Habitat</td>
<td>United Nations Human Settlements Programme</td>
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Introduction

1.1 Background

As the largest contributor in respect of GDP and employment, the importance of trading and logistics sector is far beyond the industry but underpins the prosperity and success in many sectors. To maintain the city’s competitiveness as a Asia’s world city, it is of vital importance that Hong Kong continues its role as a regional distribution centre and takes advantage of its capability to provide high value-added logistics services in order to furnish optimal support to the wider economy.

Nonetheless, a weakened momentum in growth has been witness in the logistics industry in Hong Kong in view of the increasingly keen competitions from neighbouring cities in the Pearl River Delta (PRD) Region and ASEAN region. In particular, capacity constraints have substantially refrained the industry from accommodating new demand and securing share of the growing market of specialised and consumption-led logistics. This raises the imminent need for a critical assessment on the spatial needs of the logistics industry and a more comprehensive planning for Hong Kong’s land, infrastructure, labour and regional linkages so as to enhance the productivity and performance of the industry as a whole. With regard to the above, the Study is carried out to formulate strategic planning strategies for a more sustainable development of logistics industry in Hong Kong and to sustain the city’s position as a regional transport and global logistics hub.

1.2 Study Goal and Objectives

Aceline Ltd. was commissioned in January 2017 to conduct a Study on Urban Planning Strategy for Development of Logistics Industry in Hong Kong (the Study) along with Anchor Consulting Group and The Mavericks Ltd. The Goal of the Study is to develop a vision statement supported by spatial planning policies and strategies to create capacity for sustainable development of logistics industry, assist Hong Kong to gain advantage over competing cities and regions and ultimately contributes to the socio-economic well being of the city. Specifically, the Study have:

• reviewed and examined the key issues and challenges in the current and future development of logistics industry in Hong Kong with reference to relevant literature and overseas experience;
• identified the key issues and challenges faced by the logistics operators and stakeholders, with a primary focus on air logistics;
• developed a vision statement that aims to address the issues revealed in the previous part of the Study; and
• formulated spatial strategies and policies that correspond to the Study Goal.
The subsequent findings and recommendations of the Study shall contribute to the strategic planning study “HK2030+: Towards a Planning Vision and Strategy Transcending 2030” (HK2030+).

1.3 Study Framework

The Study is conducted in the three phases of baseline study and international review, sectoral study and consolidation, strategy formulation and recommendation. The detailed study framework is illustrated in Appendix A.

A Recap of Previous Work

1.3.1 Phase One - Baseline Study and International Review

In Phase One, a holistic research on the performance of the logistics industry in Hong Kong was conducted. Key opportunities and challenges were identified with respect to the mega-trends and growth trends of different sectors, land and infrastructural provision as well labour supply. Strategic planning and policies put forward by the government are reviewed to assess the extent of government support to the industry.

1.3.2 Phase Two - Sectoral Study

In cooperation with the other two consultants Anchor Consulting Group and The Mavericks Ltd., three sectoral studies on air, land and sea logistics in Hong Kong were conducted. Building on the baseline studies, the Working Paper further assessed the development potential of each logistics sector by reviewing relevant business trends and issues. Views from various stakeholders in the industry were consulted and consolidated for the discernment of stakeholders’ roles, major concerns, spatial needs and suggestions. Depending on their applicability in the case of Hong Kong, several overseas experiences were included to offer insights into addressing the key development challenges and constraints.

Current Stage

1.3.3 Phase Three - Consolidation, Strategy Formulation and Recommendation

The Final Report outlines the major findings and explains the recommended development strategies for further growth of logistics industry in Hong Kong. At this stage, findings derived from the Inception Report and the three Working Papers are consolidated for the formulation of a powerful vision statement and guiding principles to guide the development of the industry and reinforce Hong Kong’s leading position in the logistics industry. In light of the issues identified from previous studies, spatial planning strategies and policy recommendations are further provided to enhance the competitiveness and sustainability of the industry in practicality. The associated implications on stakeholders are eventually assessed for the formulation of priority actions.
1.4 Study Methodology

The study methodology of this Report consists of desktop research, stakeholder interviews and an overseas field trip to Singapore. The study programme showing the tasks of the Study and their respective duration are indicated in Appendix B.

**Desktop Research**

Desktop research is conducted with the purpose to identify the scope and role of the logistics industry in Hong Kong. Quantitative analyses have been carried out to evaluate the performance and socio-economic characteristics of the industry. To discern the complications in the existing institution set-up and regulations that prevent the logistics industry from capturing from further growth, relevant policies implemented over the years are also investigated into.

**Stakeholder Interviews**

Interviews are conducted with relevant stakeholders and representatives of the logistics industry for a better understanding of their genuine needs and concerns (See Appendix C for list of interviewees and summary of interview notes). Their opinions on the operational and business trends as well as the development potential of logistics industry are also consulted.

**Overseas Field Trip to Singapore**

Took place through 5th to 9th March 2017, the five-day field trip to Singapore has enabled the gathering of first-hand information on the logistics operations in Singapore. The information collected has supplemented the assessment of overseas experience in terms of policy implementation, spatial development and institutional framework in facilitating the growth of the logistics industry.

1.5 Purpose and Structure of the Report

Having incorporated all analyses, reviews and interviews specified in the Inception Report and Working Papers, this Final Report has been prepared to achieve the following purposes:

- to develop a vision statement for developing Hong Kong into an efficient and competitive logistics hub;
- to recommend suitable spatial planning strategies and policies as supplements to the strategic framework outlined in HK2030+; and
- to identify the implications of the strategies on relevant stakeholders.

In total, the Final Report comprises nine chapters as listed below:

- Chapter 1 introduces the background of the Study, study framework, methodology and purposes of the Report
• Chapter 2 explains the roles and functions of logistics, the relationship between logistics and city functioning from the spatial perspective as well as the expected roles and needs of stakeholders in ensuring smooth logistics operations

• Chapter 3 analyses the positioning, socioeconomic performance as well as relevant policies, land and infrastructure provisions of the logistics industry along with key trends and the identification of key issues

• Chapter 4 presents the vision statement, guiding principles and recommended spatial concept plan with an overview of the proposed development strategies

• Chapter 5 elaborates the five core development strategies in terms of their positioning, functions and implications

• Chapter 6 presents policy recommendations in terms of development mechanism, labour productivity, technological enhancement and regional cooperation

• Chapter 7 assesses the implications on stakeholders in respect of spatial strategies and policy recommendations

• Chapter 8 presents the implementation programme with elaboration on the evaluation criteria

• Chapter 9 concludes the five-month Study with a summarising remark on the key takeaways.
2 Understanding Logistics

2.1 Understanding Logistics from a Functional Perspective

2.1.1 7 Functions of Logistics

Supply chain management (SCM) can be identified as one of the forms of logistics operation. SCM is divided into three main activities: purchasing, manufacturing and transport (Thomas et al., 1996). The operation of logistics is only one of the components in SCM and it is viewed as the catalyst of the supply chain, which ensures goods and supplies are efficiently and effectively been delivered from the origin to the destination.

**Figure 2.1 Seven Functions of Logistics (by authors)**

*Figure 2.1* shows the seven different functions of logistics that have been identified in the Working Paper. Among the seven functions, transportation is the primary focus of this Study and its intermodal relationships will be discussed. As in terms of land use and spatial development, warehousing management and storage operation will also be addressed. The omnipresence of logistics services in the supply chain highlights the key position of transportation and its strategic importance to ensuring economic vitality.

2.1.2 The Components of Logistics

Different transportation modes play a connective role among the different procedures of the supply chain. In brief, the logistics system can be separated into three closely linked components: logistics services, information systems and infrastructure/resources. **Figure 2.2** concisely explains the relationship between the three components, which are regarded as fundamental to this Report. They will be further elaborated and analysed in the next sections in the aspects of institutional support, spatial implementations and logistics operations.

2.1.3 The Importance of Transportation as the Focus

*Transportation and Urban Goods Transport*

Urban goods transport, also known as urban freight distribution, concerns a vast range of activities insuring an adequate level of service for a variety of urban supply chains. In order to ensure a successful SCM, it is essential to anticipate and plan ahead for the development in logistics operation.

*Logistics Operation Sprawl in the Urban Environment*

The operation of logistics in the supply chain enable goods and supplies to be transported to the designated location. It is argued that the de-concentration of logistics facilities in cities
are creating pressure on transport operation and causing congestions and delays (UN HABITAT, 2013). Forward planning on the usage of transportation infrastructure and operation of goods delivery services should therefore be undertaken to a certain hierarchy and reflected in different land use horizons. Since urban areas have large consumers of final goods, the issue of reverse logistics and its relationship with green logistics operations deserves consideration.

Figure 2.3 shows the relationship between the size of a piece of land and the possible scope of facilities can be placed in an urban environment. These facilities are necessary for the logistics operation at different stages. Urban logistics zones provide space in relative proximity to central areas. They are commonly developed over brownfield sites and provide additional benefit if placed adjacent to port and airport facilities. Urban freight distribution centres are shared facilities being connected to their respective supply chains and assist last mile delivery (UN HABITAT, 2013). Urban freight stations are small facilities where cargo can be dropped and picked up, which requires high proximity with the customer and mitigate the matching issue with the delivery vehicles.

Figure 2.2 Overview of the Supply Chain Flow and Logistics System (Tseng et al., 2005)
2.1.4 Modes of Transportation in Logistics

The Different Modes of Freight Transport

The following section provides a recap on the functions, characteristics and responsibilities of the three different freight transportation modes being discussed in the previous stage of the Study. A brief overview of air, road and maritime transport as the different modes of freight transportation are provided in Table 2.1.

2.1.4.1 Maritime Transport

Sea logistics can provide a cheap and high carrying capacity conveyance for consumers (Tseng et al., 2005). It has a vital position in the transportation of particular goods that are large and heavy such as crude oil and grains. The drawback is that it needs longer transport time and its schedule is strongly affected by the weather factors. To save costs and enhance competitiveness, one of the key trends for current maritime logistics firms tend to use large-scaled ships and cooperative operation techniques (Anchor Consulting Group, 2017).

2.1.4.2 Air Transport

Air logistics provides the delivery of goods with speed, lower risk of damage, security, flexibility, accessibility and good frequency for regular destinations, at the cost of relatively high delivery fee. It is also selected as the preferred transport mode when the value per unit weight of shipment is relatively high and speed of delivery is a factor (Haniefuddin et al.,
The future trends of air logistics tend to cooperate and integrate with other transport modes to provide services based on just-in-time and door-to-door strategies.

### 2.1.4.3 Land Transport

Land logistics is a very important link in logistics activities. It extends the delivery services for air and maritime transport from airports and seaports and served as a crucial mode for last-mile delivery of goods attributed to its high accessibility in land area (Tseng et al., 2005). From the spatial perspective, the disadvantages are low capacity and slow speed. Land logistics requires a large consumption of road infrastructures and is low in investment funds. The excessive usage of land transport can cause congestion, pollution and traffic accidents. This is a challenge for policy makers to provide transport policies that can ease congestion in the urban environment (Rodrigue et al., 2017).

### Table 2.1 Comparison Matrix for Different Modes of Transportation (by authors; Adopted from Logistics Cluster, 2015)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Road</th>
<th>Maritime</th>
<th>Air</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Relative speed</strong></td>
<td>Moderate</td>
<td>Slow</td>
<td>Very High</td>
</tr>
<tr>
<td><strong>Reliability</strong></td>
<td>Good</td>
<td>Limited</td>
<td>Very Good</td>
</tr>
<tr>
<td><strong>Cost (tonne/km)</strong></td>
<td>Low</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td><strong>Flexibility</strong></td>
<td>High</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td><strong>Other Considerations</strong></td>
<td>Require extensive network and infrastructure to support the operation</td>
<td>Restricted network, limited network, Goods are usually sensitive to the transport of goods often shipped in large quantities, expensive, or fragile</td>
<td>Goods usually in less value and not influenced by the delivery time Most parcels are packed in small shipments</td>
</tr>
<tr>
<td><strong>Advantages</strong></td>
<td>Flexible and cost effective</td>
<td>Large loading capacity, cheap economics of loading spaces per scale</td>
<td>Fast and reliable, limited aircraft, easily tracked</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td>Congestions and transportation might</td>
<td>Slow and require second means to transportation only transport large volume</td>
<td>Expensive, and limited between airports</td>
</tr>
</tbody>
</table>
Intermodal Dynamics

The different modes of freight transportation have their own operational and commercial advantages and attributes. Intermodal competition or complementarity occurs due to factors including cost, speed, frequency and accessibility. Such kind of intermodal dynamics mainly occurs in the aspects of modal usage, infrastructure and levels of service for the case of freight transport. Competition of modal usage involves the advantage of using a specific mode of transportation based on the aforementioned factors such as cost and speed, in reaching the same target area or destination. Another aspect of competition occurs in the usage of infrastructure since this is very often the limiting factor to the different modes of transportation owing to the limited capacity of infrastructure (Rodrigue et al, 2017). Intermodal dynamics is also influenced by the wide range of sourcing options available and the associated market opportunities, that have effectively driven the rapid changes in intermodal operations. As stakeholders need to maximise profit potential for the different components of the supply chain, the intermodal capability need to be optimised depending on the levels of services required, to ensure that the delivery is integrated and seamless, thus may result in a modal shift whenever a particular mode becomes more viable for transporting that specific type of goods (DeWitt and Clinger, 2002).

Modal Shift

Modal shifts take place whenever a transport mode becomes more advantageous than another in the same setting, such as route or market. A modal shift involves the increase in demand of a transport mode either at the expense of another, or an absolute growth in both transportation modes. The key trends in the logistics sector play a significant role in facilitating the dynamics of modal shift, the rise of e-commerce for instance implies smaller parcel sizes and attention for reverse logistics, while the increasing demand for specialised cargo require time-critical services and seamless cold chain transportation methods. In this case the trends will most probably be beneficial to the air freight industry due to the mode’s advantages in speed and reliability that ensure the time-definite requirements are well-catered (Capineri & Thomas, 2006). As a result, the changing preferences of stakeholders will induce a shift in modal choices of goods delivery, which ultimately will require responses from the spatial context in terms of road network and other related infrastructure to cope with these shifts effectively.

2.2 Understanding Logistics from a Spatial Perspective

2.2.1 Urban Logistics

The components in the urban logistics are being discussed in this section, as they are closely related to the logistics operation of the urban environment. On a city level, the aim of logistics
operation is to integrate existing resources and mitigate against the impacts of increasing population and vehicle ownerships within a single urban area. City Logistics is the process for total optimising logistics and transport activities by private companies with the support of advanced information systems in urban areas considering the traffic environment, congestion, safety and energy savings within the framework of a market economy (Taniguchi et al., 2001b). This concept can be expanded into a regional concept by connecting the cities in the neighbourhood, which raise concerns with the enablement of goods transport in urban areas by improving the efficiency of urban freight transport and mitigating against environmental and social impacts. To expand the concept to a spatial perspective, the concept of urban logistics is more applicable for this Report.

Urban logistics activities ensure the serve and retain of trading activities in the wealth generation process of public institutes and private companies. Urban freight activities are important in maintaining the economic vitality of a city, and yet it also brings about negative impacts to the environment. Transportation is the main medium for distributing goods and supply from warehouse and storage. From the spatial perspective, good transportation planning and warehouse allocation can minimise transportation costs and enhance operational efficiency in the urban area.

2.2.2 Role of the Three Components in Urban Logistics

This section explains the roles of the three components: infrastructure, operation and mode of transportation and their relationship with urban and economic development.

Infrastructures are significant to connecting and supporting freight flows. The total cost of freight transport and logistics is affected by the spatial configuration of warehouses and distribution centres. The location of warehouses and distribution centres is therefore an important factor to be evaluated in the spatial development of logistics.

The efficiency of freight operation can also be directly affected by infrastructural provisions in the urban area. The need for urban logistics is often a derived outcome of new demands generated in the global supply chains in the market at local and regional level (UN Habitat, 2013). The last mile delivery requires a shift to different distribution strategies and that is often not compatible with the existing road infrastructures. A more sustainable logistics approach in the urban context should be examined to reduce the costs of externalities derived from congestions and delays in goods delivery.

The dominant mode to connect and link between goods and services in urban logistics is trucking, which also leads to problems such as congestions and negative externalities to the environment due to the volume of traffic and road-side emission induced (UN Habitat, 2013). The flow of technology and information is thus crucial to ensure smooth operation, where alternative modes and technological support should be catered to enhance the logistics operations to be seamless.
2.2.3 Spatial Pattern of Logistics Development

The previous section introduced how urban logistics activities in warehouses and storage facilities and transportation networks may impact urban areas spatially and the importance of spatial planning in mitigating the externalities of logistics operations. The efficiency of urban logistics can be amplified by the spatial distribution and pattern of sites and facilities for logistics operations based on the characteristics of different regions or cities. There are two main types of spatial distribution, with functions that are centralised or decentralised, and clustered or dispersed (See Figure 2.4).

Figure 2.4 Spatial Distribution of Logistics Facilities (UN Habitat, 2013)

2.2.3.1 Centralisation and Decentralisation

Centralisation refers to the increasing concentration of logistics activities and facilities as the site of operation approaches the centre of a city. In this pattern, the majority of sites of operation is located within close proximity of the city centres and central business districts (Rodrigue et al., 2017). Decentralisation implies relatively more even distribution of logistics activities and facilities across the city although the sites still have an orientation towards the city centre (Giuliano et al., 2016).

From Centralisation to Decentralisation

City centres that are highly populated and has higher concentration of economic activities compared to its peripheral areas attract freight consolidation and distribution activities (Giuliano et al., 2016). Logistics facilities with close proximity to consumers and producers reduce time for cargo transfer and delivery, improving the responsiveness of the supply chain to market changes. However, rising demand for land in urban areas due to city expansions...
and urbanization has increased land prices, forcing logistics activities with less value-added as compared to other economic activities to relocate further away from city centre where land is cheaper and land parcels are larger. Apart from land cost, centralisation of logistics facilities adds pressure on the increasingly congested transportation networks as a result of population increase in cities (UN Habitat, 2013).

Improvements in transportation technology and network and the requirements of larger land parcels for logistics operations prompt decentralisation of logistics facilities. Better transport infrastructure and network have reduced the cost of travelling the extra mile. Also, globalisation generates larger demand for international trade and logistics services; hence, larger terminals and warehousing facilities are required to increase cities’ capacity to consolidate and distribute goods (UN Habitat, 2013). Confronted with pressure for larger operational space and supported by comprehensive transportation networks, proximate land is no longer a necessity for efficient and lucrative logistics operations in scale (Giuliano et al., 2016).

2.2.3.2 Clustering and Dispersion

Clustering is the agglomeration of logistics activities at a specific location. These locations do not necessarily need to situate within or nearby city centre. The driving force for clustering is improved logistics capabilities constituted by benefits derived from the close proximity of logistics operations (Rodrigue et al., 2017). These benefits of agglomeration economies include labour market pooling with more opportunities for labour specialisation and training, input sharing relating to broader supplier base that reduces cost and increases flexibility, and knowledge spillovers through collaboration of different firms (Van den Heuvel et al, 2015). Over-clustering of logistics activities at a location can add excessive pressure to road networks and reduce efficiency of logistics operations. Dispersed logistics activities have less impacts on the transportation network comparatively. Also, the land requirement is lower as smaller land parcels are also suitable for this pattern of logistics development.

2.2.3.3 Logistics Zones

Logistics zones are structured clustering of logistics operations. They involve the grouping of freight distribution activities including warehousing, storage, transportation, and supporting services in a specific planned area (Rodrigue et al., 2017). Rodrigue suggested four types of logistics zones, namely port/airport-centric logistics zone, inland port, logistics park and freight village, each characterised by their functions and geographical scope.

Port/airport-centric logistics zones are in close proximity to port or airport terminal facilities. They mainly support the distribution of cargo delivered by sea or air. The development of the logistics zones depends on the availability of land adjacent to the terminal and the access to labour pool in nearby residential areas.

Logistics parks are mainly made up distribution centres and light manufacturing activities. In most cases, they are individually planned and situated adjacent to intermodal terminals. They
are often easily accessible, have substantial quantity and scale of developable land, and well-established infrastructures.

Freight villages are clusters of supporting activities such as office space, hotels, restaurants, or even fuel stations for logistics operations. Geographically, they do not need to be adjacent to intermodal terminals but a certain degree of proximity is needed to efficiently provide support.

2.3 Key Actors and Stakeholders in Urban Logistics

Apart from developing an understanding in the spatial elements of urban logistics, the stakeholders involved in the urban logistics supply chain are also considered as a significant component towards a better understanding of the concept. This section will attempt to introduce their role and spatial requirements as well as their modes of interaction in the context of urban logistics.

2.3.1 Role and Spatial Requirements of Different Stakeholders

The stakeholders involved in the supply chain operation, their roles in urban logistics and spatial needs are illustrated below in Table 2.2. Understanding these particular attributes of different stakeholders is important since the implications of their role and needs will be analysed in the context of Hong Kong in the next chapter.

Table 2.2 Role and Spatial Requirements of Different Stakeholders (UN Habitat, 2013; Aceline Ltd., 2017)

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Role in Urban logistics</th>
<th>Spatial Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maritime shipping companies</td>
<td>Key actors in global trade, owning container fleets delivering cargo in large quantities</td>
<td>Sufficient berths with different sizes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sufficient of air clearance from bridges</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proximity to ship maintenance facilities</td>
</tr>
<tr>
<td>Port terminal operators</td>
<td>Operate major port facilities</td>
<td>Sufficient land for the development and operations</td>
</tr>
<tr>
<td></td>
<td>Interface between maritime and inland transportation system</td>
<td>Container handling facilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Well-connected road network</td>
</tr>
<tr>
<td>Trucking companies</td>
<td>Carry freight over short to medium distances</td>
<td>Well-connected road network</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Loading and unloading space at terminals</td>
</tr>
<tr>
<td><strong>Air freight transport companies (airlines)</strong></td>
<td>Provide and organise road transport services for “last-mile” delivery</td>
<td>Sufficient and affordable land for storage and maintenance of trucks</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>---------------------------------------------------------------------</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Provide air transport services for high-value and time-sensitive cargo</td>
<td>Sufficient runway capacity and parking stands</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proximity to ground handlers and air cargo terminals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proximity to aircraft maintenance facilities</td>
</tr>
<tr>
<td><strong>Air cargo terminal operators</strong></td>
<td>Operate major air cargo handling facilities</td>
<td>Proximity to runway</td>
</tr>
<tr>
<td></td>
<td>Interface between air and inland transportation system</td>
<td>Warehousing and cargo handling facilities for high value-added goods</td>
</tr>
<tr>
<td></td>
<td>Provide service on consolidation and deconsolidation of pallets</td>
<td></td>
</tr>
<tr>
<td><strong>Freight forwarders</strong></td>
<td>Provide service on consolidation and deconsolidation of cargo</td>
<td>Sufficient and affordable land for warehouses and storage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Warehouses proximate to port and airport</td>
</tr>
<tr>
<td><strong>Employees</strong></td>
<td>Most integral component of logistics operation, provides labour force for the whole supply chain</td>
<td>Provision of proximate mixed housing to major logistics facilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Well-connected transportation network</td>
</tr>
<tr>
<td><strong>Residents</strong></td>
<td>Consumers of final products</td>
<td>Comprehensive transport network</td>
</tr>
</tbody>
</table>

### 2.3.2 Mode of Interactions

Taking reference from “Planning and Design for Sustainable Urban Mobility - Global Report on Human Settlements 2013”, the relationship between either private or public stakeholders can be categorized into four types, namely conflicts, cooperation, competition and coopetition (UN Habitat, 2013) (See **Figure 2.5**).
2.3.2.1 Conflicts

- Conflicts between stakeholders as a result of scarcity of space, and density and complexity of the urban landscape.
- Externalities of urban freight distribution projects on local communities are considered to be unacceptable by residents and planners.

2.3.2.2 Cooperation

- Creation of additional logistics capacity with the addition of mitigation strategies to projects and using or sharing existing capacity among stakeholders.
- Public-private partnership as a common approach to accommodate both private goals and public interests.

2.3.2.3 Competition

- Different stakeholders competing for limited resources such as land for logistics or residential developments, or bidding for land proximate to port or airport.
- Service providers compete for customers.

2.3.2.4 Coopetition

- Private stakeholders collaborating for shared resources to reduce cost while competing for more business such as freight forwarder sharing resources and operations in urban distribution centres or shippers aggregating demand for freight forwarding services together for better terms.
- Collaboration of stakeholders can be incited by a particular issue or regulation.
2.4 Understanding the Dynamics and Spatial Characteristics of Major Logistics Components

The major components of logistics have been introduced in this chapter. The different modes of transportation interact dynamically with one mode and another as well as with market trends. The concept of urban logistics highlights the impacts of logistics on a city and importance of planning for efficiency in operations in which infrastructure, operation and modes are three components facilitating the contribution of logistics to urban and economic development. From a spatial perspective, the pattern of logistics developments is influential to the effectiveness of urban logistics and efficiency of the industry as whole. The next chapter will put the abovementioned logistics components into the context of Hong Kong.
3 Development of Logistics Industry in Hong Kong

3.1 Positioning and Significance of Logistics Industry in Hong Kong

Hong Kong, together with its neighbouring cities in the PRD Region, were identified by the Global Gateways Index (Rodrigue, 2013) to be the most important gateway in the world. The ranking stresses the strong clustering effect of ports and airports in the PRD region and the development potential of the region for capturing new business opportunities for the logistics industry in the near future. In view of the rapid economic development and growth in neighbouring cities such as Shenzhen and Guangzhou, a new form of relationship between cities in the PRD Region and Hong Kong has been emerging. To better capture the opportunities arise from regional cooperation, Hong Kong was given a clear positioning in national, regional and local perspectives to maintain its competitive edge for the continuous development of logistics industry in the long run.

3.1.1 National and Regional Positioning

**National Positioning – Reinforce Hong Kong’s status as a transportation and trade centre**

Under The 13th Five-Year Plan as promulgated in 2015, the Central People’s Government (CPG) recognised Hong Kong’s position as the “international transportation and trade centre” (HKSARG, 2016a). In the Plan, the CPG established a vision for facilitating regional economic integration and cooperation between Hong Kong and the rest of PRD Region (HKSARG, 2016a; Chan, 2016). Through the national support to logistics development in Hong Kong, it is expected that Hong Kong will further increase its catchment areas and capitalise on the benefits arise from regional cooperation for logistics development.

The CPG is also in full support for cross-boundary logistics development between Hong Kong and PRD Region. In response to “One Belt, One Road” initiative announced by the National Government in 2013, the logistics markets in Hong Kong and its neighbouring cities in PRD Region together are expected to create synergies in opening new logistics markets and generating new projects (People’s Government of Guangdong Province, 2016). A larger scale cooperation network of the logistics markets will be established, which could facilitate the development of logistics industry in Hong Kong and PRD Region in the long run (Liao, 2015).

**Regional Positioning – Promote Integral Cooperation between Hong Kong and PRD Region**

The People’s Government of Guangdong Province has a strong vision to establish integral development and cooperation between Hong Kong and its neighbouring cities in the PRD. In terms of logistics development, it targets to “strengthen the connection of aviation and logistics services between Guangdong and Hong Kong” (People’s Government of Guangdong Province, 2016). In view of the above vision, under the 13th Five-Year Plan for National Economic and Social Development in Guangdong Province as promulgated by the Guangdong Government in 2016, it proposed the development of Guangdong-Hong Kong-Macau Big Bay Area (Big Bay Area) to cluster ports, airports, and cities in the Region to facilitate the collective
establishment of global logistics centres and create “the largest transport and logistics centre in the world” through cooperation, integration, exchange mechanisms and logistics networking (People’s Government of Guangdong Province, 2016).

The Outline of the Plan for the Reform and Development of the Pearl River Delta (2008 to 2020) as established by the government of Guangdong Province in 2014 has stressed on developing an integrated international logistics centre in the PRD Region with an intention to ensure “a clear division of position, reasonable layout and complementarities in the development of ports and airports” from Hong Kong (People’s Government of Guangdong Province, 2014). It is thus suggested that Hong Kong should provide a clear layout for its position as a “global premier logistics hub” to allow a clear division of positioning from its neighbouring counterparts and enable the establishment of complementarities within the PRD Region.

3.1.2 Local Positioning

3.1.2.1 Hong Kong as a Regional Transport and Logistics Hub

Hong Kong possesses various competitive advantages over its neighbouring cities in the development of logistics industry, including geographical advantage in proximity to the Mainland, free port status, low tax system and secured law system. In order to enhance the competitive edge of Hong Kong in the logistics development and maintain its leading position in the global supply chain, the government has identified a clear positioning for the continuous development of the logistics industry in Hong Kong as an “international transportation centre” and a “regional logistics hub” (Transport and Housing Bureau (THB), 2016) to provide high value-added services. To maintain such status, the government has established various measures and strategies, including the introduction of inter-modal transport system in improving regional connectivity between Hong Kong and its neighbouring PRD cities, and proposal of strategies in promoting high value-added logistics and cargo clearance processes (Office of the Chief Executive 2007; Office of the Chief Executive, 2017).

3.1.2.2 Hong Kong as an International Aviation and Maritime Centre

The government recognises the importance of air and sea logistics in Hong Kong and has provided a clear positioning to promote the development of these logistics sectors. The government in recent years has increasingly emphasized on the role of Hong Kong as a “global aviation hub” and encouraged the establishment of high value-added logistics services (Hong Kong Maritime and Port Board, 2016a). On the other hand, in view of the decrease in the sea cargo throughput in recent years, the government emphasises on the high value-added maritime services and positions Hong Kong to become an “international maritime services hub” for China and other regions in Asia (Office of the Chief Executive, Hong Kong, 2015; THB, 2017).
3.2 Socio-economic Significance of the Industry

3.2.1 Overall Socio-economic Performance

The logistics and trading industry has always been the major pillar in driving Hong Kong’s economy and providing the employment opportunities for years. The industry contributes the most Gross Domestic Product (GDP) share and employment share among the four pillar industries (See Table 3.1). The significance in socio-economic performance in the industry renders efforts to be made to ensure its sustainable growth, which will be discussed further in the subsequent sections and chapters. Figure 3.1 shows the economic revenue generated has undergone a slight decline and yet the labour force is dropping gradually since 2005 which indicates a shrinking workforce in the industry that might affect the industrial productivity. Meanwhile, different sectors in the logistics industry have distinct performance economically and socially. Thereby, the difference in individual sectors’ performance indicates the drivers in the industry.

Figure 3.1 Socio-economic Performance of the Trading and Logistics Industry (Legislative Council, 2016)

![Socio-economic Performance of the Trading and Logistics Industry](image)

Table 3.1 GDP and Employment Share of the Four Pillar Industries (Legislative Council, 2016)

<table>
<thead>
<tr>
<th>Industry</th>
<th>2001</th>
<th>2010</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trading &amp; Logistics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP share</td>
<td>24.1%</td>
<td>25.3%</td>
<td>23.4%</td>
</tr>
<tr>
<td>Employment share</td>
<td>23.4%</td>
<td>22.4%</td>
<td>20.4%</td>
</tr>
<tr>
<td><strong>Financial services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP share</td>
<td>12.1%</td>
<td>16.4%</td>
<td>16.6%</td>
</tr>
<tr>
<td>Employment share</td>
<td>5.5%</td>
<td>6.2%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>
3.2.2 Sub-sector Economic Performance and Growth

**GDP Performance**

The air logistics industry carries a significant role for its contribution to GDP performance. It was estimated that the economic values generated by the HKIA contributed to approximately 5% and 20% of the total GDP and GDP for trading and logistics industry respectively in 2012 (Hong Kong International Airport, 2015). On the other hand, the sea logistics industry, which includes ports and related sectors, contributed to about 1% of total GDP in Hong Kong in 2014 (THB, 2015a). For the land logistics industry, it carries the role as a mediator to support air and sea modes of transport, and acts as a connector to bridge between a wide spectrum of related sectors, such as “agriculture, fishing, mining and quarrying” and “manufacturing”, its economic value and GDP performance are thus considered to be significant.

**Trading Value**

Of all the logistics sectors, the air logistics has the highest total trade value. Figure 3.2 indicates that air logistics is the biggest contributor to the total trade value while there is a declining proportion of share of total trade value by sea logistics. The figure reflects the increasing importance of air logistics industry to the economy in Hong Kong and suggests that the declining trading values in sea logistics as a possible threat to its long term development.

Figure 3.3 shows that from 2005 to 2015, the value per tonne for air logistics is the highest among all logistics sectors and has been continuously increasing, whilst the value per tonne for sea logistics remained to be the lowest and was about the same level throughout the years (Census and Statistics Department (C&SD), 2016a). It implies that air logistics is mainly for transporting high-value goods while sea logistics is mostly for transporting goods with significant volume but have low to medium values.

**Import-export dynamics by mode**

From Figure 3.4, it can be seen that Hong Kong has a trading deficit where its imports have taken up over 50% of the total external merchandise trade and exceeds its exports. Re-exports is seen as the key contributor to the exports trading value in Hong Kong. According to Census and Statistics Department (C&SD, 2016a), approximately 99% of the total exports values in 2015 were from re-exports. On the other hand, the domestic exports only contributed to remaining 1% of total exports value in 2015. The emphasis on the re-export
trades in Hong Kong further reinforces its status as a “Regional Distribution Centre” for redistribution of goods between China and overseas countries.

Figure 3.2 Total Trade and Share by Mode of Transport in Billion Hong Kong Dollars (C&SD, 2016a)

Figure 3.3 Value per Tonne for Different Types of Transport (C&SD, 2016a)
Figure 3.4 Mode of Transport in Hong Kong’s External Merchandise Trade (C&SD, 2016a)

Figure 3.5 Cargo Throughput by Sector (Census and Statistics Department, 2011, 2015, 2016)

**Cargo Throughput**

According to Figure 3.5, sea cargo throughput has the largest throughput of all the logistics sectors. In recent years, however, sea cargo throughput is facing growth stagnation due to the intense competition of Hong Kong ports with nearby ports in Shenzhen. Land logistics is the second largest contributor to the total cargo throughput. Road cargo throughput contributed to approximately 10% of the total cargo throughput (C&SD, 2016b). In recent years, the growth for cross-boundary land logistics is declining. A major reason is the relatively high cross-boundary trucking costs, which causes some logistics industries to shift their modes of transport from land to river trade for saving costs. The decline in growth for cross-
boundary logistics will negatively affect the throughput of road cargo. On the other hand, air logistics has the lowest cargo throughput, contributing to less than 2% of the total cargo throughput (C&SD, 2016b). In view of the promising economic performance of the air logistics sector with its high total trade value, it is likely that the air logistics sector will have huge economic potential and will be the leading logistics sector in Hong Kong in the near future.

3.2.3 Sub-sector Labour Supply

Labour is one of the most important keys to support the logistics industry. The demand and supply of labour should be addressed in order to keep the industry running smoothly. Land freight transport is the largest employment sector in logistics industry. Around 60% of the employees are involved in land logistics, while sea and air logistics share the same percentage at 20% (Vocational Training Council, 2015). Among the labour employed in transportation, storage, postal and courier services, information and communications sector, population aged 40 and over has the largest share and undergoes an increasing trend (C&SD, 2016c). It is projected that local manpower supply aged 55 or over in Hong Kong will increase significantly at an average annual rate of 4.3%, to about 300,000 persons by 2022 (Labour and Welfare Bureau, 2015).

3.2.3.1 Dominance of Frontline Jobs

Frontline jobs are prevailing in logistics industry. In air logistics, these jobs occupy 88% of the workforce whereas the minority jobs are managerial and professional (HKIA, 2016a). In sea logistics, frontline jobs account for over 60% of the workforce. These jobs usually offer undesirable working conditions, and have a relatively high turnover rate (Vocational Training Council, 2015). Owing to the less desirable working conditions, the younger generation are less willing to take up frontline jobs, thus leading to an aging low-skilled workforce in the logistics industry. Moreover, the industry particularly the land logistics sector has been perceived as a sunset industry by the younger generation, which further hinders the incentives for them to join the industry.

3.2.3.2 Increasing Labour Demand

The demand for manpower for logistics industry has been increasing. It is projected that the manpower requirements of trading and logistics will increase slightly at an average annual rate of 0.1% from 779,900 in 2012 to 784,500 in 2022. The greatest increase among the sub-sectors is the warehousing and storage sub-sector, which is a boost of 0.5% from 6,500 to 6,800 (Labour and Welfare Bureau, 2015). However, not all three transport modes in logistics are growing in demand for labour. For land logistics, the number of employed persons in transportation and storage has been declining since 2008, with a drop of around 200,000 employed persons in average throughout the years (C&SD, 2016c). Despite the drop in land freight transport manpower, the growing demand in sea and air freight transport (3.5% annual growth) should not be disregarded.
3.2.3.3 Undersupply of Labour
For the supply of the labour, it is indeed a challenge to meet the increasing demand. By 2022, the total number of working population (15-64 years old) will have decreased by 2.6% due to static population growth. Job vacancy rates for land and water freight transport have been rising, implying the under-supply of labour force of the two sectors (C&SD, 2016c). For air logistics, employment of the sector has increased by 36% between 2005-2014, whereas vacancy rate for air freight transport has dropped the most in 2014 and is lower than the other two sectors (C&SD, 2016c). The supply for air freight labour does not face a severe issue of under-supply as for the other sectors according to statistics. In general, the problem of labour shortage can be attributed to a number of reasons, and undesirable working conditions can be regarded as a significant factor. Such circumstance renders recruiting newcomers to the industry a challenging task. As learners mainly come from lower education background which is suitable for the technical labour recruitment, the expectation of learners remains not very positive towards their qualification and career outlook in the industry.

3.2.3.4 Increasing Labour Costs
Increase in labour costs have placed more challenges to the industry. The minimum wage and nominal wage has been rising over the years, which makes it more difficult to hire sufficient skilled labour to support business growth (Vocational Training Council, 2015). The nominal wage of the craftsmen and operatives increased by 3.6% from 2015 to 2016, and there was 3.1% growth for non-production workers like supervisory, technical employees (C&SD, 2016c). The above have resulted in a fiercer competition in employing sufficient talents for the industry.

3.2.3.5 Spatial Mismatch of Labour
Spatial mismatch is another challenge to sustaining sufficient labour, as the cost and time for daily commuting have an impact on the employee’s choice of work. In the ideal case, labour force for HKIA and KTCTs should be supplied by the nearby Tung Chung and Kwai Tsing districts. However, the nearest districts do not contribute the most to the employment of the two main logistics infrastructure. Only 15% of the airport employment lives in Tung Chung (HKIA, 2016a), and 15% of container terminal employment lives in Kwai Tsing district (C&SD, 2012). Increasing commuting time would place further challenges for labour recruitment and labour supply to the logistics industry.

3.3 Review on Government Initiatives and Policies
The government has implemented a series of initiatives and measures to enhance market integrity and tax system for logistics development, and to eliminate administrative barriers and formulate regional policies that facilitate growth of local logistics enterprises. In this section, relevant government policies are discussed at national, regional and local levels to discern the policy advantages and disadvantages that Hong Kong is facing.
3.3.1 Growing Emphasis on Regional Cooperation in National Initiatives and Policies

Since the execution of Open Door Policy in 1979, the development of logistics industry in Hong Kong has benefited from the various trading initiatives put forward by the CPG. In particular, liberalisation measures implemented under the Mainland and Hong Kong Closer Economic Partnership Arrangement (CEPA) in 2003 has enabled local service providers to furnish the Mainland with direct logistics services\(^1\) in the form of wholly owned operations (Trade and Industry Department, 2016a). The catchment area of logistics services in Hong Kong was substantially enlarged. In addition, the reduction in registered capital, average annual sales and company asset requirements on Hong Kong-based companies for cross-boundary operations has allowed logistics firms of different scales to tap the Mainland market (Barling, 2003). With its enablement of ample cross-boundary business opportunities, CEPA has been the key driving force of local logistics industry since 2003.

The recent prospects of the industry however has become less promising owing to the change in national cabotage rules, which exempts the Shanghai Free Trade Zone from restricting domestic shipping to vessels registered in Mainland China or hoisting Chinese flags (Wong et al., 2016). Consequently, the overall competitiveness and efficiency of maritime transport in the Mainland has been enhanced at the expense of Hong Kong losing its status as the leading regional transhipment hub. With an expected drop of 14\% in current container throughput, it is crucial for the sea logistics sector in Hong Kong to seek ways to mitigate against the effects of cabotage relaxation, such as by providing intermediary services to special economic zones in the PRD region (Wong et al., 2016).

The essentiality of regional cooperation to avoid disorderly inter-city competition and to enhance the overall economic performance of China in the global arena has also been emphasised by the CPG in the Plan for the Reform and Development of the Pearl River Delta (2008 to 2020) and the 13th Five-Year Plan for the Economic and Social Development of the People’s Republic of China. Specifically, Hong Kong should utilise its strength as an international financial, trading, shipping and logistics centre and enable development towards high-end and high value-added services, so as to complement the development of Guangdong, Shenzhen and Macau and create a competitive city cluster (Commission on Strategic Development, 2016). To further encourage and expedite collaboration in the PRD region, the Big Bay Area was also proposed as a strategic base under the Belt and Road Initiative (National Development and Reform Commission, 2015). Given its efficient modes of operation, sophisticated workforce and firm commitment to the rule of law, Hong Kong was expected to serve as a “super-connector” between the Belt and Road countries and the

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\(^1\) Including “road transport, storage and warehousing, loading and unloading, value adding processing, packaging, delivery and related information and consultancy services for ordinary road freight; freight transport agency services within the Mainland; and the management and operation of logistics services through computer network” (Trade and Industry Department, 2016a)
Mainland and provide high value-added logistics services across (Commission on Strategic Development, 2016).

3.3.2 Active Engagement in Fostering Collaboration at Regional Level

To facilitate coordinated regional development and strengthen economic cooperation with the Mainland, seven cooperation platforms have been set up by the Hong Kong government to discuss and decide on major cross-boundary cooperation issues with officials from chief and neighbouring cities in the Mainland (See Table 3.2). In addition, the Framework Agreement on Hong Kong/Guangdong Co-operation was signed in 2010 to translate national policies into feasible measures for implementation at regional and local levels (Constitutional and Mainland Affairs Bureau, 2010). With its unique status as the only global city in the PRD region and foremost position in international transportation and professional services, Hong Kong is expected to lead the integration of the PRD region into the global trade and logistics network (Yau, 2015).

Table 3.2 Cooperation Platforms between Hong Kong and Mainland Cities (Constitutional and Mainland Affairs Bureau, 2017)

<table>
<thead>
<tr>
<th>Cooperation Platform</th>
<th>Frequency and Relevant Outcomes in Recent Meetings</th>
</tr>
</thead>
</table>
| **Hong Kong/Guangdong Cooperation Joint Conference and related issues** | • Meeting on an annual basis  
|                                                           | • Included trade and logistics in 2016 Work Plan to jointly facilitate trade and investment activities in countries and regions along the Belt and Road |
| **Hong Kong/Shenzhen Cooperation Meeting and related issues** | • Meeting on an annual basis  
|                                                           | • Facilitated cross-boundary professional services by signing the Agreement on Trade in Services in 2015 Work Meeting |
| **Pan-Pearl River Delta Regional Cooperation and Development Forum** | • Conference on an annual basis  
|                                                           | • Discussed bilateral cooperation issues including Belt and Road Initiative, trade and commerce, innovation and technology and urban planning with various city government officials in 2016 Work Meeting |
| **Hong Kong/Shanghai Economic and Trade Cooperation Conference** | • Conference on an irregular basis  
|                                                           | • Agreed to establish closer cooperation between the two cities in implementing CEPA in the Conference held in 2015 |
3.3.3 Multifaceted Approach to Enhancing Logistics Performance at Local Level

A multifaceted policy approach has been adopted to reinforce the city’s status as an international aviation and maritime centre, and as a regional logistics hub directing towards high value-added services. Such policy approach is built on the principles of physical capacity expansion, foreign investment attraction, trade facilitation, productivity enhancement, stakeholder collaboration and regional cooperation (See Table 3.3). Effectiveness of the policies and measures implemented are evaluated as follows.

Table 3.3 Multifaceted Policy Approach in Enhancing Logistics Performance of Hong Kong

<table>
<thead>
<tr>
<th>Policy</th>
<th>Objective(s) and Scope (if any)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity Expansion</td>
<td></td>
</tr>
<tr>
<td>Land Provision</td>
<td>Objective: to provide land for logistics development</td>
</tr>
<tr>
<td></td>
<td>Scope:</td>
</tr>
<tr>
<td></td>
<td>• Topside development at HKBCF</td>
</tr>
<tr>
<td></td>
<td>• Tuen Mun Areas 40 and 46</td>
</tr>
<tr>
<td></td>
<td>• Kwai Tsing and Tsing Yi</td>
</tr>
<tr>
<td></td>
<td>• Siu Ho Wan Reclamation</td>
</tr>
<tr>
<td></td>
<td>• Hung Shui Kiu New Development Area (HSK NDA)</td>
</tr>
<tr>
<td></td>
<td>• Yuen Long South (YLS) Development</td>
</tr>
<tr>
<td></td>
<td>(For more details please refer to Section 3.4)</td>
</tr>
</tbody>
</table>
### Infrastructural Provision

**Objective:** to provide infrastructure for logistics operation, cross-boundary and local good delivery

**Scope:**
- HKIA
  - Three Runway System (3RS)
  - Cargo handling terminals
- Hong Kong Port
  - Kwai Tsing Container Terminals (KTCTs)
  - River Trade Terminal (RTT)
  - Public Cargo Handling Areas (PCWAs)
  - Mid-stream sites (MSS)
- Tuen Mun-Chek Lap Kok Link (TM-CLKL)
- HZMB

(For more details please refer to Section 3.4)

### Taxation Relief

#### Comprehensive Double Taxation Agreements (DTAs)

**Objectives:**
- To reduce or eliminate double taxation caused by overlapping tax jurisdictions
- To provide a level of security about the tax rules that will apply to particular international transactions
- To prevent avoidance and evasion of taxes on various forms of income flows between Hong Kong and the DTA partners
- To facilitate investment, trade, movement of technology, and movement of personnel by reducing rates of foreign withholding tax

**Scope:**
Agreements concluded with 42 countries as of 2017 (Customs and Excise Department (CED), 2017a)

#### Limited Double Taxation Agreements

Objectives same as above but solely applicable to airline and shipping companies

**Scope:**
- Three types of income agreements
  - Air Services Income Agreements
  - Shipping Income Agreements
### Exemption of Wine Duties

**Objectives:**
- Removal of all wine duty-related customs since year 2008
- Tariff-free treatment on wine export to Mainland under CEPA (Hong Kong Trading Development Council (HKTDC), 2017)

### Trade Facilitation

**Electronic Cargo Clearance Platforms**
- **Objective:** To facilitate submission of cargo information through electronic means and to expedite cargo clearance (CED, 2016)
- **Scope:**
  - Three types of clearance systems
    - Air Cargo Clearance System (ACCS)
    - Electronic System for Cargo Manifests
    - Road Cargo System (ROCARS)

**E-Sea Customs Clearance Scheme**
- **Objective:** To provide an electronic mean for house-Level cargo information submission for the purposes of sea cargo clearance (CED, 2012)
- **Scope:** For forwarding agents and logistics companies

**Hong Kong Authorized Economic Operator Programme**
- **Objective:** To ensure integrity of security practices in the supply chain (CED, 2015a)
- **Scope:** open to stakeholders of all sub-sectors and company size involved in the international supply chain

**Free Trade Agreement Transshipment Facilitation Scheme**
- **Objectives:**
  - To further enrich the facilitation services provided under the Economic Cooperation Framework Agreement
  - To facilitate more transhipment cargo in Hong Kong to be qualified for preferential tariff (CED, 2017b)
- **Scope:** cover transhipment cargo in Hong Kong heading for the Mainland
### Wine Facilitation Scheme

**Objective:** To facilitate wine export from Hong Kong to the Mainland (CED, 2015b)

**Scope:** wine consignments that are
- exported by “Hong Kong Registered Wine Exporters”;
- imported into the Mainland through designated ports; and
- received by “Mainland Registered Wine Importers”

### Productivity Enhancement

#### Logistics Industry Training Advisory Committee under Qualifications Framework (QF)

**Objective:** To pursuit implementation of QF in the industry through providing an official platform for stakeholders

**Scope:**
- Establish competency standards for the function of industry
- Advise government in qualification and training
- Promote QF in the industry (Hong Kong Special Administrative Region Government (HKSARG), 2016c)

#### The Maritime and Aviation Training Funds

**Objective:** To provide a competitive pool of talents and technical personnel for maritime and aviation sectors

**Scope:** Provide funds for total $100 million in five year to support
- Training scheme of maritime and aviation industry
- Existing Scholarships of the two sectors
- New initiative introduced for the two sectors (THB, 2017)

#### Civil Aviation Academy (Proposed in 2016)

**Objective:** To nurture professional and talents for aviation sector for Hong Kong and the region and to promote Hong Kong as an aviation training hub of the region

**Scope:** To provide training for nurturing professionals of
- Operation management
- Technical support
- Service provision (Airport Authority Hong Kong, 2016)

#### IT Training Programme (ITTP) for SMEs (2008-2010)

**Objective:** To enable small and medium enterprises (SMEs) to adopt IT in business operation and improve the IT capability of SMEs

**Scope:** To provide IT training for labour in SMEs with topics in
• Technical software such as Open Office
• Operation Management
• Commercial software (Office of the Government Chief Information Officer, 2017)

Technological Innovations

   
   **Objective:** To provide e-platform for information sharing in supply chain industry.
   
   **Scope:**
   - Serve as platform for business documents exchange
   - Promote e-business adoption in the industry
   - Encourage development of high-value added services (Economic Development and Labour Bureau, 2002)

2. **On-Board Trucker Information System (OBTIS)**
   
   **Objective:** To facilitate information exchange between trucks and other stakeholders and promote e-logistics
   
   **Scope:**
   - Provide real-time data for truck and order tracking
   - Adopt e-documentation service for information exchange
   - Offer fleet management software (THB, 2008)

Technology Voucher Program (TVP)

**Objective:** To provide subsidization to promote technological application for SMEs to upgrade their business operation

**Scope:** To provide funding support in maximum of $200,000 to cover expense on
- Engaging Technology Consultancy
- Acquisition of equipment and software
- Project auditing for TVP (Innovation and Technology Commission, 2017)

**Stakeholder Collaboration**

**Hong Kong Logistics Development Council (LOGSCOUNCIL) (2001)**

**Objective:** To provide communicative platform for stakeholders to discuss matters related to logistics development

**Scope:** To discuss with stakeholders and provide advice for government on the aspects of
- Physical infrastructure
- Technology and electronic information system
- Development of SMEs
- Market promotion of logistics industry
- Transport facilities and logistics land use (Hong Kong Logistics Development Council [LOGSCOUNCIL], 2007)

<table>
<thead>
<tr>
<th>Hong Kong Maritime and Port Board (HKMPB) (2016b)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective:</strong> To provide platform for cooperation between government and maritime industry for establishment of development direction of industry</td>
</tr>
<tr>
<td><strong>Scope:</strong> To work with industry in focusing on aspects of</td>
</tr>
<tr>
<td>• development of strategies and initiatives by assisting government</td>
</tr>
<tr>
<td>• manpower development</td>
</tr>
<tr>
<td>• Promotion of maritime services (Hong Kong Maritime and Port Board [HKMPB], 2016b)</td>
</tr>
</tbody>
</table>

### 3.3.3.1 Continuous Physical Capacity Expansion to Support Growth

Land for building airport and port infrastructures has been supplied on a continuous basis over the years. To fulfil the recent goal of developing high value-added logistics services, the government has also reserved land for housing modern logistics facilities in the forthcoming land supply projects such as the topside development at HKBCF, Tuen Mun Areas 40 and 46, HSK NDA and YLS Development (Information Services Department, 2012). As in terms of transport infrastructure, unwavering efforts have been made in constructing new highways such as the TM-CLKL to reduce travel time and relieve traffic congestion of the existing road network. Upon its anticipated completion by year’s-end, the HZMB, in addition, will improve regional connectivity and open up new opportunities for cross-boundary logistics cooperation in the PRD region. More in-depth discussion on land and infrastructure provision are found in Section 3.4.

### 3.3.3.2 Attractive Tax Regime to Airline and Shipping Operators

Apart from its simple, low-tax regime, the inclusive double taxation relief policy of Hong Kong is an added incentive for airline and shipping operators to utilise local logistics services and establish their businesses in Hong Kong. As of 2016, 30 air services, 6 shipping and 2 airline and shipping income agreements have been respectively concluded to address the issue of cross-border taxation of profits of airline and shipping companies (Inland Revenue Department, 2016). The reduced exposure to double taxation has greatly enhanced the competitiveness of the airport and port of Hong Kong in international trade.

Furthermore, the exemption of wine duty in Hong Kong has provided incentives to mainland and Asian investors to store investment-grade wines in Hong Kong for on-demand distribution.
The temperature-and-time-sensitiveness of wine trade has created additional business opportunities for value-added logistics services and air transport in Hong Kong.

3.3.3.3 **Timely Cargo Clearance and Attractive Transhipment Incentives Enabled by Trade Facilitation**

Benefitting from its free port status, Hong Kong is able to offer comparatively simple customs clearance procedures by standard. Further enhancement of its cargo clearance process is enabled by multiple electronification and accreditation schemes. In particular, sector-specific electronic cargo clearance systems including Air Cargo Clearance System and Road Cargo System have been set up to facilitate prior submission of cargo information by shippers and expedite on-site cargo examination (CED, 2013). The Hong Kong Authorized Economic Operator Programme accredits companies as trusted partners of CED, which are favoured with minimised or prioritised customs inspection (CED, 2015). Nonetheless, owing to the extended application of Registered Agent Regime and the more stringent requirements on independent validation of “Known Consignors”, lengthened clearance for air cargo is likely to result in the near future (Civil Aviation Department, 2013a; 2013b).

Seeing the potential growth in air-to-air and air-to-land transhipment cargo, the Free Trade Agreement Transshipment Facilitation Scheme is also implemented to issue Certificate of Non-manipulation as a proof of qualification to applying preferential tariff under the Free Trade Agreements (CED, 2017). This substantially reduces the operation cost of conducting transhipment business in Hong Kong.

3.3.3.4 **Diversified Inputs on Productivity Enhancement Despite Insufficient Focus on Land Logistics**

Recognizing the needs to improve competitiveness and address the urgent demand on manpower of the industry, various methods have been adopted by the government to enhance the productivity of the logistics industry.

First, various schemes are implemented for attracting new entrants to the industry and also improve the productivity of labour. To attract young people to engage in the industry, a clearer career path is presented by QF through provision of qualification and accreditation for offering a better prospect in logistics industry for young people (HKSARG, 2016c). Beside, training and practical experience for nurturing professionals in air and sea logistics sectors and enhancing the skills of labours in IT application are provided through different scheme such as Maritime and Aviation Training Funds (See Table 3.3) (Airport Authority Hong Kong (AAHK), 2016; THB, 2017). Various measures have been adopted for enhancing the labour productivity in logistics industry. Yet, the effectiveness of these policies and measures have been restricted by various constraints. Due to unfamiliarity and lack of recognition by logistics companies, especially SMEs, the application of QF in logistics industry is limited and hinders its effectiveness in providing clear career path and qualification for young people (The Hong Kong Shippers Council, 2013). Also, the training schemes is insufficient as no specific course
is dedicated for land logistics sector and the ITTP as one of the major IT training scheme has completed after year 2010 (The Hong Kong Shippers Council, 2013). Improvement on current measures and additional training scheme might be required to fully promote productivity of existing labour pool and increase labour supply, especially for land logistics sector.

Second, technological application has been promoted by the government to increase the productivity of the industry operation. Different electronic systems including DTTN and OBTIS have been introduced to facilitate information exchange among stakeholders for reduction in paperwork and promotion of e-logistics (Economic Development and Labour Bureau, 2002). In addition, subsidization from TVP has been provided by the government for fostering technological application in operations and transformation of business for SMEs (Innovation and Technology Commission, 2017). These advanced systems and fundings have improved the productivity and efficiency of industry. Nevertheless, the technological support towards SMEs is still inadequate. With various data systems introduced by different departments, such as ROCARS and ACCS, SMEs require to repeat duplicate and time-consuming process of data inputs in different systems which reduces their operation efficiency (Commerce and Economic Development Bureau, 2016; The Hong Kong Shippers Council, 2013). Moreover, the utilization rate of TVP is limited due to the unfamiliarity of SMEs on choices of technological system of data management and operation (HKSARG, 2016b). The insufficient support for SMEs hinders the effectiveness of the policies in promoting the productivity of the logistics industry.

The inputs of the government can enhance the productivity of labour and industry, but more efforts are still required to address the issues of labour shortage of land logistics and SMEs to further improve the productivity of the industry.

3.3.3.5 Communication Platform without Executive Power

For better cooperation with stakeholders in the industry, two advisory bodies include the LOGSCOUNCIL and HKMPB was established in 2001 and 2016 respectively to perform the function as communicative platform between government and industry. Different initiatives such as short-term IT training course and market promotion of logistics industry to foreign investors was completed by the two advisory bodies in addressing the needs of stakeholders (LOGSCOUNCIL, 2007). Advises on development strategies and policies to government was also provided for expression of industry view and concerns to public sectors (HKMPB, 2016b). The two bodies successfully serve as platform for communication and provide opportunity for collaboration between the industry and the government (HKMPB, 2016b; LOGSCOUNCIL, 2007). Yet, the supporting role performed by these two bodies has certain limitations. As the two bodies are only advisory body, they have no executive power to take actual actions on the development of the industry and also take care the industry needs in an immediate manner (SD Advocates, 2015). The possible cooperation can be achieved through the two
bodies might be limited by the power of the bodies. Cooperation among stakeholders and the government might require platform or channel with executive power to achieve.

3.4 Review on Land Supply and Infrastructural Provision

Land and infrastructures are important elements that support the management of supply chain. In the following section, a review on land supply and infrastructural provision is conducted to assess the development potential and capacity of current and future land supply and infrastructure.

3.4.1 Land Use Review

Land is a scarce resource in Hong Kong. In particular, there is severe land shortage for logistics use. Only four industrial sites were released by the Hong Kong government during 2004-2014, creating a severe industrial land shortage in the last decade (Sito, 2014). Therefore, it is important to review the existing and future land supply and its adequacy to house the operation, in order to meet current needs and achieve future growth. In addition, to better understand the industry and formulate planning strategy, the review would also include the stakeholders’ expectations and their spatial needs in operation and expansion, based on the framework in Section 2.3.

3.4.1.1 Existing Land Supply: Imbalanced Supply and Demand for Existing Logistics Land Uses

The overall land supply for logistics use are mainly under the “Open Storage”, “Industrial” and “Other Specified Uses” land use zoning. Apart from the total of 386 hectares (ha) open storage supply in the New Territories (Information Service Department, 2012c), the total stock of logistics use in different land use zoning is summarised in Table 3.4 (Leung, 2015).

Table 3.4 Supply of Industrial Land for Logistics Use in Different Zones (Leung, 2015)

<table>
<thead>
<tr>
<th>Zoning</th>
<th>Total stock (GFA – million m²)</th>
<th>Logistics use (million m²)</th>
<th>% share of logistics use (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>“I”</td>
<td>9.93</td>
<td>5.27</td>
<td>54</td>
</tr>
<tr>
<td>“OU(B)”</td>
<td>15.16</td>
<td>5.04</td>
<td>33</td>
</tr>
<tr>
<td>Other zones (e.g. “R(A)”, “R(E)” and “CDA”)</td>
<td>2.76</td>
<td>1.23</td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td>27.85</td>
<td>11.64</td>
<td>42</td>
</tr>
</tbody>
</table>

The above table shows that the logistics use mainly concentrated in the Industrial zone. Industrial land use zoning consists of industrial building supply and warehouse supply as well as other logistics facilities such as Kerry logistics centre both contributed for logistics use.
Referring to Table 3.5, the maximum plot ratio allowed for new town and other NDAs are comparatively lower than those in existing urban areas, which implies the future development for the industrial buildings in NDAs has comparatively lower building height. The permission of uses in Industrial zoning are listed in the Column 1 and Column 2 to identify which uses are always permitted and it is important to guide the industrial zone development. “Others Uses” are zoned mainly for infrastructure supply such as terminal and airport which will be covered in Section 3.4.2.

Table 3.5 Permitted Plot Ratio for Industrial Buildings (by HKPSG Standards)

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Maximum Plot Ratio</th>
<th>Average Plot Ratio</th>
<th>Range of Permissible Plot Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Industrial Use / Business Use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing Industrial Areas in Metropolitan Area</td>
<td>9.5</td>
<td></td>
<td>5.0-12.0</td>
</tr>
<tr>
<td>New Industrial Areas in Metropolitan Area</td>
<td>8.0</td>
<td></td>
<td>2.5-12.0</td>
</tr>
<tr>
<td>New Towns and Other New Development Areas</td>
<td>5.0</td>
<td></td>
<td>3.5-9.5</td>
</tr>
</tbody>
</table>

Despite the importance of industrial buildings, the current issues in Hong Kong are the imbalance supply and demand and undesirable conditions in aged industrial buildings. The industrial building supply has been declining while the demand for industrial building has been rising due to the emerging trend in e-commerce that requires warehouse for good storage. Moreover, the conversion scheme of industrial to other specified use (business) zone and the “revitalization measures to facilitate the redevelopment and wholesale conversion of older industrial buildings” were launched in 2001 and 2010 respectively (Legislative Council, 2011), which further reduce the industrial building supply in the market. Nevertheless, an estimated 16.9 million square meter Gross Floor Area of industrial floor space in industrial building are required to house the demand for logistics and warehouse operations (Legislative Council, 2016). All in all, according to the supply and demand assessment on market-driven economic land use done by Planning Department (2016), the new land requirement for industries in long term is 37 ha by 2041. The deficiency in net site area for industries after deducting the major planning projects are 8.4 ha and 53.6 ha in the short and long term respectively. In addition, most SMEs operates in the aged industrial buildings with deteriorate conditions such as limited cargo-lift access, low ceiling height and electricity shortage (The Hong Kong Shippers’ Council, 2013).

Apart from industrial buildings, warehouse is another source for logistics operation. The insufficient supply and unaffordable rents in warehouse market had put more burdens on
SMEs. Especially, in some sites adjacent to the port and the airport, the high rental costs have pushed the SMEs further away for warehousing and consolidation uses as a trade off between location and cost. On the other hand, modern logistics facilities are mainly owned by the large scale operators and there is a lack of purposely-built facilities for logistics in the market. The record low vacancy in warehouse indicated the saturated warehouse market and further incentivised the landlord to increase the rents and offer short-term lease (i.e. less than 3 years) (BMT; CUHK; SD Advocate, 2015). Consequently, it demotivates the enterprises to invest for expansion and upgrade in facilities. To encourage the SMEs to re-invest in expansion and operation, there are some spatial requirements mentioned during the interviews. According to interview with local middle scale operators, sites that locate near seaports and the international airport are preferable to avoid from urban traffic. Meanwhile, understanding the sites with locational advantage is at high cost, they expect low land premium to minimise the dominance of large-scale operators. To ensure the efficiency in delivery and transportation, access to truck routes and highways are crucial. Proximity to residential district is also a bonus to ensure a stable supply of workforce.

“Open Storage” is an important land use in the logistics industry. However, due to the shortfall in land supply, many green field areas have been converted into brownfields that serve logistics purposes. The emergence of brownfield sites also helped bridge the price and size gap in current land shortage. However, the environmental incompatibility and scattered distribution of brownfields has been degrading the environment, making the operations inefficient and cost-ineffective. Currently, the Hong Kong government has attempted to consolidate the brownfield sites through developing New Development Areas (NDAs) (See Table 3.6).

Table 3.6 Distribution of Brownfield Sites in the New Territories

<table>
<thead>
<tr>
<th>Brownfield Sites in NDAs</th>
<th>Size of Brownfield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kwu Tung North (KTN) and Fanling North (FLN) NDAs</td>
<td>50 ha</td>
</tr>
<tr>
<td>HSK NDA</td>
<td>190 ha</td>
</tr>
<tr>
<td>YLS Development</td>
<td>100 ha</td>
</tr>
<tr>
<td>New Territories North (NTN)</td>
<td>200 ha</td>
</tr>
<tr>
<td>TOTAL</td>
<td>540 ha</td>
</tr>
</tbody>
</table>

**Unsaturated Land Supply at Airport**

The Hong Kong International Airport (HKIA) is the only airport in Hong Kong that handled the air freight. Under the zoning of “Other Specified Use (Airport)”, the airport island is composed of 1255 has and all developments are constrained by the airport height restrictions. This
building height restriction imposes limitations on the development potential of multi-storey logistics facilities, thus the sites in close proximity to the airport and face less strict height limitations attract logistics operators. Currently, the airport site is not fully built up. Based on the working paper, it is observed that three vacant sites accounting for 17 has of land area in the South Cargo Precinct have been reserved for future development of cargo handling and other supporting facilities (HKIA, 2011a).

**Competing Port Back-up Land Uses near Container Terminals**

There are two major land use involved for sea logistics - “Other Specified Use (Container Related Uses)” and “Other Specified Uses” annotated “Port Back-up Uses” (“OU(PBU)”). The former land use refers to the container terminals which would be covered in the Section 3.4.2. The “OU(PBU)” zoning specifies “port-related activities which are situated off-port (Town Planning Board (TPB), 2008)”. These activities are crucial to port operation but are not necessary to locate within the port including container storage, repair yard, container freight station, container vehicle park, freight forwarding centre and logistics centre (TPB, 2008). According to the Town Planning Board, there is a total of 425 ha PBU land in Hong Kong and they are mostly clustering in the New Territories and Kwai Tsing Container Terminal (KTCTs). The 7-year Short Term Tenancy (STT) of PBU within the KTCTs discourage the tenants to invest in the facilities and equipment because of the risk (THB, 2015). The short tenancy is risky to the operators to generate sufficient economic return for investment recovery. As a result, many PBU land became vehicle parking areas since there are no restrictions on the use of PBU land and carparking could generate the quickest return with the least investment and least amount of time (HKCTOA, 2014). Furthermore, in view of limited land supply, there are land use conflicts between major port operators and SMEs as both parties would compete land for expansion of the terminal equipment in PBU land and PCWAs facilities. Given land-intensive PBU activities, the current issues on PBU land not only creates land use and users’ conflicts, but also results in an unbalanced allocation of land provision for PBU.

**3.4.1.2 Planned Land Supply: Sufficient Future Land Supply for Logistics but Lack Positioning and Detailed Planning**

As one of our prime economic contributors, the Hong Kong Government would like to address the needs of the logistics industry with the envisioned strategic plan HK2030+. The review on existing land supply (See Figure 3.6) in logistics use indicated that there is an imbalance supply and demand of logistics land. With the continuous growth of the industry, the government has been lacking comprehensive land formation projects in recent years and thus could not accommodate the some of the logistics operations in a short run. The long-term strategic planning has enabled Hong Kong to better position the industry and carefully plan for the provision of land and infrastructure supply. For example, more integrated new development areas are planned in order to cater the population and employment need such as the New Territories North (NTN). Secondly, parcels of land are identified and specifically planned for logistics purpose with adjacent to major transport corridors such as Tuen Mun West (TMW).
In view of the imbalance supply and demand mentioned in the last part, re-industrialization is the new initiative of the government in order to “identify new site for industrial uses, and to better use the underutilised “I” sites to help increase the supply” (Planning Department (PlanD), 2016).

NTN Development
Under the strategic planning, one main objective is to consolidate the logistics-related activities in the Western and Northern part of New Territories. The formation of western economic corridor and northern economic belt aims to facilitate the development and foster the economic growth in the Northern and Western parts of Hong Kong. One major focus area is NTN that consists of a total of 720 ha for the development of three potential development areas (PDAs) and positioned to be “High Value-added Logistics Hub” (Civil and Engineering Development Department (CEDD), Development Bureau (DB) and PlanD, 2016). It aims to provide land for “modern logistics and other special industrial uses at the boundary location”. As one of the PDAs, the Man Kam To (MKT) Logistics Corridor provides 35 ha of land and
serves as the “agri-logistics consolidation and certification area for storage, testing and certification of food before distribution as well as other modern logistics uses” since there is a high volume flow of livestock and fresh food produce (CEDD, DB and PlanD, 2016). Capitalising the growth in demand for logistics space, land supply for modern logistics is also addressed in the plan to support the logistics activities near the boundary control points (BCPs). Another main objective of NTN is to “compound for the consolidation of existing brownfield operations” (CEDD, DB and PlanD, 2016). With the provision of multi-storey logistics buildings, the plan intends to prevent the sprawl of logistics operation on greenfield and reduce the size of brownfield. In short, NTN provides a diverse development potential for logistics development.

HSK NDA
HSK NDA is planned to provide 37 ha of land for logistics facilities and 24 ha of land for PBU, Storage and Workshop uses (PlanD; CEDD; AECOM; URBIS, 2016). According to the Revised Recommended Outline Development Plan, land reserved for modern logistics facilities zoned as “OU” has relatively larger land parcel with sizeable sites form 3.5ha to 4.8 ha and plot ratio 5 for better operation efficiency. The land zoned for the PBU, storage and workshop uses includes the multi-storey buildings to accommodate the affected brownfield operations and directly links to strategic highways in order to enhance the efficiency and avoid the heavy vehicles movement within the NDA. In general, the revised recommended OZP aims to complement HK’s development as regional distribution centre and logistics hub.

YLS Development
Although there are 100ha of brownfield operations in YLS currently, most of the land reserved for logistics use in the drafted outline zoning plan only accounts for 12 ha for storage, workshop and open storage. With direct access to the Yuen Long Highway, the road layout for the freight traffic has been attempted to minimising the environmental impact on nearby residents.

Tuen Mun West and Lung Kwu Tan
Taking into account the available land at Tuen Mun Area 38, 40, 46 and 49 as well as Lung Kwu Tan (LKT) reclamation, TMW can provide a total of 260 ha of land for industrial and logistics uses in the long run. The role of TMW is to “provide synergy with the North West New Territories development and development across boundary and to attract regional distribution service providers”(AECOM; CEDD; PlanD, 2015). The site area has high development potential because of its geographical advantage - proximity to airport and RTT and regional connectivity with provision of TM-CLKL and HZMB. LKT reclamation site is a long term reclamation plan and the long-term land supply is positioned to provide for industrial and other uses (Information Service Department, 2017a). More prompt land supply in TMW are found in Area 38, 40, 46 and 49 which are planned for green and modern logistics development. According to the context of Area 40 and 46, plot ratio of 4 (about 6 to 8 storeys
high) is proposed by making reference to the modern logistics developments in the waterfront of Tsing Yi to optimize land utilization and to cater for the operational requirement of modern logistics uses. Meanwhile, Area 38 and 49 will soon be released and special conditions are added in the land lease, “stating that only logistics and freight forwarding-related use will be allowed in the site” (THB, 2015a). Under the OZP, Area 49 is largely zoned “OU (Container Storage and Repair Depot)”, and Area 38 is zoned “OU(Special Industries Area)”. The developable land in TMW has its opportunities and constraints. In light of abundant flat land supply, the land parcel could be granted in larger size at around 5 ha. However, airport height restriction is imposed due to the proximity to airport, resulting in a lower development potential.

Kwai Tsing and Tsing Yi
To optimise the land supply in Kwai Tsing, consolidation of land is needed within the site of KTCTs and additional land is provided for logistics in Tsing Yi. In view of proximate distance to both container terminals and airport, the government has committed the development of a logistics cluster in Kwai Tsing (Legislative Council, 2015a). To reinforce the positioning of high valued logistics service, the cluster is positioned “to meet the demand for modern logistics facilities and to attach the anchoring of third party logistics service providers (Legislative Council, 2015)”. Three sites in Tsing Yi are released to meet the demand from increasing cargo throughput and the zoning primarily emphasises on the development of container terminals and associated port back-up facilities (TPB, 2017). With a total area of 6.9ha, two sites are primarily granted for modern logistics centres (Information Service Department, 2012). According to the government development direction (Legislative Council, 2015a), the modern logistics centres provides warehousing service and high value added services. Advanced technologies are adopted in the centres to improve efficiency on handling and tracking the goods such as electronic identification and radio frequency identification. Automated facilities and tight security system are also equipped to better handle cargo movement in and out of the centres.

As suggested that the latest forecast of throughput growth can be handled by current infrastructure, it requires KTCTs to maximize its utility by land consolidation (Legislative Council, 2015a). The proposal of Container Terminal 10 is thus rejected because the project is not viable financially and economically. To meet the future demand, there is a need to optimise the use of land within the Kwai Tsing area by reshuffling the existing different types of port-related land uses to align with the change in the mode of operation of the port. The adjacent land use shall be prioritised in order to reorganise land that is the most directly related to container terminal operations. Secondly, it is of vital importance to increase the utilisation efficiency of the existing land as far as practicable by the provision of higher density development of multi-storey facilities. On the other hand, land for truck parking and loading/unloading (L/UL) is also necessary. The government sees the potential of developing multi-storey carpark in Kwai Chung which is under review (Legislative Council, 2015a). As of the
private sectors, they see the opportunity to develop nearby STT land for temporary car parks for supporting uses for the port (Legislative Council, 2015b). Moreover, they have specific proposal for the development of multi-storey complex (See Table 3.7) and there is feasibility study undergone on the development of a multi-storey complex for mixed uses (container storage and cargo handling).

**Table 3.7 Stakeholders’ Requirements for Development of Multi-storey Complex in KTCTs (Legislative Council, 2015b)**

<table>
<thead>
<tr>
<th>Building Storey</th>
<th>5-7 storeys with one underground level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parking space</td>
<td>1700-3000 spaces</td>
</tr>
<tr>
<td>Floor area</td>
<td>400000 sq. ft.</td>
</tr>
</tbody>
</table>

**Topside Development at HKBCF**

The HKBCF island has 130 ha of developable land provision with proposed GFA area for 300,000 - 500,000 square meter for commercial development. Adjacent to the HZMB and HKIA, the HKBCF has high development potential for integrated logistics services for storage and distribution, special handling, and specialized logistics services for valuables; as well as e-commerce that requires just-in-time delivery; providing accredited testing and certification services for valuable goods. In effect, it creates capacity to capture the growth of high value logistics goods in air freight and land freight. Thus, there might be competing land use over the limited developable land because of the potential for high value services and market for both air and land logistics.

**Siu Ho Wan Reclamation**

With high proximity to airport and container terminals, Siu Ho Wan was once proposed for logistics purpose with possible expansion by reclamation. Not only the site has high development potential for maritime and aviation logistics industry, but also has high regional connectivity with the proximity to HKBCF and HZMB. Despite its potential, the site is rejected for logistics purpose after assessing its ecological value.

**HKIA - Southern Cargo Precinct**

Three vacant land sites on airport island, that consists of 17 ha, offer the opportunities to aviation industry in term of infrastructure and handling facilities expansion. According to the Third Runway technical study, one site is reserved for future cargo terminal which allows more flexibility in respond to market dynamics (HKIA, 2011a). The available sites would serve as specialized services or screening to create more capacity for the future growth.

In short, the government has set out a conceptual framework for logistics development and outline the possible land supply in a short and long run (See Table 3.8). Yet, many of the
strategic areas are still lacking the positioning and detailed planning to address the issues faced nor to meet the stakeholders’ needs.

**Table 3.8 Summary of Future Land Supply for the Logistics Industry**

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Total area of land provision</th>
<th>Area of land for logistics uses</th>
<th>Plot ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKT Logistics Corridor (CEDD, DB and PlanD, 2016)</td>
<td>35 ha</td>
<td>35 ha for agri-logistics consolidation and certification area for storage, testing and certification of food</td>
<td>NA</td>
</tr>
<tr>
<td>HSK NDA (PlanD, CEDD, AECOM and Urbis, 2016)</td>
<td>714 ha</td>
<td>37 ha of land for logistics facilities and 24 ha of land for PBU, Storage and Workshop use</td>
<td>NA</td>
</tr>
<tr>
<td>YLS Development (ARUP, CEDD and PlanD, 2016)</td>
<td>223 ha</td>
<td>10 ha for open storage; 2 ha for storage and workshop</td>
<td>NA</td>
</tr>
<tr>
<td>TMW (CEDD, PlanD and AECOM, 2015)</td>
<td>260 ha including: Lung Kwu Tan: 200 ha Area 38 &amp; 49: 10ha Area 40&amp;46 and Adjoining areas: 50ha</td>
<td>Area 38 &amp; 49 : 6.5ha and 3.5ha for modern logistics facilities Area 40&amp;46: 10ha for modern logistics uses</td>
<td>4 (proposed)</td>
</tr>
<tr>
<td>Tsing Yi (Legislative Council, 2015)</td>
<td>6.9 ha</td>
<td>4.8 ha for modern logistics centre development 2.1 ha is yet to decide</td>
<td>4</td>
</tr>
<tr>
<td>HKBCF (CEDD, PlanD and AECOM, 2015)</td>
<td>130 ha</td>
<td>No actual figure is released</td>
<td>NA</td>
</tr>
<tr>
<td>Southern Cargo Precinct, Airport (HKIA, 2011)</td>
<td>17 ha</td>
<td>17 ha reserved for additional cargo terminal, cargo support facility, airport catering and maintenance</td>
<td>NA</td>
</tr>
</tbody>
</table>
3.4.2 Airport and Port Infrastructure

Airport and port facilities are the crucial backbones of the logistics industry. Insufficient infrastructural capacity might hinder the competitiveness and growth of the logistics industry. Despite the forward-looking planning in infrastructures, changes in market dynamics may impose challenges on the efficiency of the infrastructures as well. In this section, the capabilities of existing and planned infrastructures in the airport and port in satisfying market trends and stakeholders’ demand are reviewed in terms of handling capacity and efficiency.

3.4.2.1 Airport Infrastructure

The prospect of air logistics is thriving with a fast-growing trend in cargo throughput and value in the past 10 years. The adequate cargo handling capacity provided by competent terminal facilities enables the efficient operation of air logistics industry in sustaining the future increase in cargo throughput, yet the saturating capacity of runway might impose constraints to the growth of the industry.

**Sufficient Capacity of Cargo Handling Facilities for Future Growth**

The HKIA contains two tiers of cargo handling facilities which provide diverse services with efficient cargo handling process in catering different logistics markets, such as express and mail market (AAHK, 2017a) (See Figure 3.7 and Table 3.9). Equipped with automated and advanced cargo handling system in proximate location to runway and aprons, the cargo terminals of the first-tier facilities provide efficient and reliable operation process in handling a wide range of cargo for regional express market, for instance, perishables and dangerous goods from arrival to departure (AAHK, 2017a). The demand for specialised services such as multi-modal logistics and custom-design logistics services are also captured by HKIA with the support of second-tier of facilities (AAHK, 2017a) (See Table 3.9). Other than the diversity of services, the sufficient capacity of cargo terminals of the first-tier facilities also secures the efficiency of HKIA in cargo handling. The major cargo terminals including Asia Airfreight Terminal, Hong Kong Air Cargo Terminals Limited and Cathay Pacific Cargo Terminal are capable in handling 6.7 million tonnes cargo throughput per year (HKIA, 2017a). The well-planned facilities provide sufficient surplus in capacity for future growth while accommodating 4.5 million tonnes cargo throughput per year currently (HKIA, 2016b). Despite the sufficient capacity for cargo handling, the need to accommodate the emerging trends of specialised cargo should not be neglected as it requires specifically tailored solutions such as temperature and humidity monitoring and strict security requirements that may not fit in the configurations of existing cargo terminals, thus may require additional facilities in providing these services.
Table 3.9 Services Provided by Different Cargo Handling Facilities in Airport (AAHK, 2017a)

<table>
<thead>
<tr>
<th>Cargo handling facilities</th>
<th>Provision of services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The first-tier cargo handling facilities</strong></td>
<td></td>
</tr>
<tr>
<td>Asia Airfreight Terminal</td>
<td>Diverse cargo handling services including special cargoes</td>
</tr>
<tr>
<td>Hong Kong Air Cargo Terminals Limited</td>
<td>Diverse cargo handling services including special cargoes and multi-modal services between Hong Kong and China</td>
</tr>
<tr>
<td>Cathay Pacific Cargo Terminal</td>
<td>Diverse cargo handling services including bulk and special cargoes</td>
</tr>
<tr>
<td>DHL Central Asia Hub</td>
<td>Express services for handling parcels and documents</td>
</tr>
<tr>
<td>Air Mail Centre</td>
<td>Mail items handling services</td>
</tr>
<tr>
<td><strong>The second-tier cargo handling facilities</strong></td>
<td></td>
</tr>
</tbody>
</table>
Saturating Runway Capacity to be Suffice by 3RS

Apart from cargo terminals, runway capacity is also crucial factor which determines cargo throughput derived by aircraft movements. Due to the rapid alteration in market variables, for instance, the increase in use of smaller size of aircrafts, the existing two runway system is reaching the maximum practical capacity much earlier than the expectation under New Airport Master Plan in year 1992 (HKIA, 2011b) (See Table 3.10). The ability of HKIA to adsorb additional volume of cargo would be hindered by the saturating capacity of runway and compromised the competitiveness of HKIA comparing to the expanding capacity of nearby airports in the PRD. Regards to the saturated runway, the construction of the three-runway system with introduction of 51 parking stands for aircrafts was proposed under Airport 2030 plan (AAHK, 2017b). By the commission of Three runway system on 2024, the maximum practical capacity of aircraft movement of HKIA could be greatly promoted with increase in cargo handling capacity to 8.9 million tonnes cargo throughput (HKIA, 2017a). Nonetheless, the time-efficiency of handling process of cargo terminals might be hampered by the distinct distance between aprons under new runway system and South Cargo Precinct. In response to the concerns, the introduction of airside vehicular tunnel could improve the connectivity between additional aprons and cargo terminals (AAHK, 2017a). Thus, the efficiency of operation of cargo terminals could still be ensured under new runway system.

Table 3.10 Demand and Capacity of HKIA on Aircraft Movements (HKIA, 2011b; HKIA, 2016b; HKIA, 2017b)

<table>
<thead>
<tr>
<th>Demand and Capacity Runway System of HKIA</th>
<th>Number of Aircraft Movements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current demand in year 2015-2016</td>
<td>410000 flights</td>
</tr>
<tr>
<td>Capacity of Two runway system</td>
<td>420000 flights per year</td>
</tr>
<tr>
<td></td>
<td>68 flights per hours</td>
</tr>
<tr>
<td>Capacity of Three runway system</td>
<td>102 flights per hours</td>
</tr>
</tbody>
</table>

The efficiency and capacity of current cargo handling facilities provide a robust foundation for the growth of air logistics industry. The surplus in cargo handling capacity also allows the industry to embrace future increase in cargo throughput stimulated by the additional handling capacity of new runway system. With sufficient capacity of cargo terminals and runway are catering future growth, the operation efficiency and competitiveness of the air
logistics industry is retained by the airport infrastructure. Yet, attention on the competitors such as other airports in the region which pursue expansion on capacity and enhancement of efficiency should be also maintained to seek for opportunity for cooperation or further enhancement on own competitiveness.

3.4.2.2 Port Infrastructure

Different from air logistics, the sea logistics industry has a more tranquil prospect comparing to its prime. Experiencing a gradually growing trend of cargo throughput with fluctuation, KTCTs sustains its leading position while some port facilities encounter significant drop in cargo throughput which creates surplus on container handling capacity. Nonetheless, the enhancement of efficiency of container handling process of port facilities including KTCTs is critical in capturing new market opportunities from river-borne and transshipment cargo to retain the durative development of the industry.

Inefficient Operation of KTCTs under Emerging Trends

In Hong Kong, there are four major port facilities for cargo handling (HKMPB, 2016e) (See Figure 3.8). Each of them have distinct roles and serve different markets (See Table 3.11). Among the four port facilities, KTCTs is the most important infrastructure and it handles the largest amount of cargo throughput with a highly efficient automated operation system (BMT Asia Pacific, 2014; HKMPB, 2017). The advanced technological system laid the foundation of efficient cargo handling process and function as catch-up port of Hong Kong, and also the leading position of Hong Kong in term of operation efficiency of sea logistics industry (Hong Kong Trade Development Council, 2016). Due to the deceleration in growth in cargo throughput, the handling capacity of KTCTs has surplus from its practical maximum capacity which is 24 million of twenty-foot equivalent units (TEU) while satisfying the current throughput demand (Hong Kong Container Terminal Operators Association Limited (HKCTOA), 2017) (See Table 3.11).

Yet, the efficiency of KTCTs is hindered by the incompatibility of its physical attributes in handling river-borne transshipment cargoes. Emerging as a new market opportunity, the river-borne cargo for river-sea transshipment from PRD is experienced an increasing trend with growth in 1 million of TEUs during year 2005 to year 2014 (THB, 2015A). Despite the existence of RTT, KTCTs is more preferable for river-borne cargo due to its efficiency in operation and minimized procedure for river-sea transshipment (BMT Asia Pacific, 2014). Such preference induces inefficiency of the operation of KTCTs on account of inadequate yard space for longer dwell time of transshipment cargo; and incompatible crane system and ocean berths for river vessels which are smaller in size (Marine Department, 2016a; THB, 2015A). The limitation of KTCTs in coping with river-borne transshipment cargo cause congestion in KTCTs and restricts its operation efficiency (Information Services Department, 2014). The development of additional yard space and berths is essential to sustain the operation efficiency of KTCTs and allows the catch-up of new opportunity.
**Inefficient Operation of RTT, MSSs and PCWAs**

On the contrary, the remaining three port facilities aggregately share small proportion of cargo throughput. Due to lack of technological application, the operation of these port facilities are inefficient which lead to low utilization rates and surplus of cargo handling capacity (See Table 3.11) (BMT Asia Pacific, 2014). For mid-stream sites, the container throughput handled dropped substantially from 2.3 million of TEU in 2006 to 1.1 million of TEU in 2016 (Hong Kong Mid-Stream Operators Association [HKMOA], 2012; HKMOA, 2017). Regardless of the urgent demand for advanced system, insufficient capital hinders the investment by middle and small-sized operators in enhancement of efficiency the port facilities (BMT Asia Pacific, 2014).

Thus, the current capacity of port facilities is abundant in meeting the demand of cargo throughput in a foreseeable future due to the decelerating growth trend. The proposal of Container Terminal 10 by the government becomes uncertain under ambiguous prospect of the sea logistics industry. Nevertheless, improvement in yard and berths of KTCTs reminds crucial in addressing new market opportunity and retain the advantage and leading position of both KTCTs and sea logistics in operation efficiency.

**Figure 3.8 Locations of Port Facilities in Hong Kong (HKMPB, 2016c)**
Table 3.11 Physical attributes and Roles of Different Port Facilities (BMT Asia Pacific, 2014; HKCTOA, 2017; HKMPB, 2016c; Marine Department, 2016b)

<table>
<thead>
<tr>
<th></th>
<th>Kwai Tsing Container Terminal (KTCTs)</th>
<th>River Trade Terminal (RTT)</th>
<th>Mid-stream Sites (MSS)</th>
<th>Public Cargo Working Area (PCWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Throughput in TEU in year 2015</td>
<td>15.6 million</td>
<td>3 million</td>
<td>1.1 million</td>
<td>0.4 million</td>
</tr>
<tr>
<td>Utilization rate in year 2011</td>
<td>82%</td>
<td>49%</td>
<td>N.A.</td>
<td>53%</td>
</tr>
<tr>
<td>Area (ha)</td>
<td>279</td>
<td>65</td>
<td>31</td>
<td>24</td>
</tr>
<tr>
<td>Number of Berths</td>
<td>24</td>
<td>49</td>
<td>N.A.</td>
<td>130</td>
</tr>
<tr>
<td>Role</td>
<td>Major port facility in handling container (HKMPB, 2016d)</td>
<td>Only container terminal in handling river cargoes solely (HKMPB, 2016e)</td>
<td>Provision on loading and unloading space for cargo transfer between barges and trucks (HKMPB, 2016f)</td>
<td>Provision of berths and working area for loading and unloading cargo to barge (HKMPB, 2016g)</td>
</tr>
</tbody>
</table>

As a whole, the competent infrastructures of airport and ports generate appropriate cargo handling capacity which meets current market demand in container throughput while also provide surplus in addressing any potential growth in the market. In contrast with the capacity, operation efficiency of port facilities shall be improved to sustain the competitiveness and to refurbish the viability of sea logistics industry.

3.4.3 Transport Infrastructure

Apart from airport and port infrastructure, transport infrastructure also constitutes another significant backbone of the logistics industry. The accessibility and capacity of transport infrastructures defines the operation efficiency and cost of land logistics as well as multi-modal transshipment. More importantly, its connectivity determines the quantity of cargo that could be captured by the industry by defining the extent of cargo catchment area. Recognising the criticality of transport infrastructure, the implementation and introduction
of different transport infrastructure have been one of the emphases of government to enhance the local and regional connectivity for retaining the competitiveness of the industry. Yet, future development areas such as HSK and YLS might stimulate additional transport demand that hinders the efficiency of transport infrastructure. Thus, the existing and planned transport infrastructure including cross-boundary infrastructure and road network would be reviewed in the competence in meeting current and future transport demand with the expectation of stakeholders.

3.4.3.1 Cross Boundary Infrastructure

**BCPs with Well Connectivity and Sufficient Capacity**

Serving as major connections between Hong Kong and mainland, the BCPs do not only define the efficiency of cargo clearance for land freight transport for cross-boundary transshipment, but do they also extend the cargo catchment area to the PRD and the inland area. Currently, four out of the total six BCPs including MKT, Sha Tau Kok, Lok Ma Chau (LMC) and Shenzhen Bay are designated for land freight transport movement with sufficient capacity and well-established linkage (Security Bureau, 2012). In the past, the BCPs connecting to central Shenzhen including LMC, were the busiest BCPs with severe congestion that hampered the efficiency of land freight transport and also the traffic movement in major urban area of Shenzhen (THB, 2008). To alleviate the congestion issues in both cities, additional BCPs such as Shenzhen Bay BCP were introduced in the past 10 years, and have successfully diverted the busy traffic flow with enhanced road network (THB, 2008) (See Table 3.12). In addition, the commute time to the western and central part of Shenzhen and Guangdong is greatly shortened by superior connectivity established by BCPs with Shenzhen and the regional expressways (Hopewell Highway Infrastructure Limited, 2017) (See Figure 3.9). The efficiency of cross-boundary cargo clearance and land transport have been enhanced by the sufficient capacity and connection network of BCPs. Nevertheless, the congestion in urban areas of Shenzhen has not been completely alleviated due to the extra transport demand derived from urban development of Shenzhen and the cross-boundary vehicle movements. Congestion further causes disturbance to urban core of Shenzhen and lowers the efficiency of land freight transport.

**Table 3.12 Vehicular Traffic of Different Boundary Control Points (Transport Department, 2016)**

<table>
<thead>
<tr>
<th>BCP</th>
<th>Average Daily Vehicles (Two-way)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lok Ma Chau Control Point</td>
<td>24,231</td>
</tr>
<tr>
<td>Shenzhen Bay Control Point</td>
<td>10,140</td>
</tr>
<tr>
<td>Man Kam To Control Point</td>
<td>4,894</td>
</tr>
</tbody>
</table>
Regarding the nuisances caused by cross-boundary transport movement, the introduction of new Liantang/Heung Yuen Wai (LT/HYW) BCP were proposed by the government of Hong Kong and Shenzhen jointly to resolve the congestion issue. As one of the infrastructures highlighted in regional cooperation, LT/HYW BCP would provide additional capacity for cross-boundary cargo clearance and also direct linkage to the eastern PRD (Development Bureau, 2014). Under the new arrangement for land transport, only LT/HYW BCP and Shenzhen Bay BCP would be allowed for cross-boundary truck movement after 2018 (Information Services Department, 2016a). Together with the surplus in capacity of Shenzhen Bay BCP, the two BCPs would be able to offer sufficient volume capacity for satisfying current transport demand (See Table 3.12 and Table 3.13) and diverging truck movements from entering urban core of Shenzhen. Mitigation on nuisances from congestion and enhancement of commuting time for cross-boundary cargo movement could be achieved. Moreover, the connectivity could also be further enhanced by constructing direct linkage to Eastern Corridor of Shenzhen and regional expressway and eastern PRD from LT/HYW BCP (Development Bureau, 2014). With improved connectivity, the commuting distance to major manufacturing base in Shenzhen and Eastern PRD, such as Huizhou could be shortened significantly and the efficiency of cross-boundary cargo transshipment could be greatly improved (Development Bureau, 2014). Nevertheless, concerns have been raised by stakeholders with regards to the adequacy of ancillary facilities of Shenzhen Bay BCP (Information Services Department, 2016a); and the industry also demand for additional logistics facilities on LT/HYW BCP considering its
locational advantage. To resolve the concern, efforts on implementation of enhancement work in Shenzhen Bay BCP have been pursued by the government (Information Services Department, 2016a) while the construction of additional logistics facilities nearby new BCP remains in review in the proposed NTN development.

Table 3.13 Capacity of Different Boundary Control Points (Development Bureau, 2014; Information Services Department, 2016a)

<table>
<thead>
<tr>
<th>BCP</th>
<th>Designed capacity in vehicle trips per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liantang/Heung Yuen Wai Boundary Control Point</td>
<td>17,850</td>
</tr>
<tr>
<td>Shenzhen Bay Control Point</td>
<td>78,000</td>
</tr>
</tbody>
</table>

Besides, another new BCP at HKBCF is currently under construction for supplementing and capitalising on the locational advantage of the mega regional infrastructure, HZMB. As shown in the feasibility study of HKBCF, additional cargo clearance facilities and cargo handling facilities with road connection to major local infrastructure and nearby area, such as HKIA and Tuen Mun Area 40 and 46 might be planned in the HKBCF island (Civil Engineering and Development Department and the Planning Department, 2015). By providing the logistics facilities, additional cargo handling capacity could be equipped for the industry to cope with potential growth in high-valued cargo activities, such as wine and pharmaceuticals brought by HZMB. The potential of future logistics sites, such as Tuen Mun Area 40 and 46 for the usage of multi-modal transshipment, could be promoted and facilities cross-boundary transshipment. With the completion of new BCPs, the existing issues of BCPs could be resolved with improvement of operation efficiency and the competitiveness of logistics industry for cross-boundary cargo transshipment could be enhanced in the foreseeable future.

**Enlarged Cargo Catchment Area and Bridgehead Economy Created by HZMB**

As a regional mega infrastructure project, the HZMB serves as new opportunity to the logistics industry with extended cargo catchment area. By the provision of direct linkage between the western PRD and Hong Kong, HZMB could greatly support the cross-boundary transshipment through lessening of commuting time between major cities in Western PRD and Hong Kong to 3 hours and extension of the cargo catchment area of Hong Kong to the western PRD (Central Policy Unit, 2015). Besides, facilitation for multi-modal transshipment activities could also be achieved through expanding the local transport network to linking to HKIA and port facilities. With the opportunity of creating bridgehead economy from HZMB, boosting cargo throughput in the logistics industry of Hong Kong and stimulation of economic development in the western PRD might be created (Central Policy Unit, 2015). Nevertheless, the toll of HZMB remains a critical concern from stakeholders such as freight forwarders, since the high
toll might increase the cost of land transport and discourage the usage of HZMB comparing to other infrastructures (Legislative Council Secretariat, 2016). Thus, the extent of benefits created by the HZMB with facilitation of transshipment activities might depend on charges of usage. Lower toll could better secure the traffic volume of HZMB as well as the advantage secured by the industry. The cross-boundary infrastructures provide market opportunity for transshipment and sufficient capacity for operation efficiency of the industry. By addressing the concern of stakeholders, the advantage created by the proposed cross-boundary infrastructures could be further strengthened to ensure the competitiveness of the industry.

### 3.4.3.2 Full Implementation of Proposed Local Transport Infrastructures Face Limitation

Apart from the cross-boundary infrastructure, the importance of local transport network should not be neglected as it serves as the supporting system for the city operation and connections between the urban area and different infrastructure, for instance, airport and port infrastructure. New urban development proposed in recent years might induce heavy burden on the saturating road network in certain area. Despite the additional capacity of planned road network by the government, congestion issues of some local transport infrastructure remain unalleviated and deserve more attention in sustaining the time-efficiency of the industry and the daily operation of the city.

Four major routes including Route 3, 8, 9 and 10 which contains Hong Kong - Shenzhen Western Corridor, constitute the major connection between BCPs, major infrastructures such as HKIA and the urban area (See Figure 3.10) (Highways Department, 2017). The well-established connectivity with important logistics facilities and regional expressways greatly reduce the required commuting time of land freight transport for local and regional cargo activities. Nevertheless, the capacity of certain roads comprising the major routes are nearly saturated and this leads to congestion in peak hours, such as Tuen Mun Road (See Figure 3.10) (Information Services Department, 2013; AECOM, CEDD and PlanD, 2015). Additionally, the growth of traffic volume caused by increase of population in NDAs in the future might further impose burden to the saturated road network (Transport and Housing Bureau and Highways Department, 2017). Thus, the saturating capacity of local transport infrastructure with increase in congestion might hinder the efficiency of the industry and induce nuisance to the community.

To satisfy the increasing transport demand, three new road connections are introduced by the government for creation of additional capacity of local transport infrastructure. First, TM-CLKL, though undergoing construction, is the strategic linkage between HKBCF and NWNT and serves as a critical access for mega infrastructure including HKIA and HZMB and future logistics sites such as NWNT and North Lantau (Development Bureau and Planning Department, 2016). Upon its completion, the divergence of traffic volume from congested road networks and reduction of time cost incurred by congestion could be achieved (THB, 2007). By offering alternative on road connection to HKIA, TM-CLKL could foster the resilience
of local transport network and efficiency of multi-modal cargo movement through resolving the over-reliance on sole linkage to HKIA (THB, 2007). In addition, the development potential of dedicated logistics sites in NWNT, such as Tuen Mun Area 40 and 46 for multi-modal cargo or air cargo could be promoted with shortened travelling time to HKIA to 10 minutes (Highways Department, 2010).

In supplement of TM-CLKL, the Tuen Mun West Bypass is proposed to further connect TM-CLKL with Hong Kong-Shenzhen West Corridor and NDAs, such as Hung Shui Kiu. With accessible linkage between HKIA and Shenzhen Bay BCP (Transport Department and Highways Department, 2016), the multi-modal transshipment for cross-boundary cargo could be facilitated and further promote the attractiveness for logistics development in NWNT areas. Additional transport capacity could also be created by the commission of Tuen Mun West Bypass to divert traffic movement from saturating network such as Tuen Mun for alleviation of congestion in urban areas (Transport Department and Highways Department, 2016). Yet, the delay in construction of Tuen Mun West Bypass comparing to the completion date of TM-CLKL might increase burden on existing road with saturating capacity and leads to severe congestion (Information Services Department, 2016b) which hampers the efficiency of land transport and the industry. Implementation of careful traffic management is crucial to relieve the temporary congestion issues induced by delay of infrastructure construction.

Besides the two strategic linkages, preliminary proposal of Route 11 has also been introduced by government to serve as connection between NWNT and North Lantau (Transport and Housing Bureau and Highways Department, 2017). Currently, approval and funding are required from Legislative Council by the government for the conduct of feasibility study of Route 11. Once the proposed linkage is constructed, the connectivity between other urban areas and the future logistics sites could be greatly strengthened with fosterage on the growth of land logistics industry (Transport and Housing Bureau and Highways Department, 2017).

With completion of planned road network, the local transport infrastructure would be able to offer sufficient capacity for both the land freight transport and transport demand from community. The issues of existing road network such as over-reliance on certain connection could also be resolved by the future road network and sustain the operation efficiency of the industry, especially for the land logistics sector. Nevertheless, traffic management might need to be applied in NWNT area due to possible congestion caused by delay of construction of Tuen Mun West Bypass in complement for TM-CLKL, and congestion issues in certain saturating roads such as Lung Mun Road still need further improvement.

The transport infrastructures including both cross-boundary and local transport infrastructure establish good connectivity to the PRD region. The future capacity of transport infrastructure would be able to meet the demand of the industry and the city with completion
of new transport network. More advantages could be created for the industry if the government could further address the industry needs on transport infrastructure.

**Figure 3.10 Existing and Planned Highways (Highways Department, 2017; Information Services Department, 2013)**

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3.5 **Key Trends and Development Direction**

To plan ahead of possible changes in the industry, major operational trends affecting the development of logistics industry in Hong Kong are examined. Possible development directions of each logistics sector are also summarised.

3.5.1 **Shifting Manufacturing Base from the PRD to western China and ASEAN Countries**

As a chief manufacturing and export base of the world, the PRD region has been furnishing Hong Kong with one of the strongest impetus for growth in air and sea cargo services. However, its strategic transformation into a high technology-oriented, service-based exporting region has gradually intensified labour issues in the region, and has led about a shift in production base from the delta cities to western China (Hui, 2013) and ASEAN countries (Invest Hong Kong, 2014; Standard Chartered Bank, 2015). Since Hong Kong has been capitalising on its proximity to the PRD region for logistics growth, the manufacturing shift shall unavoidably reduce the total cargo volume and logistics services usage of Hong Kong. To maintain the city’s competitiveness as a regional logistics hub, it is deemed essential for the
government to seek ways to draw exports from the emergent markets. In addition, the economic potential for e-commerce trading activities in the PRD region (Nielsen Hong Kong, 2015) shall be tapped to support future development of the logistics industry.

3.5.2 **Shift from Traditional Logistics to Modern Logistics**

In support of the traditional role of logistics in transportation and warehousing, ‘modern logistics’ has been identified as an important development direction of the local logistics industry (Office of the Chief Executive, 2017). To enhance efficiency and optimise industrial structure, both forward and reverse flow of information, products and services are expected to be strategically managed by systemisation, standardisation, informatisation and unified collaboration (Dong, 2013). To keep up with the change in operation mode, large-scale operators are now spending more resources on technology and innovations. In the sea logistics sector, for instance, the Hutchison Ports have been heavily investing on electronic communication system, big data as well as automation and robotics so as to increase efficiency and visibility of the supply chain (HIT, 2017). The shift to modern logistics has also called for the provision of high value-added services in areas such as inventory management, regional distribution and global supply chain management (Financial Services and the Treasury Bureau, 2014). Capitalising on its renowned efficiency and reliability of handling services, AAHK has recently adopted a ‘value-focus’ air cargo operation and has reserved land on both the landside and airside in the South Cargo Precinct for developing high value-added air cargo business (HKIA, 2016b). In addition, in view of the increasing demand for high value-added third-party logistics services, the government has been actively identifying appropriate sites for further enhancement of this industrial strength. As of 2017, three sites in Tsing Yi and two sites in Tuen Mun have been reserved for such purposes (Information Services Department, 2017b).

3.5.3 **Increasing Demand for More Customer-oriented, Solution-based and Flexible Logistics Services**

**Smart Logistics Enabling the Rise of E-commerce**

The growing demand for more flexible, customer-oriented and solution-based logistics services is a product of multiple mega-trends. Specifically, smart logistics has recently arisen as a result of technological advancement as well as the essentiality to enhance the predictability and transparency of the increasingly complex supply chains. Under the employment of automation, data analytics and real-time tracking, logistics operations have been faster and more convenient and flexible than they ever are (DHL Trend Research, 2016). This in turn creates capacity for the accommodation of high-level customer demands such as door-to-door deliveries and customisation, which adds values to logistics services and results in the rise in demand for express and courier services. Moreover, the mature information technology and telecommunications infrastructure in Hong Kong has enabled the emergence of e-commerce as a novel business opportunity, and is particularly beneficial to Hong Kong’s
role as a regional distribution centre. To handle the additional cargo volume engendered by e-commerce, an increase in the provision of warehousing and consolidation spaces is deemed necessary for the building of small e-commerce parcels into unit load devices for redistribution.

**Green Logistics Creating Alternative Demand for Chain Solutions**

Another mega-trend that has transformed the logistics landscape is green logistics, which sets in naturally in view of the growing environmental awareness of clients and consumers. While green initiatives such as route optimisation and fleet management have been adopted by some logistics firms in Hong Kong for direct economic benefits, their effects are rather limited when considered from the perspective of logistics and supply chain management (Yeung, 2011). The need for total green solutions thus provides the opportunity for local third-party and fourth-party logistics services providers to capitalise on the large pool of environmental and logistics experts available and supply clients with solution-based green logistics services. This also helps reinforce the standing of Hong Kong as an international logistics services hub, in addition to its fully developed professional and high value-added aviation and maritime services.

**Achieving Close Loop Supply Chain Management by Reverse Logistics**

Environmental considerations, furthermore, give rise to new business markets for reverse logistics. The trend refers to the process in which goods are moved from the customers back to the producers in the best way possible, via commercial returns from consumers to retailers, end-of-use returns due to technical upgrades and end-of-use returns due to obsolescence (Kalogerakis et al., 2015). The flourish of reverse logistics is largely due to the necessity to provide efficient, easy-to-use return policies in e-commerce. However, the co-occurrence of outbound and inbound flows has also made supply chain management more difficult and complicated. To fit the needs of reverse logistics and the associated dismantling, reprocessing and redistribution process, warehousing operations have been restructured. The complicated procedures have also created new demand for additional warehousing spaces.

3.5.4 Possible Sectoral Development Directions

3.5.4.1 Air Logistics: Switching from Volume to Value-Focus Operation

As mentioned in Section 3.5.2, the HKIA is transiting its position from ‘volume-focus’ to ‘value-focus’ in air cargo operation so as to make the best use of its efficient and reliable cargo handling services (HKIA, 2016c). Three fast-growing market segments are especially highlighted, namely transshipment, e-commerce and specialised cargo handling.

**Specialised Cargo**

Globally there has been an increasing trend for temperature-sensitive cargo such as pharmaceuticals and perishables (OTEL, 2016). To capture this additional cargo volume, HKIA has been striving for recognitions in its ability to handling temperature-sensitive products. For instance, Hong Kong Air Cargo Terminals Limited (Hactl) has become the first cargo
terminal operator in Hong Kong to obtain the certification of “IATA CEIV Pharma” in 2017 (Hactl, 2017). The ultimate goal is to put forward integrated solutions that meet the time-critical handling requirement of temperature-sensitive cargo by providing special care in handling and complying with strict operational requirements.

**Transhipment**

Owing to its exceptionally cargo handling efficiency, transhipment is another competitive edge of air logistics in Hong Kong. The growth in air-to-air transhipment is largely facilitated by the *Air Transhipment Cargo Exemption Scheme for Specified Strategic Commodities*, which minimise trade control on strategic commodities including electronics, telecommunications commodities and chemicals and materials (TID, 2016b). Tariff reduction has also been provided under the *Free Trade Agreement Transhipment Facilitation Scheme*, which together provide economic incentives for traders to opt for transhipment at HKIA.

With the expected increase in the number of parking stands upon the completion of the 3RS in 2024 (AAHK, 2017c), transhipment business shall further expand and become one of the major backbones of air logistics growth in Hong Kong.

**E-commerce**

The on-demand nature of e-commerce has made air transport a more frequent shipment option for its time-criticality. As in the local context, the major cargo source of e-commerce is the exported goods from mainland China being transported in bulk by trucks or by river barges. These goods are commonly consolidated in Hong Kong for distribution to other cities via air shipping, so as to make use of the efficient customs procedures and free port status of Hong Kong.

3.5.4.2 *Maritime Logistics: River Trade and Maritime Services as Major Growth Areas*

Expansion and improvements of other competing ports in the PRD region has impacted the competitiveness of Hong Kong Port. There is a need for Hong Kong to adapt to new market trends in waterborne cargo businesses, mainly growth in river-to-ocean transhipment and rise of mega vessels, so as to sustain growth of the sector.

**River-to-ocean Transhipment**

Increasing cost of trucking has shifted the major mode of inland cargo transport from truck to river barges (BMT Asia Pacific, 2014). Subsequently, riverborne cargo throughput has increased by more than 38 million tonnes between 2004 and 2014 (Census and Statistics Department (C&SD), 2015b). Despite the drop in overall transhipment cargo throughput, the share of riverborne cargo throughput in total cargo had risen from 28.2% to 33.8% between 2004 and 2014 and projections estimate the rising trend to sustain (C&SD, 2015b). This trend encourages a shift to river-to-ocean transhipment for growth.
Rise of Mega Vessels Hampering Further Growth

The continuous increase in vessels size has led to a general demand for the extension of berth lengths. However, shall the trend maintain, larger mega vessels may not be able to use the facilities of Hong Kong Port owing to constraints in height clearance of road bridges as well as the limited depth of common shipping channels. In addition, despite the rise in the number of mega vessels calling at Hong Kong Port by 17% from 2011 to 2014 (THB, 2015b), the lower handling costs and specific port designs for mega vessels at Shenzhen Yantian Port shall progressively divert the number of mega vessels and posing threat to further growth in sea logistics. The logistics sector will need to seek alternatives to growth, a possible way of which is to develop on the strong intermediary maritime services.

3.5.4.3 Land Logistics: Logistics Facilities Becoming Multi-storey

With industrial space in Hong Kong in high demand and scarce, the logistics industry has been looking into the possibility of building multi-storey logistics facilities, and preferably in close proximity to population centres to cater for the call for fast delivery in the booming e-commerce (CBRE, 2016). Such building design is expected to provide better operational efficiency for warehousing and distribution and shall work best with automation, as machines could directly pick up items from tall shelves and send them to distribution points for value-added work by labour (Bula, 2017). The need to transport goods via freight elevators however, may slow down material flow within the facilities.

3.6 Key Issues

With reference to the above analyses, the key issues that hinder local logistics industry from further growth are discerned in Table 3.14. These issues are taken into account with the latest trends in the industry for the formulation of spatial planning strategies, which shall be detailed in the next chapter.

Table 3.14 Key Issues of Logistics Development in Hong Kong

<table>
<thead>
<tr>
<th>Key Issues</th>
<th>Details</th>
</tr>
</thead>
</table>
| Limited capacity to support cargo handling and urban logistics activities | • Inadequate affordable land supply  
  o Modern warehouses for SMEs in particular  
  • Cargo handling  
  o Port: Shortage of yard spaces  
  o Airport: Temporary shortage of runway capacity and parking stands  
  • Urban Logistics Activities  
  o Insufficient loading/unloading space |
| Facilities lack enhancement or retrofit to fit in latest trends | • Lack specialised cargo handling and screening facilities  
• Lack specialised cargo storage facilities  
• Low efficiency of river shipment handling facilities  
• Incompatibility of old industrial buildings with modern warehouse operations |
| Weak land use management and control | • Short-term lease discourage investments in facilities  
• Scattered and disorganised logistics operations on brownfield and open storage land |
| Development roadmap lacking overall strategic spatial planning | • Lack comprehensive strategic planning for the industry |
| Insufficient government initiatives in promoting logistics growth | • Communication platform without executive power  
• Lack support for technological advancement and application in logistics operations |
| Labour issues | • Lack frontline labour  
• Ageing labour  
• Spatial Mismatch |
| Overall Fitness | • Concurrence with vision  
• Concurrence with stakeholders’ expectations |
4 Overall Planning Approach

4.1 Vision Statement

The logistics sector constitutes one of the four pillars of growth in Hong Kong. Pursuing continuous growth for the industry is therefore, of paramount importance to the future development of Hong Kong. The primary goal of this study is to offer key findings and analysis based on previous stages of research and study, ultimately aiming to contribute towards the development of Hong Kong as an efficient and competitive logistics hub. In order to achieve such goal, a vision has been developed as:

‘To create capacity for the growth of high value logistics services and reinforce Hong Kong’s status as a global premier logistics hub’

Within this framework, it is believed that the competitiveness of Hong Kong can be enhanced while the sustainability of the city can be maintained, through the pursuit of the vision, which consists of the following four guiding principles as shown in Figure 4.1:

- Land Allocation for Future Growth
- Optimisation of Existing Functions
- Well-connected Freight Movement Network
- Sustainable Logistics Development

Figure 4.1 Concept Diagram of the Four Guiding Principles (by authors)
4.2 Guiding Principles

The proposed conceptual spatial framework emphasised on integrated development approach, which aims to integrate the three key elements of spatial planning, institution and regulations and achieve balanced development while generating economic, social and environmental benefits to the community. The four guiding principles illustrates the planning direction and methods to enhance the logistics industry’s competitiveness and the city’s sustainability. Through the principles, the goal is to increase its capacity for future growth by resolving the urban logistics issues and towards a more sustainable development.

4.2.1 Land Allocation for Future Growth

The provision of land plots to accommodate future growth from different sectors, through the identification of suitable land plots to cater for the expansion of facilities, in order to capitalise on the opportunities from the emerging key trends.

4.2.2 Optimization of Existing Functions

The optimisation of efficient land use through integrating and consolidating existing logistics-related land use for clustering effect and enhancement of existing logistics facilities would cater for both declining and growing sectors. The principle also includes identification and consolidation of the existing land uses on the brownfield sites in order to enhance the efficiency in utilising land resources.

4.2.3 Well-connected Freight Movement Network

The enhancement of connectivity between logistics facilities and the key nodes including BCPs, the airport and container terminals, to provide smoother and more efficient linkages for local and cross boundary logistics users.

4.2.4 Sustainable Logistics Development

The pursuit for a sustainable logistics development through advocating green logistics and technological advancement in supply chain operations, with support from the fields of education and training that encourages knowledge exchange and maintains sufficient labour supply for the future development of the industry.

4.3 Spatial Planning Framework

Based on the vision and guiding principles, a spatial framework is developed to underpin the spatial implications of the key issues previously identified in Section 3.6 and to foster the growth of the logistics industry. Through the spatial strategies of clustering and decentralisation, the framework is to enhance the industry’s competitiveness and to maintain the city’s sustainability by solving the urban issues caused by inefficient logistics operations.

4.3.1 Spatial Concept Plan

The spatial framework consists of four logistics clusters to enhance the clustering effects of the industry and facilitate the development. The HK2030+ has set out a territory-wide spatial development framework incorporating several key strategic growth areas and the three
development axes which greatly matches the objectives of the spatial concept plan. The main clusters considered in the strategies include Northern Logistics Belt, Aviation Cluster, Maritime Cluster and Tuen Mun West Logistics Cluster. These strategic areas, except the maritime cluster, are situated along the Western Economic Corridor and the Northern Economic Belt indicated in the HK2030+, in order to identify the suitable development nodes and corridors for the logistics sector that are strategically located in the context of the territorial spatial framework.

**Figure 4.2 Recommended Spatial Concept Plan (by authors)**

4.3.2 **Decentralisation of Urban Logistics Core to Maintain City’s Sustainability**

Warehouse and storage are highly demanded in supply chain model since warehouse could serve as a place for temporary stay of good where customised value-added services are implemented (BMT; CUHK; SD Advocates Ltd, 2015). According to the Rating and Valuation Department (2017), around 50% of the storage concentrated in the Kwai Tsing and Tsuen Wan District and approximately 13% of the storage premises are found in Kowloon, which suggested that the urban area of our city has active and frequent logistics operations (See Figure 4.3). In addition to the active logistics use in industrial buildings with lower technology applied, the urban area is filled with logistics operations and has given rise to a recognisable urban logistics core. Nevertheless, given that the value of the storage facilities rates is higher in the urban centre, it is unwise for the small and medium logistics operators to operate in the congested urban core (Rating and Valuation Department, 2017).
To alleviate the negative socio-economic impacts caused by recurring logistics flow, the decentralisation scheme is proposed to disperse the warehouse and storage operations from the urban logistics core to the key nodes along the Northern Economic Belt (See Figure 4.4). By moving the heavy traffic caused by logistics operations, the decentralisation is expected to transform the inefficient logistics operation into smarter and greener logistics and also to provide a more affordable option for the SMEs business. Leaving the higher-valued logistics services such as intermediary service in the urban core, the dispersion is to maintain the city’s sustainability by creating less nuisance and lessening impact to the urban area. Furthermore, the available land of the urban core could be released for other purposes such as housing and offices to facilitate the city development needs.
4.3.3 Clustering Logistics Use to Facilitate the Logistics Development

At present, most of the open storage and PBU backup land use as well as brownfields are scattered around the New Territories (See Figure 4.5). The aforementioned short tenancy of PBU land has incentivised the tenants to operate carparking business to generate profit with least investment (THB, 2015a). The land use efficiency on the PBU land is rather low for logistics-related purposes. On the other hand, massive greenfields in the New Territories has been turned into brownfield serving different functions such as open storage yards, containers yards, car repairing workshops, carparking and other industrial uses. The high market demand on these brownfield operations has made land use and management out of control, resulting in environmental degradation, traffic issues, visual problems and diminish land use efficiency in both urban and rural areas. Therefore, the consolidation of scattered PBU, open storage and brownfield is adopted by means of clustering in order to optimise land use efficiency and to release the potential for better land utilisation. Through resolving these challenges, the city could expand its capacity to capture more growth of the logistics industry and enhance its sustainability for future development.
A possible solution to deal with scattered brownfield uses in the New Territories is to consolidate some of the existing functions and develop nodes for these clusters. The Northern Economic Belt presents as a suitable location for these clusters due to its spatial significance and economic potential recognised in HK2030+, and Figure 4.6 illustrates the concept flow of this decentralising and clustering process.

**Figure 4.6 Clustering Logistics-related Uses in Northern Economic Corridor (by authors)**
With adjacency to the Boundary Control Points, enhanced regional connectivity and decentralized logistics operations along the Northern Economic Corridor, the areas could form a conceptual logistics belt (See Figure 4.7). To capitalize its proximity to BCPs and cross-boundary freight, spatial development strategies are identified and proposed in the latter chapter to create capacity for logistics development.

**Figure 4.7 Strategic Logistics Nodes along Northern Economic Corridor (by authors)**

Similar clustering strategies have been developed in North Lantau to cater for the development of aviation logistics industry, capitalising on the provision of nearby mega-infrastructure - the Hong Kong - Zhuhai - Macao Bridge (HZMB), Hong Kong Boundary Crossing Facilities (HKBCF) and the Hong Kong International Airport (HKIA) (See Figure 4.8).
Meanwhile, the Kwai Tsing area is best for clustering of maritime development and spatial strategies would be adopted to strengthen its “catch-up port” status (See Figure 4.9).

**Figure 4.8 Aviation Logistics Development in North Lantau (by authors)**

**Figure 4.9 Potential Cluster for Maritime Development in Kwai Tsing (by authors)**
The intensive land supply and strategic linkages with other clusters have made TMW the ideal location for intermodal transhipment. The site serves as the converging point for integrated logistics development where goods from Mainland could transfer to either container terminal or airport (See Figure 4.10).

Figure 4.10 Potential Tuen Mun West Logistics Cluster (by authors)

4.4 Spatial Development Strategies

The four identified clusters have provided the setting for the spatial strategies that will be proposed in this section. These strategies are sets of actions recommended derived from the guiding principles and in accordance to the rationale of cluster development explained in Section 4.3, which will constitute the crucial components towards achieving the vision. The strategies are classified on the aspects of Facility Addition and Expansion, Land use Integration and Consolidation, Facility Enhancement and Retrofit, and Road Network Enhancement, and the details will be elaborated in Table 4.1.
Table 4.1 Spatial Development Strategies

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Aim and Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facility Addition and Expansion</strong></td>
<td></td>
</tr>
<tr>
<td>Logistics Park</td>
<td><strong>Aim:</strong> To establish a smart logistics park for third-party logistics (3PL) business operation</td>
</tr>
<tr>
<td></td>
<td><strong>Strategies:</strong></td>
</tr>
<tr>
<td></td>
<td>• Pilot scheme to set up a logistics park for mixed development which includes specialised cargo storage facilities, security screening, office and warehouse</td>
</tr>
<tr>
<td></td>
<td>• Possible extension of logistics park in reclamation site if demand sustains</td>
</tr>
<tr>
<td>Specialised Cargo Handling</td>
<td><strong>Aim:</strong> To increase the handling capacity of specialised cargo to enhance Hong Kong’s status as a regional distribution centre</td>
</tr>
<tr>
<td></td>
<td><strong>Strategies:</strong></td>
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<tr>
<td></td>
<td>• Introduce use of cool dollies to transport temperature sensitive intact units from ramp to cool area within existing cargo terminals</td>
</tr>
<tr>
<td></td>
<td>• Set up Refrigerated warehouses</td>
</tr>
<tr>
<td></td>
<td>• Establish temperature and humidity sensitive cargo handling terminal</td>
</tr>
<tr>
<td></td>
<td>• Clusters for the handling of perishable goods for local distribution</td>
</tr>
</tbody>
</table>
| **Security Screening Facilities** | **Aim:**  
With the upcoming consignee identification programme, screening facilities are proposed for unknown consignors to smoothen the screening process  

**Strategies:**  
- Centralised screening facility  
- Off-site screening facilities |
| **Modern Multi-storey Warehouses/Logistics centres** | **Aim:**  
To move suitable existing open storage operations above ground in New Development Areas  

**Strategies:**  
- Provide multi-storey warehouses with proximity to mega-infrastructure  
- Establish modern multi-storey logistics centres that cater for the integrated solution and associated high-value services |
| **Training facilities** | **Aim:**  
To encourage knowledge exchange in the logistics sector  

**Strategy:**  
- Setting up logistics training facilities/institutions to support long-term logistics development |
| **Land Use Integration and Consolidation** | **Aim:**  
To resolve the issue of scattered PBUs land distribution and dominated use of truck parking in PBU land  

**Strategies:**  
- Re-prioritise existing parking spaces for container trucks and medium/heavy goods vehicles  
- Consolidate and cluster PBU uses in the planning of in development clusters |
<table>
<thead>
<tr>
<th><strong>Open Storage</strong></th>
<th><strong>Aim:</strong> To provide intermediate accommodation of open storage site caused by the consolidation of open storage, PBU and brownfield in New Territories</th>
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<tbody>
<tr>
<td><strong>Strategy:</strong></td>
<td>• Provision and consolidation of open storage sites near BCPs</td>
</tr>
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</table>

### Facility Enhancement and Retrofit

<table>
<thead>
<tr>
<th><strong>Container Terminals</strong> (KTCT and RTT)</th>
<th><strong>Aim:</strong> To resolve congestion issues in KTCT and enhance the efficiency for both terminals</th>
</tr>
</thead>
</table>
| **Strategies:** | • Extension of KTCT to Tsing Yi South  
• Relocate RTT to the proposed site for Container 10  
• Practical training centre close to KTCT |

<table>
<thead>
<tr>
<th><strong>Warehousing and Consolidation</strong></th>
<th><strong>Aim:</strong> To cater the needs for SMEs operation due to depleted supply of warehouses</th>
</tr>
</thead>
</table>
| **Strategies:** | • Redevelop aged industrial buildings as modern logistics facilities with larger size of compartment and higher ceiling height  
• Provide warehouses for specialised cargo  
• Provide automated logistics facilities |

### Road Network Enhancement

| **Public transport** | **Rationalise bus route from Tung Chung to the airport island and HKBCF**  
**Rationalise bus routes making use of the new roads**  
**Railway connection between the Airport, HKBCF, Tung Chung** |
Urban Traffic

- Review and improve L/UL bays provision in business and industrial area
- Increase in L/UL bays in lease conditions

Overall Road Network

- Territorial freight plan
- Widen existing roads and speed up constructions of new highways
- Road network enhancement for better linkages between clusters

4.5 An Integrated Approach towards Reinforcing Hong Kong’s Current Status and Creating Capacity for Growth

The vision and the respective guiding principles have been introduced in this chapter, which serve as a framework for the formulation of spatial strategies and policy recommendations. Based on the key findings identified in the previous chapters and stages of study, the importance of adopting an integrated approach is recognised towards achieving the proposed vision, which entails comprehensive efforts in different aspects of logistics development as explained in terms of guiding principles. The context of this Study’s analysis from the spatial planning perspective has prompted the emphasis on the spatial implications of the strategies formulated. In this context the Spatial Planning Framework in Section 4.3 thus further illustrates the rationale behind the concept of development clusters and formulation of core development strategies that will be discussed in the following chapter.
5 Core Development Strategies

The spatial planning framework is realised mainly through the decentralisation of urban logistics core and clustering of logistics land uses as introduced in Section 4.3. In this chapter, the core development strategies facilitating the abovementioned decentralisation and clustering will be detailed. The strategies include Aviation Cluster, Maritime Cluster, Tuen Mun West Logistics Cluster, Northern Logistics Belt and road network enhancements. Each section introduces the respective positioning and function of each cluster or focus area, followed by an account on government proposals, recommended strategies and key implications.

5.1 Aviation Cluster - Capitalising on Nearby Mega-infrastructure

5.1.1 Positioning and Function of Aviation Cluster

The aviation cluster aims to facilitate the development of the air freight industry as a fast-growing logistics sector. The proposed strategies in this cluster will capitalise on the nearby mega-infrastructure, including HKIA, HKBCF Topside Development, TM-CLKL, HZMB and the future East Lantau Metropolis (ELM) development. The locational advantage of the three nodes proposed in this cluster will effectively boost the capacity for high value logistics services especially through capturing the growth in demand of specialised cargo handling. The development of this cluster is expected to stimulate the future development of Lantau Island, with an agglomeration of economic activities at the northern part of the island that can bring along socio-economic opportunities to the area.

5.1.2 Government Proposals

Topside Development at HKBCF

One of the proposed directions for the topside development of the HKBCF is to focus on providing high-value added services for emerging logistics markets such as instant express delivery and e-commerce that stressed on the time-critical aspect of handling (DB, 2016). Part of the development will also cater for the specialised handling of valuables including art works, wine, electronics and pharmaceuticals, which require handling and storage with high security standards (PlanD, 2015b).

Siu Ho Wan Reclamation

Completed in 2002, the Bridging Study suggested the development of a logistics park at Siu Ho Wan. The need for building the Lantau Logistics Park (LLP) was further confirmed in the 2004 Scoping Study (Hong Kong Special Administrative Region Government (HKSARG), 2005). The topic has undergone long discussion before a revised proposal was published in the First-term Work Report by the Lantau Development Advisory Committee (LanDAC) in 2016, which mentioned the possibility of a reclamation of 60 to 80 ha of land at Siu Ho Wan in support of development of strategic economic activities, such as tertiary education and professional training institutions (DB, 2016).
5.1.3 Recommended Strategies

Figure 5.1 Proposed Aviation Cluster (by authors)

5.1.3.1 HKIA

Centralised Screening Facility
A centralised screening facility is proposed at the five-ha site of Kwo Lo Wan on the Southern Cargo Precinct of the Airport Island (HKIA, 2007) to meet the foreseeable demand for 100% screening of unknown consignors under the new Regulated Agent Regime (RAR). The facility will provide the extra capacity needed for the increasing cargo volume as well as space for the breaking down and reconsolidation of pallets for screening.

Reference Case: Emirates SkyCentral Terminal
The facility offers 70000m² of dedicated freight capacity that includes area for the breaking down and consolidation of cargo. The terminal also allow different processing flows for the screening of general and specialised cargo (Emirates SkyCargo (ESC), 2016).
Specialised Cargo Terminal

Introducing a new cargo terminal that specifically cater for the handling of specialised goods such as pharmaceuticals is another option for facility addition and expansion. The additional cargo terminal is recommended for location in the reserved site in Southern Cargo Precinct, where the proximity to runway shall facilitate the operational efficiency of forwarders and truck drivers (HKIA, 2007). The addition of such facility can enhance the overall capacity of providing high value logistics services and capture the opportunities brought about by the increasing demand of specialised cargo handling.
Reference Case: Fedex Cold Chain Terminal Memphis

The terminal offers 4700m2 of staging area for packing and sorting shipments, 1900m2 of temperature controlled area catered for the handling of temperature sensitive goods. CO2 and humidity levels are also monitored 24/7 (Fedex, 2017).

5.1.3.2 HKBCF

Warehouses for Specialised Cargo

The government intends to promote the development of high value logistics services at the topside development of HKBCF Island. Provision of specialised cargo warehouses is therefore recommended for the accommodation of temperature and humidity-sensitive goods. This will supplement the existing storage capacity at the cargo terminals as well as capitalising on the convenient linkages between West PRD, HKIA and Tuen Mun West through the nearby HZMB and TM-CLKL.

Figure 5.4 Proposed Warehouse for Specialised Cargo Location (by authors)

5.1.3.3 Siu Ho Wan

Aviation and Logistics Training Facilities

Building on the recommendation of establishing professional training or tertiary education institutions at the reclaimed site of Siu Ho Wan by LanDAC, aviation and logistics training facilities are suggested to be built in the identified area as part of our core strategy for sustainable logistics development. This shall encourage new recruits for the logistics industry and help cope with the rising demand of specialised cargo handling that requires specific
knowledge and expertise. Locating these institutions in Siu Ho Wan can also capitalise on the proximity to HKIA for potential on-site training.

**Multi-storey Compounds/Specialised Cargo Warehouses**

Another proposed strategy is the provision of multi-storey compounds and specialised cargo warehouses at the reclaimed area in Siu Ho Wan. The extra capacity offered will help cater the anticipated increase in cargo volume as brought about by the opening of the 3RS at HKIA. The strategy intends to support the storage capacity of existing cargo terminals and to serve as a pivotal distribution and consolidation node linking the HKBCF, HKIA and HZMB, and potentially towards the ELM in the future.

**Figure 5.5 Siu Ho Wan Reclamation Area (by authors)**

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**5.1.4 Key Implications**

The strategies proposed for this cluster aim to address several key issues identified in Chapter 3. A centralised screening facility will serve as an option to address the increase in cargo volume that need to be screened under the tighten security requirement, the provision of warehouses for the storage of general and special cargo aims to offer extra capacity for cargo anticipated from the emerging trend of specialised cargo as well as the opening of HZMB and 3RS, the establishment of aviation and logistics training facilities will address the lack of knowledge exchange across the value chain and to relieve the pressure of labour shortage by providing an academic and practical platform for existing practitioners and new recruits to the industry.

**5.2 Maritime Cluster - Enhancing Operational Efficiency of Port Facilities**

**5.2.1 Positioning and Function of Maritime Cluster**

Maritime logistics carries significant importance economically and socially in Hong Kong. In 2014, the port and logistics industry employs a total of 88,000 people in 2014, approximately 2.4% of Hong Kong’s total employment and, as mentioned in section 3.2.2, the industry generates HK$24 billion, equivalent to 1.1% of the total GDP of Hong Kong (Transport and
Housing Bureau, 2015d). As the most effective catch-up and transhipment port in the region, the Maritime Cluster will be crucial to the supply chain of the Greater PRD Region. To capture the continuous growth of riverborne cargo throughput to and from the Pearl River, the Maritime Cluster aims to allocate resources to cater for the specific needs of river barges and increase the efficiency of current riverborne cargo handling operations through consolidation of cargo handling facilities and allocation of land for container storage and handling. International transhipment has been the main driving force for growth of maritime logistics in Hong Kong over the past decade. Compared to import or export, transhipment requires 1 to 2 extra days to complete all container movements, reducing the availability of berths and.

In the long run, the Cluster is planned for capitalizing the forecasted annual container throughput growth of 1.5% up to 2030 and increasing reliance on KTCTs to provide port and logistics services (Transport and Housing Bureau, 2015a).

5.2.2 Government Proposals

**Extending the Tenancy Period for PBU land**
The current 3 to 5 year leasehold of short-tenancy PBU land surrounding KTCTs inhibits tenants to invest in their sites. To improve the efficiency of PBU land, investments on equipment and electricity generators in addition to basic works on site formation are necessary; yet, a short leasehold has limited the tenant’s ability to recover or earn returns from investments made (Transportation and Housing Bureau, 2015d). In response to the demands of tenants for longer tenancy, the government has proposed to lengthen the tenancy period to 7 years (Transport and Housing Bureau, 2015d).

**Restrict Permitted Land Uses for Short-Tenancy Land**
Certain short-tenancy PBU land adjacent to KTCTs currently allows multiple uses such as container storage, cargo handling, car parking or a combination of these uses on the same site (Transportation and Housing Bureau, 2015d). However, with lower investments and higher profit margin, car parks have become the more dominant use as a means for quicker returns. The government has proposed to restrict land use of each short-tenancy land to either one of the abovementioned uses for a more balanced allocation of limited land resources adjacent to KTCTs (Transportation and Housing Bureau, 2015d).

**Re-prioritise Parking Spaces for Container-Related Vehicles**
Parking sites on PBU land allows all types of vehicles to be parked on them (Transportation and Housing Bureau, 2015b). Non container- or cargo-related vehicles including small cars and coaches, which can be parked outside of the Kwai Tsing port area, is not restricted from parking in the abovementioned sites, reducing parking spaces for container and goods vehicles (Transportation and Housing Bureau, 2015d). The government has proposed to

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2 Port back-up land are designated with “Other Specified Uses (Port Back-up)” land use where five main activities are allowed including container storage/repair yard, container freight station, container vehicle park/container vehicle repair yard, freight forwarding services center and logistics centre. (Town Planning Board, 2008)
specify the types and number of vehicles permitted to be parked to increase the provision of parking spaces for container and goods vehicles (Transportation and Housing Bureau, 2015d).

**Multi-storey Parking Facilities and Logistics Complex**

Land resources in close proximity of the container terminals in Kwai Tsing area is scarce and the government has initiated feasibility studies on developing multi-storey vehicle parking and cargo handling facilities in the nearby PBU land. Two sites in Kwai Chung and Tsing Yi have been considered for developing multi-storey parking facilities to provide additional parking space (Transportation and Housing Bureau, 2015d). The government will also commence study on the development of a multi-storey complex catering combined uses of cargo handling and container storage.

**Expansion of Yard Space**

In view of lack of yard space in KTCTs, the government has proposed to integrate port back-up land adjacent to the terminals with the existing container yard on a permanent basis (Transportation and Housing Bureau, 2015d). There are four sites identified, three on Tsing Yi and one in Kwai Chung, which in total supply 15.2 ha of land and has increase yard capacity by 4% with an annual maximum addition of 850,000 TEUs (Transportation and Housing Bureau, 2015d).

### 5.2.3 Recommended Strategies

*Figure 5.6 Proposed Maritime Cluster (by authors)*

**5.2.3.1 OU(PBU) Land**

*Consolidation and Clustering PBU land uses in the Planning of New Development Areas*

At present, Hong Kong has a total of about 425 ha of land designated for PBU purposes, about 100 ha are within the boundaries of the port and the remaining are mostly scattered across the New Territories (HKMPB, 2016e). Most activities on PBU land are rather backwards with a lack of investment in proper equipment and disorganised modes of operation. Moreover,
the PBU lands are proliferated on open lands in the New Territories. The land use efficiency for these back-up land is low with only one-storey of operation. Truck traffic induced has also caused nuisances to nearby neighbourhood.

We recommend a consolidation and clustering of PBU land during the planning of NDAs to improve land use efficiency and reduce traffic impacts. Multi-storey PBU facilities can consolidate operations on the PBU lands. These facilities with additional floor height can provide flexible spaces for the majority of PBU activities including container consolidation and deconsolidation, container vehicle parking and repairing, freight forwarding and other small scale logistics operations. While container storage and repairing requires open land, the stacking up containers to at most 7 units high and investments in equipment can improve PBU land use efficiency. To reduce traffic and environmental impacts, the government can cluster PBU land and facilities in the future planning NDAs and provide better road network planning with widened roads to cater for the high volume of truck traffic.

5.2.3.2 Port Facilities and Terminals

Extension of KTCTs to Tsing Yi South for River-transhipment

Riverborne cargo has increased significantly in the recent decade with RTT in Tuen Mun as one of the major handling facilities. RTT currently handles around 3 million TEUs of river cargo traffic which is around 15% of the total container throughput in 2015 (HKMPB, 2016e). The double handling fee charged on re-exports using RTT and KTCTs for river-to-ocean transhipment has resulted in a low utilisation rate of 49% in RTT. River barges tend to choose KTCTs over RTT to reduce cost despite the long queuing time as the waiting time in KTCTs is insignificant in comparison with the entire shipping duration.

We propose to cluster the operations of riverborne and seaborne cargo operations by extending current container terminals to Tsing Yi South. Taken into account the low financial viability of the government proposal for building Container Terminal 10, the scale of the proposed terminal is suggested to be reduced and to cater for the rising river trade (BMT Asia Pacific, 2014; Transportation and Housing Bureau, 2015d). The overall efficiency of river-to-ocean transhipment is expected to increase significantly with river and sea cargo handling facilities adjacent to each other. In addition, e-fulfilment centres for temporary storage before overseas shipping and distribution will be established in the container terminal to capitalise on the rising trend of e-commerce. Policy recommendations facilitating the development of this container terminal will be introduced in Section 6.1.1 With rising demand of riverborne shipping and international transhipment, the benefits of consolidating river and sea cargo handling facilities are significant but the development of an additional terminal in Tsing Yi South is subject to further study in consideration of the changing dynamics of the maritime logistics market.
5.2.4 Key Implications

The separation of RTT and KTCTs has restricted the efficiency of river-to-ocean transhipment and caused low utilisation rates for RTT. The clustering of river and sea cargo handling facilities at Kwai Tsing area shall eliminate the double handling procedures and trucking services, and integrate river and sea logistics operations to achieve a higher level of economies of scale. Furthermore, capital investments on riverborne logistics facilities increasing operation efficiency can increase the current low utilisation rates.

The government has proposed to better utilise land within the confines of the port by rationalising PBU land adjacent and yard space through extending tenancy of short-tenancy land, restricting uses of PBU land, re-prioritising parking spaces for container and goods vehicles, developing multi-storey vehicle parking and logistics facilities, and extending yard spaces to certain PBU land. Outside the port area, consolidation and clustering of PBU land through building multi-storey facilities in NDAs shall optimise the use of PBU land in the New Territories.

5.3 Tuen Mun West Logistics Cluster - Strategic Agglomeration of Logistics Activities

5.3.1 Positioning and Function of Tuen Mun West Logistics Cluster

In Chapter 4, TMW has been identified as a strategic location connecting the port and airport in Kwai Tsing and Chek Lap Kok through Tuen Mun Highway and TM-CLKL estimated to be completed in 2018, and logistics related sites in the Northern Logistics Belt and the BCPs in Northern New Territories. The provision of clustered land for logistics development and logistics facilities in TMW can improve the overall operational efficiency of the logistics industry and generate benefits from agglomeration. Catering the increasing importance of specialised cargo to the industry, the abundant available land supply in the area can facilitate adequate supply of specialised cargo storage facilities within close proximity of HKIA with the travelling time from Tuen Mun and Chek Lap Kok reduced to 10 minutes after completion of TM-CLKL (Highways Department, 2010). From a socio-economic perspective, the proposed cluster can provide local employment for Tuen Mun District and the nearby NDAs. The cluster can also draw a number of logistics activities away from the urban core to the less populated

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3 Benefits of agglomeration include knowledge spillover, economies of scale of resource input including specialisation and division of labour, and sharing of labour pool.
TMW. Hong Kong as a whole is expected to benefit from the agglomeration of logistics sites with more efficient operations.

5.3.2 Government Proposals

**Tuen Mun Area 38 and 49**
The current 3 to 5 year leasehold of short-tenancy PBU⁴ land surrounding KTCTs inhibits tenants to invest in their sites. To improve the efficiency of PBU land, investments on equipment and electricity generators in addition to basic works on site formation are necessary; yet, a short leasehold has limited the tenant’s ability to recover or earn returns from investments made (Transportation and Housing Bureau, 2015b).

**Tuen Mun Area 40 and 46 and the Vicinity**
Planning and engineering studies suggest the four parcels of land on Tuen Mun Area 40 and 46 and their adjoining areas in TMW provides a total area of around 50 ha with modern logistics as one of the two main considered uses (PlanD and CEDD, 2015). The government mainly aims to enhance the economic strategic role of Tuen Mun West and create synergy with surrounding industrial uses (PlanD and CEDD, 2015).

**Lung Kwu Tan Reclamation**
The government has planned for conducting planning and engineering studies for the reclamation of LKT which will provide about 200 ha of land for industrial and other uses (Office of the Chief Executive, 2017).

5.3.3 Recommended Strategies

**Figure 5.7 Proposed Tuen Mun West Logistics Cluster (by authors)**

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⁴ Port back-up land are designated with “Other Specified Uses (Port Back-up)” land use where five main activities are allowed including container storage/repair yard, container freight station, container vehicle park/container vehicle repair yard, freight forwarding services center and logistics centre. (Town Planning Board, 2008)
5.3.3.1 Tuen Mun Area 38 and 49, 40 and 46 and the Vicinity

Pilot Scheme of Logistics Cluster
The four identified areas and the adjoining sites supplies a total of about 60 ha developable land in TMW. Situated at the node of cargo delivery, the provision of abundant land in the area can increase the efficiency of the overall logistics operation in Hong Kong. We recommend the government to provide larger land lots to build modern warehouses with ramps to provide affordable warehouse for SMEs and for large operators to lease and build their own logistics facilities. The design of modern logistics facilities should also meet the needs of intermodal logistics activities like pallet building or breaking-down and e-commerce cargo handling that deals with smaller package sizes, in which both abovementioned operations require larger spaces. Certain areas of the sites should be designated to specialised cargo storing and possibly security screening to cater for rising trends of specialised cargo handling and increasing security standards in airborne cargo. Moreover, the top floors of modern warehouses should house companies providing third and fourth party logistics services to further rationalise land use and promote the effects of agglomeration.

The current maximum plot ratio of Area 38 and 49 is 2.5 with a maximum building height restriction of 30 mPD\(^5\) restricting the development potential of the sites (Transportation and Housing Bureau, 2015b). With reference to the suggested plot ratio of 4 in Area 40 and 46 and the adjoining areas, we propose to increase the maximum plot ratio of Area 38 and 49 to 4 together with road enhancement projects to ease increased traffic flows after developments (PlanD and CEDD, 2015).

Highly Automated Logistics Facilities
The application of cutting-edge automation technology in logistics operations has been low in Hong Kong, comparing to major competitors such as Shanghai and Singapore. The cluster should adopt highly automated operation systems with technologies ranging from management of storage space and truck scheduling with data to installation of robots in cargo handling processes. Increased automation can not only improve efficiency in logistics operations but also mitigate aging and shortage of frontline labour. In addition, the cluster can also serve as a platform for experimenting research and innovation for logistics operations.

Lung Kwu Tan Reclamation and RTT Site
Reclaimed land in LKT and the RTT site serve as potential sites for expansion of the Tuen Mun West Logistics Cluster. In long term, after the completion of reclamation works in Lung Kwu Tan and phasing out of RTT as proposed in Section 5.3.3, the two sites in close proximity to the existing cluster can provide about 200 ha and 65 ha (current size of RTT) for further development of the cluster (River Trade Terminal, 2014; Office of the Chief Executive, 2017).

\(^5\) mPD: metres above the Hong Kong Principal Datum
HSK NDA provides a total of 27 ha for logistics facilities (PlanD, 2014d). The proposed clustering of logistics facilities in TMW that is considerably larger than that of HSK NDA is supported by a total of about 60 ha developable land with extra potential supply of 200 ha from LKT Reclamation and inclusion of RTT site in the long run.

5.3.4 Key Implications

Large land lots for logistics development is very scarce in Hong Kong. The bulk supply of available large land lots allows the construction of modern warehouses by either private logistics operators or the government. The cluster not only facilitates the growth of large operators which can finance for an entire facility but also promote the competitiveness of SMEs by leasing out government owned modern warehouses with flexible rental rates. The construction of modern logistics allows direct access to trucks on all floors, enhancing the operational efficiencies. The provision of modern warehouses on large land lots in the cluster can fulfil the needs of the industry for intermodal logistics services and handling of e-commerce goods which requires more space for operation.

The progress of technology application in the industry has been slow due to a lack of capital investments resulted from limited financial capabilities of SMEs. Affordable modern warehouses can aid SMEs to free up capital for investments in automation, management of storage space and truck scheduling with data or any other technology applications. The provision of proximate spaces for research and development facilitates proliferation of smarter logistics operations with increased reliance on advanced technologies.

5.4 Northern Logistics Belt - Exploiting the Proximity to BCPs

5.4.1 Positioning and Function of Northern Logistics Belt

The establishment of the Northern Logistics Belt aims to exploit the locational advantage of the area’s proximity to the BCPs, especially with the opening of the new LT/HYW BCP in 2018. By locating logistics facilities close to the BCPs, the efficiency of cross-boundary freight movement can be enhanced that can facilitate the local delivery as well as the transshipment
of goods. It is therefore crucial to provide suitable land plots in this area to capture the potential of frequent cross-boundary freight movement, and the associated high-value added services. The provision of logistics facilities at the northern part of the territory will serve as an affordable alternative for the existing logistics functions in the urban core, and as an option for the clustering of PBUs and Open Storage land that will form part of our strategy in absorbing the decentralised functions into the four nodes of the Northern Logistics Belt. The four nodes (Ping Che/Ta Kwu Ling, Man Kam To, San Tin/Lok Ma Chau and Hung Shui Kiu/Yuen Long South) will serve as four smaller development clusters for logistics development that are oriented for different logistics function based on the strategies deployed.

**Logistics Land Uses in Ping Che/Ta Kwu Ling (PC/TKL)**

Allocation of land use for special industry such as high-value added logistics services in the PC/TKL area was mentioned originally in the North East New Territories NDAs Study dated in 2008 (PlanD, 2014a), while it was subsequently subjected to replanning and review, the idea of introducing logistics related land-uses was brought up again in HK 2030+ NTN Development, in the NTN New Town Area. Proposals by the government in this area include multi-storey compounds and modern logistics functions, to cater for the consolidation of brownfield operations and growth in demand for logistics space.

**Potential Logistics Land Uses in HSK NDA & YLS Development**

The revised HSK Development Plan (ODP) in 2016 proposed to allocate 37 ha of land for logistics facilities as well as 24 ha for PBUs, storage and workshops in the HSK NDA (PlanD, 2014b), capitalising on the advantage of having direct linkage to the Western Highway. For YLS Development, 10 ha of land will be allocated for storage and workshop while 2 ha will be for open storage uses. For the case of YLS, the exact implementation of these uses will be subjected to the feasibility of multi-storey compounds or other efficient land use measures that will be adopted firstly in HSK NDA (DB, 2012).

**San Tin/Lok Ma Chau (ST/LMC) Development Node**

The ST/LMC Development Node, as one of the focus area mentioned in the HK2030+ NTN development, indicated potential provision of logistics land use adjacent to the existing San Tin Highway. Multi-storey compounds are proposed for this area to cater for the consolidation of brownfield operations and to accommodate distribution activities surrounding the LMC BCP.

**MKT Logistics Corridor**

The concept of the MKT Logistics Corridor was another focus area mentioned in the 2030+ NTN Development, with the primary goal of developing MKT into a area for consolidation, storage and certification of agri-logistics functions such as the handling of livestock and fresh food produce. About 35 ha of land will be provided for these uses, with the benefit of being located in proximity to the existing MKT BCP and a link to the future LT/HYW BCP.
5.4.2 Recommended Strategies

Figure 5.8 Location of Development Nodes in Northern Logistics Belt (by authors)

5.4.2.1 PC/TKL

Modern Multi-storey Logistics Centres

In order to capture the potential of high-value added services in the logistics supply chain, introducing modern logistics centres in the PC/TKL area is recommended to capitalise on the opportunities of high-value added services (See Figure 5.9). It is recommended to utilise the existing Open Storage land at the north of Ping Che, with an area of around 28 ha, for the construction of modern logistics centres. The strategy is expected to benefit from the proximity to the new LT/HYW BCP, and create a synergy effect with the proposed modern industrial estate and science park located in the around Ping Che area mentioned in the HK2030+ NTN Development, forming part of the anchor point for the conceptual Eastern Knowledge and Technology Corridor.
Figure 5.9 Ping Che/Ta Kwu Ling Area Open Storage Land (by authors)

Reference Case: DHL Megahub

The logistics complex in Tsing Yi serves as an example of a modern multi-storey logistics centre. The centre has 23 floors with total floor area of 2,400,000 sq ft, there are ramp access from 1/F to 15/F with cargo lifts reaching 17/F-22/F and the specifications of floor height are 6.5m and 5.5m for ramp access and cargo lift access respectively (DHL, 2010).

5.4.2.2 MKT

Open Storage Provision

As part of the reconsolidation process of brownfield and open storage sites, considerations have been made regarding the possible rezoning from Agriculture Uses (AGR) to Open Storage (OS) to provide open storage sites in proximity to the Man Kam To BCP. In this context part of the 34.5 ha of AGR land along Lin Ma Hang Road can be rezoned for open storage uses to exploit the possible improvement work of Lin Ma Hand Road mentioned in 2030+ NTN development, as well as the proximity to the new LT/HYW BCP.
Figure 5.10 Man Kam To BCP Area Agriculture Uses and Open Storage Land (by authors)

**Agri-logistics Development Cluster**

The concept of MKT Logistics Corridor was mentioned in the HK2030+ NTN Development as one of the focus areas, a cluster development focusing on the handling of perishable goods is therefore recommended under this spatial framework. Part of the agricultural (AGR) land (63 ha) adjacent to the Man Kam To Road can be rezoned to OS to cater for the development of the mentioned cluster. This will establish MKT as the centre for the handling and distribution of perishable goods, capturing the opportunity from the high volume of livestock and fresh produces that passes through MKT BCP daily.

Figure 5.11 Man Kam To Logistics Corridor Agriculture Uses and Open Storage Land (by authors)
5.4.2.3 ST/LMC

**Multi-storey Warehouses**
Under the framework of ST/LMC Development Node, provision of multi-storey logistics compounds in the area were recommended by the government. Expanding from this spatial framework, multi-storey warehouses are thus recommended to be constructed in the OS area (87.5 ha) adjacent to the San Tin Highway. Apart from the benefit of having direct access to Route 9 and in proximity to the LMC Loop Development, this strategy will accommodate decentralised logistics functions from the urban core as discussed in Chapter 4.

**Figure 5.12 San Tin/Lok Ma Chau Area Open Storage Land (by authors)**

**Provision and Consolidation of PBUs**
The provision of extra PBUs should be accommodated for the relocation of some of the PBUs near the KTCTs, mentioned in Section 5.3. The potential area would be within the same OS area adjacent to the San Tin Highway. Some of the consolidated PBUs from existing brownfield sites will also be allocated to the same parcel to facilitate an efficient use of land resources, with the possibility of introducing multi-level compounds to accommodate some of these functions.

5.4.2.4 HSK NDA

**Modern Multi-storey Logistics Centres**
As mentioned in the previous section the HSK ODP allocated 37 ha of land for OU (Logistics Facilities) in the HSK NDA. In this context modern multi-storey logistics centre should be provided in suitable land plots to provide integrated solution for high-value added services, while exploiting the locational advantage of HSK as an important node between Shenzhen and Hong Kong through the Hong Kong-Shenzhen Western Corridor.
Logistics Training Facilities
The establishment of a logistics training institute would be beneficial for the pursuit of sustainable development of the industry by training new recruits to sustain a healthy labour supply for different sectors of the supply chain. Potential land plots would be the different categories of OU land within the NDA depending on the future demand for facilities under each category.

5.4.3 Key Implications
The strategies discussed above aim to address the issue of scattered logistics operations on brownfield and OS land, through the provision of land for consolidated use of OS and PBUs; the issue of inadequate supply of modern warehouse for SMEs would entail land for the construction of multi-storey, technology-based warehouses and logistics centres, which the operation model of these facilities will be discussed further in Chapter 6; the shift of the industry’s direction towards high-tech, high value added based logistics services would require adequate support in expertise training and hardware provision, thus the proposed strategies of modern logistics centres, agri-logistics development cluster and logistics training facilities will be tailored for the development of logistics industry towards this direction.

5.5 Road Network Enhancement - Create Capacity for Intensified Freight Movement
5.5.1 Positioning and Function of Road Network Enhancements
Road network is utterly important for logistics. It mainly serves two functions: for land logistics and for employment. In land logistics, goods are all transported and distributed through the road network. Roads are the blood vessels of land logistics. Smooth and direct
road network can facilitate the transportation of goods, as well as the efficiency of the whole logistics operation. Traffic congestion is a major threat. If the road to major warehouse and distribution centre is always congested, it will be like myocardial infarction - goods are going nowhere. Much time as well as money would be wasted.

Labour is important for the operation of logistics. Remote working places with long commuting time may discourage people from cross-district employment and thus lead to underemployment. Same-district employment and smooth and efficient transportation systems are essential to shorten the commuting time.

**Figure 5.14 Proposed Overall Road Network Enhancement Plan (by authors)**

5.5.2 Government Proposals

To facilitate the transportation network, the government already has new road infrastructures planned and in construction. The TM-CLKL provides a direct access from the airport to Tuen Mun, which can shorten the travel time from the two places down to one third. Considering the additional traffic brought by the new link towards the Northern District and the mainland China, the Tuen Mun West Bypass is also proposed by the government to relieve the pressure of the existing Tuen Mun Road. To further increase the connectivity of the HSK NDA and the Hong Kong-Shenzhen Western Corridor, Route 11 has been proposed by the government that consist of a tunnel and a new bridge connecting to the existing Hong Kong-Shenzhen Western Corridor (Route 10) and the North Lantau Island Highway (Route 8) at the north part of Lantau Island.
The government has also announced a preliminary plan to build the ELM which consists of a highway linking the existing North Lantau Island Highway and the western part of Hong Kong Island. This scheme would allow a more direct access as well as an alternative route from the airport to the Hong Kong Island.

5.5.3  Recommended Strategies
To tackle the problems encountered in logistics related to the roads, three aspects of strategies are recommended.

Road Infrastructures
To tackle the problem of traffic congestion, traffic jams that occur near major logistics clusters and major trucking routes are the most important to be addressed for logistics. Spatially, improving the road infrastructure is one of the methods to solve the problem.

Considering additional traffic will be introduced in the above clusters we proposed, the connectivity and congestion situations of the area the clusters located at should be evaluated and improved. Widening of roads that directly connected to the clusters can prevent traffic congestion in and out the new clusters by the additional traffic. Take Tuen Mun West Logistics Cluster as an example, Lung Mun Road being the only road to the cluster is already congested at times due to the traffic in and out the current RTT and other facilities in LKT and Nim Wan. Considering more traffic will be introduced by the new cluster facilities, the road as well as the junctions connecting to the highway should be widened and improved to cope with a higher volume of heavy-vehicular traffic.

Congestion on highways is also a problem to tackle. Tuen Mun Highway is easily subject to congestion as one of the major road to the urban core from the NWNT. Despite Tai Lam Tunnel providing a more direct access for areas like Yuen Long as well as traffic from the Hong Kong-Shenzhen Western Corridor, its high toll fee has discouraged some of the traffic from using it. By proposing an adjustment of the toll fee down to a reasonable rate after the return of ownership back to the government in 2025 (Legislative Council, 2010), more traffic can be attracted and make use of Tai Lam Tunnel instead of the congested Tuen Mun Highway. The congestion in Tuen Mun Highway is expected to be relieved.

The government has proposed new highway infrastructures as aforementioned. These new highways can increase the connectivity of the NWNT and the Lantau Island, as well as provide alternative routes which can increase flexibility and maximise efficiency in transportation. From aspect of logistics and transportation, we suggest to speed up the constructions of these highways, so that the public can make use of them soon.

Public Transport
An efficient, direct and fast public transport is one of the incentives for workers to commute to work in distance. Considering the workplace for logistics operations do not locate at residential areas, good public transport system is needed to connect the workplace and
where the workers live. With the completion of HKBCF and TM-CLKL, bus routes can take advantage of the new road and serve the new areas. It is a chance for buses to rationalise the routes. With our proposed clusters, bus routes that serve directly from nearby major residential estates are needed to attract local residents to work there with an efficient and convenient means of commuting.

Considering the growing labour demand in the Airport Island and the growing population in Tung Chung, to facilitate people living in Tung Chung to work in the airport, we propose a light rail to be built connecting the two places in long term. Despite various bus routes connecting Tung Chung and the Airport Island, the growing commuting demand between these two areas may deserve a higher level public transport mode in the long run. A light rail may meet the demand as it is more flexible and can enjoy a more frequent stop interval that meet the context there. In the long run, the light rail can also connect HKBCF and Siu Ho Wan. The proposal however requires further studies.

**Deliveries**

In urban logistics, the major problem of the deliveries in Hong Kong is often loading and unloading (L/UL) within the urban core. As the urban area of Hong Kong is highly dense, trucks often have difficulties to park for L/UL activities. Old buildings may not provide a proper parking space for big trucks to L/UL. Legal on-street parking spaces for trucks are very rare, while many L/UL activities on-street are usually illegal. We suggest to review the supply of L/UL bays of the whole Hong Kong. With the emergence of e-commerce, express deliveries are becoming increasingly important and scattering destinations of deliveries, provision of on street L/UL spaces are suggested to increase in places that off street L/UL is not possible. In new buildings, we also suggest to review the requirements of provision of L/UL spaces as well as regulating the pricing. The reviews of demand and supply of L/UL spaces should not be limited to individual buildings, but on district scale. Provisions of bays should be sufficient to discourage trucks parking illegally on street.

To increase the efficiency of deliveries, we propose to set up a territorial freight plan for Hong Kong, following the practices of other cities and regions including Chicago, Bergamo and Massachusetts. A territory-wide freight plan can provide a tool for analysis of freight movements with the use of data and maximise the efficiency of last-mile delivery in the context of urban logistics, which the plan itself should be reviewed on a regular basis. The plan should also consist of how infrastructure, policies and logistics strategies interact with each other, and provides implications for improvements.

**5.5.4 Key Implications**

With the strategies suggested above, we hope to alleviate the traffic congestion especially the major routes that trucks go through, i.e. roads between major warehouses, the ports and the airport. The issue is tackled by widening of the connecting roads outside major nodes, as well as new highways providing alternative routes.
Labour spacial mismatch is another issue that long commuting time discourages workers from being employed in remote logistics facilities especially the airport. Rationalisation of bus routes by using new highways and connecting to new clusters, and better connection between Tung Chung and the airport by railway may significantly reduce the commuting time to work in nearby districts.

5.6 Overall Effect of Spatial Strategies in Creating Capacity to Maintain Competitive Edge

The combined effects of the five clusters and focus areas is expected to significantly improve the efficiency of the overall logistics industry and effectively increase the capacity to handle logistics operations. In particular, the Aviation and Tuen Mun West Logistics Cluster created capacity for high value logistics services including specialised cargo handling and storage, increasing the value per volume ratio for services provided. Road network enhancements and the Northern Logistics Belt can reduce traffic congestion due to urban logistics activities and improve transportation networks by relocating logistics activities to NTN and NWNT and providing a wide range of road improvement strategies such as road widening and increasing the provision of L/UL space in new buildings. The Maritime Cluster can rationalise the disconnected river and sea cargo handling facilities and improve the competitiveness of maritime logistics services through enhancing cargo handling capacities of port terminals. The decentralisation and clustering of logistics operations can bring jobs closer to major sources of labour supply in the New Territories. Spatial strategies alone cannot create capacity for high value logistics services and reinforce Hong Kong’s position as a global logistics hub. Institutional and regulatory policies and measurements which will be introduced in Chapter 6 are also essential to maintain the competitive edge of logistics industry in Hong Kong.
6 Overall Institutional and Regulatory Approach

In this chapter, the proposed institutional and regulatory approach to maximise the existing functions of logistics operations, providing regulatory framework for road network enhancement and overall sustainable logistics development will be presented. Policy recommendations are explained from the four different perspectives of development mechanism, labour productivity, technological enhancement and regional cooperation.

6.1 Development Mechanism of Spatial Planning Strategies

While it may be too early at this stage to form a definitive view on the development mechanism of the proposed spatial planning strategies owing to the absence of detailed attributes, this section aims to set out a framework for the exploration of potential implementation models for various spatial planning strategies.

6.1.1 Implementation Model for Providing Efficient Logistics Infrastructure and Facilities

Considering the inefficiency of certain logistics infrastructure and facilities, such as KTCTs and industrial buildings, the development of multi-storey compounds and facility enhancement are considered necessary in the spatial planning strategies. Taking into account the degree of efficacy and financial viability of different models, implementation models ranging from full privatisation, public-private partnership (PPP) and provision by government are hereby examined.

Multi-storey Compounds for Logistics Use in Clusters

Regarding the variance in affordability for large-scale operators and SMEs, the execution of multi-storey compounds is suggested to be implemented by three possible options of mechanism as mentioned. First, private development of multi-storey compounds is considered as appropriate in addressing the needs of large-scale operators without assistance from the government. In addition, feasibility is guaranteed as the industry has extensive demand towards logistics sites (Information Services Department, 2011) and large-scale logistics operators, such as Kerry Logistics, are mostly asset-based with high motivation to invest in logistics facilities to improve the operation efficiency. With the reference case of Hong Kong Science and Technology Park, the government might consider leasing out land lots for dedicated use in logistics in the clusters under reviewable land premium with reference to market price to generate economic return for the government as well (SD Advocates, 2015). Yet, drawbacks of this mechanism should be noticed as the affordability issues of SMEs would be neglected under market price.

Second, public-private collaboration should be employed in cases where affordable logistics facilities should be provided with shared risks and costs. A possible way to achieve so is to offer incentives such as lower land premium through land sale or development right of land parcels with potentially more viable returns, so as to attract the private sector to take up the task of construction. Adopting PPP shall also speed up the provision given the emphasis on
time efficiency in private development. By adding specific contractual terms, certain proportion of logistics facilities could be provided for SMEs solely to satisfy the SMEs’ needs of affordable logistics facilities without government subsidization. Different local cases such as Hong Kong Convention and Exhibition Center illustrated the success of well-established PPP mechanism of Hong Kong in providing essential facilities for the city by offering incentives such as development right.

Direct provision of multi-storey compounds by government as an alternative implementation model should only be considered when the market mechanism such as privatization and PPP fail to provide affordable logistics facilities for SMEs. Referring to the model of industrial estate, the government could develop multi-storey compound for renting to SMEs in affordable price to facilitate the growth of logistics industry (The Hong Kong Shippers’ Council, 2013). Nevertheless, such model would greatly reduce the possible financial return of the government and require long-term subsidy that might hamper financial volatility of the government.

With regards to choosing a suitable development mechanism for multi-storey logistics compounds, it should be noted that feasibility and investment interest of the market shall be first examined in-depth. In particular, new market trends might exert influence on the demand of multi-storey logistics compounds. Hence, detailed and forward-looking analysis of multiple variables as well as costs and benefits is essential for the employment of a particular model.

**Redevelopment of Industrial Buildings in Urban Core**

Apart from the provision of multi-storey buildings, certain stakeholders such as SMEs serving local market require proximate location to urban area, the planning provision can not fully replace the function of industrial building locating in urban core. Nonetheless, the old industrial buildings in deteriorated condition fail to meet requirement of SMEs and reduce their operation efficiency as stated in Section 3.4.1.

Therefore, redevelopment of industrial buildings in urban core is indispensable to facilitate the growth of SMEs in logistics industry. In contrary to multi-storey compounds, the attractiveness of such redevelopment to the private sector would be lower due to the limited economic return from redevelopment of industrial building into same use and the costly process for acquiring building from multi-ownership. In this case, government taking a proactive leading role would be crucial to the facilitation of redevelopment process. Considering the affordability of SMEs, provision of government built industrial building with affordable rent for SMEs by land resumption might be the effective model to satisfy the SMEs’ needs. Nevertheless, heavy financial burden would be imposed on the government to bear the cost of land resumption from multi-ownership and the construction. Given constraints in cost and procedure, cautious review on demand and the feasibility studies of redevelopment
of industrial buildings should be firstly conducted. The significance of implications should be analyzed deeply to determine the implementation of redevelopment of industrial buildings.

**Extension of KTCTs to Tsing Yi South**

To capture the market trends of river-borne transshipment, additional container terminals catering for river cargo are suggested to be constructed in the location of Tsing Yi South to improve the operation efficiency of KTCTs. Referring to the previous construction of Container Terminals (Marine Department, 2017), granting land which acquire from land resumption to terminal operators for the construction of extending container terminal is recommended. To implement the extension proposal, land resumption on existing industrial land on Kwai Tsing South with re-accommodation of specialised facilities including oil depots (CEDD, 2014) are inevitable to acquire adequate developable sites for building the additional container terminals. As such, significant expense on fiscal burden and reprovision for facilities would be induced in the process of land acquisition.

After land acquisition, PPP model or privatisation would be preferable and feasible options given the reference on previous practice and advantage to leverage on private expertise for developing container terminals. Yet, the investment interest of terminal operators might be limited given the slow growth of maritime logistics industry. Substantial incentives such as reduction in land premium or exchanging development right under PPP model for terminal operators might be some other plausible options. Issues including less commercial return for the government from land grant would be incurred in the PPP model for providing the investment incentive of terminal operators. Considering the extensive resources required for land acquisition and incentive provision, it should be stressed that the implementation of this expansion proposal would be subject to further study, especially with regards to the market trends of riverborne transshipment cargo. Construction is only recommended with the presence of considerable socio-economic benefits.

6.1.2 Alteration in Regulation for Road Network Enhancement

As stated in spatial development strategies, reviews on the demand and supply of loading and unloading spaces are suggested for alleviating the nuisance from deliveries. Provision of additional on-street and off-street L/UL spaces might be required given the potentially unbalanced demand and supply. Regarding the effectiveness on minimizing congestion on street, provision of off-street L/UL spaces should be prioritised to increase the supply. Possible measures to increase the supply of L/UL bays include changing regulatory requirement under land leases or advised standards in Hong Kong Planning Standards and Guidelines. Changing requirements under land lease in new buildings with new land lease granted under change in land use or expiration of old lease can increase the provision of L/UL bays. Yet, large scale improvement on L/UL bays in old districts is only expected soonest in 2047 owing to the expiration of large amount of land leases. Therefore, measures mentioned
in Chapter 5 and Section 6.3 should be implemented together to address possible needs on L/UL bays in the urban core after reviews on provision of L/UL spaces has been conducted.

6.1.3 Establishment of New Authority under Institutional Framework

Regarding the institutional framework discussed in Chapter 3, the lack of leading authority with executive power might hinder the efficiency of the government to address stakeholders’ concern timely. To increase the capability of current institutional framework, a steering authority at high level could be established and held responsible for coordinating the development of logistics industry. By integrating the currently dispersed and yet relevant functions of different departments, comprehensive policy formulation and implementation as well as the suggested development strategies would be achieved effectively. The authority could also serve as a one-stop solution for stakeholders to make queries or seek solutions. In the long term, regular review on logistics industry in compliance with market trends could be conducted by the authority to enhance the competitiveness of the industry constantly. The case of Economic Development Board in Singapore illustrated the importance of leading authority to coordinate different departments and stakeholders in the industry for policy implementation in fostering the industry growth (SD Advocates, 2015). Nonetheless, feasibility constraints on legislative procedure and financial viability of the authority need to be addressed, especially more subsidization from government might be required if more functions are assigned to the authority. Thus, consultation with the industry and feasibility studies on the operation model of the authority should be conducted before the establishment. With a leading authority with executive power, development of logistics industry could be better promoted and facilitated.

6.2 Fulfilling the Demand in Labour Supply

The logistics industry is now facing the problems of ageing labour and the lack of frontline workers (See Section 3.2.3). These problems are often associated with the undesirable working environments and the poor social perceptions and recognition of workers in the logistics industry. In order for the logistics industry in Hong Kong to maintain its competency, there is a need for the government to take on the following measures to enhance productivity of the industry as well as attract young generations to enter the industry.

6.2.1 Productivity Enhancement

Increase Information Technology (IT) Training

With an aim to familiarize logistics practitioners, especially those working in SMEs, with the latest logistics technology; the government established programmes such as the ITTP in the early 2009. Although being as the major programme in supporting the enhancement of knowledge of workers towards the latest IT trend and development, ITTP has been completed with success in 2010. In order to update the logistics practitioners with the latest logistics technology and trends to maintain their competency, there is a need for the government to increase the provision of IT training programmes and courses on a regular basis to the workers
in SME and the logistics industry. The government should also conduct regular reviews on the scopes and contents of the IT courses, such as contents of logistics data system, to ensure the courses meet the needs of the workers and the trends of technology advancement in the industry.

**Provide Specified Land Logistics Courses**

In view that under the current training scheme, there is no specific course offered to the field of land logistics employees, the government should consider expanding the scopes of Specifications of Competency Standards (SCS) based courses to provide additional training courses, such as courses on urban logistics and fleet management to labours from the land logistics industry to improve their competency level.

**6.2.2 Promotion of Qualifications Framework in Attracting Young Generation**

Despite the establishment of Qualifications Framework (QF) being supported by a number of professional bodies and trade organizations in the logistics industries (Ho, 2009), it has encountered various difficulties in its implementation stage (The Hong Kong Shippers Council, 2013), which hinders the acceptance and recognition of QF within the logistics industry. There is a need for the government to address the issues and assist in further publicizing QF to gain wider acceptance and recognition within the logistics industry and support from the public. In addition, the government has been recommended to encourage and promote SCS based courses through progressive pathways at different QF levels in order to cater for the needs of various logistics workers with different backgrounds and qualification requirements in the industry.

The above recommendations suggest to meet the demand of labour supply through increasing the provision of training programmes of the latest technology and trends for specific logistics sectors, and further promotion of QF to attract young talents. The productivity of the logistics labour will be significantly enhanced for embracing the future trends to provide high value logistics services in the logistics industry in Hong Kong.

**6.3 Meeting the Megatrends of the Industry to Enhance Competitiveness**

**6.3.1 Innovative Development in Smart and Green Logistics**

The advancement in information technology has provided vibrant and continuous expansion for logistics operations. However, the required investment and capital have limited the SMEs to enjoy the fruit of trade facilitation and productivity enhancement. To provide a more robust environment for the logistics operators, particularly in small and medium size, this subsection is written to cater the special needs to meet mega trends of the industry and provide sustainable logistics development through different technology innovation.

**6.3.1.1 Smart Logistics**

To cohere with the smart city initiative, continuous development in logistics operation and data process is required to be growing in the same momentum in order to meet the market
trend and business needs. Even though the government have established different financial mechanisms to support the technology enhancement of the industry, the operators with limited continuous support are required to invest in the management of data and equipment to provide seamless operation.

**Promote E-logistics and Electronic Trading Platform to Speed Up the Trading Process**

Regardless of the availability of electronic services, the clearly demarcated roles and standards of different government agencies has slowed down the processing of incoming and outgoing goods and increased the transaction cost of trading. In addition, the scope of electronization is rather limited. As of 2015, only 24 out of 51 business-to-government (B2G) documents accounted are available to electronic submission. Owing to the difference in information systems, duplication of data inputs are often required and adding unnecessary cost to private companies.

To speed up the documentation process and providing traders options, the government has proposed a number of initiatives to increase the competitiveness of logistics businesses in the 2016-2017 Budget Speech. A single IT platform is suggested for the one-stop lodging of all trade documents from the trading community to the government, so as to facilitate trade declaration and customs clearance and enhance the existing documentation process. Hence, the government should speed up the establishment of single IT platform as a single trade window for efficient information exchange between government departments and the private sector.

**Enhance SME’s Knowledge on Technology and Innovation to Provide Communication and Matching Platform with the IT Sector**

In short-medium term, the existing Technology Voucher Program (TVP) implemented in 2016 targets to provide better financial assistance to the SMEs in the logistics industry to cope with ITs development in the market. The TVP provides subsidies for SMEs to adopt technology in operations that could improve productivity and upgrade or transform the business process of the enterprise. However, the support or promotion of such program from the government is limited. Many SMEs are unfamiliar with the system which hinders the usage of more advance technology in the operation (HKSARG, 2016).

Communication platform should be established to allow knowledge exchange of the IT sector with SMEs in the logistics sector. This provides business opportunities for two abovementioned parties to meet the market trend and maintain their competitiveness. Matching platform can also be established to provide more technology service options for the SMEs.

**Provide Platform for E-supply Chain Development and Provide more Integration with Other Government Agencies**

For long term, comparing to different overseas country and their logistics development approach, Hong Kong seems to be lagging behind in terms of institutional framework and
initiative. The government should monitor and provide platform for e-supply chain development and to ensure holistic growth of the logistics sector.

Reviewing the operation of the Economic Development Board of Singapore, the HK Government should establish governed agency with similar functions that can collaborate with other government agencies such as the Innovation and Technology Bureau to establish a fully electronic platform for the supply chain management and enhance the existing policies for the development of logistics industry and technological support for the industry. This can eventually provide Hong Kong with an e-supply chain and strengthen the role as a global logistics hub.

6.3.1.2 Green Logistics
Green logistics has been developed as a trend under the macro perspective to reduce carbon emission. Currently, there is a lack of specific policies designed purposely for the logistics industry. It is imperative for the government to continuously promote green logistics to enhance sustainability for the logistics sector.

Increase Subsidy and Encourage Trials for Green Vehicles
The Pilot Green Transport Fund set by the government target to support the testing of green and innovative technologies applicable to the public transport sector and goods vehicles (Environmental Protection Department (EPD), 2015). At the moment the promotion of the scheme is not insufficient, most of the successful applications are mainly light good vehicles, and the number of applications are minimal (EPD, 2017). In short term continuous assistance and promotion of green vehicles particularly to SMEs can further facilitate the Government’s goal to integrate green infrastructures for better synergy in development. Promoting trials for green fuels (such as Liquefied Petroleum Gas and Liquefied Natural Gas for the trucks) and technologies (tightening vehicle emission standard) have positive contribution in fuel saving potential. However, the use of these technologies have high capital cost and uncertainties in the performance (EPD, 2015). The funding and trial program for alternative fuels and facilities should be carefully studied to enhance the potential market for widespread usage of green fuels and vehicles.

Green Freight Plan to Cater the Needs of Reverse Logistics within the Industry
In long term, transport strategy should be produced to reduce nuisance for community for sustainable development by providing clear guidance and directions to complement the raising market trend in the logistics industry particularly for reverse logistics. The plan can detail how freight is considered in the spatial planning framework and assistance can be provided to cater the needs of the logistics industry. It can also provide strategic framework for creating a greener, more sustainable and resilient for environment for the logistics industry.
6.4 Cooperating in Regional Dimension to Reinforce Hong Kong’s Global Premier Status

To allow the logistics industry to grow robustly, regional cooperation with the PRD region can assist Hong Kong to solidify its position as a global logistics hub. In this following subsection, three different directions of policy implications are suggested to support Hong Kong’s logistics industry on a regional scale.

**Position Hong Kong as the International Service Hub in the Logistics Industry**

To reinforce Hong Kong as a premier global logistics hub, stronger emphasis on different modes of transportation can strengthen Hong Kong’s advantage in the logistics sector. In view of the declined growth of maritime logistics, Hong Kong should put emphasis on the advantages of maritime intermediate services.

The existing advantage in maritime industry should not be neglected as it can be serve the port operations along the PRD region as well. The knowledge based business operation and sophisticated legal system of Hong Kong enables the maritime industry to uphold the competitiveness internationally. Hong Kong can use its service economy to support regional logistics growth complementarity while strengthening the capabilities of the maritime logistics sector.

**Collaborate to Compete with Neighbouring Airports and Seaports**

For the maritime industry, the growth of Yantain and other neighbouring seaports have replaced part of Hong Kong’s role in the sea transportation system. Given the trend, Hong Kong needs to reposition as a transshipment hub and through collaborating business operations with Yantian to take advantage of regional collaboration in the maritime industry.

For air logistics operation, HKIA currently shows limited linkage and cooperation with the neighbouring airports in the PRD region. There is a weaker domestic connectivity compare to airports in Guangzhou and Shenzhen. There is also no clear strategic position for Hong Kong in the regional hierarchy. Clearer division of labour should be undergone to enhance the operation and specialty of different airports.

Promotion on specialization in airports in PRD through merging and joint venture like the AAHK and Zhuhai Airport collaboration can be a good direction approach for better air logistics operation. The enhancement of existing infrastructure and modes of transportation can be beneficial to different stakeholders in the industry. For air logistics operator, it can expand the cargo catchment area and reduce competition among airports and facilitate cargo activities.

The cooperation between Osaka and Kansai International Airport have diverse the specialization into different markets and this can be a good example to be studied by the PRD region air authorities with HKIA. The management system between these two airport enhance the role to compete with the rival in the Tokyo area as well as enhancing the cargo handling functions (KIX, 2012). The feasibility of regional cooperation however is also highly
influenced by the government authorities who are the large shareholders of the infrastructures and this is subject to the shares released by government of mainland cities.

**Cooperate along the Hong Kong-Zhuhai-Macao Bridge Zone for Logistics Development**

After the opening of the HZMB, Hong Kong can link with the Zhuhai region with ground transport. The commuting time and transportation distance with other inner Guangdong cities, including Zhongshan and Jiangmen, can also be shortened. Business opportunities in western PRD are easier to capture given improved accessibility (HKTDC, 2015). The regional logistics cooperation should also take advantage of the existing mega infrastructure to enhance and connect logistics facilities.

The development of HZMB allows more affordable land to be provided for industrial purpose for warehousing and this can encourage local logistics companies to further investment and integration with the PRD region given the relative tight warehouse supply and high rental cost in Hong Kong (Yeung, 2011). In the same time, Hong Kong’s ability to provide quality 3PL services can attract more business opportunities from West PRD. It is worth exploring how to leverage the advantages of Hong Kong to cooperation with Zhuhai for further developments as regional distribution centre in long term.

### 6.5 Implications for the Future

This chapter has provided suggestions for the appropriate institutional and regulatory approach to be employed in the implementation of identified spatial and non-spatial issues in this paper. The development mechanism detailed possible implementation models for the spatial strategies suggested in **Chapter 5**. Through enhancing labour productivity and meeting the megatrends in the industry, issues that could not be addressed from the spatial perspective are resolved through the proposed policy measures. The implications have enhanced the competitive edges, upgraded the current productivity in the industry and aligned with the vision to create capacity for the growth of high value logistics services and reinforce Hong Kong’s status as a global premier logistics hub.
7 Implications on Stakeholders

Implications of the discussed development strategies on stakeholders are discussed in this chapter. Despite the potential costs, stakeholders would mostly enjoy benefits. These strategies in general would bring new capacities for the growth of high value logistics services, enhance competitiveness of logistics companies, and maintain sustainability of the city, which would be in accordance to our vision.

In Table 7.1, the implications for the spatial development strategies discussed in Chapter 5 are listed out. Implications from the policies and approaches discussed in Chapter 6 are listed out in Table 7.2 and Table 7.3. Section 7.1 then gives a summary of the implications of our suggested strategies on stakeholders, and how do they enable the achievement of our vision.

Table 7.1 Spatial Implications on Stakeholders

<table>
<thead>
<tr>
<th>Potential Benefits</th>
<th>Potential Drawbacks / Costs</th>
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<tbody>
<tr>
<td><strong>Aviation Cluster</strong></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td></td>
</tr>
<tr>
<td>• Enhance capacity for the handling and storage of specialised cargo</td>
<td></td>
</tr>
<tr>
<td>• Facilitated sustainable growth of the industry by providing land for logistics-related training institutions</td>
<td></td>
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<tr>
<td>Natural environment may be affected during land reclamation in Siu Ho Wan</td>
<td></td>
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<tr>
<td>Stakeholders</td>
<td></td>
</tr>
<tr>
<td>Freight Forwarders:</td>
<td>Usage charge</td>
</tr>
<tr>
<td>Centralised screening facilities increased processing speed and improved processing efficiency for freight forwarders</td>
<td></td>
</tr>
<tr>
<td>SMEs:</td>
<td></td>
</tr>
<tr>
<td>Provision for modern warehouses and facilities for operation</td>
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<tr>
<td>Rental cost, investment and operation cost</td>
<td></td>
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<tr>
<td><strong>Maritime Cluster</strong></td>
<td></td>
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<tr>
<td>Overall</td>
<td></td>
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<tr>
<td>• Operation efficiency of Hong Kong Port with the river and cooperation scheme for administration</td>
<td></td>
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<tr>
<td>Better management system and administration</td>
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<tr>
<td>Stakeholders</td>
<td>Trucking Companies:</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Parking spaces increased with close proximity to KTCT for trucking companies</td>
</tr>
</tbody>
</table>

| Container Terminal Operator:  |
|------------------------------|----------------------------------------------------------------------------------------|
| • Efficiency boosted and cost-effectiveness of river-to-ocean transshipment operation system |
| • Capacity expanded for container handling and storage through yard expansion and prioritizing PBU land use |

<table>
<thead>
<tr>
<th>Nearby residents:</th>
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<tbody>
<tr>
<td>Environmental issues related to air and noise pollution raised by additional traffic</td>
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<table>
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<tr>
<th><strong>Tuen Mun West Logistics Cluster</strong></th>
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<tbody>
<tr>
<td>Overall</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Stakeholders</td>
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<tr>
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<tr>
<td></td>
</tr>
</tbody>
</table>

### Northern Logistics Belt

<table>
<thead>
<tr>
<th>Overall</th>
<th>Target resources on development nodes to utilise the benefits of proximity to existing and future BCPs</th>
<th>Disruption to original rural village life in the northern district</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholders</td>
<td>Freight Forwarders: More affordable land available for warehouses and storage</td>
<td>Nearby residents: Environmental issues related to air and noise pollution raised by additional traffic</td>
</tr>
<tr>
<td></td>
<td>SMEs: Competitiveness enhanced by modern multi-storey facilities available at the different nodes</td>
<td></td>
</tr>
</tbody>
</table>
### Road Network Enhancement

<table>
<thead>
<tr>
<th>Overall</th>
<th>Problems of traffic congestion alleviated, especially in the congested urban areas</th>
<th>More traffic may be attracted by the widening of roads and new roads</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nuisance to the community from traffic congestion reduced</td>
<td>Overall traffic efficiency improved</td>
</tr>
</tbody>
</table>

### Stakeholders

<table>
<thead>
<tr>
<th>Nearby residents:</th>
<th>Noise and air pollution caused by traffic congestion reduced</th>
<th>Time wasted in traffic congestions reduced</th>
</tr>
</thead>
</table>

**Temporary noise and air pollution and blockage of roads while construction of new road infrastructure**

<table>
<thead>
<tr>
<th>Employees:</th>
<th>Direct public transport routes reduced workers’ commuting time</th>
</tr>
</thead>
</table>

### Table 7.2 Non-Spatial Implications on Stakeholders - Development Mechanism

<table>
<thead>
<tr>
<th>Potential Benefits</th>
<th>Potential Drawbacks / Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multi-storey Compounds for Logistics Use in Clusters</strong></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>Clustering effect to improve the overall operation efficiency of the logistics industry</td>
</tr>
</tbody>
</table>

### Stakeholders

<table>
<thead>
<tr>
<th>i. Privatization of Multi-Storey Compounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large logistics operators:</td>
</tr>
<tr>
<td>Higher flexibility in land bidding and logistics operations</td>
</tr>
<tr>
<td>Government:</td>
</tr>
<tr>
<td>Considerable amount of economic return generated</td>
</tr>
<tr>
<td>ii. Collaborative Approach between Government and Private Sectors</td>
</tr>
</tbody>
</table>
iii. Direct Provision of Multi-Storey Compounds by the Government

<table>
<thead>
<tr>
<th>SMEs:</th>
<th>Government:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affordable logistics facilities in the multi-storey compounds available</td>
<td>Less return generated for giving incentives to the private sectors, such as lower land premium</td>
</tr>
<tr>
<td>Private sectors (in collaboration with government)</td>
<td></td>
</tr>
<tr>
<td>Developmental benefits from the government, such as lower land premium</td>
<td></td>
</tr>
<tr>
<td><strong>Government:</strong></td>
<td>May not be able to afford the logistics facilities if there is insufficient government supervision</td>
</tr>
<tr>
<td>Financial burden eased through partnership with private sectors</td>
<td></td>
</tr>
</tbody>
</table>

**Redevelopment of Industrial Buildings in Urban Core**

<table>
<thead>
<tr>
<th>Overall</th>
<th>Stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>More warehouse facilities available to cater for the needs of different sizes of logistics businesses</td>
<td>Warehouse operators: More updated industrial building available in good conditions, such as provision of more lifts and stable electricity supply to cater for the needs of warehouse operators,</td>
</tr>
<tr>
<td></td>
<td>Government: Heavy financial burden for land resumption, construction and redevelopment of industrial buildings</td>
</tr>
</tbody>
</table>
especially those with small to medium size of operation

### Extension of KTCTs in Kwai Tsing South

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Container Terminal Operator:</th>
<th>Government:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>Market trends of river-borne transhipment captured to enhance the growth of maritime logistics industry</td>
<td>Relocation of the specialized facilities to the extended site of KTCTs required</td>
</tr>
</tbody>
</table>

- Additional capacity for container handling and storage through yard expansion and prioritizing PBU land use
- Operation efficiency improved for the rising trends of river borne transhipment

### Alteration in Regulation for Road Network Enhancement

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Freight forwarders/ trucking companies:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>Problems of traffic congestion alleviated, especially in the congested urban areas</td>
</tr>
<tr>
<td></td>
<td>Nuisance to the community from traffic congestion reduced</td>
</tr>
<tr>
<td></td>
<td>Overall traffic efficiency improved</td>
</tr>
</tbody>
</table>

- Problems of traffic congestion alleviated, especially in the congested urban areas
- Nuisance to the community from traffic congestion reduced
- Overall traffic efficiency improved

**Land owners:**

- Some of the development potential for the site may be lost since some loading and unloading bay areas stipulated in the lease are accountable for GFA

**Freight forwarders/ trucking companies:**

- Loading and unloading time increased for the drivers to
be required to park inside the loading and unloading bay instead of parking alongside the road

### Establishment of New Authority under Institutional Framework

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Government:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logistics companies:</td>
<td>Additional financial and resource inputs required from the government for the establishment of authority</td>
</tr>
</tbody>
</table>

- Development and growth of logistics industry promoted through formulation and implementation of comprehensive development strategies
- Communicative platform provided with executive power to address the industry needs efficiently

### Stakeholders

**Government:**
- Better resource allocation and coordination between departments

**Government:**
- Additional financial and resource inputs required from the government for the establishment of authority

**Logistics companies:**
- Cooperation and communication facilitated to generate higher degree of synergy within the logistics industry for capturing new arising business opportunities
- Operation efficiency of the logistics companies improved with highly responsive and effective government measures and policies
- Benefits enjoyed from acquiring one-stop solution that reduces the time and efforts of the logistics companies in finding
Table 7.3 Non-Spatial Implications on Stakeholders – Recommended Policies

<table>
<thead>
<tr>
<th>Fulfilling the Demand in Labour Supply</th>
<th>Increase Information Technology (IT) training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>Overall productivity of labours facilitated through familiarizing the labours with the latest logistics technology</td>
</tr>
<tr>
<td>Stakeholders</td>
<td>Logistics companies (especially SMEs): Operation efficiency improved through improvement of knowledge and skills of labours</td>
</tr>
<tr>
<td></td>
<td>Government: Additional financial and resource inputs for the regulation and management of the training courses</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Provision of Specified Land Logistics Training Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
</tr>
<tr>
<td>Stakeholders</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Promotion of Qualifications Framework in Attracting Young Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
</tr>
<tr>
<td>Stakeholders</td>
</tr>
<tr>
<td>Additional investments during the initial stage for the provision of training support</td>
</tr>
</tbody>
</table>
Efficiency of operation improved  
Productivity of labour promoted  
through knowledge enhancement  
Labour:  
Benefits enjoyed from receiving  
recognition and accreditation from  
QF

### Meeting the Megatrends of the Industry to Enhance Competitiveness

#### Smart Logistics

| Overall | Sustainability of logistics industry promoted to improve efficiency  
enhance productivity and save costs | Additional costs for investing on the ‘smart’ technology and management systems, especially in the early stage |
|---------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|

#### Stakeholders

i. Promote e-logistics and Electronic Trading Platform to Speed Up the Trading Process

| Logistics companies (especially SMEs): | Government:  
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Shorter time for trade declaration and customs clearance</td>
<td>Additional costs on monitoring and regulating the trade single window platform</td>
<td></td>
</tr>
<tr>
<td>• Operation efficiency improved</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ii Enhance SME’s Knowledge on Technology and Innovation to provide Communication and Matching Platform with IT Sectors

| SMEs: | Government:  
|---|---|---|
| • Performance optimised  
• Communication and cooperation facilitated within SMEs  
• Efficiency in operation with adaptation of advanced IT systems | Additional costs on the management and regulation of the communication and matching platform |

| IT sectors: |  
|---|---|
| New business opportunities created |
## Green Logistics

<table>
<thead>
<tr>
<th>Overall</th>
<th>Environmental externalities generated by logistics flow minimised</th>
<th>Extra costs to the logistics companies especially in the initial stage for adaptation of green measures and the installation of energy efficient appliances</th>
</tr>
</thead>
</table>

### Stakeholders

**i. Increase Subsidy and Encourage Trials for Green Vehicles**

- **Logistics companies:**
  - Save costs - for green fuels and technologies have fuel saving potential
  - Fulfil corporate social responsibility in support of sustainable development and growth of the city

- **Government**
  - May impose additional costs to increase the subsidies

- **Logistics companies:**
  - May impose extra costs on companies for the relative high capital cost and performance uncertainties

**ii. Green Freight Plan to Cater the Needs of Reverse Logistics Within the Industry**

- **Logistics companies:**
  - Complement and cater for the needs of the logistics companies for reverse logistics

- **Government:**
  - Extra resources may be required for regular review and updates of the plan

### Cooperating in Regional Dimension to Reinforce Hong Kong’s Global Premier Status

**Position Hong Kong as the International Service Hub in the Logistics Industry**

<table>
<thead>
<tr>
<th>Overall</th>
<th>• A clear positioning allows Hong Kong to establish complementary roles with its regional counterparts and enhance its own competitiveness</th>
</tr>
</thead>
</table>
• Transformation promoted of the industry into positioning itself to be the service provider

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Maritime intermediate service providers:</th>
<th>Government:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>More financial resources and support received from the government for the establishment of position of Hong Kong as a service provider</td>
<td>Extra costs in facilitating the transformation of the industry, such as through implementing promotion schemes and providing incentive measures</td>
</tr>
</tbody>
</table>

**Collaborate to Compete with the Neighbouring Airports and Seaports**

<table>
<thead>
<tr>
<th>Overall</th>
<th>Competition among airports and seaports reduced through specialization of roles of airport and seaports in Hong Kong and the PRD region</th>
<th>Close collaboration and clear identification of roles of the airports and seaports required in reaching the cross-boundary agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>May not be able to reach further regional agreements on the expansion of the air or sea service due to conflicts of interests</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Air logistics operators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Cargo catchment area expanded</td>
</tr>
<tr>
<td></td>
<td>• Cargo activities facilitated</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hong Kong Airport Authority</td>
</tr>
<tr>
<td></td>
<td>Extra investments required in achieving collaboration through mergers and joint ventures</td>
</tr>
</tbody>
</table>

**Cooperate along the Hong Kong-Zhuhai--Macau bridge (HZMB) Zone for Logistics Development**

<table>
<thead>
<tr>
<th>Overall</th>
<th>New investments and business opportunities created through further integration within the PRD region</th>
<th>Competition between logistics industry in Hong Kong and its counterparts from the PRD Region intensified</th>
</tr>
</thead>
</table>
Stakeholders
Freight forwarders:
Closer proximity to PRD region through HZMB capitalised
Lands in PRD region utilised for warehousing

Land logistics companies:
Cost of transportation reduced with direct land transportation linkage through HZMB

7.1 Overall Implications on Stakeholders

7.1.1 Benefits of Strategic Locations and Clustering
The strategic locations of clusters on major cargo delivery routes and nodes facilitate smooth transition between different transportation modes and greatly enhances the overall operational efficiency of the logistics industry as a whole. Each cluster provides different benefits for stakeholders of the industry. The Aviation Cluster creates capacity for specialised cargo handling, and Maritime Cluster enhances the efficiency of port terminals, Tuen Mun West Logistics Cluster pioneers agglomerated high-tech logistics facilities and Northern Logistics Belt better allocates resources for trans-boundary logistics activities. These clusters enable logistics operators to maximise their efficiency and hence raise competitiveness of the sector.

7.1.2 Regional Cooperation and International Positioning for Growth of Industry
By establishing a clear position as an international logistics service hub, Hong Kong can enlarge markets of logistics services provided through building complementary relationships with other cities in the region and aid the transformation into a high value service provider. The government can foster the sustainability of the industry especially for stakeholders facing fierce competition with Mainland service providers through collaboration with neighbouring airports and seaports which enables further specialisation of roles in the regional logistics operation and cooperation along the HZMB zone that creates new investment and business opportunities in the PRD region. Collaboration and cooperation allow logistics operators in both Hong Kong and Mainland benefit mutually in particular Hong Kong can focus on high value logistics services which increases the marginal economic returns for stakeholder across the logistics industry of Hong Kong.

7.1.3 Consolidated Executive Power Responding to Industry Needs
The establishment of a new authority within the institution enables a better utilisation of public resources that are currently scattered across different government departments. This authority can promote development and growth of the industry through comprehensive
planning and serve as a communication platform for the government to respond to the needs of stakeholders in the industry efficiently. The implementation of the proposed development spatial strategies and their development mechanisms could be lengthy and ineffective given the involvement of multiple separate government departments and authorities. An authority with delegated power can be more effective in pushing forward plans and policies that cater to different stakeholders in the industry.

7.1.4 Creating Capacity for Sustainable Development

The proposed development strategies and institutional approaches aim to create capacity for sustainable developments of the industry. Through consolidating logistics land use in the proposed clusters for different logistics sectors and increasing land supply for logistics development, growth of different scales of logistics operators can be sustained. The provision of labour with high productivity enables logistics businesses to build capacity for industry in the long run. The Qualification Framework can attract new talents and workers to enter the industry with the promotion of recognition and qualifications while training on IT and specific courses for the land sector can enhance the productivity of labour. Policy support on innovation and technology application of logistics operation and trading processes allows all logistics operators, especially SMEs, to reduce cost while increasing productivity. Green logistics initiatives such as promotion of green vehicles reduce externalities generated by the industry and smart logistics enables logistics operators to plan and use resources more efficiently and sustainably, reducing the impacts of logistics onto the city. The abovementioned strategies allow all stakeholders to benefit from and contribute to the competitiveness of the industry effectively and sustainably.
8 Implementation Programme

To achieve progressive implementation of the spatial concept plan in accordance with various infrastructural provisions, the development strategies are recommended to be carried out in three terms, namely short-term (within five years), medium-term (within fifteen years) and long-term (after 2030). This chapter sets out the criteria for deciding the priority actions and the justifications for arriving at the proposed implementation programme.

8.1 Priority Setting for Major Development Strategies

To assess the need for priority of different proposed measures, a list of evaluation criteria and key considerations are first determined (See Table 8.1).

Table 8.1 Criteria and Considerations for Priority Setting of Development Strategies

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Key Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholders’ Demand</td>
<td>• Perceived urgency</td>
</tr>
<tr>
<td></td>
<td>• Perceived importance</td>
</tr>
<tr>
<td></td>
<td>• Scale</td>
</tr>
<tr>
<td>Resource Supply</td>
<td>• Ready availability of land</td>
</tr>
<tr>
<td></td>
<td>• Ready availability of expert</td>
</tr>
<tr>
<td></td>
<td>• Ready availability of community assets</td>
</tr>
<tr>
<td></td>
<td>• Adequacy (present and future)</td>
</tr>
<tr>
<td>Compatibility</td>
<td>• Compatibility with existing/ongoing efforts</td>
</tr>
<tr>
<td>Feasibility</td>
<td>• Financial</td>
</tr>
<tr>
<td></td>
<td>• Technical</td>
</tr>
<tr>
<td></td>
<td>• Operational</td>
</tr>
<tr>
<td>Expected Outcomes</td>
<td>• Benefits</td>
</tr>
<tr>
<td></td>
<td>• Costs (e.g.: externalities)</td>
</tr>
<tr>
<td></td>
<td>• Sustainability</td>
</tr>
<tr>
<td>Development Constraints</td>
<td>• Institutional</td>
</tr>
<tr>
<td></td>
<td>• Regulatory</td>
</tr>
<tr>
<td></td>
<td>• Financial</td>
</tr>
<tr>
<td>Overall Fitness</td>
<td>• Concurrence with vision</td>
</tr>
<tr>
<td></td>
<td>• Concurrence with stakeholders’ expectations</td>
</tr>
</tbody>
</table>

8.1.1 Prioritisation of Spatial Planning Recommendations

Relocating Logistics Operations from Urban Core to NDAs in the Medium Term

In face of surging land costs and lack of dedicated facilities for modern warehousing and consolidation, the relocation of existing logistics operations in the urban core is considered
urgent and essential for the logistics sector to sustain their business. The measure also helps bring down nuisance caused by urban logistics, and improves the living and working environment in the urban area. It also provides the opportunity for owners of aged industrial buildings to redevelop and upgrade the provisions of their property to cater for rising demand of modern logistics operations. Alternatively, sites with higher development potential may be rezoned to release valuable land in the city centre for other land uses with pressing demand such as housing and offices.

Despite the high stakeholders’ demand and the vast expected benefits, time is required for identifying suitable relocation sites, conducting feasibility studies and completing site formation before potential sites could be made available for relocation. While the Northern Logistics Belt and its four development nodes have been previously identified as potential relocation sites, the need to achieve comprehensive planning in new development areas may further lengthen the wait for implementation. Shall the development timeline proposed by the government be closely followed, a total of 49 ha of logistics-related land will only be furnished by 2030 upon the completion of HSK NDA and YLS Development (PlanD, 2016c, 2016d). To meet the high demand from stakeholders, early implementation of the ST/LMC Development Node is also recommended for the establishment of modern multi-storey warehouses which command strategic boundary location. As a whole, the measure is suggested to be implemented in the medium term along with the development of identified development areas in NTN.

**Expanding and Developing Logistics Clusters to Generate High Value Growth by Phase**

**8.1.1.1 Aviation Cluster**

Apart from utilising vacant sites within the existing South Cargo Precinct, this Report has recommended the inclusion of HKBCF Topside Development and Siu Ho Wan for the development of a more comprehensive and expandable aviation cluster. In the short term, a central screening facility is proposed at the South Cargo Precinct to cater for the rising screening demand as led about by gaining popularity of e-commerce and tightened security standards. Given the foreseeable commercial returns, the project is expected to be financially viable shall it be built by the public or the private sector. The project is also considered compatible with the existing function of South Cargo Precinct. The large land parcel size and proximity to the runway shall directly enhance the operational efficiency of freight forwarding business. In addition, Its prime location at the airport has allowed ease of supervision by the Aviation Security Company Limited, which will ensure the delivery of world-class aviation security services in the centralised screening facility.

As regards the increasing volume of specialised cargo, the ready availability of quality assurance experts in Hong Kong in providing efficient and quality chain solutions for the niche cargo market should be well noted. In the medium term, a specialised cargo terminal shall be established in the South Cargo Precinct to offer temperature-and-humidity-sensitive cargo
handling services. The strategic boundary location of HKBCF Topside Development shall also be capitalised on by incorporating refrigerated warehouses and high security storage in its development, thereby enhancing the regional competitiveness of Hong Kong in air cargo storage and distribution. These proposals are considered of high feasibility since the free port status of Hong Kong has enabled it to become an ideal cargo storage location, and specifically for valuable goods such as wine and jewellery. Shall demand persists, more specialised cargo storage facilities shall be provided in Siu Ho Wan in the long run considering its minimal impacts to nearby residents and community.

8.1.1.2 Aviation Cluster

Building on the existing mature maritime cluster, the recommended spatial strategies aim to address stakeholders’ concerns with the lack of operational land and inefficient river-to-ocean transhipment. However, given the need of time to plan for land use rationalisation and consolidation, re-prioritisation of existing truck parking spaces and other proposals by the government are only short-term measures to improve the operational efficiency of KTCTs. As in the medium term, PBU land shall be consolidated after thorough assessments on the feasibility of building multi-storey logistics and parking facilities to release land for neglected PBU uses such as container storage. Shall conditions allowed, expansion of current PBU land in Kwai Tsing and Tsing Yi shall be carried out. To fulfil the long-term need of PBU land for port operation, provision of PBU land in the NDAs shall also be taken into account.

While the expansion of KTCTs to Tsing Yi South is viewed as a more comprehensive and technically feasible strategy in tackling the aforementioned stakeholders’ concerns, its financial viability relies much on the continuous growth in container throughput, which has however remained stagnant in recent years. Nonetheless, in view of Hong Kong’s exceptional edge as a catch-up port, many vessels would still choose Hong Kong as their shipping location, which give rise to the opportunity for port expansion. Furthermore, the financial viability of the project shall be enhanced by a recommended reduction in the scale of reclamation. For more sustainable growth of the maritime logistics sector, the expansion of KTCTs shall be considered in the long term to create capacity for growth.

8.1.1.3 Tuen Mun West Logistics Cluster

Distinct from the previous two clusters, the Tuen Mun West Logistics Cluster emphasises on the integration between different logistics sectors, especially in terms of facilitating high value services growth along with intermodal transhipment. To satisfy the urgent demand for modern logistics, screening and specialised cargo storage facilities and offices, a pilot scheme utilising the readily available land at Tuen Mun Area 38 and 49, 40 and 46 and the adjoining areas is recommended as a short-term strategy. The newly built facilities shall be designed with high degree of automation and technology application so as to maximise the operational efficiency of the new logistics cluster and to equip it with the capability to handle additional cargo volume led about by forthcoming trends such as e-commerce. Moreover, to generate
synergy between different stakeholders, the new facilities shall adopt an inclusive design to cater for the needs of different scale and type of operators. Owing to its proximity to Tuen Mun District and the proposed NDAs, spatially matching labour supply shall be adequate in the short and long term. If the pilot scheme be successful, potential extension of the Tuen Mun West Logistics Cluster to the underused parts of River Trade Terminal and the nearby reclaimed area at Lung Kwu Tan should be given due considerations in the long term.

Regardless of the urge in demand, the traffic volume and emission induced by the development of logistics cluster at Tuen Mun West may negatively affect the operation of existing businesses. It is therefore essential to review existing infrastructural provisions before finalising the implementation programme of the logistics cluster.

8.1.1.4 Northern Logistics Belt

Aside from the discussed provision of modern logistics facilities in HSK NDA, YLS Development and ST/LMC Development Node in the medium term, land surrounding LT/HYW BCP have been identified as potential sites for immediate accommodation of open storage operations. This measure is made prior to the development of NDAs since open storage operations are essential to proper functioning of the logistics and supply chain and must be re-provided elsewhere to support existing logistics operations. As in the long run, ample formed land in the Northern Logistics Belt shall be positioned to support the development of high value-added logistics services serving both local and regional businesses. For instance, logistics training facilities shall be established in HSK NDA and YLS Development to attract and enhance quality of labour supply. Owing to its proximity to the MKT BCP, a cluster of agri-logistics centres shall also be set up in MKT to build on Hong Kong’s capability in furnishing consolidation, testing and certification and distribution services of perishable goods. Anticipating that open storage uses will be relocated to the new multi-storey logistics compounds in the NDAs, surrounding land at LT/HYW BCP could then be better planned for the provision of high-value and technology-based logistics services. As a whole, the Northern Logistics Belt is expected to open up more diverse business opportunities for local logistics service providers.

Quality Traffic Management and Connectivity Enhancement to Support Overall Growth in Logistics Industry

Enhancing the capacity of transport infrastructures is the foremost task in improving urban logistics. In the short run, road widening at the proposed clusters is suggested as a major traffic management measure to mitigate the induced traffic volume. The measure is more plausible in comparison with rerouting and road addition as it requires less planning efforts and capital. As in the medium term, the rationalisation of bus routes shall help resolve spatial mismatch between jobs and home. For instance, commute time can be lessened by setting up express bus routes between residential districts and logistics clusters. Subject to results of financial forecast and technical assessments, traffic diversion such as by reducing toll fee of
major tunnels may also be considered at this stage. However, in the case of Tai Lam Tunnel, its thirty-year-long franchise period might in fact constrain the possibility of toll fee reduction. Furthermore, to alleviate the serious traffic congestion in the urban core and to minimise its externalities, review on L/UL space provision and possibility of developing a territorial freight plan must be initiated. Concurrently, illegal parking shall be addressed by evaluating and possibly increasing the requirements on L/UL bays provision in lease conditions in the long term. The impacts of changing lease conditions, nonetheless, should be assessed in a broader context.

Another way to enhance infrastructural capacity is to improve connectivity. Strategically, new trunk roads shall be built as prerequisites to introducing new development and population into a development area. It will be most ideal if direct connections could be made between the development area and the existing business area. As such, the proposed Route 11 and direct road connection from NTN to ELM shall be commenced as soon as possible if found to be technically and financially feasible.

8.1.2 Prioritisation of Policy Recommendations

Setting Up Steering Authority for Coordination of Logistics Development at High Level
Setting up a high-level steering authority is vital to ensuring the successful delivery of more comprehensive policy support and to driving the long-term development of logistics industry in Hong Kong. This proposal is regarded by multiple stakeholders as highly urgent and significant since it is the most effective way to garner resources and funding from the government. Moreover, the institutional set-up must be strengthened to proactively guide the industry towards high value-added logistics services and reinforcing Hong Kong’s status as a global premier logistics hub. Nevertheless, in view of the time needed to define the authority’s scope of work and to determine its financial and operational sustainability, this measure is suggested to be implemented in the short-to-medium term.

Resolving Labour Shortage by Productivity Enhancement
Labour shortage has been one of the largest shared impediment to growth across various logistics sectors. It is therefore pivotal to improve the appeal of the logistics industry to both skilled and unskilled labour. A possible short-term measure is to provide regular technological training to employees so as to equip them with the skills needs for the future and enhance occupational mobility. As in the medium term, aviation and maritime training facilities shall be respectively set up in the aviation and maritime cluster to provide more in-depth learning and to nurture a pool of logistics experts which specialise in different sectors for a stronger and more sustainable growth of the industry. The measure is expected to receive positive response from both the public and private sector since it in general enhance labour productivity and boost service economy of Hong Kong. In addition, a qualification framework of the logistics industry shall be promoted in the long term so as to provide clearer career prospects for potential employees on one hand and improve the outlook of logistics industry
in Hong Kong on the other. This concurs with the vision of developing Hong Kong as a global premier logistics hub.

**Strengthening Regional Cooperation More Proactively to Capture Further Growth**

In face of the increasingly competitive business environment, advancing cooperation with the PRD counterparts is essential to attracting more international and regional business opportunities for the logistics industry of Hong Kong. In the short run, local strengths of providing professional services could be capitalised to complement further growth of the region as a global gateway. As in the medium-to-long term, different options of cooperation across sectors should be actively explored for trade facilitation and knowledge exchange. Apart from constructing regional infrastructures to expand catchment area, a clearer demarcation of the specialisations of HKIA and Hong Kong Port as well as the role of Hong Kong and other cities in the PRD region is necessary to reduce competition. Shall institutional constraints be overcome, the clearer roles should help open up more novel forms of collaboration such as regional warehousing outsourcing and reduce the operation costs of stakeholders.

**Incentivising Smart and Green Logistics Operations to Achieve Sustainable Growth**

Since the introduction of smart and green initiatives in logistics operations often require huge capital cost and returns are only received on a long-term basis, government measures and subsidy programmes are recommended in the short term to boost stakeholders’ willingness to adopt smart and green initiatives. In addition to establishing electronic platforms for trade facilitation, the government shall assist the link-up between different operators and the appropriate choice of technology. Financial incentives shall also be provided to logistics firms that switch to green fuels and green vehicles. As in the medium-to-long term, the development of electronic supply chain management platform as well as green freight plan shall be coordinated under the high-level steering authority recommended for efficiency purposes.

8.2 **Recommended Action Plan**

Based on the above evaluation, the recommended action plan has been arrived at (Refer to Appendix D). The action plan adopts an incremental approach and provides both mitigation and provision measures to achieve a sustainable growth of the logistics industry in Hong Kong. Nevertheless, it should be emphasised that the actual implementation of the proposed strategies is subject to further study into their respective feasibility and viability as well as support from the public.

8.3 **Responsibilities and Obligations of Key Stakeholders**

Government efforts alone will not lead to a successful implementation of the aforementioned strategies, especially in the field of logistics where operations are carried out in a chain and interactions between stakeholders are rather frequent. To encourage the involvement and
collaboration of different stakeholders in the implementation process, their expected roles are outlined in Table 8.2.

**Table 8.2 Responsibilities and Obligations of Key Stakeholders**

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Responsibilities and Obligations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Government</strong></td>
<td></td>
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<tr>
<td>• Strengthening institutional set-up for logistics growth</td>
<td></td>
</tr>
<tr>
<td>• Effective enforcement of regulatory framework</td>
<td></td>
</tr>
<tr>
<td>• Providing land supply, infrastructure and facilities to facilitate logistics development</td>
<td></td>
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<tr>
<td>• Conducting and reviewing strategies for the development of logistics industry</td>
<td></td>
</tr>
<tr>
<td>• Formulating policies that enhance Hong Kong’s competitive edge in logistics industry</td>
<td></td>
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<tr>
<td>• Alleviating the externalities caused by logistics operations</td>
<td></td>
</tr>
<tr>
<td>• Providing incentives, subsidies and resource support to firms and operators to catch up with latest trends in the industry</td>
<td></td>
</tr>
<tr>
<td>• Providing funding and resource support for professional training and research</td>
<td></td>
</tr>
<tr>
<td>• Communicating with the Central Government and other regional governments for opportunities of cooperation</td>
<td></td>
</tr>
<tr>
<td><strong>Business Sector</strong></td>
<td></td>
</tr>
<tr>
<td>• Operating in compliance with regulations and standards</td>
<td></td>
</tr>
<tr>
<td>• Developing new facilities at the appropriate time to facilitate growth</td>
<td></td>
</tr>
<tr>
<td>• Upgrading facilities to improve operational efficiency</td>
<td></td>
</tr>
<tr>
<td>• Provide quality logistics services to sustain the good reputation of the logistics industry</td>
<td></td>
</tr>
<tr>
<td>• Conducting knowledge exchange between operators of different scale and across sectors to generate synergies for development</td>
<td></td>
</tr>
<tr>
<td>• Creating social value of business by minimising nuisance by operations on nearby neighbourhoods</td>
<td></td>
</tr>
<tr>
<td>• Providing constructive feedback on government proposals</td>
<td></td>
</tr>
<tr>
<td><strong>Employees</strong></td>
<td></td>
</tr>
<tr>
<td>• Undergoing regular training to enhance productivity</td>
<td></td>
</tr>
<tr>
<td><strong>Clients</strong></td>
<td></td>
</tr>
<tr>
<td>• Choosing more sustainable delivery options</td>
<td></td>
</tr>
</tbody>
</table>
9 Conclusion

9.1 Overview of this Report

This Final Report is prepared with the aim to formulate a spatial planning strategy and essential policy recommendations for planning and developing Hong Kong as a competitive and efficient logistics hub. It has synthesised previous reviews and findings on the status of logistics industry in Hong Kong and identified gaps and challenges to fostering further growth of the industry. To set the local logistics industry on a path towards sustainable growth, the vision, spatial concept plan and development strategies are put forward in a value added and capacity creating approach in Chapter 4, 5 and 6. The proposal as a whole is expected to supplement the strategic framework outlined in HK2030+. Taking into account potential resource constraints, the proposed strategies are prioritised for progressive implementation in the short, medium and long term in Chapter 8.

9.2 Key Takeaways

With the understanding that logistics industry is multidimensional and ever-changing in nature, three key takeaways have been presented to foster the development of logistics industry in Hong Kong and are explained as follows:

Necessity for Integral Development

While logistics performance could be evaluated from the individual sectors of aviation, maritime and land, it should be emphasised that a comprehensive logistics solution often consists the interaction between two or more modes of transport. It is therefore essential to take into account the development of logistics industry from an integrated perspective. In addition to consider logistics as a business, the relationship between logistics and the functioning of a city should also be given thoughts to, such that the proposed strategies could help achieve a well-balanced development of the city as a whole. Some possible ways to attain so is to minimise the impacts of logistics operations by relocating them from the urban core and to take into account the locations between jobs and homes in planning for the logistics industry, which are stated earlier in the recommended strategies.

Importance of Regular Strategic Review

Given that the logistics industry is genuinely dynamic, regular review of the proposed development strategies is deemed necessary to allow for adjustments to market shifts. In particular, latest business and operational trends at different spatial scales should be made reference to in such assessment, such that stakeholders could be advised on the priority actions needed. Moreover, as technological advancement is a determining competition factor for logistics growth, strategic review on the capacity and quality of physical and virtual infrastructures should also be constantly conducted. Ideally, the strategic review shall be coordinated by the recommended high-level steering authority for logistics development for a more centralised and smooth evaluation process.
Value of Coopetition

Competition and collaboration are both essential to optimising the performance of the logistics industry. The former drives the pursuance of efficiency while the latter allocates and leverages on the benefits, costs and risks of different strategies. It is thus significant to select and promote suitable forms of local and regional coopetition so as to refine the competitive edges of Hong Kong as a major exporter of high value logistics services. In addition, collaboration in the form of public-private partnerships should also be advocated to maximise the access to market value, especially by small-and-medium-scale operators who lack sufficient capital to invest in expensive assets.

9.3 Conclusion

To sustain the growth of logistics industry in Hong Kong, it is of utmost importance to enhance the existing logistics operations by facility improvement, land use consolidation and capacity building. Taking into consideration the potential opportunities and constraints provided by the forthcoming trends, a set of urban planning and policy strategies have been introduced to incentivise investment in identified growth areas so as to reinforce Hong Kong’s status as a global premier logistics hub. Smooth implementation of the recommended strategies, however, would require the collaboration of both the public and private sector at an appropriate timing. The preliminary proposals put forward in this Report should therefore, be subject to detailed assessments to substantiate the discussion before actual execution.
References

AECOM; Civil and Engineering Development Department and Planning Department (2015),  
*Planning and Engineering Study for Tuen Mun Areas 40 and 46 and the Adjoining Areas: Stage 1 Community Engagement Digest*, HKSARG: Planning Department.


Civil Engineering and Development Department and the Planning Department, Hong Kong (2015), Planning, Engineering and Architectural Study for Topside Development at Hong Kong Boundary Crossing Facilities Island of Hong Kong - Zhuhai - Macao Bridge — Feasibility Study Stage 1 Community Engagement Digest, Hong Kong: Government Printer.


Commission on Strategic Development (2016), “Commission on Strategic Development The National 13th Five-Year Plan – Opportunities for Hong Kong Special Administrative Region”,


Constitutional and Mainland Affairs Bureau (2010), Legislative Council Panel on Commerce and Industry Framework Agreement on Hong Kong/Guangdong Co-operation, Legislative Council Paper CB(1)1559/09-10(01).


Hong Kong International Airport (HKIA) (2015), “Air Cargo & Aviation Logistics Services”,

Hong Kong International Airport (HKIA) (2016a), “Building Our Shared Future - Sustainability Report 2015/16”

Hong Kong International Airport (HKIA) (2016b), "Hong Kong International Airport Annual Report 2015/16",

Hong Kong International Airport (HKIA) (2016c), Sustainability Report 2015/16: Building Our Shared Future, Hong Kong: Hong Kong International Airport.

Hong Kong International Airport (HKIA) (2017a), Air Cargo Development, Powerpoint presentation, HKIA (13 March 2017).

Hong Kong International Airport (HKIA) (2017b), Provisional Civil International Air Traffic Statistics HKIA, Hong Kong: Hong Kong International Airport.


Hong Kong Logistics Development Council (LOGSCOUNCIL) (2007), The Hong Kong Logistics Development Council report, Hong Kong: Government Printer.

Hong Kong Maritime and Port Board (HKMPB) (2016a), “Press Releases - Young people urged to join maritime and aviation sectors (with photos)”,

Hong Kong Maritime and Port Board (HKMPB) (2016b), “Hong Kong Maritime and Port Board”,

Hong Kong Maritime Port Board (HKMPB) (2016c), " Port of Hong Kong”,

Hong Kong Maritime Port Board (HKMPB) (2016d), " Container terminals",

Hong Kong Maritime Port Board (HKMPB) (2016e), " River-trade terminals",

Hong Kong Maritime Port Board (HKMPB) (2016f), " Mid-stream Sites",

Hong Kong Maritime Port Board (HKMPB) (2016g), " Public Cargo Working Areas",

Hong Kong Maritime Port Board (HKMPB) (2017), " A World-class Hub Port",


Hong Kong Mid-Stream Operators Association (HKMOA) (2017), " Monthly Container Throughput 2016",


Information Service Department (2012b), “LCQ: Land Supply”,

Information Service Department (2012c), “LCQ2: Development of Logistics Industry in Hong Kong”,

Information Services Department (2013), "LCQ17: Rise in number of private cars - Annex 2 Maximum capacity of and traffic flow during rush hours on roads and tunnels",

Information Services Department (2014), "LCQ9: Operation and development of Kwai Tsing Container Terminals",

Information Services Department (2015), Hong Kong 2015, Hong Kong: Government Printer.


Information Services Department (2016a), "LCQ11: Capacity and facilities of Shenzhen Bay Port ",

Information Services Department (2016b), "LCQ18: Tuen Mun-Chek Lap Kok Link and Tuen Mun Western Bypass ",

Information Service Department (2017a), “2017 Policy Address by Chief Executive (6)”
http://www.info.gov.hk/gia/general/201701/18/P2017011800415.htm (last accessed on 11 April 2017).

Information Services Department (2017b), “Budget Speech by the Financial Secretary (5)”,


Invest Hong Kong (2014), The Greater Pearl River Delta: A report commissioned by Invest Hong Kong, Hong Kong.


Legislative Council (2010), Updated background brief on measures to rationalize utilization of Build-Operate-Transfer tunnels.
Legislative Council (2011), *Background brief on revitalization of industrial buildings*, LC Paper No. CB(1)1909/10-11(07).

Legislative Council (2015a), *Background brief on the logistics development in Hong Kong*, LC Paper No. CB(4)1165/14-15(05).


Legislative Council Secretariat (2016), *Panel on Transport - Minutes of special meeting held on Friday, 1 April 2016, at 9:00 am in Conference Room 1 of the Legislative Council Complex*, Legislative Council Paper CB(4)1311/15-16.


Marine Department, Hong Kong (2016a), *Average Time in Port for Vessels Departing Hong Kong by Ship Type and Ocean/River, January - December*, Hong Kong: Government Printer.

Marine Department, Hong Kong (2016b), *Port of Hong Kong in Figures*, Hong Kong: Government Printer.


Office of the Chief Executive (2015), *The 2015 Policy Address - Uphold the Rule of Law; Seize the Opportunities; Make the Right Choices*, Hong Kong: Government Printer.


The Hong Kong Shippers’ Council (2013), 香港商會:《香港物流業中長期發展策略研究》, Hong Kong: The Hong Kong Shippers’ Council. [in Chinese]


Sito, P. (2014), Hong Kong faces serious shortage of industrial land for logistics use, South China Morning Post, July 19.


The Association to Promote the Kansai International Airport Overall Plan (2012), Kansai International Airport: Swift Implementation for Future Growth as an International Hub Airport, Osaka: Government Printer.


Town Planning Board [TPB] (2008), Town Planning Board Guidelines for Application for Open Storage and Port Back-up Uses (Town Planning Ordinance [Section 16]), Hong Kong: Town Planning Board.


Transport and Housing Bureau (2007), Legislative Council Panel on Transport - 825TH - Tuen Mun – Chek Lap Kok Link and Tuen Mun Western Bypass, Legislative Council Paper CB(1)263/07-08(03).


Transport and Housing Bureau (2015a), Proposals for Enhancing the Use of Port Back-up Land in Kwai Tsing (1st ed.), Hong Kong: Transport and Housing Bureau.


Transport and Housing Bureau and Highways Department (2017), Legislative Council Panel on Transport Public Works Programme Item No. 870° - Feasibility Study on Route 11 (between North Lantau and Yuen Long) Funding Application, Legislative Council Paper CB(4)578/16-17(05).


UN Habitat (2013), Planning and Design for Sustainable Urban Mobility, New York: Routledge, pp.57-73.


Appendix A: Overview of Study Framework in Three Phases

Phase One

Baseline Study
- Industry Profile and Sectoral Review
  - Air Logistics
  - Sea Logistics
  - Land Logistics

- Land Supply and Demand
- Key Government Strategies, Policies and Measures
  - Handling Capacity
  - Land Supply
  - Regional Connectivity
  - Industrial Development
  - Industry Operation Efficiency
  - Labour: Economic and Policy Support

Review of International Experience
- Shenzhen
- Singapore
- Frankfurt

Review of Industrial Trends and Development
- Green Logistics
- Logistics 4.0
- Multi-storey Facilities

Phase Two

Sectoral Analysis (including interview findings)
- Air Logistics Industry and Supply Chain Management
  - 234 Framework
  - Airport Operation System
  - Air Logistics Industry in Hong Kong

Role and Positioning
- Current Status
- Policies
- Development Direction

Evaluation of Stakeholders’ Views (including interview findings)
- Role
- Needs
- Concerns
- Suggestions

Assessment of Relevance of Overseas Experiences
- Spatial Planning
- Industrial Outlook
- Governance and Regulations
- Technology and Innovation

Phase Three

Consolidation of Findings from Working Papers
- Logistics Industry in Hong Kong
  - Positioning
  - Socio-Economic Performance
  - Government Initiatives and Policies
  - Land Supply and Infrastructure
  - Key Trends
  - Opportunities and Constraints

Recommended Vision, Strategies and Policies
- Spatial Development Strategies
  - Maritime Cluster
  - Aviation Cluster
  - Tsuen Wan West Logistics Cluster
  - Northern Logistics Belt
  - Overall Enhancement of Road Network

Policy Recommendations
- Land Infrastructure
- Technology and Innovation
- Labour
- Institutional Framework
- Regional Cooperation

Implementation Programme

INCEPTION REPORT

WORKING PAPER ON AIR LOGISTICS

FINAL REPORT
Appendix B Study Programme

Phase One: Baseline Study
- Understand Study Brief
- Preliminary research and analysis of logistics developments in Hong Kong and worldwide
- Gather and review case studies, reports and academic literature
- Formulate study goals and objectives
- Define study processes and methodology
- Preparation of Baseline Report
- Presentation of Baseline Report
- Submission of Inception Report

Phase Two: Air logistic Analysis
- Qualitative and quantitative research on air logistic industry
- Interview with stakeholders
- Study Visit to Singapore
- Analysis on issues, challenges and opportunities
- Preparation of Working Paper
- Presentation of Working Paper
- Submission of Working Paper

Phase Three: Recommendations and Final Report
- Review all Working Papers and previous findings
- Develop vision statement
- Outline possible strategies
- Evaluate the policy implications on different stakeholders and sectors
- Preparation of Final Report
- Presentation of Final Report
- Submission of Final Report
## Appendix C List of Interviewees and Summary of Interview Notes

<table>
<thead>
<tr>
<th>Code</th>
<th>Sector</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Cargo Terminal</td>
<td>Leading cargo terminal operator</td>
</tr>
<tr>
<td>B</td>
<td>Airline</td>
<td>Leading airline operator</td>
</tr>
<tr>
<td>C</td>
<td>Freight Forwarding Association</td>
<td>Representative from a freight forwarding association</td>
</tr>
<tr>
<td>D</td>
<td>Hong Kong Government</td>
<td>Representative from Transport and Industrial stream</td>
</tr>
<tr>
<td>E</td>
<td>Logistics Company</td>
<td>Leading 3PL and warehouse operator</td>
</tr>
<tr>
<td>F</td>
<td>Logistics Company</td>
<td>Freight forwarder</td>
</tr>
<tr>
<td>G</td>
<td>Logistics Company</td>
<td>Overseas Logistics Institute</td>
</tr>
<tr>
<td>H</td>
<td>Logistics Company</td>
<td>Local Shipping Enterprise</td>
</tr>
<tr>
<td>I</td>
<td>Academic</td>
<td>Scholar from The Academic Field of Urban Planning</td>
</tr>
<tr>
<td>J</td>
<td>Academic</td>
<td>Scholar from The Academic Field of Supply Chain Management</td>
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<tr>
<td>K</td>
<td>Academic</td>
<td>Scholar from The Academic Field of Urban Planning</td>
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<tr>
<td>L</td>
<td>Academic</td>
<td>Scholar from The Academic Field of Nodal Transport Development</td>
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<tr>
<td>M</td>
<td>Logistics Company</td>
<td>Port Operator</td>
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<tr>
<td>N</td>
<td>Landowner</td>
<td>Representative from Rural Committee</td>
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<tr>
<td>O</td>
<td>Hong Kong Government</td>
<td>Former Government Official from The Planning Department</td>
</tr>
<tr>
<td>P</td>
<td>Logistics Company</td>
<td>Small Scale Logistics Operator</td>
</tr>
<tr>
<td>Q</td>
<td>Hong Kong Government</td>
<td>Government Official from The Planning Department</td>
</tr>
</tbody>
</table>
Interviewee A: Representative from Cargo Terminal Operator

Date: 03-03-2017

Air Cargo Terminal Operator

- have to base on the economy trend, and the patterns and volumes for trade and at close proximity to airport
- Current challenges
  - shortage of affordable land for operation
- Minimizing Cost as the ultimate goal of logistics

Latest Trends

- Lithium battery
  - South China as one major manufacturing base for lithium battery
- Focus of HK: pharmaceutical, high value added goods
- International security regulations: costly for security and safety
- Government actions: support industry on reducing land costs and labour costs
- Timing control on shipping to reduce demand for time-sensitive air transport

Possibility of construction

In-site or off-site for security screening

- Facility for Upstream-screening
  - centre for off-site screening
- Downstream-screening facility
  - Increase in efficiency
  - Cargoes to be screened then packed onto pallets in the last stage prior to shipping
  - Single site to conduct mass screening

Economies of scale

- reduce cost
- increase efficiency
- government intend to issue more CTO license if there is increase in air cargo handling demand
- might overlook regional changes
  - e.g. Relocation of manufacturing plants far from PRD Region

Hong Kong Zhuhai Macau Bridge

- increase connectivity is good for logistics
- can attract customers from West Pearl River Delta
- advantages for Hong Kong will reduce if Chinese Government decides for deregulating Zhuhai and Macau
• Outcomes depended on the actions of stakeholders

Hong Kong Air Logistics Advantages and Disadvantages
• Advantages: Efficient Custom clearance and high efficiency
• Disadvantages:
  - Shortage of skilled labour (especially frontline labours)
  - Lack of employment opportunity for younger workers
  - Lack of new inputs of labour
    ▪ labour demand will double after the construction of third runway, will hence increases labour need for the development in the surrounding areas and relevant economic operations
  - Shortage of land

Air logistics in relationship with sea and land logistics
For land logistics
• Majority of exports are delivered from China through land transport
• Intermodal logistics
  - Increase catchment area for air logistics
  - Better cooperate of custom clearance between land and air
    ▪ cargo custom cleared at HKIA then deliver directly to China without further screening at Border Control Points
• Close proximity of warehousing of air logistics is important for efficiency as it decreases the time and reduces the resources for land logistics
• The land logistics’ efficiency is the essential to efficiency of the air supply chain as a whole
For Sea logistics
• Sea in larger quantities
• Air is more time-sensitive

Recommended Hong Kong Government actions
• Digitalization all administrative processes
  - Single window system
• Conduct deregulation
  - For pharmaceutical
• Lowering the costs for labour and land
• Close collaboration with the industry
• Support increased demand for labour force is important for the industry to sustainably grow
Interviewee B: Representative from Leading Airline Operator
Date: 01-03-2017

Supply chain management in air logistics industry in Hong Kong
Operation model
Agent or service providers:
- airlines to provide services to cargo owners, provide solutions and value-added services
Cargo Terminal:
- Consolidation, verification, Checking, Examining packaging and carriage condition, Compliance checking
Transportation company:
- responsible for transporting cargo to airport terminals
Ramp operators
- transfer cargo from terminal to planes
Airline service:
- point to point
- stop in a certain point and transfer to another airline
- the service provider will then start to think about what airline to use based on the needs

Emerging trends of the air logistics industry
DHL, FedEx’s roles
- Possess own agent, transportation and terminal company
- Provide all service in on single entity to customers
- Service charges is more costly since they possess their own resources to provide the service
- Operation cost is often greater than the general

Challenges faced by logistics industry in Hong Kong
- now the manufactory is moving out of the region
- now the region is developing into other industries, such as those with higher value-added services
- the companies do not need to choose HK as the gateway
- Hong Kong cannot rely on self consumption
- important for attracting people to choose Hong Kong as the gateway for exports

Cargo handling capacity of HKIA and spatial needs for further expansion of operation
Considerations:
- Land supply
• Airspace
  • communication between Hong Kong government and Chinese government in terms of better airspace management.

Future direction for air logistics industry of Hong Kong
• E-commerce
  • Express cargo, parcel
• Temperature sensitive cargo
• High-value goods
  • high-tech products
• Role of Hong Kong Government
  • corporate with home-based carrier
  • provide more incentive to attract industry to use Hong Kong as transit port.

Looking Forward
Hong Kong International Airport
• Value-added services
• Improvement on Custom clearance
• Simplified License control
  - e.g. exemption in transhipment
• Enhancement on Efficiency

Policy Support
• Transhipment Ordinance is not comprehensive enough

Infrastructure Support
• HKZM bridge will bring opportunity rather than threats
• catchment area; shorten the distance

Relationships between sea and air logistics
Roles for ports and airports are separated
• Different in the nature and the needs of transport mode for ports and airports
• Determining factors: Space, Quality of goods, Time
Interviewee C: Representative from Freight Forwarding Association

Date: 16-03-2017

Services segments with the highest demand for air logistics in HK

Hong Kong advantages

- Belly space - frequent passenger flight
- Chances of off-loading
- Time-definite cargo
  - guaranteed for being on-board
- Consolidation
- Air-console weight
- Constraint:
  - cannot load too much cargo → 1000-2000kg only

→ HAFFA not including express statistics

Opportunities and threats for air freight forwarding industry in HK

Threats

- E-commerce
  - Airport to airport
  - b2c, c2c, mainly for small parcel
  - There is challenge to deliver to residential addresses
- Screening issue - ICAO new standard
- may require a centralised common facilities at airport to achieve x ray screening
- consideration on possible remote scanning in other sites
  - e.g. screening at FF’s premises

Opportunity:

- Free port
- Custom clearance
- 3rd Runways
- Electronic products (stricter security requirement in Mainland)
- New system by CAD
  - e.g. Malay cargo airline move to Macau

Recommendations

Example of robotic system

- Simplified procedure of documentation
- Requirement of Single platform
- Difficult to be replaced by automation
- Advanced manifested information in the USA

Miscellaneous:

Shortage of Labour
• Frontline labour shortage:
  • Support imported labour
  • Minimum wages
    o standard working hour will affect the business

More connection points to be linked with China
  • B2b2c business model
    o DCs in HK and free trade zone in Mainland
  • Transhipment industry/import and re-exports
    o How to make the process convenient
    o To be recognised as formal transhipment.
  • Simplified licensing procedure
    o Prove to government that there are no value added service involved

Transhipment:
  • Land-air / acceptance
  • consolidation procedure at FF’s premise
  • High CTO costs

Terminal Charge:
  • AAT raised fee last year
  • HACTL raise fee this year

Rationales behind:
  • labour shortage
  • technology usage
  • profit-sharing to Airport Authority
    o AA should not be profit-oriented

Way-forward
  • Chinese government offers incentive to airlines
  • Top-down approach may be needed
  • Oil additional fees re-packaged by airlines
    o Regulate oil-additional fee mechanism
  • To follow top-down approach of Singapore
  • air-logistics industry should not be a real estate project
Interviewee D: Representative from Transport and Industrial Stream

Date: 14-03-2017

Air and Shipping ranked the first 5 position

Threats: Land and labour

Hong Kong Port not really decreasing in volume but it is because others increased more

Hong Kong: higher quality service and labour

High value-added

- red wine tax
  - red wine trade, regional trade
- Art logistics
- Art auctions in hk
  - galleries → art logistics demand

Ecommerce:

- China takes much time for customs if ship overseas
  - set up a regional warehouse in hk -> V customs
- China, Singapore, overseas companies all do this practice
- Hong Kong has no Duty tax
- Hong Kong advantages:
  - familiar with transhipment, documents, english to foreign, operation

Some goods that DHL do not accept:

- liquid, dangerous goods like cosmetics
- custom concerns

Invest Hong Kong

- help companies come to hk
- Target: overseas companies

Issues

- Lobbying, communications
- RFID in shops
- Lack of drivers
- GPS for tracking goods Technology is less in logistics
- Logistics in the Smart city
- Startups to push new technology
  - Startup: Shipment data extract analysis for sme
- App based delivery tech
- Startup community and angel fund
  - decrease money burden
- Environmentally friendly
- use big data to improve efficiency
  - Truck companies
    - black box, gps
    - know how the drivers driving behaviour

Lack of land:
- how to balance
- Dilemma: not enough land, so there is no increase in trade volume

Suggestions to Government
- to do a platform
- Increase passages to China
  - Liantang to connect with the eastern part of china
  - Direct competition with YanTian
- Connect with Fujian Province
- Bridge:
  - attract western part of china,
  - expand hinterland
  - Less competitive with yantian

Third runway
- Hong Kong maritime services
- lack of planning and was overtaken
- So there must be third runway
- Should expand before the trade increase, or else the goods will go to other places
- High value cargo: pharmaceutical, perishable

Operators’ profit:
- quick turnover
- lower efficiency and high parking fee if ship or plane or truck parks longer
- Hub and spoke model

Hung Shui Kiu has land for logistics
- gov changed attitude towards logistics
Interviewee E: Representative from Leading 3PL and Warehouse Operator

Date: 14-03-2017

Key considerations in choosing a warehouse location:
- Will not be a significant increasing for the warehouse numbers and locations
- A need for high standard warehouse
- Requires government support
- Location selection is important – consideration of the surrounding facilities

Warehouse considerations:
Many warehouses have racking
- Trade-offs: loss of storage areas
- Considerations: source – where it comes from, and the volume

Considerations of transformation from industrial building to logistics Industry building:
- Loading base: depends on what kind of logistics operation after the transformation
- Ceiling height: determine the utilization rate; for bulky goods may need to store in small volume and need to change the volumes when storage

From your experience, what kind of logistics facilities are preferred to locate in rural centres rather than in the rural areas?
- Not significantly different
- Rural area - low land costs, need frequent usage of trucking and transportation
- Transportation from the border to the port is not that far away

E-commerce in changing the spatial requirements and activities within the warehouse

Characteristics of e-commerce:
- Faster response time
- Pieces per order is small
- Fluctuation of the volume

In response to the characteristics, it requires:
- Warehouse inventory
- System support integration
- Processing area - need facilities to facilitate the growth in peak season
- Arrange the ratio of labour (outsourced labour)

Implication to retail business:
Retail and ecommerce stores are not mutually exclusive, but as complement for one another

Benefits of e-commerce:
- Logistics profit margin relatively low
- Through e-commerce trim down the store and lowering marketing expense, hence can input more on the logistics operations
• Require to deliver directly from warehouse to the customer, logistics play a more significant part than before à room for development for logistics regarding E-commerce

Reverse Logistics
Logistics operation depends on the business model of the customers
For others, normally only requires planning of logistics; to determine the frequency and collection
space is also the consideration

Land and Air Logistics
• Land logistics is closely related to the air logistics
• Need for warehousing near the airport for temporary storage
• To provide an area for unloading and sorting and redistribute
• Only if the land transport networks are complete, then cross boundary transportation networks to warehouse and airport connection and linkage can be completed; also can lower the costs of transportation
• Land is very important to connection the port, warehouse, and airport as well as to the cross boundary logistics

Sustainable Logistics
• Aim for Long term cost saving
• Trucking, better planning to utilize the trucking à lowering the costs if fully utilize the resources with less energy used to same volume of products
• Change the lightings
e.g. Warehouse in Tai Po is energy saving; with solar plate, water drainage tanks, etc.

Adoption of green/low carbon logistics
• Treated as social responsibility
• investment the beginning may be high
• Some clients will have internal standard of the social responsibility
• reflect in cost saving through energy saving

Government Plans
Logistics was once the four important industries recognized by the government
• Singapore is smaller in size in HK, but logistics is doing great, especially of the sea ports
• Its sea port ranks top three in the world (Shanghai à ShenZhen à Singapore)
The question to HK is how to differentiate from China and cooperate with China ; Should not be in the competitive role
• SZ has similar cargo volumes as HK, but SZ has a greater area

How HK survive? From flexible policies of HK
• important about the positioning
• Government has shown little understanding on the positioning and advantage of industry,
• In expanding the capacity, is about how you execute the ideas, what is the position, goal and objective of HK logistics
For Land logistics can make use of both Shenzhen ports and HK ports
Not mutually exclusive, but can pursue different role at different ports
Require policy support by the government
Way Forward
Immediate effect in the labour force and land transport network
• technology
• Courier express
• Adoption of automation technology in sorting (sorting machine, different areas)
• Approach by Kerry Logistics - Find the business first and then adopt the corresponding technology, but not vice versa
The influence of e-commerce → labour intensive
Labour turnover rate is high, also need to balance the costs of technology

Land and Air Logistics (implications of increase in demand for air logistics to the needs and demands for land logistics)
Have to identify the sourcing of air cargo; first important to know:
• where the cargo going to
• where percentage incoming and outsourcing cargos
• shipment using HK as reexport (e.g. using HK for cross border logistics to China)
• not only serving the local market, but have to consider the reexport
Responses of warehouses to the future trend of air logistics in consideration of the increase in the demand of air logistics,
Related to strategic planning and location, together with volume and turnover rate
• Therefore, not necessary means needing a large spaces to accommodate the increasing demand and need of air logistics, can be done through improving the turnover rate.
• For the expansion of the space, most likely is due to the expansion or change of mode of the business operations of the logistics industry.
Turnover rate of the inventory is important, not only about the space of the warehouses in making full use of the cost of space
• for that, need to calculate the space, inventory turn, turnover rate
• the supply chain will operate very slowly when keeping inbound and no or slow out bounding, therefore with slow responding rate; the solution is to stop inbound and slowing enable outbound flow, slowly trim down the stocks
e.g. one example was 3 years ago when the retail business performance was good, while the warehousing space was the same as before

Role of land logistics in the future development of Hong Kong Logistics Industry
- e commerce in HK is not as sophisticated as compared to mainland china

Suggestion:
- consideration of the use of land, and its logistics scope
- road of the seaport, disregard the policy and boundary
- more logistics scope of the facilities, e.g. expand the source of customers

In mainland China, the facilities may be better than HK
- china warehouse will have adv than HK in the near future
- However, in view that our logistics industry will have to support local demand and market, HK logistics industry will not be diminished

→ need to identify the growth and position of HK logistics industry

Rental is only the small part of the consideration, the main consideration for logistics decisions is how much will you earn per area of space to maximize the profits?
- The smaller the space, the faster the response, the higher the value of the products you earn better
- HK should capture the higher value goods since these goods also can afford to pay for a higher costs by air freight

Other points:
- multi-country consolidation and advance moving operations (land)
- Suggestion is to expand the business scope (establish the e-com hub) and faster turn (turnover rate)
Interviewee F: Representative from a Freight Forwarder Company

Date: 16-03-2017

Difference between SMEs and large logistics firms:
- Large logistics firms: each floor space is reserved for one client; Make good use of automation
- SMEs: No automation (serving many clients unlike large logistics firms, which only serve few major clients)

Air logistics
- in the old days, peak season was only Christmas and summer.
- now the business rely on e-commerce (e.g. Taobao, Amazon)
  - Goods become smaller
  - clients demand for quicker delivery time
  - Storage at airport is the very expensive

Challenges faced by SMEs
- Labour shortage, major reasons are:
  - The living cost is too expensive in HK, such as accommodation and food
  - -not financially viable to employ an imported labour in HK

SMEs response to the trend
- Have the rights to select clients
- Choose the business partners that demand simpler operation procedures

Development of SMEs
- Logistics is a risky
- Their company does not solely reply on logistics
- Even for big logistics firms, will rent out the unused space for making profits
- Government cannot do much on acquiring the lands for SMEs
- Willing to use the land around the cross border region if those lands are available for expanding their businesses

Suggestions
- government to relax development control in NT areas
- For now, plot ratios of some industrial land use is only 2.5 currently
- Roads in urban areas are too narrow and congested, this problem should be addressed
- loading and unloading are major obstacles to improve the operational performance of logistics companies
- the government should provide more flexibility in groundfloor usage to accommodate different requirements and needs of logistics operators
• the threshold of entering industrial estate is high for SMEs in consideration that their operation is often not high-value added business
Integration of land, sea and air logistics for sustainable growth of logistics industry

- Reduction of linkage between sea-to-air and air-to-sea in the past decade
- Positioning of Singapore as a transshipment hub

The importance of location of freight facilities for improving operation efficiency

Rising competition from Malaysia, some businesses in Singapore has been taken over

- More import trading from Malaysia to Singapore since goods in Malaysia are relatively cheaper, also with cheaper land rent and labour costs
  - e.g. Coca Cola’s factory relocation to Malaysia

Cross-border logistics in Singapore

- Relocation of port facilities to Tuas Port → can benefit from the proximity to the industrial clusters
- The distance between Tuas Port and Changi Airport is only 40km, thus not posing any negative effect to the transportation

E-market facilitation in logistics operation

- UCC system was originated from Tokyo
- Singapore has two malls under trials
- identified to be practicable for congested city like Hong Kong and Singapore.

Applications of UCC:

- Synchronization of retailers in the system as parts of the communication in the industry

application of Collaborative Urban Logistics

“consolidation” is the key

- different stakeholders even retailers are all included
- Singapore and Hong Kong are facing similar issues
  - labour costs are high
  - Land shortage
  - Emphasis on Transshipment
- Government mentalities in SG & HK are totally different
  - Easier for Singapore government to implement measures such as reclamation projects and masterplan projects for Port Relocation

Upsurge in e-commerce and logistics

- end customers’ orders nowadays intensifies complexities of delivery processes
- requires warehouses for consolidation and temporary storage

Features of e-Commerce
• targeting new generation
• impact on city planning
  o reduces transactions in retail shop

Challenges brought by e-Commerce
• Return of projects
• Customs tax
• Demand for different sizes and needs of warehouses
  o there may no longer need warehouses for e-Commerce in the future for further shortening of the delivery time
• Labour shortage
  o More part-time jobs for housewives
  o Encourage automation to reduce demand of manpower
• Locker system
  o Singpost
  o In catchment area of 400-500m will have lockers → serving 80% of the population
Interviewee H: Representative from a Local Shipping Enterprise

Date: 10-03-2017

Bonded warehouses
- for products that need to pay tax
  - such as alcohols and cigarettes
- Served export and import goods
- Strict regulation from Hong Kong customs and excise department
- Second Floor for aircraft engineering

About the warehouses
- Owned by their company
- Located close to River trade Terminal
  - Consider as good locations connecting Tuen Mun Chek Lap Kok Link and the HZMB

Several major sites for warehouse development in HK
- Airport island, Kwai Tsing, Tuen Mun, Yuen Long, Tsuen Wan

Hong Kong logistics business:
- Local sales, transshipments, imports, recycling of materials

Maintaining Hong Kong logistics development
- Costs, trading policy, favorable terms of trade, conveniency

Challenges of Hong Kong Logistics
- Ageing labour
- Absence of high-tech management
- Relative high in costs for HIT, but not in RTT

Other southeastern countries
- Poor performance and productivity
- only low value-added manufacturing migrate to those countries
- still many factories manufacturing high valued goods located in the Pearl River Delta Region

Hong Kong Zhuhai Macau Bridge
- well connected with river trade terminals in China
- Reduces the travelling distance
  - beneficial for express delivery
- Relieve ecross-boundary traffic congestion at the SZ Bay area

Conflict between operations between Kwai Tsing Terminal and the operators in river trade terminals
Interviewee I: Scholar from The Academic Field of Urban Planning

Date: 13-03-2017

Role of government:

• As authority for land and building
• Report on property is now not up-to-dated dated and not comprehensive
• shortage of land will lead to increase in land price for logistics industry
• Lands Department and Planning Department: unable to provide good quantity and quantity of land for logistics development

Strengths and weaknesses of land logistics in HK

Strengths:

One belt One Road Measure

• not very applicable to the context of Shenzhen and Hong Kong
• not door to door
• only reply on the rail transportation

Weaknesses

• High costs for production
• Mange container ports in China do not depend on HHK ports anymore

Modern logistics facilities

• Industrial buildings not efficient enough for SMEs
  o Carrying capacity
• Modern facilities for modern logistics:
  o Requirements: Bigger size, Close proximity to the airport and ports, efficient
  o Recommendation:
    ▪ Industrial building:
      • 60% space for storage; 40% space for circulation
      • The ramp and parking spaces should not be counted towards GFA
    ▪ E-commerce:
      • A room for collection (include them in the building design and GA)

Drawbacks of revitalisation

• tenants will look for similar spaces in the same district,
• cause land prices to be increase
• have to move to other districts when they cannot afford
• preserve space that with existing use for logistics
• Wholesale conversion:
  o May be necessary for the survival of Cultural and Creative Industries
since they cannot afford the high land rent
  • policy ensuring ground floor use for vibration-free industry

Suggestions to Government:
  • Subsidize the industrial development
  • Invite Hong Kong Trade Development Council to operate in a non-profit generation mode

Brownfield sites in HK
  • Over 1000 ha; serve its own function in HK
  • Not considered as vacant
  • Have to consider reprovision to the people

Industrial buildings for land supply provision to logistics industry
  • Not government initial intention
  • Some owners of the industrial buildings are not willing to rent space to logistics companies since some complain that the companies often taken up the lifts for the use of logistics

Cross boundary transport network
  • time, efficiency are the keys
  • HK still requires to have cross-boundary control points

e-Commerce
  • 2014-2015 impression that e-commerce is growing in insignificant way
  • e-commerce will continue to develop and grow

SMEs
  • adoption of automation is insignificant
spatial requirements or implications of the value-added services in logistics industry

• wide usage of space
• increase in scale of operations
• more specialized and diversified services of logistics companies
• require more space to handle transition
• packaging for saving space
• technology (such as temperature-sensitive goods, customized needs, and more diversified services)

E-commerce

• last mile delivery has increasing demand
• 3PL companies in China are not able to keep up with client demands for e-commerce
  o Due to: scale and capability, absence of cloud, absence of quality service provider, far behind and not updated specialized service, cool chain not updated,
• in Hong Kong, more expensive

Spatial implications of ecommerce on warehousing, conventional retail space and transportation

• increase in volume, diversity of products, number of inventory, and more complicated client demands
→ causing more space requirements and different types of stocks
→ example: amazon

“Due to technological advancement, e-commerce is able to be more macro-scale; but at the same time, it is driving technology in moving forward micro-scale” and “personalization”

Hong Kong and the Technology

• not well known and mostly confidential
• driven by business sector in Hong Kong
• examples are cyberport and science park that are driven by private
• Singapore has policies to support all companies
• HK government is not proactive enough, they will form policy but will not take lead

E-platform and logistics industry growth

• Private public partnership
• should be initiated by the industry but not the government
• example, ocean logistics platform
• the role of government role is for assisting SMEs to enter the platform but not building the platform for them

Reverse Logistics
• environmental issues are the forces for driving the trend
  o examples - Europe: tire manufacturers collecting old tires for converting them into new ones
  o for re-using
• finding new types of product
• implications: costs imposed for going through the processes again but in reverse
  o increase costs and complexity
  o still be beneficial to companies
    ▪ Examples:
      ▪ Europe: packaging will choose environmentally friendly materials
      ▪ China: rising demand for reverse logistics to maximize the return of products → companies will copy sustainable logistics strategies from one another

Reverse logistics within the consolidated distribution operations
• depends on clients’ requirements
• it is ideal to have both logistics and reverse logistics in the warehouse
• all companies have the potential to develop reverse logistics
Interviewee K: Scholar from The Academic Field of Urban Planning
Date: 15-03-2017

Hong Kong has advantage over NamSha: low level of tax

Competition with PRD Region
- Already fierce competition between HIT and Yantian

Hong Kong Zhuhai Macau Bridge
- provide a platform between HK and PRD
- but the question is whether there is sufficient manufacturing demand in Western PRD → the industries there are upgrading
- Another question is how much will have to pay for the bridge-crossing fee

For low value added goods, in consideration that it increases pollution
→ more options available in the SE Asia

For the high value-added goods
- will use the HK International Airport
- “CIQ” refers to Custom, immigration, quarantine

Port of Hong Kong and its counterparts in South China
- unlikely to have cooperation between the two places
- despite may cooperate in infrastructures
- but for the operations of ports, there is competition for shipping companies

About the Cabotage Rule
It is more related to the national security concerns
As The Mainland of China does not want to have the “laissez-faire” policy

Contribution of Liantang/ Heung Yuen Wai Border Crossing Point in cross-boundary transport network
- It will provide an unique economic position to Hong Kong
- Allow for faster transport
- As the potential hinterland
- The concern is about the costs for bridge usage
- “Coordinated Development of the Greater Pearl River Delta Townships”

To increase the competitiveness of Hong Kong
- the operators have to consider to free up land for the usage of high value-added goods
Interviewee L: Scholar from The Academic Field of Nodal Transport Development
Date: 15-03-2017

1. Competition between ports in the PRD
   • 1995 - Not the cities that compete, but the terminal operators compete through penetrating through setting up into the PRD
   • Late 1990s and early 2000
   • 2000-2005 having significant Change
   • SZ shipment cheaper (labour of HK is more expensive; 95-98% of drivers are from HK; late 1990s truck drivers earned many (40,000 to 50,000 per month)
   • due to expensive cost, Yiantian, similar route to North America market

Why choose HK? (Extra 100 USD per container for HK) - Comparative advantages of HK
1. More frequent shipments from HK
2. Cargo is already outside of China, HK as a free port → Can catch up the cargos
3. Through flexible regulations in HK → % of the cargos to be checked by customs (no need in HK compared to 1% to 3% required by Chinese customs)
4. Higher efficiency in HK (good operations in the terminal level; to accommodate the needs of the shipping line)
5. Transhipment

Transhipment v.s. reexport
Re-export
   • Ship into HK, value-added before export (shipment origin is HK and destination)
   • Between two shipments and do something in between (through repacking and repackaging)
   • In HK, 91-92% are reexport

Transhipment
   • from small to big ships
   • Purpose is for the shipping lines to shuffle their ships
   • Take advantage of China policies CATOGE (domestic market from the coast from one China port to another China port, i.e. domestic market does not not open to foreign ship)
   • Transhipment in HK is considered outside China (as international route from China ports to HK ports), if absence of the domestic restriction of other ports in China they can directly compete with HK ports
   • Threats: Free-trade zones, in Shanghai free trade zones it allowed the foreign to do the transhipment à led to drop of cargo throughput in other neighbouring ports suffered
HK will suffer from the potential threats from YanTian and Guangzhou opened as transhipment.

**How should HK respond?**

- To improve the transhipment efficiency - Leave on schedule (to leave the ports on time)
- In history, the design of the ports in HK was not designed for transhipment, which requires lots of vessels, more berths, no use for inland transportation à Catchment areas/ need more spaces, HK is lack of land, areas are very small no room for expansion.
- In HK, it is proposed to have the relocation to change the space setting in order to enlarge the space and improve the efficiency for handling the transhipment.
- Prices going down or going up from China (so as to close the gap)
  - The role of each port is going to be stabilized.
- 35% of the throughput is double-counting (coming in and out from the same ports);
- Yantian trade – unbalanced trade (mainland china has many to export, but many containers coming back 80-90% are empty containers) à unbalanced trade? Do not need that much for the region; Yantian for empty containers charge half less à therefore no need to add more capacity, in view that less and less goods are made in PRD and export from there; instead the factories are moved out to other countries such as Cambodia.
- Total throughput not mean as same as trading value
  - Does not need extra capacity from the port- many empty container coming
  - Unbalanced trade will gradually will become balanced

Potential threats to HK, the Chinese government will also need to consider Chinese shipping lines also want to earn from the domestic shipping.

**2. Factories move to SE Asian countries**

- Some are not relocating, some are new factories
- If new Hub port formulated, have the competition (now only HK and Singapore)
- Some developing countries have the location adv, such as Indonesia
- With regular ships and a hub port, will have business relocated
- Within China: Qianhai and Yantian, and also namsha (due to proximity, need to sacrifice some ports as hub)
- China and African countries may be in partnership in the future

**3. Air logistics - cooperation between HK and SZ airports**

- Two airports do not cooperate, none want to share the profits
- SZ does not need money injection from HK, and vice versa
- Each airport try to lure the cargo network company, such as DHL in HK and UPS in Shenzhen and FedEx in Guangzhou
Airlines will find their regional hub
E.g. Fedex has its own runway in Guangzhou Airport, special runway to the company, but cannot be applied to HK
highest connectivity in the region
• destinations being directly connected
• Cathay Pacific covers nearly all the destinations that have direct link
• also have air alliance with other airline companies
When signing a contract
• Air service agreement
• Bilateral, two governments sign the agreement
• To decide on No. of flights (NY Chicago) and the no. of airlines, the destinations
  ○ e.g. Not choosing the Shenzhen, cuz it is too easily connected to HK
• New node in the network, not randomly to the existing nodes, but with priority with the major hub
• Most of the nodes have little links, only few got lots of links
• Most are through that very few hubs
Reference: “Links” book

4. Hong Kong Zhuhai Macau Bridge
If stimulate the growth, “big elephant” project
E.g. Express railway link, wiped out the investment (charge wont be very high if the charge can operate
• container truck to truck a lot of things to HK, more expensive than budget
• not much from western side of PRD
Air cargos need this bridge, time-sensitive (as compared to opposite time-definite cargos) /
facilitate the long term cargo flow, western side of PRD is relaxed in lifestyle, we are complement with one another. HK becomes an ageing city, to go cross boundary to enjoy the life
• need to 3 to 5 years to settle, to let the business realize the purpose for development on the other side
• role of gateway for China from ports to airport
• export value of mode of transport
• air transport and land transport go up together but not water

5. E-commerce
• government needs to be more aggressive to the support the e-commerce - more proactive to encourage HK firms to emerging e-commerce activities
• Established firm to them as an add on, not taking a lot of risks
• new start-ups aggressive to try
HK does not have a big market itself

- Link up with the existing cities
- Help SMEs to penetrate into the mainland E commerce market, the government is too slow, now only with the help from NGOs

Recommendations:

- Restructure Hong Kong Post – looking out from the local market
  - Structure and the role, change the mandate of HK post
  - Network firms (part of the global networks)
  - Local firms (in penetrating the global networks), e.g. HK post, need to make the best use, require government intervention

- E-commerce under(science and tech bureau) is non-related the trade side
  - Government officials not have any trade knowledge → should be under department responsible for trade
    Government needs to talk to firms that are doing the e commerce
  - Government has less knowledge on E-commerce, as a new industry
  - TDCs only do something to that, but no bureau proactively approaching the firms and industries in e-commerce
  - Positioning of retailers in HK - Need to go out to sell the products → through ecommerce → Support the retailers to go out (intensive goods network and sell it to mainland China) → but not knowing how can go into this trend
  - Omnichannel: make use of online or offline to change the consumers, paradigm shift, much Retargeting retailing strategy
  - Consideration of market cannot have big profit margin, the delivery transportation cost is not cheap in Hong Kong
  - Establishment certification system by the HK government, can take adv over e-commerce market in mainland since they are now still at a stage with many counterfeit goods, e.g. in Taobao, but HK has already passed this stage
Interviewee M: Representative from Port Operator

Date: 16-03-2017

Hong Kong

Port Operation and Labour
- Container Terminal 10
- Operation efficiency:
- Competitiveness
- Technology
- Productivity, efficiency

Container Terminal 10
- economically speaking is not viable

Policy and Institution
- have communication between Operator Association and the government
- in the submitted paper in 2013, it is stated that the back-up land not enough for the whole logistics industry;
- government proposal in 2015 there was the proposal to enhance back-up land

Maritime Port Board
- as the international shipping centre
- For training for new talents, have rooms for improvement to attract different types of talents to enter the industry

Terminal operation
- Establish a board for the maritime logistics is the short-term method

Air Cargo and Sea Cargo
- There is no direct competition as there are for catering different products

E commerce
- e-commerce is new mode of economic activities
- different flow of goods

Regional

Cooperation/Competition in PRD
- Competition with HK includes Nansha, Xiamen
- increase the number of shipments, for catching the next ship for increasing flexibility
- Advantages
  - connectivity, efficiency, catch-up port, custom faster

Factors in attracting shippers
- Costs
  - total handling costs
- Customs
- Transparency & Consistency
  - Port status
  - Container Standards (e.g. as the catchup port)

Cabotage rule
- For protection of interests of a country
- For Free Trade Zone in Shanghai, and the relaxation from other ports in China
- Caused decrease in quantity of goods and the number of shipping flights
- The effect will be like the domino effect, the decrease expected will not be limited to just 14%
- The industry has reflected this situation to the central government of China
Interviewee N: Representative from the Rural Committee

Date: 18-03-2017

Logistics related operations in Brownfield sites

- In Yuen Long South, not many logistics industry involved
- Total area of brownfield sites is about 200 has
- Rents are ranged from HK$ 2 to $3 per feet
- Now have approximately 1000 operators and more than 10,000 workers

Socio-economic impacts of Brownfield sites

Employment

- Relocation of multi-storey industrial compounds to Northern side of Yuen Long South
- Workers of brownfield live in the Southern Yuen Long
- Affect the employment condition of local employees

Businesses

- Designated lands for storage in the government proposal is less than the existing land
- Operators need to search for extra lands for the business

Possible short-, medium- and long-term strategies that both the government and operators in responding to the transformation

- Short-term to medium-term
  - Conduct study on investigating on the conditions of brownfield research on the feasibility of brownfield development
- Long-term
  - To develop brownfield through land resumption
  - Relocation the existing businesses
  - Ensure the sustainability of the relocated business

Major obstacles for logistics business in brownfield sites

- Suitable land supply
  - Ensuring new site to fulfill the spatial requirement
- Land resumption
  - Compensation meeting up to the expectation of land owners

Possible role of rural council

A communicator

- Communicating between stakeholders and the government
- Provide recommendations to the government

At least 20-30 has of land should be preserved to allow sustainable growth of the industries that are now using the brownfield sites
Multi-storey buildings for logistics operations
- Not all are suitable and have to depend on their specific spatial requirement (some require high ceiling, some may need heavy weight capacity or large workshop area)
- Industries included such as express delivery business, packaging, car-repairing have different spatial requirements

Transportation and Distribution
Opportunity for the logistics operators in the New Territories Brownfield sites
- Yuen Long South is the strategic location for regional logistics distributions
- it has three major connection to China
  - Western side: HZMB
  - In the middle: to Qianhai
  - Eastern side: to YanTian
- In HK, the infrastructure provision rather mature
- Predicted that the built infrastructures can handle the predicted traffic flow brought by enhancement of cross-boundary connectivity
- Suggestions: Gradual Widening of the road before construction

Concerns of logistics operators in Brownfield sites
- Challenges:
  - Require to find new site
  - May require to apply for licence again
  - The compensation may not cover the total lost
- Opportunities
  - The proposal by the government could help to make use of land resources of brownfield to provide opportunities to ease housing problem
  - Government should also reserve land for the operators in the brownfield sites
Interviewee O: Former Government Official from The Planning Department
Date: 20-03-2017

Transportation

● Pearl River Delta includes nine cities - shenzhen, zhuhai, Foshan, etc.
  • Greater Pearl River Delta
    o The nine cities mentioned plus Hong Kong and Macau
  • Pan-Pearl River Delta
    o The nine provinces, Chongqing, plus Hong Kong and Macau
● Role of Hong Kong in PRD: as a CBD
  • cannot be easily replaced for the reasons of advantages in talents, regulations, institution
● Require to strengthen advantages of HK
  • through training and recruitment

Hong Kong Zhuhai Macau Bridge and Liantang

● Access the flow of people, access how many are using the new and old Border Crossing Points
● Strategic infrastructures have to be built in response to the capacity predicted and required
● Investment to the infrastructures is a must
● High-speed rail and Hong Kong Zhuhai Macau Bridge will bring dramatic change
● Seaports despite decrease in importance, still have a role to play
  • According to the gravity model
    o dependent on population, economic scale and distance
    o Hong Kong as in proximity to Shenzhen, will expect to have more flows

Cooperation

● Competition is more intense than cooperation
● Greater PRD now using Hong Kong as the focal point
  • for Hong Kong not using the opportunities to develop, Shenzhen and Guangzhou will take the chance
● air logistics still have advantages
  • create capacity for growth for start-ups
    • lands for consolidation to increase efficiency
  • locational factors and land availability; and the locational convenience and advantages can be enhanced through improvement in connectivity and infrastructure
    • e.g. Tuen Mun Area 40, 46

Supply of Land

● goods flow carries more importance than people flow
● through social impact assessment to assess the impacts on workers and their jobs
logistics has low floor space and workers ratio
Also need to take into account of the street vibrancy and number of historic buildings

Brownfield Sites in Hong Kong
- Still being use; ownership concerns
- In the case of Japan: Companies with industrial background have lots of industrial lands that are not in use now; now have changed to commercial use
- In Hong Kong case → there is high cost for land resumption
  - concerns of serious soil contamination and require decontamination
- Sustainable development process
  - as the starting point: consider about the town plan, land use, the types of investment and the use in the future
- The reasons for people to make use of brownfield sites is that they can make cost externalized
  → Have to make cost internalized
  → may cause social conflicts
  - In consideration of the ageing factory worker in brownfield sites, the time requirement for upgrading
- The triggering point will be through town planning
  - there is uncertainty such as the investment risk
  - The proposed plan has to acknowledge the uncertainties and allow flexibility

Flexibility of the new logistics building in Heung Shui Kiu area
- ability to accommodate large floor loading
- with large span and headroom
- stable condition that could withstand vibration
Interviewee P: Representative from the Small Scale Logistics Operator

Date: 31-03-2017

Types of operators in land logistics industry

- Large logistics companies
- Express logistics companies
- Medium and small local firms
  - Medium firms: get the subcontracts from the large companies
  - Small firms: the clients are mostly with established business ties

Clients

- large companies, such as Godiva, will look for large logistics companies to provide them with total solution
- small companies, will mostly aim to cooperate with small local logistics firms

The market for SMEs:

- For large logistics companies, they have stricter regulations
- SMEs will be more “caring” to cater for the needs of the clients

Choice of location for warehouses

- Tuen Mun and Yuen Long → lower in rents, it is favourable for trucks to travel to mainland and the long storage time of some goods; but have to bear in mind the costs for tunnel fee and other transport and time cost, which will cause the operation cost to be higher
- Kwai Tsing and Kwun Tong → higher in rents, but with higher accessibility

E-commerce and logistics SMEs

- E-commerce is not a market for them
- due to
  - Insufficient labour for transport of small parcels
- SMEs are more suitable for delivery of large size products with small number of trips
- SMEs are not willing to use automation technology as it needs lots of inputs of capital as initial stage → most will use labour instead of automation
Interviewee Q: A Government Official from The Planning Department
Date: 08-03-2017

Background of Yuen Lung South (YLS), New Development Areas (NDA) and Brownfield Sites

- HK2030 addressed again the needs for the New Development Areas
  - Addressing the demand in housing and provision of employments
  - 2007-2008 Policy Address, Hung Shui Kiu and North East New Territories are included as one of the major projects of infrastructures

- Objective of NENT
  - establish planning framework for NDAs in Kwu Tung and Fanling for meeting up for various needs including, social, environmental and economic perspectives.
  - About 50 ha of brownfield lands inside the boundary of NDAs
    - Hung Shui Kiu NDA has approximately 190 ha of brownfield lands

- 2011-2012 Policy Address
  - Review of agricultural land
  - for land supply for housing development

- “Planning and Engineering Study for Housing Sites in Yuen Long South - Investigation” in 2012
  - optimise potential for development of degrading brownfield site in YLS for the purpose for housing and other usages

Issues with Brownfield Sites

- Government do not have formal definition for “Brownfield”
- The developments under NDAs cover about 340 ha of brownfield
- Many are privately owned.
- 2015-2016 Policy Address → address the issues on brownfield operations, and the usage of abandoned agricultural land
- 2016, CEDD feasibility studies
  - proposed multi-storey buildings
  - brownfield operations

Brownfield in Hung Shui Kiu NDA

- About 190 has of brownfield lands
- mainly for warehousing, storage for containers, car repair, recycling etc.
- Brownfield in HSK now under pilot scheme
- to convert the brownfield into more suitable land use and reserve suitable lands for consolidating the brownfield operations
- now there are about 24 has of land area reserved for storage and port back up purpose
• Designated zone (“OU (PBU & SWU)”) on Revised Recommended Outline Development Plan for storage for large machinery and materials that cannot be stored in the multi-storey buildings

• There are concerns regarding the compensation, relocation, and arrangement of the brownfield sites in HSK NDA, as expressed by the local operators in brownfield in HSK NDA.

HSK NDA
• Located strategically in Northwest New Territories
• well connection with Yuen Long, Tin Shui Wai and Tuen Mun
• as the “Regional Economic and Civic Hub”
• NDA well positioned to meet demand for different economic land uses
  o offices, hotels, retail, industrial usage

Solutions to addressing the brownfield issues in Hung Shui Kiu NDA
• operations in brownfield in HSK NDA can be categorized into nine types
  o container storage, warehousing, logistics operations, open storage, etc.
  o support various economic sectors
• Feasibility studies are ongoing for providing comprehensive analysis on the findings and formulating recommendations.

Logistics infrastructure with the connection to the Airport
• Tung Chung New Town Extension Study
• objective for extending Tung Chung as “distinct community” for developing it for meeting the social, economic, environmental needs, as well with sufficient housing provision
• Tung Chung New Town extension - commercial activities
  o take into account of the 3rd runways at airport
  o total job opportunities up to 165000
• Initial proposed theme - “The World Converging”
  o Experiencing HK and the World
  o Creation of “Business Launchpad”
  o Logistics support
# Appendix D Recommended Action Plan

<table>
<thead>
<tr>
<th>Spatial Planning Recommendations</th>
<th>Short Term (2017-2021)</th>
<th>Medium Term (2022-2030)</th>
<th>Long Term (Beyond 2030)</th>
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<tr>
<td>General</td>
<td></td>
<td>• Relocation of logistics operations from urban core to New Development Areas</td>
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<tr>
<td><strong>Aviation Cluster</strong></td>
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<td>• Temperature and humidity sensitive specialised cargo terminal at South Cargo Precinct</td>
<td>• Modern multi-storey warehouses and refrigerated warehouses at Siu Ho Wan (if demand persists)</td>
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<tr>
<td>• Centralised screening facility at South Cargo Precinct</td>
<td>• Refrigerated and high security warehouses at Hong Kong Boundary Crossing Facilities Topside Development</td>
<td>• Aviation and logistics training facilities at Siu Ho Wan (if demand persists)</td>
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<tr>
<td><strong>Maritime Cluster</strong></td>
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<td>• Multi-storey parking facilities and logistics complex at Kwai Tsing Container Terminals</td>
<td>• Consolidate and cluster port back-up uses in the planning of New Development Areas</td>
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<tr>
<td>• Longer tenancy of port back-up land</td>
<td>• Expand current port back-up land at Kwai Tsing and Tsing Yi</td>
<td>• Practical Training Centre in close proximity with Kwai Tsing Container Terminals</td>
<td>• Expansion of Kwai Tsing Container Terminals at Southwest Tsing Yi</td>
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<tr>
<td>• Designate permitted uses for short-tenancy port back-up land</td>
<td>• Re-prioritise existing parking spaces for container trucks and medium/heavy goods vehicles at Kwai Tsing Container Terminals</td>
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### Tuen Mun West Logistics Cluster
- Pilot logistics cluster scheme at Tuen Mun Area 38, 40, 46 and 49 (include specialised cargo storage facilities, security screening, office and modern warehouses)
- Expansion into underused parts of River Trade Terminal and reclaimed area at Lung Kwu Tan

### Northern Logistics Belt
- Immediate accommodation of open storage sites in area surrounding Liantang/Heung Yuen Wai Boundary Control Point
- Modern multi-storey logistics compounds, consolidation and distribution centres at Hung Shui Kiu New Development Area and Yuen Long Development
- Modern multi-storey warehouses at San Tin/Lok Ma Chau Development Node
- Logistics training facilities at Hung Shui Kiu New Development Area and Yuen Long Development
- Provision and consolidation of port back-up uses at San Tin/Lok Ma Chau Development Node
- Agri-logistics development cluster for handling of perishable goods at Man Kam To
- Base for providing high-value, technology-based logistics services at Liantang/Heung Yuen Wai

### Overall Road Network Enhancement
- Road widening at the proposed clusters (e.g.: Lung Mun Road)
- Loading/unloading bays provision review
- Rationalisation of bus routes (e.g.: express bus routes between Tung Chung, Airport Island and Hong Kong Boundary Control Facilities)
- Traffic diversion (e.g.: reducing toll fee of Tai Lam Tunnel)
- Road enhancements for better connections to the proposed clusters
- Construction of new highways (e.g.: Route 11, direct road linkage from New Territories North to East Lantau Metropolis, Lantau Island to Hong Kong Island)
- Territorial freight plan
- New railway connections in aviation cluster
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<tr>
<th>Policy Recommendations</th>
<th>Setting Up High-Level Steering Authority</th>
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<th>Resolving Labour Shortage by Productivity Enhancement</th>
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<tr>
<td>• Technological training of staff</td>
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<td>• Setting up sectoral logistics training facilities in respective clusters</td>
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<td>• Establishing a qualification framework of the logistics industry</td>
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<th>Strengthening Regional Cooperation</th>
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<tr>
<td>• Seeking opportunities to capitalise Hong Kong’s strengths at providing professional services</td>
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<td>• Exploration of different cooperation options across sectors for trade facilitation and knowledge exchange</td>
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<th>Smart and Green Initiatives</th>
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<tr>
<td>• Providing of e-logistics and electronic trading platform</td>
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<td>• Providing communication and matching platform for small-to-medium enterprises and the information technology sector</td>
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<tr>
<td>• Increasing subsidy and encourage trials for green vehicles and fuels</td>
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<tr>
<td>• Providing platform for e-supply chain development</td>
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<td>• Putting forward a Green Freight Plan to cater the needs of reverse logistics</td>
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