Hong Kong's future as a regional transport hub

Peter J. Rimmer
HONG KONG'S FUTURE
AS A REGIONAL TRANSPORT HUB

Peter J. Rimmer

Published by
Strategic and Defence Studies Centre
Research School of Pacific Studies
The Australian National University
Canberra, Australia,
1992
ABSTRACT

After the reversion of Hong Kong to China in 1997, will the port maintain its commanding position in the worldwide operation, ownership and management of container shipping; will its airport remain as a major focal point in the global aviation network linking East Asia with the North American and European economic blocks; will the location of the associated transport infrastructure be able to accommodate the changed situation; and will the linked urban developments made with respect to Hong Kong’s past settlement patterns and existing political boundaries be suitable? Above all, how will its Port and Airport Development Strategy (PADS) affect economic and political relations between Hong Kong and China? Will Hong Kong be able to maintain its competitive advantage into the twenty-first century, which will be dominated by ‘time-based’ competition (i.e., ‘just-in-time delivery’, minimal inventories and faster turnaround of capital)? Resolution of these issues will determine Hong Kong’s future as a regional transport hub.

Before considering PADS, this monograph reviews relevant aspects of Hong Kong’s economy underpinning its transformation from an entrepôt into a regional transport hub. With this background, it addresses the key issues by distilling PADS into its separate components and examining each in turn: port expansion, airport relocation, land transport infrastructure, and implications for urban development. Initially, it explores each component’s past developments and new proposals before evaluating criticisms of aspects of the strategy. Then it assesses the degree to which the recommendations complement or duplicate developments in the Pearl River Delta and southern China. After these analyses the monograph repacks PADS and discusses its intertwined economic and political aspects, with reference to the respective roles of the Hong Kong, Chinese and British governments. Finally, it draws conclusions about Hong Kong’s likely future as a regional transport hub.
Dr Peter J. Rimmer is Head, Department of Human Geography, Division of Society and Environment, Research School of Pacific Studies, The Australian National University. For the past twenty-five years he has been engaged as a researcher and consultant for international financial organisations in studying multilayered transport and communications networks and their relationship to emerging development corridors within the Pacific Basin. Much attention has been given to past, current and future infrastructural changes in ports, airports and teleports and movements of goods, people and information between mega-cities. New work has been focused on multimodal transport and electronic data interchange (EDI). Detailed case studies have been undertaken in Australia, China, Hong Kong, Japan, Korea, Malaysia, Papua New Guinea, the Philippines, Singapore, Taiwan and Thailand. Dr Rimmer is the author of numerous papers, books and monographs, including Rikisha to Rapid Transit: Urban Public Transport Systems and Policy in Southeast Asia (Pergamon Press, Sydney, 1986).
Canberra Papers on Strategy and Defence are a series of monograph publications which arise out of the work of the Strategic and Defence Studies Centre, Research School of Pacific Studies, The Australian National University. Previous Canberra Papers have covered topics such as the relationship of the superpowers, arms control at both the superpower and South-east Asian regional level, regional strategic relationships and major aspects of Australian defence policy. For a list of those still available refer to the last pages of this volume.

Unless otherwise stated, publications of the Centre are presented without endorsement as contributions to the public record and debate. Authors are responsible for their own analysis and conclusions.
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ACKNOWLEDGEMENTS

Acknowledgement is made of the logistical arrangements undertaken in both Hong Kong and south China by Dr Rebecca Lai-Har Chiu, School of Professional and Continuing Education, University of Hong Kong. Other assistance was received from C.S. Chan, Civil Aviation Department; Kevin Chinnery, Lloyds Maritime Asia; Dr David Chu Kim-Yee, Chinese University of Hong Kong; Tony Clark, Port Development Board, Economic Services Branch, Hong Kong Government; Gary Klintworth, East Asia Program, The Australian National University; John Meredith, Hong Kong International Terminals Ltd; Mrs Lam Wong Yin-wah, Census and Statistics Department Hong Kong; Professor C.K. Leung, University of Hong Kong; Alan A. McLean, Chief Economist, Economics Research Department, The Hong Kong and Shanghai Banking Corporation; Pang Hau-Chung, Deputy Commissioner for Transport; Pang Ho Che, Government Engineer (Port and Airport Development), Department of Transport; Michael C.C. Sze, Director of Marine, L.K. Leung and Norman Cheung Marine Department; and Dr L.H. Wang, University of Hong Kong. Reference material was also provided by the staff of the Chinese University of Hong Kong, City Polytechnic, Hong Kong Polytechnic and University of Hong Kong libraries. Any interpretation of the material supplied, however, is the responsibility of the author. Useful comments on the paper have been made by Barbara Banks, Christine Tabart, and Sandra Davenport has collected newspaper articles from July 1991. The Chinese spellings were checked by Peter Shen. All are members of the Department of Human Geography, Division of Society and Environment, Research School of Pacific Studies, The Australian National University, Canberra. The cover and figures were drawn by Ian Heyward, Cartographic Section, Research School of Pacific Studies, The Australian National University, Canberra. Permission to reproduce the plate was kindly provided by the Far Eastern Economic Review.
CHAPTER 1

INTRODUCTION

Our longer term economic growth can only be secured by ensuring that our physical infrastructure remains adequate to facilitate the efficient movement of people and goods in and out of Hong Kong. This is crucial to maintaining our position as a major finance, trade and services centre for the Asia Pacific Region (Sir Piers Jacobs, PADIU, 1990: 4).

On 11 October 1989, the Governor of Hong Kong announced in his Annual Address that the Government will spend $HK127 million (US$16.3 billion) dollars on a civil engineering strategy. Known as the Port and Airport Development Strategy (PADS), it is intended to ensure Hong Kong’s position as a transport and communications hub and services centre in the Asia-Pacific Region during the early years of the twenty-first century. Not only does it incorporate recommendations for port and airport facilities to be implemented by 2011 but it includes others regarding associated transport infrastructure and urban development. The key element of PADS is the construction of a state-of-the-art airport at Chep Lap Kok on the northern coast of Lantau Island. In early 1997 its first runway is due to open.

On 1 July 1997, Hong Kong’s sovereignty, however, will be transferred to China (Jao et al., 1985). Its local autonomy, and capitalist system and life-style is guaranteed for fifty years under the Sino-British Joint Declaration of 1984 (see Rafferty, 1990, for a description of events leading to its signing). According to Mok (1985), it is inevitable that the Hong Kong Special Administrative Region (SAR) will be more closely integrated with the Pearl River (Zhuijiang) Delta Economic Region (Fig. 1). At the time of the Declaration, Hong Kong was small in area and population compared with China’s Guangdong Province but dominant in value of exports and Gross National Product (Table 1). Consequently, the Port and Airport Development Strategy raises issues about the appropriateness of the
Situated in the southern part of Guangdong Province, the Pearl River (Zhuijiang) Delta is difficult to delineate. According to Wong and Tong (1984), it can be broadly defined to include five cities (Guangzhou, Foshan, Jiangmen and Zhongshan), two Special Economic Zones (Shenzhen and Zhuhai) and twenty-one counties. It accounts for 18 percent of Guangdong Province's land area and has a population of about 20 million. Hong Kong and Macau should also be included. Since 1984, a distinction has been made between the Large Delta and Small Delta though there are inconsistencies in their use (Yeh et al., 1989). To further complicate matters, the official boundary of the Pearl River Delta since 1985 is that of the Zhuijiang Delta Open Economic Zone (Zhujiang Jingji Kaifang Qu). This includes four cities (Foshan, Jiangmen, Zhongshan and Dongguan) and 12 counties - an area of 20,000 square kilometres with a population of 9.6 million in 1985. As it is used for dealing with foreign investment it excludes the Special Economic Zones of Zhuhai and Shenzhen (designated 1980) and the open city of Guangzhou (designated 1984), which already have their own arrangements (see also Appendix I).
### TABLE 1 AREA, POPULATION, VALUE OF EXPORTS AND GROSS NATIONAL PRODUCT FOR GUANGDONG, HAINAN, HONG KONG AND MACAU, 1985

<table>
<thead>
<tr>
<th>Area</th>
<th>Population</th>
<th>Value of exports</th>
<th>Gross National Product</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>'000 sq.km</td>
<td>million</td>
<td>per cent</td>
</tr>
<tr>
<td>Guangzhou City (incl. 8 counties)</td>
<td>17</td>
<td>8</td>
<td>7.1</td>
</tr>
<tr>
<td>Pearl River Delta Economic Open Zone (1985)</td>
<td>22</td>
<td>10</td>
<td>9.6</td>
</tr>
<tr>
<td>Shenzhen-Zhuhai SEZ (incl. 2 counties)</td>
<td>2</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>Hainan (a separate province in 1988)</td>
<td>34</td>
<td>16</td>
<td>5.9</td>
</tr>
<tr>
<td>Other Guangdong</td>
<td>137</td>
<td>65</td>
<td>39.0</td>
</tr>
<tr>
<td>Guangdong</td>
<td>212</td>
<td>100</td>
<td>62.5</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>1</td>
<td>-</td>
<td>5.5</td>
</tr>
<tr>
<td>Macau</td>
<td>0.4</td>
<td>-</td>
<td>0.4</td>
</tr>
<tr>
<td>Total</td>
<td>213.4</td>
<td>-</td>
<td>68.4</td>
</tr>
</tbody>
</table>

4 Hong Kong’s Future as a Regional Transport Hub

location, capacity and cost of Hong Kong’s planned port expansion and new international airport, and its continuing importance as a regional transport hub.

After 1997, will the port maintain its commanding position in the worldwide operation, ownership and management of container shipping; will its airport remain as a major focal point in the global aviation network linking East Asia with the North American and European economic blocs; will the location of the associated transport infrastructure be able to accommodate the changed situation; and will the linked urban developments made with respect to Hong Kong’s past settlement patterns and existing political boundaries be suitable? Above all, how will the entire PADS package affect the economic and political relations between Hong Kong and China? Will Hong Kong be able to maintain its competitive advantage into the twenty-first century which will be dominated by ‘time-based’ competition (i.e. ‘just-in-time delivery’, minimal inventories and faster turnaround of capital)? Resolution of these issues will determine Hong Kong’s future as a regional transport hub.

Before considering PADS, the monograph reviews relevant aspects of Hong Kong’s economy underpinning its transformation from an entrepôt into a regional transport hub (Chapter 2). With this background, it addresses the key issues by distilling PADS into its separate components and examining each in turn: port expansion (Chapter 3), airport relocation (Chapter 4), land transport infrastructure (Chapter 5), and implications for urban development (Chapter 6). Initially, it explores each component’s past developments and new proposals before evaluating criticisms from: (a) Gordon Wu Ying-sheung, Managing Director of Hopewell Holdings Ltd and adviser to the Chinese Government; (b) the Nim Wan study by eight academics (Wang et al., 1990); and (c) the Study Group for Infrastructure Development (SGID) comprising Hong Kong-based town planners, civil engineers and economists, and convened by Wang Liang-huew of the University of Hong Kong (SGID, 1991a,b). Then it assesses the degree to which the recommendations complement or duplicate developments in the Pearl River Delta and southern China. After these analyses the monograph repacks PADS and discusses its intertwined economic and political aspects with reference to the respective role of the Hong Kong, Chinese and British Governments (Chapter 7). Finally, it draws conclusions about Hong
Kong’s likely future as a regional transport hub (Chapter 8). (See Appendix I for a summary of relevant Hong Kong Government reports on planning and transport in the Colony.)
CHAPTER 2
ECONOMY

Hong Kong’s post-1997 transition to socialism is but the next in a series of marked changes that have transformed it from an entrepôt into a regional transport hub (see Yeh, 1987: 74-86 for an extended bibliography). After the cession of Hong Kong by China to the British in 1841, trade became the hallmark of its economy. Between 1842 and 1850, the opium trade was the dominant activity of the settlement established at the mouth of the Pearl River Delta. During the next fifty years Hong Kong’s economy was dependent on its connections with China and its trade with Britain which blossomed periodically under the influence of its freebooting merchants. After 1900, this trade expanded to encompass the United States, South America, Malaya and Africa. Following the First World War, expansion was hampered by boycotts (1925-26), the Depression and the effects of Chinese nationalism. It was not until the establishment of Imperial preference in 1935 and the emergence of industry that there was a resurgence in trade. Again this was shortlived as the Hong Kong economy was destroyed by the Pacific War - the only time since 1841 that foreign trade restrictions and exchange controls have been imposed.

The deregulated economy was restored after the Pacific War but its recovery as China’s entrepôt was again brief as the Korean War led to the United Nations embargo on trade with the mainland and a recession in Hong Kong. As China’s self-exile intensified re-exports plummeted. Although Hong Kong developed its re-export trade with other Asian countries this did not compensate for its loss of Mainland China trade. Bereft of its hinterland in China, Hong Kong found its trading activities were subordinated to its growing manufacturing economy which, spurred by immigrant entrepreneurs from Shanghai, centred on textiles, clothing, watches, clocks, toys, sporting and electrical goods. During the 1960s this activity led to a pronounced growth in domestic exports with re-exports accounting for less than 20 per cent of trade in 1970 (Table 2). As witnessed by riots and a banking crisis, the transition to a manufacturing economy in Hong Kong was not smooth.
### TABLE 2 HONG KONG’S FOREIGN TRADE STATISTICS, 1950-1970
(Current Prices)

<table>
<thead>
<tr>
<th>Year</th>
<th>Imports</th>
<th>Domestic</th>
<th>Re-export</th>
<th>Exports</th>
<th>Total</th>
<th>Domestic per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$HK$ mill.</td>
<td>$HK$ mill.</td>
<td>$HK$ mill.</td>
<td>$HK$ mill.</td>
<td>$HK$ mill.</td>
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<td>420</td>
<td>3,296</td>
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<td>3,883</td>
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<td>2,219</td>
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<td>3,873</td>
<td>740</td>
<td>1,994</td>
<td>2,734</td>
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<td>3,435</td>
<td>866</td>
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<td>3,719</td>
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<td>995</td>
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<td>7,412</td>
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<td>8,551</td>
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*Source: Chu, 1991.*
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<th>Year</th>
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<th>Exports Re-export $HK\text{ mill.}$</th>
<th>Total $HK\text{ mill.}$</th>
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</tbody>
</table>

During the early 1970s the Oil Crisis triggered a short-lived recession in Hong Kong. Recovery was predicated upon diversifying the Territory's economy by developing high-tech activities on industrial estates to offset growing competition to its labour-intensive activities from neighbouring countries. In the late 1970s the industrial diversification policy was challenged by the opening up of China. With the development of Special Economic Zones (SEZ), open coastal cities and China's subsequent economic recovery, Hong Kong not only regained a significant share of its re-exports but became a global financial centre rather than a diversified manufacturing base (Table 3).

In the 1980s, Hong Kong's labour-intensive manufacturers, troubled by rising wages and land rents, sought room in China, particularly in the Pearl River Delta, for expansion, labour and the opportunity for the out-processing of imported materials (Sit, 1989a). Reportedly, over 2 million workers are engaged, directly or indirectly, in export-oriented branch plants and joint ventures located mostly in Guangdong Province, and the Pearl River Delta in particular. Targeting both American and European markets, these activities have boosted the share of re-exports in Hong Kong's trade from less than 20 per cent in 1971 to over 64 per cent in 1990 (Table 3).

Between 1980 and 1990, the relative importance of the origins of imports remained unchanged though there was a significant change in export destinations (Fig. 2). East Asia (notably Japan and Taiwan), Western Europe and North America maintained their respective positions as the prime sources of imports. In exports, however, East Asia usurped North America and Europe as the two prime destinations. This shift reflected the rise in the importance of East Asia within the global economy and the changing character of the Hong Kong economy.

Offsetting the loss to the Delta of small and medium-sized branch plants engaged in garments, textiles, plastics and electronics, Hong Kong has drawn upon its increasingly well-paid domestic labour force to develop as a world financial centre, a regional focus for south China in insurance, property, advertising and freight forwarding services, and a base for high-tech industries (Taylor and Kwok, 1989). Other important contributors to the economy are hotel, restaurant, wholesale and retail services and the construction industry.
10 Hong Kong’s Future as a Regional Transport Hub

FIGURE 2 ORIGIN AND DESTINATION OF HONG KONG’S IMPORTS AND EXPORTS, 1980-1990

Source: International Economic Data Bank, pers. comm.
Economy

(see Sung, 1991, for a detailed discussion of the role of Hong Kong as financier, trading partner, middleman and facilitator in China’s open-door policy).

Real Gross Domestic Product has been declining since the mid-1980s (APEG, 1991). From a high point of almost 14 per cent in 1987 it declined to 3 per cent in 1990 (Table 4). Yet inflation has remained high. Continued population growth and rising per capita income have masked the emigration of skilled workers and consequent reshaping of the economy that is occurring with the approach of 1997. Services growth has been at the expense of manufacturing. The continuance of Hong Kong’s diversified economy is underpinned by its international transport and communication links.

Without its port, Hong Kong would not have grown into a commercial and manufacturing base, and become a focal point for transshipping resources and goods to and from East and Southeast Asia. Without its airport, it would not have been able to provide the connections for face-to-face contact necessary for becoming a world financial pivot and a regional service centre for East Asia. Without associated lands transport infrastructure, it would not be able to remain as a gateway to southern China. Without urban development, it would not be possible to accommodate the land use activities that generate the need for transport and communications.

Hence the clarion call that Hong Kong’s port must continue to grow if manufacturers are not to seek alternative locations. Transport and communications networks must be expanded and a new airport constructed to provide the best possible environment for business. Adequate infrastructure must be planned and supplied on a timely basis to ensure the efficient working of the land transport system (i.e. by supporting new port and airport developments, accommodating cross-border traffic and avoiding bottlenecks in transport and communications networks). Urban development must be designed to accommodate increases in population and further commercial development.

All of these items are now encapsulated in PADS (Barnes, 1990, Morris, 1990). Before its inception the planning of port, airport, associated infrastructure and urban development had been
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total GDP (US$ bill)</td>
<td>27.5</td>
<td>33.8</td>
<td>37.4</td>
<td>47.2</td>
<td>55.3</td>
<td>63.0</td>
<td>69.3</td>
</tr>
<tr>
<td>Annual real GDP growth (per cent)</td>
<td>10.9</td>
<td>-0.1</td>
<td>11.9</td>
<td>13.8</td>
<td>7.3</td>
<td>3.6</td>
<td>3.0</td>
</tr>
<tr>
<td>Population (million)</td>
<td>5.0</td>
<td>5.5</td>
<td>5.5</td>
<td>5.6</td>
<td>5.7</td>
<td>5.8</td>
<td>5.9</td>
</tr>
<tr>
<td>GNP per capita US$</td>
<td>5,210</td>
<td>6,080</td>
<td>6,910</td>
<td>8,180</td>
<td>9,230</td>
<td>10,430</td>
<td>12,090</td>
</tr>
<tr>
<td>Share in GDP (per cent)</td>
<td>0.8</td>
<td>0.5</td>
<td>0.5</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.3</td>
</tr>
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<td>Agriculture</td>
<td>30.0</td>
<td>29.0</td>
<td>29.7</td>
<td>29.3</td>
<td>29.1</td>
<td>28.8</td>
<td>28.6</td>
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<tr>
<td>Industry</td>
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<td>70.5</td>
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<td>70.3</td>
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<tr>
<td>Share in GDP (per cent)</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Gross domestic investment</td>
<td>35.9</td>
<td>21.6</td>
<td>24.0</td>
<td>26.7</td>
<td>27.8</td>
<td>27.1</td>
<td>26.2</td>
</tr>
<tr>
<td>Annual rate of inflation (per cent of CPI)</td>
<td>11.5</td>
<td>4.4</td>
<td>2.8</td>
<td>5.5</td>
<td>7.5</td>
<td>10.0</td>
<td>10.0</td>
</tr>
</tbody>
</table>

*Source: APEG, 1991: 42*
considered separately. Although bundling them together assists in marketing them to attract private sector finance, it makes separate evaluation of technical, financial and political aspects very difficult. PADS is, therefore, unbundled in the following chapters and each ingredient examined in turn - the port accounting for 39 per cent of investment, the airport for 27 per cent and urban development and land transport connections together accounting for the remaining 34 per cent (Far Eastern Economic Review, 18 July 1991). We begin with the plans for further port development.
CHAPTER 3
PORT EXPANSION

Initially, the port of Hong Kong had no intrinsic advantage over rival ports in the Pearl River Delta. Although it was located at the mouth of the estuary, Guangzhou, Huangpu and Macau were equally accessible to shallow sailing ships. Its decisive advantage came with the advent of steam and increasing size of ships. Being the largest deep water port between Singapore and Shanghai, it was catapulted into prominence as the gateway to southern China (Boxer, 1961; Chiu, 1973). Since the mid-nineteenth century the port has developed around Victoria Harbour (Fig. 3). Because it offered adequate shelter, few quays were required. Cargo was lightered to and from ships anchored in the stream and loaded and off-loaded in designated areas possessing land transport connections. With the subsequent growth of the port after the Second World War the area available for additional moorings within the confines of the existing harbour became limited. Mooring buoys and anchorages continued to be used after the introduction of containerisation in 1968. Although these mid-stream operations are anathema to container operators, most activity has been concentrated on the terminals at Kwai Chung north of Kowloon that have access by the main northwestern road to the border.

In 1971, a series of interim container terminals was built in down-town Hong Kong for the Hong Kong and Kowloon Godown Company, and at North Point and Hung Hom for the Hong Kong and Whampoa Dock Co. Ltd (Robinson and Chu, 1978; Chiu, 1983; Chu and Chiu, 1984; Wong, 1986; Chu, 1989, 1991; Charter 1990). These sufficed until the first three purpose-built container terminals were completed in 1973 at Kwai Chung for Modern Terminals Ltd (No. 1), the Kowloon Container Warehouses (No. 2) owned by the Oyama Group and Sea-Land (No. 3) (Fig. 4). By 1977, the interim terminals had been phased out. Three years previously, Hong Kong and Whampoa Dock, the owners of North Point and Hung Hom terminals, had joined with Hutchison International. Together they used funds from selling the land on which the interim terminals had been built to
Port Expansion 15

Source: Based on Charter, 1990. 11.
enable their subsidiary Hong Kong International Terminals Ltd to bid successfully for Kwai Chung Terminal No. 4. In turn, the Hong Kong and Kowloon Godown Company joined with Modern Terminals Ltd to construct Terminal No. 5.

Improved productivity brought about by the mechanisation of the existing container terminals more than satisfied demand until the formal announcement of the Sino-British Joint Declaration in September 1984. It offered terminal operators another fifty years of free enterprise after 1997. Excess container terminal capacity was quickly transformed into saturation following the upsurge in China’s economy and, specifically, manufacturing developments by Hong Kong entrepreneurs in the Pearl River Delta. New capacity was required to keep pace with the double-digit growth (Table 5).

In 1985, Hong Kong International Terminals Ltd, by then the owner-operator of Terminals No.2 and No.4, won the right to construct and operate Terminal No.6 in what had become the world’s largest container port in terms of throughput (Table 6). In 1988, Hong Kong International Terminals was awarded the same right to operate Terminal No. 7 at a cost of $HK4.39 billion, and the following year relinquished Terminal No. 2 to allow Modern Terminals to consolidate its activities at the northern end of Kwai Chung (HIT, 1989). After the construction of Terminal No. 7 environmental conditions at Kwai Chung will prevent further development - a situation prompting the Hong Kong Government to make forecasts on port demand and capacity. This has led to the consideration of alternative sites, including the proposal for reclamation in the Western Harbour.

By 1988, Hong Kong was the region’s supreme load centre (Fig. 5). Large container carriers and consortia were attracted by demand from the Territory’s domestic industries and opportunities for transhipping mainstream West Coast United States cargoes to East Asian and Southeast Asian feeder ports. Served by short-distance shipping services, transhipments maintained Hong Kong’s status ahead of Kaohsiung, Kobe-Osaka, Keelung, Pusan, Singapore and Tokyo-Yokohama. Increasingly, however, its position is threatened by

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1 Hong Kong International Terminals Ltd (HIT) also took over Terminal No. 2 following the bankruptcy of the Oyama Group (Chu, 1991).
FIGURE 4  KWAI CHUNG CONTAINER TERMINALS, HONG KONG, 1990

Source: Based on Charter, 1990: 27.
## TABLE 5 FULL CONTAINER LOADS HANDLED AT KWAI CHUNG, 1977-1990

<table>
<thead>
<tr>
<th>Year</th>
<th>Discharged TEUs</th>
<th>Loaded TEUs</th>
<th>Sub-total TEUs</th>
<th>Discharged TEUs</th>
<th>Loaded TEUs</th>
<th>Sub-total TEUs</th>
<th>Total TEUs</th>
<th>Transhipment per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1977</td>
<td>237058</td>
<td>276748</td>
<td>513806</td>
<td>252664</td>
<td>244854</td>
<td>497518</td>
<td>1011324</td>
<td>49.19</td>
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<tr>
<td>1978</td>
<td>271330</td>
<td>293968</td>
<td>565298</td>
<td>230134</td>
<td>225358</td>
<td>455492</td>
<td>1020790</td>
<td>44.62</td>
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<tr>
<td>1979</td>
<td>315041</td>
<td>358611</td>
<td>673652</td>
<td>215836</td>
<td>212726</td>
<td>428562</td>
<td>1102214</td>
<td>38.88</td>
</tr>
<tr>
<td>1980</td>
<td>370516</td>
<td>401114</td>
<td>771630</td>
<td>224460</td>
<td>223047</td>
<td>447507</td>
<td>1219137</td>
<td>36.71</td>
</tr>
<tr>
<td>1981</td>
<td>395655</td>
<td>456814</td>
<td>852469</td>
<td>235405</td>
<td>230875</td>
<td>466280</td>
<td>1318749</td>
<td>35.36</td>
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<td>1982</td>
<td>384813</td>
<td>461088</td>
<td>845901</td>
<td>209466</td>
<td>204414</td>
<td>413880</td>
<td>1259781</td>
<td>32.85</td>
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<tr>
<td>1983</td>
<td>389933</td>
<td>499896</td>
<td>889829</td>
<td>229910</td>
<td>225771</td>
<td>455681</td>
<td>1345510</td>
<td>33.87</td>
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<tr>
<td>1984</td>
<td>430290</td>
<td>566721</td>
<td>997011</td>
<td>239906</td>
<td>235762</td>
<td>475668</td>
<td>1472679</td>
<td>32.30</td>
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<tr>
<td>1985</td>
<td>501028</td>
<td>594794</td>
<td>1095822</td>
<td>242497</td>
<td>229044</td>
<td>471541</td>
<td>1567363</td>
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<td>1986</td>
<td>526437</td>
<td>756140</td>
<td>1282577</td>
<td>273930</td>
<td>273929</td>
<td>547859</td>
<td>1830436</td>
<td>29.93</td>
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<td>1987</td>
<td>624017</td>
<td>914113</td>
<td>1538130</td>
<td>315703</td>
<td>308245</td>
<td>623948</td>
<td>2162078</td>
<td>28.86</td>
</tr>
<tr>
<td>1988</td>
<td>770119</td>
<td>1082783</td>
<td>1852902</td>
<td>355410</td>
<td>350430</td>
<td>705840</td>
<td>2558742</td>
<td>23.52</td>
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<tr>
<td>1989</td>
<td>796056</td>
<td>1304409</td>
<td>2100465</td>
<td>328032</td>
<td>323856</td>
<td>651888</td>
<td>2752353</td>
<td>25.48</td>
</tr>
<tr>
<td>1990</td>
<td>937706</td>
<td>1513117</td>
<td>2450823</td>
<td>352192</td>
<td>346355</td>
<td>698547</td>
<td>3149370</td>
<td>22.18</td>
</tr>
</tbody>
</table>

Source: HKCSD, 1989: 156; pers. comm.
### TABLE 6 INTERNATIONAL CONTAINERS HANDLED AT HONG KONG'S KWAI CHUNG TERMINALS AND OTHER LOCATIONS, 1979-1990

(Thousand TEUs)

<table>
<thead>
<tr>
<th></th>
<th>Kwai Terminals</th>
<th>Chung Terminals</th>
<th>Sub-total</th>
<th>Others</th>
<th>Sub-total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discharge</td>
<td>Load</td>
<td></td>
<td>Discharge</td>
<td>Load</td>
</tr>
<tr>
<td></td>
<td>HK T/s</td>
<td>M/T</td>
<td>HK T/s</td>
<td>HK T/s</td>
<td>HK T/s</td>
</tr>
<tr>
<td>1979</td>
<td>315</td>
<td>216</td>
<td>104</td>
<td>15</td>
<td>359</td>
</tr>
<tr>
<td>1980</td>
<td>370</td>
<td>224</td>
<td>125</td>
<td>15</td>
<td>401</td>
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<tr>
<td>1981</td>
<td>396</td>
<td>235</td>
<td>127</td>
<td>13</td>
<td>457</td>
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<tr>
<td>1982</td>
<td>384</td>
<td>209</td>
<td>145</td>
<td>13</td>
<td>461</td>
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<tr>
<td>1983</td>
<td>389</td>
<td>230</td>
<td>177</td>
<td>15</td>
<td>500</td>
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<tr>
<td>1984</td>
<td>430</td>
<td>239</td>
<td>212</td>
<td>20</td>
<td>567</td>
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<tr>
<td>1985</td>
<td>501</td>
<td>242</td>
<td>179</td>
<td>22</td>
<td>595</td>
</tr>
<tr>
<td>1986</td>
<td>526</td>
<td>274</td>
<td>248</td>
<td>18</td>
<td>756</td>
</tr>
<tr>
<td>1987</td>
<td>624</td>
<td>316</td>
<td>326</td>
<td>24</td>
<td>914</td>
</tr>
<tr>
<td>1988</td>
<td>770</td>
<td>355</td>
<td>318</td>
<td>21</td>
<td>1083</td>
</tr>
<tr>
<td>1989</td>
<td>796</td>
<td>328</td>
<td>461</td>
<td>16</td>
<td>1304</td>
</tr>
<tr>
<td>1990</td>
<td>937</td>
<td>352</td>
<td>508</td>
<td>32</td>
<td>1513</td>
</tr>
</tbody>
</table>

Note: 'TEUs' refers to Twenty-foot Equivalent Units (based on a standardised container size of 20ft X 8ft X 8ft). 'Full' includes containers partially filled with cargo and 'M/T' refers to empty containers. 'HK' means containers with Hong Kong as the country of origin or destination. 'T/s' refers to transshipments.

Source: HKCSD, 1989: 156; pers. comm.
FIGURE 5  CONTAINER PORTS AND MAJOR SHIPPING ROUTES
IN THE PACIFIC ECONOMIC ZONE, 1988

EAST ASIA
- Tianjin
- Qingdao
- Shanghai
- Taichung
- Guangzhou
- Xiamen
- Keelung
- Hong Kong

SOUTHEAST ASIA
- Bangkok
- Port Klang
- Jorah
- Penang
- Belawan
- Kuching
- SINGAPORE
- Tanjung Priok

JAPAN
- Tokyo
- Kobe
- Osaka
- Nagoya
- Shimizu
- Tomakomai

WEST COAST NORTH AMERICA
- Anchorage
- Vancouver
- Seattle
- Tacoma
- Portland
- Oakland
- San Francisco
- Los Angeles
- Long Beach
- San Diego

Note: Ports with more than 1 million TEUs are in capital letters.
Source: Rimmer, in press.
the extension of mainline services to ports in China and Southeast Asia which obviate the necessity for transhipment. There is also competition for transhipments as both Singapore and Kaohsiung offer lower container handling charges than Hong Kong.

The Hong Kong Government (1989a: 6) has estimated that the total volume of traffic is expected to increase fivefold from 81 million tonnes in 1988 to almost 450 million tonnes in 2011. This is based on the anticipated annual cargo growth between 1988 and 2011 being 8 per cent compared with the actual figure of 14 per cent between 1983 and 1988 - a difference prompting the Government to promise incremental adjustments if the projected figure is exceeded (Table 7). Much of the additional cargo could be expected to be derived from the growth in intra-Asian traffic and transhipments. Based on an average growth rate of 11 per cent, transhipments are expected to rise from 14 million tonnes in 1988 to 150 million tonnes in 2011 - 20 per cent being derived from the China trade. Attention here, however, is focused on containers which accounted for 50 per cent of all trade in 1989.2

According to the Port Development Strategy (Wong, 1986; HKG, 1989a), the expansion of specialised container facilities will be centred on three main areas: (a) Container Terminal 8, comprising three berths, will be located on a new reclamation abutting Stonecutter’s Island; (b) Container Terminal 9 will be located on a reclamation on the southeast of Tsing Yi Island which has the necessary back-up land for handling containers; (c) further container terminals and back-up land will be allocated adjacent to deep water on the eastern side of the Tsing Chau Tsai Peninsula, once a road link to Lantau permits incremental port development (Fig. 6). In the process, Lantau Port Peninsula will become the new heart of the port of Hong Kong. Additional berths for handling containers will be located at Tuen Mun to minimise the need for large ships engaged in the Pearl River trade having to negotiate the narrow Mawan Channel. Should the Kai Tak airport site be relinquished the area adjacent to the Kwun

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2 A new set of forecasts was made in 1990 to take account of political turmoil in Beijing and China’s port plans. These reduced Hong Kong’s growth rate from 8 per cent to 6.5 per cent. The anticipated tonnage for 2011 has been reduced from 448.8 million to 284.2 million (Far Eastern Economic Review, 18 July 1991).
<table>
<thead>
<tr>
<th>Year</th>
<th>Ocean-going Cargo, tonnes</th>
<th>River Cargo, tonnes</th>
<th>Total Cargo, tonnes</th>
<th>Ocean-going Cargo, tonnes</th>
<th>River Cargo, tonnes</th>
<th>Total Cargo, tonnes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>15,751,680</td>
<td>1,622,456</td>
<td>17,374,136</td>
<td>5,776,720</td>
<td>190,085</td>
<td>5,966,805</td>
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<tr>
<td>1977</td>
<td>17,485,616</td>
<td>1,626,710</td>
<td>19,112,226</td>
<td>6,290,567</td>
<td>234,494</td>
<td>6,525,061</td>
</tr>
<tr>
<td>1978</td>
<td>18,999,101</td>
<td>1,909,916</td>
<td>20,909,017</td>
<td>6,716,634</td>
<td>206,782</td>
<td>6,923,416</td>
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<tr>
<td>1979</td>
<td>20,447,703</td>
<td>2,151,071</td>
<td>22,598,774</td>
<td>7,430,768</td>
<td>280,312</td>
<td>7,711,083</td>
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<tr>
<td>1980</td>
<td>22,128,138</td>
<td>2,494,368</td>
<td>24,622,506</td>
<td>8,563,560</td>
<td>376,062</td>
<td>8,939,622</td>
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<td>1981</td>
<td>23,374,531</td>
<td>2,873,787</td>
<td>26,248,318</td>
<td>8,594,279</td>
<td>576,343</td>
<td>9,170,622</td>
</tr>
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<td>24,619,082</td>
<td>2,399,829</td>
<td>28,018,911</td>
<td>8,345,079</td>
<td>731,931</td>
<td>9,077,010</td>
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<td>1983</td>
<td>27,310,859</td>
<td>4,243,830</td>
<td>31,554,689</td>
<td>10,620,929</td>
<td>1,173,830</td>
<td>11,794,759</td>
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<tr>
<td>1984</td>
<td>29,239,530</td>
<td>4,258,110</td>
<td>33,497,640</td>
<td>12,301,102</td>
<td>1,681,682</td>
<td>13,982,784</td>
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<tr>
<td>1985</td>
<td>31,961,964</td>
<td>5,264,123</td>
<td>37,226,087</td>
<td>13,829,014</td>
<td>2,600,282</td>
<td>16,429,296</td>
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<tr>
<td>1986</td>
<td>36,664,592</td>
<td>6,314,576</td>
<td>42,979,168</td>
<td>16,993,950</td>
<td>2,585,968</td>
<td>19,498,858</td>
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<tr>
<td>1988</td>
<td>47,533,392</td>
<td>6,009,045</td>
<td>53,543,037</td>
<td>23,658,935</td>
<td>4,060,241</td>
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<tr>
<td>1990</td>
<td>51,083,275</td>
<td>6,025,821</td>
<td>57,109,096</td>
<td>28,634,773</td>
<td>3,261,603</td>
<td>31,896,376</td>
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</tbody>
</table>

FIGURE 6 HONG KONG’S PORT DEVELOPMENT STRATEGY, 1989

Tong industrial district together with reclaimed land could be used for multipurpose berths. Further, the whole of the Western Harbour will be able to be used as an anchorage once the Cheung Chau-West Lamma Channel breakwater is constructed.

Surprisingly, little attention was given to the river trade and ship repair by PADS. The Hong Kong Government ignored arguments for a Port Authority to advise on these issues and the activities of vessels lightering in what is known locally as ‘the stream’ (South China Morning Post, 3 November 1989). These vessels enjoy cost advantages over those using fixed terminals and are a source of recurrent complaint by the principal terminal operators: Hong Kong International Terminals, Modern Terminals and Sea Land Orient. Rather than deal directly with these outstanding issues the Government established the Port Development Board in April 1990 to advise on the scale, timing, and character of port infrastructure and services, including the development of a high-quality shipping register (BS, 1988; PDB, 1990; South China Morning Post, 24 March 1990, 23 November 1990). Official policy regarding lightering is that mid-stream operations should be allowed to continue because they not only relieve congestion but provide competition (Far Eastern Economic Review, 18 July 1991). As the development of Lantau Island will encroach on the area available to mid-stream buoys, saturation is anticipated by 1996. This will force larger vessels into terminals.

Assessment

The critical debate about the planned port expansion hinges on the timing of constructing additional container berths. At present, container terminals (like other port facilities) are funded, constructed and operated by the private sector. Additional facilities are dictated by projecting demand based on the trends over the past five years. Applying this rule-of-thumb, the Government anticipates letting tenders for Container Terminals 8 and 9 in the 1990s with the development of the Western facility on Lantau Island coming after 2000. This schedule has brought divergent criticisms from two sources - Gordon Wu Ying-sheung, Managing Director of Hopewell Holdings Ltd (Plate 1) and John Meredith, Manager of Hong Kong International
PLATE 1 GORDON WU YING-SHEUNG, MANAGING DIRECTOR OF HOPEWELL HOLDINGS LTD

Hong Kong's Future as a Regional Transport Hub

Terminals (criticisms supported by a group of eight Hong Kong academics involved in the Nim Wan Study).

**Advancing construction.** Wu has argued that the construction of port facilities in the Western Harbour should be advanced so that rail and road transport facilities can be developed to serve as the main entry point to Lantau Island (the preferred site of the new airport). Such a proposal, however, is contrary to previous practice in Hong Kong. As the port terminals are privately owned, additional facilities are determined by demand. Any attempt to provide port facilities ahead of demand would deter private investment and leave the Hong Kong Government responsible for finance.

**Delaying construction.** A major fear is that the forecast annual growth rate of container traffic at 8-10 per cent has been over-optimistic and could lead to the over-provision of port facilities. Nevertheless, the Hong Kong Government has determined that Container Terminal No. 8 would be required in 1993 and Container Terminal No. 9 in 1995. By 1999, an additional twelve berths would be required on north-eastern Lantau. Allegedly, the Hong Kong Government has made no allowance in its long-term infrastructure plans for extensive port developments in the Pearl River Estuary, which could upset the balance between supply and demand. As it is wasteful to call at two ports there can be only one central port for the new generation of container vessels - Hong Kong or a site in south China (presuming that the mainland can develop it as a pivotal port).

There are over seventy centres vying for the title of south China's pivotal port (Fig. 7). In 1990, their collective output of 350,000 TEUs (Twenty-foot Equivalent Units) surpassed all other container ports in China with the exception of Shanghai (Chu, 1991). Most of these units are ferried to Hong Kong by riverine vessels and lighters. Existing or planned sites in the upper reaches of the estuary, however,

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3 In 1986, Luo (1989: 66) estimated that total cargo throughput in the Pearl River Delta was 120 million tonnes, of which Hong Kong handled 62 million tonnes, Guangzhou 36 million tonnes and other ports 22 million tonnes.
are accessible only to barges and smaller container ships because of the narrow river channel and shallow depths due to silting (Luo, 1989). Facilities at Guangzhou/Huangpu port - China’s fifth-ranking container port - are inferior to Hong Kong and its navigation channels are costly to maintain. Yet Guangzhou/Huangpu is the gateway to a vast hinterland, and the terminus for both river and land transport. Unlike Hong Kong, however, it is unconstrained by space restrictions, and land rent and transport costs are cheaper.

Port capacity has been expanded at Jiuzhou (Zhuhai) but the most suitable site for container terminal development in south China is Shenzhen, where four port areas are being developed to cater for an anticipated boom in trade (Chu, 1985). Three areas are on the Pearl River Estuary - Shekou, Chiwan and Mawan (adjacent to Chiwan, which is being financed by Singapore and still under construction). Although these port areas have obvious potential, shipping is handicapped by having to traverse the narrow Mawan Channel.

It is the fourth port area at Yantian (Daqing Bay), on the eastern side of Shenzhen, that poses the greatest threat to Hong Kong. Although it is outside major shipping lanes, Yantian, like the other mainland ports of Dalian, Ningpo and Fuzhou, has the advantage of a deepwater approach. As yet, only general cargo berths are available but specialised container facilities, financed by Japanese loans, are planned with a capacity of 200,000 TEUs. The cost of Yantian’s first-phase program, comprising six berths scheduled for completion in 1993, is $HK1.84 billion. A major problem is that rail and road links are lagging behind progress on the port. The second phase is scheduled to commence in 1994 (South China Morning Post, 3 July 1991). It is likely that the new port will be managed by a foreign company.

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4 In 1991, the largest container terminal in the Pearl River Delta was opened in Shekou (Sunday Morning Post, 12 May 1991). Owned by the Shekou Container Terminal (65 per cent China Merchant Holdings and 35 per cent China Ocean Shipping), two 650m berths are involved which have a capacity of 500,000 TEUs. Finance has been arranged by the Bank of Communication - a member of the Bank of China group.
Figure 7: Distribution of Ports in the Pearl River Delta

Source: Based on Liao, 1999: 62.
Hong Kong’s Port Development Board does not see the new ports as threatening because they will not be able to handle all of the cargo from China. The reaction from container terminals operators, however, has been variable. Clearly, the degree of perceived threat depends on their share of the market (South China Morning Post, 24 November 1989). The two smaller operators, Modern Terminals Ltd and Asia Terminals Ltd (controlled by Sea-Land Service Inc.), do not perceive the Pearl River Delta ports as rivals because they suffer from shallow depths and a lack of ancillary services (telecommunications, financial and air). Although China’s ports have comparable technology the smaller operators believe Hong Kong will maintain its position as a hub port providing it can maintain competitive rates for handling containers (South China Morning Post, 29 November, 1989). The largest operator, Hong Kong International Terminals Ltd (two-thirds owned by Hutchison Whampoa), however, considers that the developments in China will undermine the high volume of throughput necessary for maintaining the profitability of its high-technology, modern and well-equipped terminal operations. This situation is aggravated by the absence of a rail link between Kwai Chung and China.

In 1990, Shenzhen’s ports had a collective capacity of only 200,000 TEUs. The extent of future developments there, however, will dampen flows through Hong Kong because an estimated 50 per cent of its container cargo is transhipped from China, predominantly from Guangdong by sea and road. As facilities in Shenzhen expand to 10 million TEUs in 2000, it is likely that shippers will increasingly take the cheapest option and divert their cargoes to the nearest port rather than truck them through the Territory’s congested thoroughfares. Their full impact on Hong Kong, however, will be cushioned by China’s slower customs procedures and bureaucratic delays. Nevertheless, there is a need for coordination of Pearl River Delta

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5 Luo (1989: 66) forecasts that in 2000 the ports in the Pearl River Delta will handle 250-260 million tonnes of cargo. Hong Kong is expected to handle 100 million tonnes, Guangzhou 80-90 million tonnes leaving other ports with 70-80 million tonnes.

6 Symptomatic of the changes occurring in south China - Sea-Land Service Inc. has opened offices in Guangzhou and Shenzhen.
ports and PADS to avoid duplication of capacity and to obtain the economic benefits of specialisation (Table 8).

General support for the Hong Kong International Terminals' position is afforded by the group of academics (Wang et al., 1990). Its argument is that the construction of berths at Stonecutter's Island (No. 8) and Tsing Yi (No. 9), will double the existing capacity of the container terminals. Not only will they resolve congestion at Kwai Chung but, depending on the growth rate of containers, they could delay the preferred PADS site at Tsing Yi by between six and nineteen years. Allegedly, high forecasts are being made to justify building the bridge to Lantau Island.

A major concern for shipping companies, however, is that Hong Kong's privatised facilities are more expensive than the state-subsidised port of Singapore. Nevertheless, the vitality of a port is not determined by the price of services but by the industrial base of the economy. Expansion of industry is vital to justify the outlays on new, state-of-the-art terminal facilities incorporating computer planning and control systems. The level of past growth, however, cannot be guaranteed because of the movement of some industries from Hong Kong across the border. Tenders for Container Terminal No. 8 were let in August 1991. Given that Hong Kong International Terminals Ltd paid a premium of $HK4.39 billion for the reclaimed land on which Container Terminal No. 7 is built there were fears that the premium for No. 8 on Stonecutter's Island would be very high.

Hong Kong International Terminals Ltd was anxious not to lose its market share, and strong mainland Chinese interests - such as China International Trust and Investment Corporation (CITIC) and China Merchants Group - were expected to be involved. In a bid to avoid the high premium associated with public tenders the concept of a private treaty was canvassed with the Hong Kong Government by the major container terminal operators. This raised the possibility of a consortium comprising both Hong Kong and Chinese interests, though Modern Terminals Ltd was seen to be better positioned for the rights of Container Terminal 8 than Hong Kong International Terminals Ltd (South China Morning Post, 23 November 1990).

A major problem with the private treaty arrangement was that the Hong Kong Government might be charged by the Hong Kong Shippers' Council with discouraging competition (South China
TABLE 8 MAJOR SEAPORTS IN THE PEARL RIVER DELTA

<table>
<thead>
<tr>
<th>Area</th>
<th>Ports</th>
<th>Berths for ships over 10,000 dwt no.</th>
<th>Maximum ship size (thous dwt)</th>
<th>Throughput (date) million tonnes</th>
<th>Planned capacity (2000) million tonnes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aotau</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Guangzhoua</td>
<td>Guangzhou</td>
<td>0</td>
<td>10</td>
<td>7 (1987)</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Huangpu</td>
<td>19</td>
<td>35b</td>
<td>47 (1988)</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Nansha</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td></td>
<td></td>
<td></td>
<td>85 (1989)</td>
<td></td>
</tr>
<tr>
<td>Macao</td>
<td>Jinao</td>
<td>-</td>
<td></td>
<td>3-4 (1995)</td>
<td>5</td>
</tr>
<tr>
<td>Shenzhen</td>
<td>Chiwan</td>
<td>4</td>
<td>10</td>
<td>10 (1989)</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Mawan</td>
<td>-</td>
<td></td>
<td>-</td>
<td>n.a.</td>
</tr>
<tr>
<td></td>
<td>Shekou</td>
<td>-</td>
<td></td>
<td>-</td>
<td>n.a.</td>
</tr>
<tr>
<td></td>
<td>Yantian</td>
<td>-</td>
<td></td>
<td>-</td>
<td>n.a.</td>
</tr>
<tr>
<td>Zhuhai</td>
<td>Gaolan (under construction)</td>
<td></td>
<td></td>
<td>n.a.</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Jiuzhou</td>
<td>2</td>
<td>10</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

Note: a. Guangzhou and Huangpu are now operated as a single port; b. accessible only at high tide.

Source: David Chu Kim-Yee (pers.comm.).
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Morning Post, 1 May 1991). It took this risk and Modern Terminals Ltd combined with Hong Kong International Terminals Ltd, its former arch-rival, and its joint venture partner, China Ocean Shipping Company (COSCO), to develop Terminal 8 under a private treaty agreement.7 They had to pay $HK2 billion in premiums for the right to develop the facility. Although no arrangements have been made for Terminal 9 the Hong Kong Government is relying on the private sector to provide 80 per cent of the investment in new port facilities until the year 2000. The private sector is also being targeted to provide the necessary finance for relocating the airport from Kai Tak.

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7 Hong Kong International Terminals (HIT) is 60.5 per cent owned by Hutchison Whampoa - a conglomerate with interests in retailing, hotels, investment properties, energy and telecommunications. The other shareholders in HIT are China Resources, three shipping lines, Hong Kong and Shanghai Bank Corporation and the SAR Land Fund with between 1 per cent and 10 per cent of the capital. It is predicted that China Ocean Shipping Company (COSCO) will also take a share in HIT (South China Morning Post, 26 May 1991).
CHAPTER 4
AIRPORT RELOCATION

Since 1925, Hong Kong’s airport has been at Kai Tak (Piggott, 1990). At that time its grass runway was some distance from urban Kowloon. In 1936, scheduled flights commenced. After the Second World War, air traffic grew rapidly (Willing, 1988). By 1948, there were twenty-five scheduled flights per day and 250,000 passengers per year. In 1958, the existing runway was opened for commercial traffic. The airport was still on the periphery of Kowloon but it was soon engulfed by urban sprawl. In 1975, the runway was extended from 2540 m to 3390 m to accommodate jumbo jets.

By August 1979, Hong Kong was the hub of a regional network. Twenty or more non-stop passenger flights linked airports in north-eastern Asia and Southeast Asia, notably Bangkok, Hong Kong, Manila, Singapore, Taipei and Tokyo (Fig. 8). At that time, however, Hong Kong was cut off from the mainland. Its strong connection with New Delhi suggested that Hong Kong was developing a wider international role.

Since 1979, Hong Kong has experienced fitful growth in the number of planes handled - a reflection of the phasing in of jumbo jets (Table 9). International passenger traffic, however, has grown continuously, uninterrupted by the recessionary downturn that affected other airports in the early 1980s. During the late 1980s growth rates were high, boosted by Hong Kong becoming a popular tourist destination in Asia and by indirect travel between China and Taiwan. In 1990, there were 105,000 movements - a take-off or landing every two minutes. The airport handled 18.7 million passengers (including transit passengers), ranking as the sixth busiest airport in the world (20 per cent were transit or transfer passengers - almost 50 per cent were Taiwanese). It was also the world's fourth largest airport for air cargo, handling over 740,000 tonnes. By value it accounted for 30 per cent of exports and 20 per cent of imports.

By August 1989, Hong Kong had strengthened its nodal position in East Asia (Fig. 9). It was the second busiest East Asian airport after the Tokyo International Airport at Narita. Much of the growth in traffic, however, has stemmed from the intensification of its
FIGURE 8  TWENTY OR MORE NON-STOP AIR PASSENGER FLIGHTS IN THE PACIFIC ECONOMIC ZONE, AUGUST 1979

Note: Inset shows external non-stop connections.
Source: Rimmer, (in press).
### TABLE 9 AIRCRAFT, PASSENGER AND AIR CARGO MOVEMENTS AT HONG KONG INTERNATIONAL AIRPORT, KAI TAK, 1976-1990

<table>
<thead>
<tr>
<th>Year</th>
<th>Aircraft movements</th>
<th>Passengers</th>
<th>Air cargo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrivals no.</td>
<td>Departures no.</td>
<td>Total no.</td>
</tr>
<tr>
<td>1976</td>
<td>25,096</td>
<td>25,098</td>
<td>50,194</td>
</tr>
<tr>
<td>1977</td>
<td>25,025</td>
<td>25,025</td>
<td>50,050</td>
</tr>
<tr>
<td>1978</td>
<td>26,320</td>
<td>26,322</td>
<td>52,642</td>
</tr>
<tr>
<td>1979</td>
<td>27,965</td>
<td>27,963</td>
<td>55,928</td>
</tr>
<tr>
<td>1980</td>
<td>27,283</td>
<td>27,286</td>
<td>54,569</td>
</tr>
<tr>
<td>1981</td>
<td>27,699</td>
<td>27,694</td>
<td>55,393</td>
</tr>
<tr>
<td>1982</td>
<td>27,312</td>
<td>27,323</td>
<td>54,635</td>
</tr>
<tr>
<td>1983</td>
<td>27,140</td>
<td>27,141</td>
<td>54,281</td>
</tr>
<tr>
<td>1984</td>
<td>28,505</td>
<td>28,511</td>
<td>57,016</td>
</tr>
<tr>
<td>1985</td>
<td>29,849</td>
<td>29,852</td>
<td>59,701</td>
</tr>
<tr>
<td>1986</td>
<td>32,438</td>
<td>32,436</td>
<td>64,874</td>
</tr>
<tr>
<td>1987</td>
<td>36,823</td>
<td>36,820</td>
<td>73,643</td>
</tr>
<tr>
<td>1988</td>
<td>43,507</td>
<td>43,517</td>
<td>87,024</td>
</tr>
<tr>
<td>1989</td>
<td>47,140</td>
<td>47,160</td>
<td>94,300</td>
</tr>
<tr>
<td>1990</td>
<td>52,886</td>
<td>52,896</td>
<td>105,782</td>
</tr>
</tbody>
</table>

Hong Kong's Future as a Regional Transport Hub

north-eastern Asian linkages, notably with Osaka, Seoul, Taipei and Tokyo. Also, its 'natural' relationships with Mainland China had been restored. Its connections with Southeast Asia and Australia, however, have not been strengthened. This phenomenon has been attributed to their lower rate of economic growth, weaker currencies relative to the Hong Kong dollar, and the United Kingdom-influenced aviation policy which resulted in lower flight frequencies and capacity being granted these areas relative to north-eastern Asia (PRCG, 1988). In contrast, ties to Western Europe have continued to develop with more than twenty non-stop flights to both Frankfurt and London during August 1989.

As air trips per capita in East Asia are low by global standards, the international passenger traffic growth rate is expected to be greater than in North America and Europe. Even reducing the growth rate from 8 per cent achieved between 1983 and 1988 to a conservative 5 per cent, passenger traffic will increase from 15 million in 1988 through 32 million in 2000 to 50 million in 2011. An average annual growth rate of 6 per cent is forecast for air cargo which will boost shipments from 0.7 million tonnes in 1988 to 2.6 million tonnes in 2010 (HKG, 1989a).

Even before the marked growth rates of the late 1980s were achieved there were studies for relocating Hong Kong's airport from Kai Tak (CITHKS, 1990; PADIU, 1990; Siu and Ko, 1990; SGID, 1991a,b). Site selection studies had been undertaken by the British Royal Air Force and civil aviation authorities in 1945, 1946, 1951 and 1957. In 1973-74, the Air Transport System Long Term Planning Investigation studied thirty potential sites which were reduced progressively to a shortlist of six: Tolo Harbour; west of Lamma Island; Cheung Chau; Nim Wan; San Tin, adjacent to the border; and Chep Lap Kok, North Lantau Island (Fig. 10). Two sites were recommended for investigation but did not include Chep Lap Kok. Yet in 1974 the Government conducted a feasibility study of the Chep Lap Lok site. In 1979-80, a further feasibility study of the site was conducted. Between 1981 and 1983, it was followed by a Master Plan Study which examined the Deep Bay sites, Nim Wan and San Tin, but found them less desirable than Chep Lap Kok. By 1983, a study on Chep Lap Kok was well advanced but the recession led to its suspension. In 1986, there was a resurgence in air traffic. Simultaneously, the airport
FIGURE 9  TWENTY OR MORE NON-STOP AIR PASSENGER FLIGHTS IN THE PACIFIC ECONOMIC ZONE, AUGUST 1989

Note: Inset shows external non-stop connections.
Source: Rimmer, in press.
relocation issue was resurrected by a consortium led by Wu of Hopewell Holdings Ltd which suggested an airport at either Chep Lap Kok or on reclaimed land in the West Lamma Channel, East Lantau (HHL, CKHL and HWL, 1987). Although the Hopewell ‘Harbour West’ proposals lacked supporting evidence they were most influential in dictating the terms of reference for the long-term, comprehensive PADS (Taylor, 1990).

Established in March 1988, the PADS Study was charged with reviewing the demands for the long-term provision of new airport facilities (Morris, 1990). Its broad terms were to examine three strategies (Fig. 11):

(a) Strategy A involving port expansion together with the retention of Kai Tak International Airport (cost $HK56 billion);

(b) Strategy B involving port expansion together with the relocation of Kai Tak International Airport at Chep Lap Kok;

(c) Strategy C involving port expansion together with the relocation of Kai Tak International Airport in the West Lamma Channel (East Lantau).

Airport-related inputs to the Study were provided by the Director of Civil Aviation, who managed three projects that: reviewed the future capacity of Kai Tak International Airport; updated data produced in connection with the replacement airport at Chep Lap Kok; investigated an alternative replacement airport at East Lantau. The Study was completed in 1989.

The PADS Study rejected the first strategy - the retention of Kai Tak International Airport. As it was boxed in by urban areas and constrained by a curfew on night operations there was little room for expansion of Kai Tak’s single runway. About 350,000 people live under the flight path and the noise impact from twenty-eight air movements per hour at the peak exceeds international standards. Not surprisingly, safety standards are less than ideal and Kai Tak carries a
FIGURE 10 ALTERNATIVE SITES CONSIDERED AS A POSSIBLE REPLACEMENT FOR HONG KONG INTERNATIONAL AIRPORT, KAI TAK

Source: Au and Marsden, 1989: 118.
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FIGURE 11 THE THREE BASIC STRATEGIES CONSIDERED BY PADS

Strategy A, Kai Tak retained; Strategy B, Airport at Chep Lap Kok replaced; and Strategy C, Airport at West Lamma Channel

Source: Au and Marsden, 1989: 120.
black star international airport classification which under certain conditions prevents taxiing while another aircraft is landing.\(^1\) With the boom in air traffic during the late 1980s the deadline for reaching a saturation capacity of 24 million passengers was brought forward from 2001 to between 1996 and 1993 - a trend highlighting the need to transfer to a new site well before a new airport can be made operational. At best, measures to further expand Kai Tak’s capacity, such as more parking bays for aircraft, improved air traffic control and better road access, would only extend this deadline by two years. The Hong Kong Government would not countenance congestion pricing such as the auctioning of landing-time slots suggested by Kwong (1988).

There was a fear that if Kai Tak were unable to meet the demand for attractive time-slots, commercial airlines would either put up fares or turn to alternative airports to make optimal use of their aircraft and to capitalise on their route networks. Consequently, the potential growth in new passenger and air cargo traffic would be lost. Indeed, PADS argued that if the airport was not relocated Hong Kong would experience an economic loss in excess of $HK68 billion by 2026 without progressive price adjustments, which would reduce the figure to $HK11 billion (South China Morning Post, 2 October 1990). Separate estimates commissioned by the Hong Kong Government put the figure arising from trips foregone by visitors and air cargo movements at $HK101 billion by 2026 - later updated to $HK186 billion (South China Morning Post, 4 October 1990; Hongkong Standard, 4 October 1990). This loss would be felt directly by airlines, airport services (catering and forwarding), hotels, restaurants, retailers and travel agents. The estimates omitted, however, unquantifiable economic disbenefits stemming from lost business opportunities in manufacturing, services and trading sectors, and damage to Hong Kong’s image as an international commercial and financial centre.

The disagreement between PADS and the Hong Kong Government over the extent of the expected economic loss from not having a new airport remained unresolved. This dispute, however, was inconsequential as PADS rejected Strategy A - the retention of Kai Tak. Its abandonment had many positive advantages. The removal of

\(^1\) A fully laden 747 must perform a complicated 47 degree turn on most approaches to Kai Tak (AWAST, 1991: 61).
Kai Tak released space, permitted removal of height restrictions on buildings and reduced traffic congestion. Also, it provided the basis for the redevelopment of Kowloon. In addition, the relocation lowered noise levels and improved air safety.

In seeking an alternative to Kai Tak, four of the five sites shortlisted in 1973 were reviewed and matched against the preferred site of Chep Lap Kok. At the outset Tolo Harbour was excluded because of poor operational characteristics and adverse environmental impact on water quality. Subsequently, Nim Wan and Shenzhen River Delta (San Tin) were eliminated and only the Western Harbour sites of Lamma and Cheung Chau, considered in the Alternative Replacement Airport Sites Study in 1979, were retained (see Fig. 10). Only the 'best' site - an artificial island in the sea off Lamma Island - was selected for comparison with Chep Lap Kok during PADS. Although it had a greater capacity than Chek Lap Kok, the West Lamma Channel site (Strategy C) was discarded because of its alleged longer construction time, the greater cost of dedicated transport links and infrastructure, and gas in the mud (South China Morning Post, 17 October 1990). When PADS was completed the total cost of port and airport infrastructure in the West Lamma Channel was $HK111 billion compared with Chep Lap Kok at $HK106 billion.

Strategy B - an airport at Chep Lap Kok - was chosen because it was superior in terms of regional location, territorial position, relationship to other developments, airport site and programming (Table 10). Also, it had the added advantage over its rivals of having had its site investigated in 1983. On completion in 1997, the new airport would have one of the two planned runways. Operating 24 hours per day it would be capable of handling 320,000 aircraft movements per year (37-39 aircraft per hour) carrying up to 33 million passengers (compared with Kai Tak’s limit of 24 million). On opening, the airport will have forty-two gates along the T-shaped terminal and eighteen on the tarmac. There will also be a ferry terminus.2

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2 In April 1991, a Provisional Airport Authority was established as the forerunner to a fully autonomous Airport Authority. It has responsibility for the detailed planning and design studies of the airport itself.
**TABLE 10 RATIONALE FOR CHOOSING CHEP LAP KOK**

<table>
<thead>
<tr>
<th>Regional location</th>
<th>It occupies a strategic location in the Pearl River Delta which is undergoing rapid economic development.</th>
</tr>
</thead>
</table>
| Territorial position | - It will be located in an area which has:  
- Good aeronautical attributes.  
- Minimal environmental noise impacts on sensitive areas.  
- Will be only 20 minutes by high-speed rail from the city. |
| Relation to other developments | - Expansion of the port requires development of the port peninsula at North Lantau on which new transport links are required.  
- Development of a new airport and port facilities together with other urban areas will make multiple use of investments in new transport links.  
- Development of a new airport will make better use of the Western Harbour for port expansion. |
| Airport site | - Engineering feasibility has already generally been established. This will involve a balanced cut and fill program of works that will avoid the need to open up large quarries in environmentally sensitive areas.  
- Development of the site involves minimum land resumption and clearance.  
- Disposal of mud deposits will be of manageable proportions. |
| Programming | - Much is already known about the site engineering conditions and the program of work is subject to less uncertainty.  
- The work involved in commissioning the first runway can be completed on fast track within five years of commencing the first project, thus minimising economic disbenefits from growing congestion at Kai Tak. |

*Source:* Based on Port and Airport Development Information Unit (pers. comm.).
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After completion of the second runway Chep Lap Kok would be capable of handling eighty aircraft movements per hour, 87 million passengers per year and 9 million tonnes of air cargo (AWAST, 1991). By 2027, it is expected that Chep Lap Kok would have generated up to $HK56 billion in profits (Hongkong Standard, 4 October 1990). Its capacity would then be saturated and any extension would have to rely on the manipulation of arrival and departure schedules. By 2040, a satellite terminal bringing the total gates to 120 will give a total passenger capacity of 87 million per year.

Challenges to Chep Lap Kok

Two arguments have been levelled against the choice of Chep Lap Kok as the replacement airport. The first is that there are better sites within the Territory; and the second is that there are easier sites across the border where costs would be less. These alternatives are discussed in turn.

Other Hong Kong Airport Sites. The choice of Chep Lap Kok from a list of possible sites has been challenged both by Gordon Wu of Hopewell Holdings, acting on his own behalf rather than as an adviser to the Chinese Government, and eight academics in the so-called Nim Wan Study. Arguing in favour of the East Lantau site, Wu has suggested that gas in the mud - seen as a barrier by some - was not a problem. Also, the difference of less than 10 per cent between the projects was spurious given the tentative nature of the costs. Estimates for the artificial island site were for two runways separated by 1500 metres compared with 900 metres on the Chep Lap Kok site. Not surprisingly, the Chinese Government has requested detailed information on the other five or six sites investigated prior to the choice of Chep Lap Kok. Subsequently, Wu has endorsed the Chep Lap Kok site.

The eight academics involved in the Nim Wan Study examined five sites: Chek Lap Kok, Nim Wan, Yuen Long, San Tin and Western Harbour. Given the disadvantages listed in Table 11, San Tin and the Western Harbour sites were eliminated. Even the Chep Lap Kok site was not favoured because it would aggravate traffic
## TABLE 11 DISADVANTAGES OF THE PROPOSED MAJOR AIRPORT SITES IN HONG KONG

<table>
<thead>
<tr>
<th></th>
<th>Chep Lap Kok</th>
<th>Nim Wan</th>
<th>Yuen Long</th>
<th>San Tin</th>
<th>Western Harbour &amp; Eastern Harbour</th>
</tr>
</thead>
<tbody>
<tr>
<td>High reclamation cost</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Single route access with potential traffic bottleneck</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited positive externalities</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Encourage concentration of commercial &amp; industrial activities in urban cores</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Discourage spatial integration with Pearl River Delta</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative impacts on Lantau environment</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relatively remote from urban areas</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Relocation of commercial and industrial activities incur high initial cost</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Would destroy Mai Po bird reserve</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noise pollution in adjacent new towns</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk of bird hazards</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote from Kowloon</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land acquisition difficult</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative impacts on Shenzhen and Sheungshui</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Must involve Shenzhen in airport management</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited pull factor to discourage decentralisation of commercial and industrial activities from urban area</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expensive future airport expansion opportunities</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Possible negative impact on harbour environment tidal flows</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limiting future harbour expansion opportunities</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Based on Wang et al., 1990: 3-4.*
congestion in the main urban areas; create a bottleneck at Tsuen Wan; and damage the marine environment (to say nothing about the anticipated difficulties in land reclamation and effects of cross-winds and wind sheer on aircraft).

When matched against the advantages of other sites Chep Lap Kok's strongest attribute was that aircraft do not have to fly through Chinese air space (Table 12). Originally, this condition precluded Nim Wan on the coast of Deep Bay in the New Territories from consideration. As security factors were no longer paramount, Nim Wan shared with Yuen Long the distinction of having the most advantages. Because it had fewer listed disadvantages than Yuen Long, Nim Wan was the preferred site of the academics as it favours spatial integration with the north.

Already, existing engineering studies have revealed that Nim Wan had potential for future expansion, posed no environmental problems and experienced congenial weather conditions. Further, it would meet the International Air Transport Association (IATA)'s desire for a facility with two runways. Because its construction costs would be lower than Chep Lap Kok, it has been supported by some mainland planners who admit Hong Kong's need for a new, but economical, airport (South China Morning Post, 17 June 1990, 14 October 1990; Hongkong Standard, 7 October 1990).

The Hong Kong Government reviewed the report by the academic group and argued that the Nim Wan Study lacked adequate technical analysis (Personal Correspondence, 1990). It prompted the Government to re-examine Nim Wan and to reconfirm its belief that Chep Lap Kok was the correct choice. The problems at Nim Wan are many and serious. An airport there would: conflict with the flight paths of the airport under construction at Shenzhen in the Pearl River Delta 60 km north-east of Hong Kong; restrict shipping movements in Deep Bay; create a serious noise problem in residential areas; carry a high risk of bird strike because of its proximity to the Mai Po marshes; threaten the delicate ecology of Deep Water Bay; necessitate further planning and engineering studies; require obstacle clearance control (e.g. building height restrictions because it is only 8 km from the airport near Shenzhen).

Conscious of planned airport development at Shenzhen and Macau (scheduled for completion in 1993), and the location of existing
<table>
<thead>
<tr>
<th></th>
<th>Chep Lap Kok</th>
<th>Nim Wan</th>
<th>Yuen Long</th>
<th>San Tin</th>
<th>Western Harbour &amp; Eastern Harbour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good approach</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Minimum noise pollution</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Proximity to major port</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>development</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sufficient space for future</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative easy access</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proximity to Shenzhen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encourage decentralisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of activities from urban core</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promote spatial integration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with Pearl River Delta</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less costly to develop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encourage development in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yuen Long Plain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No land reclamation needed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Proximity to main urban area</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

Source: Based on Wang et al., 1990: 3-4.
airports in the Pearl River Delta, the Hong Kong Government recognised the necessity for mutually agreed air space organisation and air traffic control. The Government, like the academic group, however, did not consider them as a challenge to airport development within the Territory. At best, they are feeders funnelling international traffic to and from the hub Hong Kong Airport. As this view has been challenged in Beijing it is important to assess airports in the Pearl River Delta, particularly as Hong Kong’s Secretary for Economic Services, Ms Anson Chan, has conceded that ‘Chep Lap Kok may not be the best site aeronautically taking south China as a whole’ (PADIU, 1990: 5).

**Pearl River Delta Airport Sites.** As noted, two major airports are under construction in the Pearl River Delta at Shenzhen\(^3\) and ‘casino-driven’ Macau.\(^4\) Also, there are existing civilian airports at Guangzhou and Zhuai, and joint civil-military facilities at Foshan and Huizhou (Fig. 12). Guangzhou’s White Cloud (Baiyun) Airport, handling 6 million passengers per year (with a maximum of 12 million), will be supplemented by a new one. In the Special Economic Zone bordering Macau, Zhuai has abandoned its international airport but proposes to use a military airfield for domestic flights. Foshan and Huizou are confined to domestic flights. Excluding Zhuai, but including both Kai Tak and Chep Lap Kok, there are seven existing and planned airports in the Pearl River Delta. Clearly, there is an

---

3 Shenzhen’s US$200 million airport is hoping to attract some of the mainland’s flights from Hong Kong. Passengers would commute to and from Hong Kong on a 50-minute ferry or by bus and car via the planned superhighway.

4 Approved by the Chinese Government, the first phase of Macau Airport will have 3,350-metre runway designed for twenty-four hour all-weather use with a terminal capable of handling 4.5 million passengers per year. During the second phase the terminal area will be increased to 6 million passengers per year. It will be operated on a twenty-five year lease by the Macau Airport Co. (53 per cent of the capital is owned by Stanley Ho Hong-sun’s STDM, 33 per cent by the Macau Government and 9 per cent by Chong Luen-China Union Industrial Association, a Mainland China company).
FIGURE 12 LOCATION OF AIRPORTS WITHIN THE PEARL RIVER DELTA, 1990

- Boundary of the 'Large Delta'
- Boundary of the 'Small Delta'

- Provincial capital
- City (shi)
- County (xian)
- Railway
- Existing
- Proposed
- Road
- River

0 1000 kilometres

CHINA
Guangdong Province

Boundary of the 'Large Delta'
Boundary of the 'Small Delta'

Provincial capital
City (shi)
County (xian)
Railway
Existing
Proposed
Road
River

Guangzhou
Huangtian
Zhuhai
Zhaoqing
Foshan
Dongguan
Huizhou
Huiyang
Jiangmen
Macao
Kai Tak
Hong Kong

50km
100km
150km

kilometres
opportunity to integrate the planning of these airports with PADS. The real disadvantage, however, of the Pearl River Delta sites is Hong Kong’s bilateral air agreements and problems over the degree of local autonomy.5

The most feasible site for relieving Kai Tak’s problems is the new Huangtian Airport at Shenzhen. Its viability will depend on control over landing rights. Already the Civil Aviation Administration of China (CAAC) is negotiating with Shenzhen about use of the airport. In 1991, one runway was completed (South China Morning Post, 13 October 1991).6 Although Table 13 gives a capacity of 1 million passengers per year other sources suggest 4 million (Hongkong Standard, 3 December 1990). China Southern Airlines (formerly CAAC Guangzhou) has promised to open an office to coincide with the receipt of aircraft. The airport, however, has been designed to have two runways and an annual capacity of 6 million passengers per year by 2005. Passengers could travel the 70 km between Kowloon and Huangtian in 70 minutes. Macau Airport, when completed in 1993, could capture 15 per cent of Kai Tak’s traffic. It is planned to have a capacity of 3.5 million passengers per year in 1998.

Newspaper reports, however, put the combined capacity of Huangtian and Macau at 18 million passengers in 1993 and 20 million in 2000 (Hongkong Standard, 31 August 1990). Assuming a conservative annual growth of 5 per cent, Chep Lap Kok would handle 16 million per year in 1997. Threatened by visa formalities and customs, passengers to Hong Kong would resist being routed through Macau and Shenzhen. At best, these airports would capture 10 per cent of

5 Macau airport is being considered as an alternative to Hong Kong’s Kai Tak Airport for both passengers and freight. Foreign carriers are denied fifth freedom rights to pick up or unload passengers and freight allegedly to protect Cathay Pacific. United States companies, including United Airlines, are hoping to use Macau as a hub for serving Hong Kong and south China. Reportedly, Federal Express is also seeking to use it as a cargo hub (South China Morning Post, 23 June 1991).

6 Officially opened in October 1991, Shenzhen’s Fuyong International Airport is awaiting government approval for international flights.
### TABLE 13 EXISTING AND PROPOSED AIRPORTS IN THE PEARL RIVER DELTA

<table>
<thead>
<tr>
<th>Airport</th>
<th>City</th>
<th>Class&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Annual passenger capacity million</th>
<th>Aircraft</th>
<th>Distance from Hong Kong km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baiyun</td>
<td>Guangzhou</td>
<td>I</td>
<td>2.90 (1985)</td>
<td>Boeing 747</td>
<td>140</td>
</tr>
<tr>
<td>Huangtian</td>
<td>Shenzhen</td>
<td>n.a.</td>
<td>1.00 (1992) 6.80 (2005)</td>
<td>n.a.</td>
<td>56</td>
</tr>
<tr>
<td>Huizhou</td>
<td>Huizhou</td>
<td>II</td>
<td>n.a.</td>
<td>Boeing 737</td>
<td>75</td>
</tr>
<tr>
<td>Kai Tak</td>
<td>Hong Kong</td>
<td>I</td>
<td>15.00 (1988) 27.00 (2001)</td>
<td>Boeing 747</td>
<td>-</td>
</tr>
<tr>
<td>Macau</td>
<td>Macau</td>
<td>n.a.</td>
<td>1.50 (1993) 3.50 (1998)</td>
<td>n.a.</td>
<td>65</td>
</tr>
<tr>
<td>Shate</td>
<td>Foshan&lt;sup&gt;b&lt;/sup&gt;</td>
<td>II</td>
<td>5.00 (1988)</td>
<td>Boeing 737</td>
<td>150</td>
</tr>
<tr>
<td>Zhuhai</td>
<td>Sanza Island</td>
<td>II</td>
<td>n.a.</td>
<td>Helicopter</td>
<td>65</td>
</tr>
</tbody>
</table>

<sup>a</sup> Class I International, Class II Domestic; b. Shate was opened to civilian traffic in 1987.

**Source:** David Chu Kim-Yee (pers.comm.) and various other sources.
Hong Kong passengers and 17 per cent of its aircraft movements (PADIU, 1990: 7). In the longer term, Chep Lap Kok, Macau and Shenzhen are likely to be complementary in the Pearl River Delta. They will parallel the way in which both Washington and New York are served by three airports.

Yet a major problem for the Hong Kong Government is that the discussion of the airport’s relocation, in terms of trends and difficult terrain, smacks of oversimplification. The new airport is required to fulfil its obligations under the Sino-British Joint Declaration, which involves maintaining Hong Kong’s status as a centre for international and regional aviation. Without a viable international airport it would be unable to secure its air rights permitted under the Sino-British Joint Declaration. In short, it would lose its autonomy in civil aviation. If Hong Kong had to rely on Shenzhen or Macau, the fear is that its world and regional aviation status would be lost and the opportunity suggested by Kwong (1988) for bilateral liberalisation with other countries foregone. While disadvantages stemming from competition between regional airports have been recognised, there has been strong support from authorities and academics in Guangdong Province for endorsing Chep Lap Kok. Indeed, it is essential if Hong Kong’s status as a world financial and trade centre and regional transport hub is to be assured (Hong Kong Standard, 31 August 1990). Presumably, unlike Beijing, the authorities and academics also support the heavy investment in the associated land transport infrastructure.

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7 Section IX of the Sino-British Joint Declaration signed in December 1984 and the Draft Basic Law released in April 1988 provide for the Government of the Hong Kong SAR to renew or amend air service agreements and arrangements previously in force between Hong Kong and countries flying to, from or through the Territory which did not operate to, from or through the mainland of China. Presumably, all agreements will be renegotiated with the Government of Hong Kong prior to 1997.
CHAPTER 5
LAND TRANSPORT INFRASTRUCTURE

In this chapter, initial attention in discussing the land transport infrastructure is focused on transport developments in the Pearl River Delta before the chapter evaluates *Moving into the 21st Century: The White Paper on Transport Policy in Hong Kong*, published in January 1990 (TBGS, 1990). This strategy counters the past preoccupation with developments in Hong Kong, and the minimal attention given to cross-border traffic (Sulke, 1989). Such neglect may have stemmed from the fact that the surface transport links between Hong Kong and China provided by rail and road are of secondary importance to coastal and river connections. In China, rail is the dominant mode and its system is connected to Hong Kong at Lo Wu - the double-tracked Guangzhou-Hong Kong section is already operating at maximum capacity. Between 1982 and 1988, the annual increase in cross-border people movements by rail was 24 per cent, total movements reaching 29.8 million in 1988. During that time the annual increase in goods traffic by rail was 13 per cent with total inwards and outwards traffic exceeding 2.2 million tonnes in 1988. About 95 per cent of this freight traffic originated and terminated beyond Guangdong Province. In 1990, the Kowloon Canton Railway (KCR) Corporation inaugurated a service for moving containers by rail to and from Hong Kong to other parts of China beyond the Pearl River Delta (Chu, 1991).

Road transport is dominant between Hong Kong and Guangzhou. At present, border crossings by road are possible at Man Kam To (opened 1979), Sha Tau Kok (1985) and Lok Ma Chau (1990). Between 1982 and 1990, freight tonnage increased from 1.5 million to 9.0 million tonnes (Table 14)\(^1\) Over the same period the number of people crossing the border rose from 4.3 million to 16.0 million in 1990 with a decline in 1989. More than 70 per cent of the cross-border traffic was by road.

\(^1\) In 1990, according to Chu (1991), over 805,000 TEUs passed through Shenzhen checkpoints. Truck rates for carrying containers to Guangdong locations ranged from $HK2,700 (to Shenzhen SEZ) to $HK7000 (to the border of the Pearl River Delta).
TABLE 14 CROSS-BORDER PASSENGER AND GOODS TRAFFIC, 1976-1990

<table>
<thead>
<tr>
<th>Year</th>
<th>Arrival thousand people</th>
<th>Departure thousand people</th>
<th>Total thousand people</th>
<th>Import thousand tonnes</th>
<th>Export thousand tonnes</th>
<th>Total thousand tonnes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>896</td>
<td>884</td>
<td>1,780</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1977</td>
<td>1,113</td>
<td>1,082</td>
<td>2,195</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1978</td>
<td>1,437</td>
<td>1,371</td>
<td>2,809</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1979</td>
<td>3,247</td>
<td>3,188</td>
<td>6,435</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1980</td>
<td>4,054</td>
<td>3,762</td>
<td>7,816</td>
<td>130</td>
<td>178</td>
<td>308</td>
</tr>
<tr>
<td>1981</td>
<td>4,507</td>
<td>4,284</td>
<td>8,791</td>
<td>225</td>
<td>300</td>
<td>525</td>
</tr>
<tr>
<td>1982</td>
<td>4,336</td>
<td>4,125</td>
<td>8,461</td>
<td>394</td>
<td>447</td>
<td>841</td>
</tr>
<tr>
<td>1983</td>
<td>5,220</td>
<td>5,030</td>
<td>10,251</td>
<td>702</td>
<td>811</td>
<td>1,513</td>
</tr>
<tr>
<td>1984</td>
<td>7,666</td>
<td>7,286</td>
<td>14,951</td>
<td>1,134</td>
<td>1,061</td>
<td>2,196</td>
</tr>
<tr>
<td>1985</td>
<td>10,626</td>
<td>10,069</td>
<td>20,695</td>
<td>1,436</td>
<td>1,249</td>
<td>2,685</td>
</tr>
<tr>
<td>1986</td>
<td>11,495</td>
<td>10,925</td>
<td>22,421</td>
<td>2,125</td>
<td>1,703</td>
<td>3,827</td>
</tr>
<tr>
<td>1987</td>
<td>13,548</td>
<td>12,966</td>
<td>26,514</td>
<td>2,967</td>
<td>2,440</td>
<td>5,407</td>
</tr>
<tr>
<td>1988</td>
<td>16,005</td>
<td>15,846</td>
<td>31,851</td>
<td>3,525</td>
<td>3,216</td>
<td>6,742</td>
</tr>
<tr>
<td>1989</td>
<td>14,659</td>
<td>14,280</td>
<td>28,939</td>
<td>4,103</td>
<td>3,858</td>
<td>7,960</td>
</tr>
<tr>
<td>1990</td>
<td>16,018</td>
<td>15,597</td>
<td>31,615</td>
<td>4,565</td>
<td>4,496</td>
<td>9,061</td>
</tr>
</tbody>
</table>

Source: HHL, CKHL and HWL, 1987; Ng and Wang, 1991; pers. comm.
vehicles originate or terminate in Shenzhen - they carry raw materials northbound and return with assembled or finished products such as textiles, plastic products, and machinery and electronics (Ng and Wang, 1991). Between 1991 and 2001, two-way cross-border traffic is expected to increase from 15,300 goods vehicles to 49,600 goods vehicles spurred by economic growth in the Pearl River Delta.

Superhighway

A key element in the growth of the Pearl River Delta will be the proposed 302 km Guangzhou-Shenzhen-Zhuhai Superhighway - a joint venture between Hopewell Holdings Ltd and the Guangdong Provincial Highway Construction Company, that has been under negotiation since 1982 (HHL, 1985-1990). In April 1988, a cooperative venture, Guangzhou-Shenzhen-Zhuhai Superhighway Company was established. In 1989, the Huanggang Crossing at the Shenzhen border - the starting-point of the Superhighway - was opened to goods vehicles (Fig. 13). Scheduled for completion in July 1991, the initial section of 12 km will facilitate transport connections within the Shenzhen Special Economic Zone (HHL, 1985-1990). Land usage rights have been acquired for the 122.8 km stage between the border at Shenzhen adjacent to Lok Ma Chau and Guangzhou.

Upon completion, the Superhighway will be a dual three-lane highway with a design speed of 120 km per hour. It will reduce travelling time from seven hours by bus to ninety minutes. Subsequent sections of the Superhighway from the 136 km Taiping to Gongbei, Zhuhai (Phase 2), and 46 km from Boca Tigris Bridge to Chigang near Guangzhou (Phase 3) will open up other parts of Guangdong Province. The new road will also link with the Guangzhou Ring Road, which similarly is being built by a joint venture involving Hopewell Holdings Ltd and the state-owned Guangzhou Freeway Company. Wu has also proposed a bridge between Hong Kong's new town of Tuen Man and Zhuhai which would provide a gyratory traffic circulation system for the Pearl River Delta (Zheng, 1989).

The cost of the Shenzhen to Guangzhou stage is US$1148 million. Chinese authorities have contributed Rmb700 million (US$148 million) and Hopewell Holdings Ltd US$200 million. The
Source: Based on HHL, 1989.
balance of US$800 million was sought from a syndicated project loan by Hopewell Holdings Ltd so that the stage could be opened by mid-1994. Not only was the loan larger than Hopewell Holdings' market capitalisation of $HK4.5 billion (US$578 million) but it was not guaranteed by the Chinese Government. Nevertheless, the project had sufficient potential for the Hong Kong and Shanghai Banking Corporation to collaborate with the Bank of China and the Daiichi Kangyo Bank to lead an underwriting group of twenty banks. The syndicated loan was signed in March 1991 but bureaucratic squabbling at the People's Bank of China has kept the project from receiving the money - a resolution of this problem is anticipated in January 1992 (Taylor, 1991).

The Hong Kong and Shanghai Bank's subsidiary, Wardley Capital, has structured the twelve-year project loan (Taylor et al., 1990). For the first four years it will carry a rate of 1.5 per cent over the London Inter-bank Offer Rate (Libor) during which no principal will be repaid. For the next eight years the premium will fall to 1.375 per cent. The joint venture has guarantees on the completion date from the contractor (a 50:50 joint venture between Hopewell Holdings and the Guangdong Highway Bureau). Guarantees on the flow of tolls to the banks are being provided by the Guangdong International Trust.

The project is designed to meet costs from tolls if the Superhighway is used by 15,000 vehicles per day. Already 12,000 vehicles cross the border daily and the new border crossing at Lok Ma Chau will be able to handle 50,000 vehicles per day. Reaching the daily target is important because the joint venture will have to meet US$127 million during the four-year construction period. Tolls from opening the Shenzhen section in July 1991 and then reaching Guangzhou six months ahead of schedule in December 1993 would compensate for this shortfall.²

If Hopewell Holdings is successful it will receive 40 per cent of all toll profits for the first ten years and 30 per cent for the remaining 20 years under the Build, Operate and Transfer (BOT)

² The toll level for the Shenzhen to Guangzhou leg of the expressway is expected to be set at 20 yuan for passenger vehicles and two to three times higher for trucks.
arrangement negotiated with the Chinese Government. By 1999, these profits are likely to be $HK1 billion per year after payment of interest and dividends with the prospect of them tripling over the ensuing decade. The Superhighway is an important guarantee of Hong Kong’s long-term prosperity. It will directly benefit Hong Kong firms that have relocated their manufacturing operations in Guangdong Province. As reflected in Hong Kong’s White Paper on Transport published in 1990, most attention has been focused on the transport infrastructure within the Territory.

Hong Kong’s White Paper on Transport, 1990

*Moving into the 21st Century: The White Paper on Transport Policy in Hong Kong* (TBGS, 1990) encapsulates progress on the development of transport infrastructure in Hong Kong since the first Comprehensive Transport Study which was completed in 1976. It draws upon the original White Paper published in 1979, the North Lantau Transport Access Study (Wilbur Smith and Associates, 1981), the Second Comprehensive Transport Study (Transport Department Hong Kong Government and Wilbur Smith and Associates, 1989) and the subsequent Green Paper *Moving into the 21st Century* (Sulke, 1989; Yeung 1989). Much emphasis in the new White Paper is on the need to: provide high-capacity strategic links to underpin future port and airport facilities over the next twenty years; support the growth in cross-border goods vehicle traffic between Hong Kong and China; assist the new towns and metropolitan area development (discussed in the next section). Attention is focused on those aspects of the White Paper which are designed to support PADS (Fig. 14).

The anticipated expansion of the port facilities in Tsing Yi, Stonecutter’s Island, Tuen Mun and north Lantau will involve: (a) an extension of the Container Port Road to connect the planned Container Terminal 8 on Stonecutter’s Island; (b) a road/bridge connection between Kwai Chung and Container Terminal 9; and (c) a road extension to link the new port facilities in Tuen Mun. The North Lantau Expressway will serve port facilities in north Lantau, and its spur to the planned Port Peninsula will link a road tunnel from Route 7 to a reclamation planned for longer term development between 2001 and 2011.
A prime purpose of the North Lantau Expressway, however, is to provide direct access to the replacement airport at Chep Lap Kok. It will interconnect with the planned Route 3; its Tsing Yi Sector will connect Hong Kong via the West Kowloon Expressway and the Western Harbour Crossing; and its Country Park Sector’s major North-South Expressway will link the Shenzhen-Guangzhou section of the Superhighway. The North Lantau Expressway also involves the construction of the Lantau Fixed Crossing connecting Tsing Yi to north-east Lantau via Ma Wan. It could take a number of alternative forms including suspension bridges (one with a centre span of 1377 metres and vertical clearance of 62 metres), a submerged tube tunnel and a bored tunnel crossing.

In September 1990, the Hong Kong Government called for expressions of interest from the private sector for the franchise to undertake and complete this complex project prior to the scheduled opening of the new airport in early 1997. Subsequently, the Government, given the complexity of the project, divided the project into five contracts: (a) the Tsing Ma Bridge ($HK6 million); (b) the shorter Kap Shi Mun Bridge and viaduct across Ma Wan ($HK2.5 million); (c) Route 3 Interchange at Tsing Yi ($HK815 million); (d) works on the highway plaza on north-east Lantau ($HK620 million); and (e) toll collection system and traffic control and surveillance system ($HK610 million). Tenders were called for in August and September 1991.3

3 Originally, six consortia prequalified for the fixed-price Lantau Fixed Crossing project (South China Morning Post, 5 July 1991). Those bidding for both spans were: (a) Anglo-Japanese Construction led by the British construction firm Trafalgar with Costain and Mitsui; (b) a separate Japanese Group, Nishimatsu, led by Nippon Steel and Mitsubishi; (c) Hong Kong International Consortium including Leighton, Hochtief, Franki-Keir and French multinational Dragages et Travaux Publics; (d) Hopewell Holdings with the Japanese construction giant Ishikawajima-Harima Heavy Industries; and (e) a consortium led by Philip Holzman with Hsin Chong. The Korean firm, Hyundai Engineering and Construction, prequalified for the smaller Kap Shui Mun bridge only. Later, the number prequalified for the major bridge was reduced to three with the withdrawal of Philip
Besides incorporating a dual three-lane highway the Lantau Fixed Crossing will have to carry a twin track railway serving the replacement airport. Clearly, Hong Kong cannot be an exception to the premise that 'all major airports of the world have good rail connections to their city centres - Narita, Schipol, Frankfurt, Brussels, Heathrow' (PADIU, 1990: 9). Indeed, the Airport Railway, constructed and managed by the existing railway corporations, will take precedence over the other projects recommended in the Second Comprehensive Transport Study. Dedicated to the comfort and convenience of users, its airport terminus will provide an integral part of the planned air terminal facilities. An express service using rolling stock designed for passengers with baggage is envisaged running from the airport to designated interchange stations within the urban area and connecting with other forms of transport. A slower public service will connect intermediate stations.

Wu's Proposed Alterations

As part of its brief to Gordon Wu Ying-sheung the Chinese Government requested an assessment of the land transport proposals. It was received in May 1990. A modified version entitled 'Analysis on [sic] the $HK163.34 billion PADS Projects' dated 28 August 1990 was given to the Hong Kong Government (Table 15). Besides endorsing the commercial viability of Chep Lak Kok Airport it recognised the need for: (a) the Western Harbour road and rail connection from Hong Kong to Lantau; (b) a ring transport system for both road and rail services connecting Hong Kong, Kowloon and Lantau to the new port and airport developments; (c) the desirability of linking the Mass Transit Railway System to eastern Kowloon, the western New Territories and the new airport.

Wu, however, suggested several major alterations because he felt that key transport links were unnecessarily expensive. Further, the delay in building the Lamma Channel tunnel would leave the

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Holzman and disqualification of the consortium led by Gordon Wu following the pullout of his Japanese partner. This reduced field led to fears that the decreased competition would boost prices (South China Morning Post, 1 October 1991).
### TABLE 15 THE HONG KONG GOVERNMENT'S COMPARISONS OF ITS LAND TRANSPORT PROPOSALS AND WU'S RECOMMENDATIONS, OCTOBER 1990

<table>
<thead>
<tr>
<th>Item</th>
<th>PADS Transport Infrastructure</th>
<th>Wu's Proposals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource utilisation and cost effectiveness</td>
<td>The initial expenditure on the transport infrastructure required to support the new international airport is minimised.</td>
<td>The initial capital cost of the transport infrastructure would be significantly greater than the core PADS projects completed by 1997.</td>
</tr>
<tr>
<td>Engineering feasibility</td>
<td>All significant engineering questions have been resolved.</td>
<td>Several engineering studies have to be completed before feasibility and cost effectiveness can be established.</td>
</tr>
<tr>
<td>Transport performance</td>
<td>Provides necessary additional road and rail capacity for both cross harbour and local traffic.</td>
<td>Fails to provide necessary road and rail services and increases congestion and commuter trip lengths.</td>
</tr>
<tr>
<td>Landuse performance</td>
<td>The West Kowloon Reclamation is an integral part of the METROPLAN Strategy.</td>
<td>The alternative viaduct structure would be a serious constraint on the use of Green Island for residential and community purposes.</td>
</tr>
<tr>
<td>Programming</td>
<td>Projects have reached feasibility stage including geotechnical site investigations and alignment studies.</td>
<td>There is the risk of significant delays due to objections anticipated over the environmental impact of the proposed Tsuen Wan extension.</td>
</tr>
<tr>
<td>Environmental quality</td>
<td>The West Kowloon Reclamation and Expressway have been gazetted, to provide opportunities for environmental improvements within designated congested districts.</td>
<td>The extension of the Tsuen Wan By-pass between central Tsuen Wan and Sham Tseng would cause severe environmental problems and property depreciation.</td>
</tr>
<tr>
<td>Flexibility, robustness</td>
<td>The projects are being programmed incrementally, based upon actual market demand, so that they will be fully utilised on completion.</td>
<td>Little room is left for flexibility to respond to changing market demands.</td>
</tr>
<tr>
<td>Financial performance</td>
<td>Would be significantly less expensive and more attractive to the private sector.</td>
<td>They require significant additional expenditure prior to the opening of the airport. Also, cash flows would be heavily front-end loaded and, therefore, unattractive for Build, Transfer and Operate arrangements.</td>
</tr>
</tbody>
</table>

Source: Derived from *South China Morning Post*, 3 October 1990.
FIGURE 15 A COMPARISON OF: (A) THE GOVERNMENT’S PORT AND AIRPORT STRATEGY (PADS); AND (B) GORDON’S WU’S PROPOSAL

Source: Based on South China Morning Post, 3 October 1990.
airport reliant on a single land connection for several years after its completion - a feature unacceptable to the International Air Transport Association (IATA) on safety grounds (South China Morning Post, 14 October 1990; Westlake, 1990). In a bid to improve access to the site he recommended the replacement of the 1377-metre Lantau Fixed Crossing - the linchpin of PADS - by a 'shorter bridge' from Ma Wan to Sham Tseng and the provision of a combined rail and road viaduct between Sham Tseng-Ma Wan and the container berths at Kwai Chung (Fig. 15). Not only would this give access nine months earlier than planned but it would reduce costs and allow tolls to parallel those of the other cross-harbour tunnels. Also, Wu suggested the elimination of the West Kowloon Reclamation and Expressway and the abandonment of the MTR Airport Railway and local rail services in Western Kowloon. Given Wu's advisory role with the Chinese Government these recommendations had to be treated seriously by Hong Kong Government officials.

On behalf of the Hong Kong Government Dr Hank (Henry) Townsend of International Bechtel, coordinator of PADS, rebutted the recommendations in a point-by-point response (see Table 15). Apart from the proposed rail-road viaduct adversely affecting the environment of a large residential area, the 'shorter' 850-metre suspension bridge would have to be lengthened to 1000 metres to clear the navigation channel. As well, replacing the already designed Lantau Fixed Crossing would require more than twelve months in additional detailed engineering studies, so the cost and timing advantages of Wu's recommendation would not be realised. Further, the elimination of the West Kowloon Reclamation and Expressway would obstruct the restructuring of urban areas disadvantaged by overcrowding, traffic congestion and a shortfall in community facilities. In addition, the relocation of the Western Harbour Crossing from Central to Stonecutter's Island would be twice as long and expensive. Finally, the abandonment of the Airport Railway would prevent the alleviation of congestion on the existing Tsuen Wan MTR line and necessitate the construction of additional parallel lines. In short, Wu's proposals failed to take account of the need to integrate the new transport connections with overall urban development plans. Wu's response is examined later on but at this stage it is more pertinent to consider the urban development plans associated with PADS.
CHAPTER 6

URBAN DEVELOPMENT RAMIFICATIONS

Since 1972, the Hong Kong Government has been engaged in strategic planning (see Pun, 1989; Sit, 1989a and Yeh, 1990 for an overview). Although a network of six new towns was planned to provide opportunities for a public housing program, transport provision was inadequate. In 1980, the Land Development Policy Committee sought to overcome the shortcomings of past planning and development by seeking to formulate a comprehensive long-term development strategy for Hong Kong until 2001. In 1984, the Territorial Development Strategy (TDS) was completed (Pryor, 1985). Specifically, it undertook an extensive modelling exercise to provide an integrated land use and transport plan for five development sub-regions and their constituent forty-nine zones (Eason, 1985). It incorporated a number of sectoral studies which investigated the effects of port expansion and airport relocation on urban development patterns. Given the uncertainty of Hong Kong's political future, the Territorial Development Strategy made its projections on the basis that port expansion would be provided for at Stonecutters Island and Tsing Yi, and the airport would still be at Kai Tak. Recommendations, therefore, were focused on improving the transport links between the Metropolitan Area and the new town extensions in the north-western and north-eastern New Territories.

By 1986, the upsurge in containers demanded additional port facilities. Similarly, the projections of air services showed that Kai Tak Airport would be overtaxed. In accommodating these needs the natural expansion of urban development was towards the west because the eastern New Territories were reserved under the Territorial Development Strategy for recreation. The westward shift not only recognised the importance of the Pearl River trade as a key element in future port growth but highlighted the importance of Chep Lap Kok. In late 1986, this close relationship between port and airport needs was demonstrated in different permutations proposed by Hopewell Holdings Ltd - a recognition that cheaper port and airport facilities could be built in the Western Harbour. In 1987 the PADS Study commenced.
In 1989, the PADS Study reported. Its recommendations incorporated residential and industrial development as an integral part of the airport development on Lantau Island. Two new settlements were envisaged: Tung Chung, a dormitory settlement of over 150,000 people adjacent to Chep Lap Lok, which will house those engaged in directly or indirectly supporting the airport and provide a showcase ‘gateway’ to Hong Kong; and Tai Ho, a centre of 110,000 situated outside the acceptable noise exposure forecast level, which is intended to service associated port and airport related industries in north Lantau and Tsing Chau Tsui to minimise the necessity for commuting. Environmentally sensitive industries requiring deepwater sites, however, are excluded from Lantau and ‘remote’ sites are reserved for them at Tuen Mun and Tseung Kwan O (Junk Bay).

These urban developments have undoubted qualitative benefits. When Chep Lap Kok opens, Kai Tak International Airport will close. No thought has been given to retaining it as a satellite downtown airport. Consequently, aircraft noise over Kowloon will disappear and traffic congestion will be reduced. This is envisaged in METROPLAN (HKG, 1988, 1990a,b) which is Hong Kong’s new harbour-oriented, sub-regional planning strategy for the core area designed to complement PADS and the location of the airport at Chep Lap Kok. Specifically, the urban redevelopment of Kowloon will relieve overcrowding and provide opportunities for new economic activities. Yet the urban developments embodied in PADS have been criticised by the academic group in the Nim Wan Study for failing to meet the growth of the north-western New Territories and recognise urban developments in the Pearl River Delta.

Evaluation

Symptomatic of the neglect of the rapid economic development in the Pearl River Delta and its relationship to Hong Kong, according to Sit (1989a), is the Territorial Development Strategy which preceded PADS. Its five sub-regional plans presaged a shift from a dispersed multicentre to a harbour-oriented policy (Pryor, 1985). This has been incorporated in METROPLAN (HKG, 1990a,b)
<table>
<thead>
<tr>
<th>Year</th>
<th>Imports from Hong Kong</th>
<th>Exports to Hong Kong</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mass thousand tonnes</td>
<td>Growth rate per cent</td>
</tr>
<tr>
<td>1980</td>
<td>423</td>
<td>-</td>
</tr>
<tr>
<td>1981</td>
<td>723</td>
<td>70.9</td>
</tr>
<tr>
<td>1982</td>
<td>1,703</td>
<td>35.8</td>
</tr>
<tr>
<td>1983</td>
<td>2,397</td>
<td>73.4</td>
</tr>
<tr>
<td>1984</td>
<td>3,486</td>
<td>40.8</td>
</tr>
<tr>
<td>1985</td>
<td>3,988</td>
<td>45.4</td>
</tr>
<tr>
<td>1986</td>
<td>3,406</td>
<td>14.4</td>
</tr>
<tr>
<td>1987</td>
<td>5,406</td>
<td>35.6</td>
</tr>
</tbody>
</table>

for the inner areas of Hong Kong, Kowloon and Tsuen Wan - a tacit admission of the failure to match employment opportunities and populations in the new towns. Again, recommendations are made with little reference to industrial estate and transport developments in Shenzhen and the Pearl River Delta (Sit, 1984, 1985, 1989b). Little attention is given to the burgeoning trade with Guangdong Province reflected in Table 16 (Chen, 1990). The absence of any attempt to site key facilities in locations near the Chinese border may damage the future SAR. Rather than indulging in gross 'over-planning', Sit (1989a) argues that much of the long-term strategic exercises, except for the airport, should be delayed until after 1997 to prevent the SAR being constrained by pre-set development strategies.

In the interim, more consideration, according to Chu et al. (1990), should be given to examining the Territory’s relationship to an emerging Guangzhou-Hong Kong-Macao Megalopolis. The rapid urban and economic development in the Pearl River Delta orchestrated from Guangzhou (3.4 million inhabitants), China’s sixth largest city, coupled with the reversion of Hong Kong and Macau (1999) to China, has established the basis for an important development corridor. Since the adoption of the ‘open door’ policy in 1978, urbanisation in the Pearl River Delta has been rapid - the urban population increasing from 2.6 million in 1978 to 5.6 million in 1986 (see Yeh et al., 1989). Much of the growth has occurred in small and medium-sized cities and towns - the total number increasing from 33 in 1978 to 114 in 1986 (though, in part, the increase has reflected a relaxation of the definition of towns). A major problem has been the lack of coordination in transport initiatives aimed at improving interaction between these urban centres. This problem was unlikely to be ameliorated, however, while there was a divergence of opinion between China and Hong Kong over the economic and political aspects of PADS.
CHAPTER 7
ECONOMIC AND POLITICAL ASPECTS

PADS was announced in 1989 to counter the aftershock of the Tiananmen Square incident that brought up to one million protesters to Hong Kong's streets. It was a mega-project intended to attract investors, engineers and imported labourers, and boost the economy - a 'Rose Garden as the last gift from the colonial master' (Wang Liang-huw, pers. comm.). At that time the Hong Kong Government felt able to complete Asia's most expensive infrastructure project without the involvement of either the British or Chinese Governments. PADS was to be a Hong Kong project. 'After 1997', as the Governor of Hong Kong, Sir David Wilson, stressed 'it's not going to be China running Hong Kong, its going to be Hong Kong running Hong Kong, with Hong Kong people in charge of the government' (CBR, 1990: 53). The Chinese Government was not consulted about PADS from the outset, and did not express a view or demand a veto. Up to three-fifths of the project was expected to be privatised with a strong input from Japanese sources. When potential investors were reluctant to be involved because of the inability of the current Hong Kong Government to guarantee revenue and risk after 1997 the endorsement of the Chinese Government was sought. This was withheld. Ostensibly, the Chinese Government was concerned about its economic aspects, and the Hong Kong Government about the political aspects. In reality, the former sought to enforce its political control and the latter was endeavouring to maintain its economic clout within Hong Kong.

The Chinese Government

Annex II of the 1984 Sino-British Joint Declaration provided for closer cooperation between the two governments. While Britain has been prepared to keep China informed on developments within Hong Kong it did not want to seek China's agreement on specific issues such as the airport. Prevented from making a close and detailed examination of the project, the Chinese Government suspected the Hong Kong Government's motives in proceeding with PADS, which it
will inherit on the Territory's reversion to China in 1997. Concern was expressed by Beijing about the location, scale, timing and financing of PADS and the 'sometimes incomprehensible' and scanty project information on which to evaluate it (Hongkong Standard, 24 September 1990). Lacking information on the financial arrangements and economic efficiency of PADS, the Chinese Government has resorted to advice from the private sector about the Strategy's economic viability (South China Morning Post, 18 August 1990). It is conscious that public financial assistance to PADS would drain the SAR's secret financial reserves derived from the Land Fund.

Comprising income from land sales, the Land Fund, established under the Sino-British Joint Declaration of 1984, is expected to exceed $HK70 billion by 1997. Financial planning by the Hong Kong Government assumes that it will not draw upon the Land Fund. Yet Chinese Government officials fear that if it is disbursed on the Lantau Fixed Crossing the Land Fund would be depleted to $HK55.2 billion. Should the related projects proceed, the newly established SAR Government might be left with a crippling debt for which the Chinese Government had no legal responsibility (though presumably it would become the guarantor of any loans). Given its role as protector of the SAR, it has sought information on the latter's financial liabilities, particularly as any disbursement of the land fund required its approval.1 As noted, it invited Wu of Hopewell Holdings Ltd to assess PADS as part of a mainland study.

Wu contended that aspects of the project were needlessly expensive. If his recommendations were followed the cost could be reduced from $HK127 billion to $HK98.1 billion - a saving of 29 per cent. Wu argued, however, that the total cost was not $HK127 billion but $HK166 billion. Armed with this information, Beijing has

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1 Leases in the New Territories terminate on 27 June 1997. An agreement between Hong Kong and China permits the issuing of leases for 50 years beyond 1997. According to an agreed formula (at present 50:50) the proceeds will be divided between the present Hong Kong Government and a bank account for the future government. The latter is intended as the land fund for the SAR. An interpretation of the agreement by the Hong Kong Government is that it can draw on these SAR funds prior to 1997 for infrastructural projects such as PADS.
demanded greater control over PADS and participation in policy decisions. Not wanting a complete reappraisal of PADS, the Hong Kong Government reacted with remarkable speed.

On 3 October 1990, Wu's recommendations were rebutted. While he did have a vested interest in developments linking Hong Kong with the Pearl River Delta, he also had a reputation as a conceptual thinker. Excluding Wu precluded the Hong Kong Government from benefiting from his private sector experience on major mainland projects (South China Morning Post, 6 September 1990). Although Wu was proposing a consortium with Ishikawajima-Harima to bid on the bridge there were doubts about his ability to complete the task. Among Government ranks there was a reported preference for using Jardine Matheson and the other trading houses as partners (South China Morning Post, 7 October 1990). Yet his exclusion prevented the Hong Kong Government drawing upon his acknowledged connections within the Chinese Government to effect a compromise and secure their endorsement. By dismissing Wu's proposals the Hong Kong Government guaranteed a confrontation with the Chinese Government.

On 5 October 1990, the Hong Kong Government announced it would scrap its plan to tender for the construction of the $HK6 billion (US$769 million) Lantau Fixed Crossing. Instead of the usual 'Build Operate and Transfer' arrangement used in other infrastructure developments in the Territory it substituted a 'Design and Construct' approach. Rather than permit the designated private contractor to recoup $HK10 billion costs from the right to charge tolls for a specified period before handing it back to the Government, the latter decided to use its own resources to finance the Crossing - a commitment supported by banks based in Hong Kong. The advantage of the Design and Construct approach is that it offers program certainty by being able to complete the roads and bridges without protracted negotiations with tenderers.

This abrupt reversal of its original plan to rely almost entirely on private sector participation was rationalised by arguing that uncertainties triggered by a declining world economy and the Gulf Crisis would preclude private financing or make tolls prohibitive. Reportedly, two of the three international consortia interested in constructing the Crossing had reservations about both revenue and
risk. Although this action provided a financial guarantee it did not defuse the political uncertainties. Indeed, they were intensified as the Chinese Government believed it was being coerced to accept PADS by the Territory’s confrontational approach.

On 10 October 1990, a representative of the Chinese Government suggested that the decision to use public funding for the Lantau Fixed Crossing was ‘unilateral and inappropriate’ (South China Morning Post, 11 October 1990). It precluded consideration of alternative airport sites, predetermined the use of a high-speed rail service irrespective of patronage, and favoured British, American and Japanese construction companies as few local firms had the necessary experience with suspension bridges. Certainly, this ‘hasty’ and ‘impolite’ decision was ill-timed. On 15 October 1990, the Chinese Government was about to despatch an expert team led by Yong Longgui, a senior economist, to Hong Kong for discussions on the controversial projects embodied in PADS.

After eleven days of discussion the Chinese Government officials received further information but this was reported to be inadequate. Indeed, some commentators believe that the urgency attached to PADS has been exaggerated so as to override objections by Beijing. Others see these objections as pressure by the Chinese Government to secure influence over what happens in the Territory prior to 1997. The need to intervene has been heightened by claims by the Chinese leader Deng Xiaoping that Hong Kong has become a centre for pro-democracy subversion. In these circumstances, will, for instance, the Chinese Government expect trade-offs, such as the abandonment of political reforms, in return for its endorsement of PADS?

Hong Kong Government

On 31 October 1990, the Chief Secretary, Sir David Ford, responded to these concerns in a speech to the Legislative Council (PADIU, 1990, para. 1). According to Sir David, there was nothing magical or political about the 1997 target date for building the airport. The Government had not argued that the airport must be built before the termination of British Administration. Quite simply, 1997 had been determined by the need to relieve growing congestion at Kai Tak
International Airport and the advice that seven years was the shortest possible construction period for the core projects - Chep Lap Kok Airport, the North Lantau Expressway, the Lantau Fixed Crossing and the West Kowloon Expressway. The October 1989 announcement of the decision to proceed with PADS should not have come as a surprise to the Chinese Government because senior officials from the mainland had been briefed six months before. Further, there is no evidence that the Hong Kong Government is devoting all of its resources to the airport as it has budgeted for $HK140 billion (1990 prices) in non-airport program areas in the period up to 1997.

The Hong Kong Government suspects that the Chinese Government is using PADS to undermine its credibility. Initially, criticisms from Lu Ping, Director of the State Council's Hong Kong and Macau Office, focused on the airport’s cost but later switched to fears that the Provisional Airport Authority would be too powerful and uncontrollable (Hongkong Standard, 14 December 1990). Clearly, the airport is being used as a lever to press China’s claim to speak on behalf of Hong Kong people over what happens in the Territory prior to 1997 (Lau, 1990). The Hong Kong Government sees PADS as a test case of its right - as embodied in the Sino-British Joint Declaration on Hong Kong in 1984 - to maintain its autonomy over financial affairs until the handover of sovereignty and its promised SAR liberties thereafter. For its part, the Hong Kong Government was willing to consult with the Chinese Government on PADS and provide regular updates on its progress. It was not prepared, however, to give the Chinese Government the veto it desires. Such capitulation would not only undermine Hong Kong’s free market economy and future as a thriving financial and service centre but would become a precedent for interference after 1997.

During the stand-off between the Hong Kong and Chinese Governments construction costs escalated. Already the former conceded that PADS estimates published in 1989 were approaching Wu-like proportions. In December 1990, the Government revised the figure from $HK127 million to $HK150 million. (Wu, in turn, has revised his PADS total to over $HK200 million). Costs of individual items have escalated. The Lantau Fixed Crossing has increased from $HK6 million to over $HK10 million, roads and tunnels from $HK18 billion to $HK42 billion and the airport from $HK35 billion to $HK42 billion (Hongkong Standard, 12 December 1990). Other items are under
threat. Already the Airport Railway has been downgraded to a non-core project and the prospects of its completion diminished.

Without Beijing’s political underwriting private sector support could not be ensured because the returns from PADS would not be generated until after 1997. As the contractor could incorporate this risk in the price of PADS, the financial arrangements were not insurmountable but the discord between the Governments was a major stumbling block. Various possibilities were canvassed in late 1990 to end the stalemate. One suggestion was for the Hong Kong Government to make all relevant data accessible to the public. This would determine the liabilities of the SAR Government and make its ability to discharge its obligations transparent. Another option was to allocate part of the PADS contract to mainland construction companies in return for the Chinese Government’s endorsement.

The Hong Kong Government spurned these propositions and, anxious to press ahead with PADS to avoid the perceived pitfalls in the operation of existing airports in China (inefficiency and low productivity), offered a second round of expert talks in Beijing in January 1991. Its Chinese counterpart, however, did not respond. Instead, the Chinese Government intensified its demands for influence over the cornerstone of PADS - the $HK79 billion new international airport at Chep Lap Kok. Arguing that any prolonged delay in implementing PADS would jeopardise the Territory’s future, the Hong Kong Government responded, in turn, by refusing to agree to tenders until the Chinese Government gave its endorsement (*Sydney Morning Herald*, 23 January 1991). Even if this action is unsuccessful, the Governor, Sir David Wilson, in talks in Beijing between 21 and 24 January 1991, was determined that PADS would be implemented (*Sydney Morning Herald*, 25 January 1991). On his return from Beijing he argued that the project would still go ahead but reported that members of the Hong Kong Government had no ‘rigid fixed picture in our minds. We are still looking at different ways of doing it, different ways of phasing it’ (Bowring and Lau, 1991: 24). This smacked of British appeasement in the expectation of productive relations with China after 1997.
The British Government

The stalemate between China and the Hong Kong Government persisted. On 13 April 1991, talks broke down over Chinese demands that it should be able, according to its interpretation of the Sino-British Joint Declaration, to scrutinise all major projects straddling 1997. This resulted in a fruitless trip by the British Foreign Secretary, Douglas Hurd. The Hong Kong Government threatened not to build the new airport (South China Morning Post, 3 May 1991). The Chinese Government countered that it would build a new airport according to its own plans after 1997. The Hong Kong Government responded by re-examining the possibility of a second runway at Kai Tak Airport ($HK6 billion) which would increase its capacity by 10 per cent. It would enable the Hong Kong Government to sidestep Chinese claims over sovereignty before 1997 (Far Eastern Economic Review, 6 June 1991). On 22 May 1991 talks were resumed between Britain’s team leader Andrew Burns, the Foreign Office’s assistant under-secretary for Asia, and China’s Chen Zuo’er, departmental head of the State Council’s Hong Kong and Macau Affairs Office, in the hope that the mainland would acquiesce in the airport plans. After thirty-three hours of talks no agreement was made. Public charge and counter-charge by the two sides followed. The low point in negotiations had been reached (The Economist, 25 May 1991).

The stalemate gave Gordon Wu Ying-sheung and the Study Group for Infrastructure Development (SGID, 1991a,b) the opportunity to offer alternative plans for breaking the deadlock over Chep Lap Kok (Sunday Morning Post, 26 May 1991). Wu claimed that the Chinese Government would support an 80 per cent privately-funded airport after 1997 (presumably at Cheung Chau in the Western Harbour) should Sino-Chinese talks on Chep Lap Kok founder. Using unit costs from Government reports, the Hong Kong Study Group for Infrastructure Development (SGID, 1991a,b) pre-feasibility study also suggested cheaper and superior alternatives to Chep Lap Kok (see Fig. 10).

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2 By May 1991, it was rumoured that Britain and China were negotiating over PADS to the exclusion of Hong Kong.
The first part of the Study Group's pre-feasibility report drew upon the International Civil Aviation Organisation (ICAO) to establish the twelve basic criteria for airport site selection. Another factor was added to take account of specific local conditions - the need for spatial integration with the Pearl River Delta given the investment of Hong Kong entrepreneurs in the area and the developing regional airport system. Using these thirteen criteria a comparison was made of eight possible airport sites - their locations, attributes and construction being summarised in Table 17.3

Then the second part of the Study Group's pre-feasibility report narrowed the possible sites for further investigation to four - Clearwater Bay, Lamma Island Nim Wan and Tolo Channel (SGID, 1991: 7.2). Nim Wan, however, was omitted from further consideration because disputes over airspace conflicts with China might delay its early completion. Then the remaining three sites were rated against Chep Lap Kok in terms of least environmental impact, level of transport improvement, urban deconcentration potential and contribution towards spatial integration with Shenzhen (Table 18). On these criteria the Study Group considered all sites were superior to Chep Lap Kok because they had fewer technical and engineering problems, and provided better access.

Lamma Island was favoured on aeronautical grounds but it was inferior to the other two possible sites. Clearwater Bay offered a quick replacement to Kai Tak with easy access to urban areas. The Tolo Channel provided longer term social and economic development benefits (more land, an improved urban environment, the prospects for urban deconcentration, and better interaction and integration with urban centres in the Pearl River Delta). By draining the Tolo Channel both a new airport site and a 'green lung' would be developed in a heavily polluted area. An examination of the site characteristics (area, runway length and separation and additional new land) of all three possible sites underlined their superiority over Chep Lap Kok (Table 19).

TABLE 17 THE EIGHT POSSIBLE AIRPORT SITES CONSIDERED BY THE STUDY GROUP FOR INFRASTRUCTURE DEVELOPMENT

| Site                      | Location                          | Attributes                                                                                                                                                                                                                                                                                                                                 | Cost  
|---------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------
| Border                    | Mouth Shenzhen River              | Difficult site because of potential serious impacts on existing and future developments in Shenzhen; and serious airspace conflicts with airports in the area.                                                                                                                                                                                                                       | 30-35 |
| Deep Bay                  | Close to Tin Shui Wai new town    | Ideal but for: new town; airspace interaction with Huangtian Airport; and closeness to Mai Po Marshes.                                                                                                                                                                                                                                                                                                     | 30    |
| Tolo Channel              | Mirs Bay                          | Requires turning Tolo Harbour into a polder but: land offers potential for urban expansion; there is no airspace problem and flight management complication with other airports; and transport links are easy to construct at reasonable cost.                                                                                                                                                                   | 35-40 |
| Clearwater Bay            | Southern part of Clearwater Bay Peninsula | Aviation conditions are good and in close proximity to urban core but links to New Territories would be costly.                                                                                                                                                                                                                                                                                  | 40    |
| Nim Wan                   | Mouth of Deep Bay                 | Site is well sheltered by Castle Peak and can depend on Tuen Mun as a supporting community but inflicts no noise pollution on it. Best Deep Bay site as it has least conflict with Huangtian and away from Mai Po Marshes. Accessible to both Kowloon and the Western New Territories and would generate urban development on Yuen Long Plain — a second urban core for Hong Kong. | 33-38 |
| Chep Lap Small Island Kok | north of Lantau                   | Alignment problems with the topography of Lantau; flight path complications with both Huangtian and Macau airports; geotechnical problems with marine mud conditions, and potential cross wind and wind shear hazards; mountainous condition of the island not conducive to large-scale development without expensive land reclamation. (if third cross-harbour tunnel, West Kowloon Expressway and island not conducive to large-scale development without expensive land reclamation included) | 78    |
| Cheung Chau               | 1.5km east of Cheung Chau on polder within a sea wall | Aeronautically ideal but with serious accessibility problems.                                                                                                                                                                                                                                                                                                                               | 20-25 |
| Lamma Island              | Reclaimed from sea along the north-west coast of Lamma Island | Avoids serious noise pollution but close enough to be linked by a cross-harbour tunnel to Hong Kong Island.                                                                                                                                                                                                                                                                                           | 50    |

### TABLE 18: KEY CHARACTERISTICS OF THE FOUR SHORTLISTED SITES

<table>
<thead>
<tr>
<th>Item</th>
<th>Chep Lap Kok</th>
<th>Clearwater Bay</th>
<th>Lamma Island</th>
<th>Tolo Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airport site (ha.)</td>
<td>9.56</td>
<td>1.00</td>
<td>1.350</td>
<td>7.00</td>
</tr>
<tr>
<td>Runway length (m.)</td>
<td>3.400</td>
<td>4.000</td>
<td>4.000</td>
<td>4.000</td>
</tr>
<tr>
<td>Runway separation (m.)</td>
<td>900</td>
<td>1.300</td>
<td>1.300</td>
<td>1.300</td>
</tr>
<tr>
<td>Additional new land (m.)</td>
<td>570</td>
<td>0</td>
<td>150</td>
<td>5.700</td>
</tr>
</tbody>
</table>

TABLE 19 ESTIMATED COST OF CONSTRUCTING AIRPORTS AT TOLO CHANNEL, CLEARWATER BAY AND LAMMA ISLAND  
(1990 prices)

<table>
<thead>
<tr>
<th>Item</th>
<th>Clearwater Bay</th>
<th>Lamma Island</th>
<th>Tolo Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reclamation, sea wall and site</td>
<td>7,643</td>
<td>4,445</td>
<td>4,939</td>
</tr>
<tr>
<td>formation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airport facilities and related buildings</td>
<td>22,578</td>
<td>22,578</td>
<td>23,534</td>
</tr>
<tr>
<td>Land resumption</td>
<td>380</td>
<td>8,000</td>
<td>10</td>
</tr>
<tr>
<td>Road link</td>
<td>945</td>
<td>9,702</td>
<td>2,520</td>
</tr>
<tr>
<td>Rail link</td>
<td>3,168</td>
<td>11,625</td>
<td>3,780</td>
</tr>
<tr>
<td>Total construction cost</td>
<td>34,714</td>
<td>56,350</td>
<td>34,783</td>
</tr>
<tr>
<td>Public investment required (per cent)</td>
<td>59.9</td>
<td>77.0</td>
<td>53.4</td>
</tr>
</tbody>
</table>

Note: The cost of a rail link to Lamma Island has been added to the original figures provided by the Study Group for Infrastructure Development (1991a).

This superiority over Chep Lap Kok is confirmed in the Study Group's cost estimates for Tolo Channel ($HK35 billion), Clearwater Bay ($HK35 billion) and Lamma Island ($HK56 billion) (Table 20). At 1990 prices, the estimated cost of Chep Lap Kok was $HK78 billion, based on land reclamation, airport facilities, land resumption, and rail and road links. If the third cross-harbour tunnel, West Kowloon Expressway and associated reclamation costs are included the total costs would reach $HK103 billion. Further, the public investment in all three alternative sites is much less than Chep Lap Kok ($HK78 billion) - Tolo Channel ($HK18.6 billion), Clearwater Bay ($HK20.8 billion) and Lamma Island ($HK34.3 billion). If one of these alternative sites was chosen instead of Chep Lap Kok, the Study Group for Infrastructure Development argued, there would be no need to scrap with China over reserve funds, the scrutinising of developments or representation on committees. The airport could be built by 1999.

The Study Group's recommendations for further detailed feasibility studies of Clearwater Bay and Tolo Channel as possible airport sites were summarily dismissed by the Deputy Secretary of the Planning Environment and Land Branch, Bowen Leung Po-wing, because of the:

lack of detailed analysis of aeronautics, traffic projections, and environmental impact. The methodology used ... for costing their [the Group's] alternatives is fundamentally flawed because the engineering costs have been grossly under-estimated, while the cost for an efficient transport system and environmental treatment have been neglected completely (South China Morning Post, 4 July 1991).

After this interlude interest returned to the negotiations.

In late June 1991, following talks with the British Prime Minister, John Major, the Governor, Sir David Ford, warned that China's failure to agree on the airport project would lead to its postponement. By then there was a strong undercurrent among business groups within Hong Kong concerned that the Government's strategy over the past two years had been sidetracked by Tiananmen Square (South China Morning Post, 26 June 1991). Reversing earlier
<table>
<thead>
<tr>
<th>Item</th>
<th>Chep Lap Kok rank</th>
<th>Clearwater Bay rank</th>
<th>Lamma Island rank</th>
<th>Tolo Channel rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Least environmental impact</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Degree of transport improvement</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Potential for urban deconcentration</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Contribution to spatial integration with Shenzhen</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

positions they emphasised the need for closer cooperation on infrastructure developments between Hong Kong and China. These sentiments prompted greater interest by the British Government in resolving the issue without strong Hong Kong representation, particularly as the latter may have misinformed it in earlier negotiations. A letter from the British Prime Minister to the Chinese Premier, Li Peng, advised that no further concessions were forthcoming and there would be no choice but to scrap PADS. The response was to suggest further high-level contacts. This led to a secret mission to Beijing by Sir Percy Cradock, foreign affairs adviser to the British Prime Minister and one of the key architects of the 1984 Joint Declaration.

On 27 June 1991, Sir Percy Cradock left for Beijing. As Sir Percy was willing to make concessions, the direct negotiations with his Chinese counterpart, the Director of Chinese State Council’s Hong Kong and Macau Affairs Office, Lu Ping, brought almost immediate results. On 3 July 1991, a Memorandum of Understanding was agreed between them (Table 21). It brought the Sino-British dispute over the Airport to an end. Under the terms of the Memorandum, released in Hong Kong, London and Beijing simultaneously, Hong Kong and British officials will be obliged to consult with China on each phase of the airport segment of the PADS project (estimated to cost $HK79 million). The accord gives the state-owned Bank of China Group a significant position in financing the project. A mandatory one-month period has been agreed during which all major airport franchise and contract awards will be discussed within a committee established by the Joint Sino-British Construction Group. Not only will full weight be given to the Chinese Government views but Chinese construction companies will be able to compete for airport projects.

Further, the Hong Kong Government must have a minimum of $HK25 billion in reserve at the time of the 1997 changeover and no more than $HK5 billion will be outstanding on airport loans. The British Government guarantees that the core airport projects (new airport, bridges to Lantau Island and related road and rail network) will be completed to 'the maximum extent possible' (Table 22). In return, China will adopt a positive attitude to all airport project grants, contracts and guarantees. The agreement signed during the British Prime Minister's visit to Beijing on 3 September 1991 stopped short of giving China the veto on developments straddling 1 July 1997.
TABLE 21 KEY POINTS IN THE MEMORANDUM OF UNDERSTANDING CONCERNING THE CONSTRUCTION OF THE NEW AIRPORT IN HONG KONG AND RELATED QUESTIONS

A. The Hong Kong Government will complete the Airport Core Programs by 30 June 1997.
B. The Chinese Government will support the construction of the new airport and related projects; the Bank of China will play an important role in the syndication of loans for airport projects; and Chinese construction companies will be able to compete for airport projects without preferential treatment.
C. An Airport Committee will be constituted under the auspices of the Joint Liaison Group with equal membership from both sides.
   (i) Britain will consult China within the Airport Committee before the Hong Kong Government grants franchises or contracts straddling 30 June 1991.
   (ii) The British side will consult the Chinese side within the Airport Committee before starting a project outside those specified.
D. The Chinese Government will adopt a positive attitude and the Hong Kong Government will be free to borrow a sum providing that it does not exceed $HK5 billion in debt to be repaid after 30 June 1997.
E. The Hong Kong Government will provide the Special Administrative Region Government not less than $HK25 billion in reserves on 30 June 1991.
F. (i) The Airport Authority Ordinance will modelled on the Mass Transit Railway Company.
   (ii) The Hong Kong Government is willing to appoint a Hong Kong-based individual from the Bank of China to sit as a full member on the board of the Airport Authority.
   (iii) The Hong Kong Government will set up a Consultative Committee on the new airport and related projects but it will have no decision-making role or power to delay projects.
   (iv) The Hong Kong Government will inform the Chinese side of the members of the Airport Authority and Consultative Committee whom it is proposed to appoint.
G. The British Foreign Secretary and the Chinese Minister for Foreign Affairs will meet twice a year to discuss matters of mutual concern; and the Director of the Hong Kong and Macau Office under the State Council and the Governor of Hong Kong will hold regular meetings.

## TABLE 22 COST OF CORE PROJECTS
(March 1989 prices)

<table>
<thead>
<tr>
<th>Project</th>
<th>Government</th>
<th>Private Sector Authority loans</th>
<th>Private Investment</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$HK mill.</td>
<td>$HK mill.</td>
<td>$HK mill.</td>
<td>$HK mill.</td>
</tr>
<tr>
<td>1. West Kowloon Reclamation</td>
<td>9,000</td>
<td>-</td>
<td>-</td>
<td>9,000</td>
</tr>
<tr>
<td>2. West Kowloon Expressway</td>
<td>1,700</td>
<td>-</td>
<td>-</td>
<td>1,700</td>
</tr>
<tr>
<td>3. Western Harbour Crossing</td>
<td>-</td>
<td>-</td>
<td>3,900</td>
<td>3,900</td>
</tr>
<tr>
<td>4. Route 3</td>
<td>5,600</td>
<td>-</td>
<td>-</td>
<td>5,600</td>
</tr>
<tr>
<td>5. Chep Lap Kok Airport</td>
<td>16,900</td>
<td>16,500</td>
<td>10,200</td>
<td>43,600</td>
</tr>
<tr>
<td>6. Tung Chung Phase 1</td>
<td>2,600</td>
<td>-</td>
<td>-</td>
<td>2,600</td>
</tr>
<tr>
<td>7. North Lantau Expressway</td>
<td>4,300</td>
<td>-</td>
<td>-</td>
<td>4,300</td>
</tr>
<tr>
<td>8. Lantau Fixed Crossing</td>
<td>12,100</td>
<td>-</td>
<td>-</td>
<td>12,100</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>53,700</td>
<td>16,500</td>
<td>14,100</td>
<td>84,300</td>
</tr>
<tr>
<td>Central and Wan Chai Reclamation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,800</td>
</tr>
<tr>
<td>Airport Railway (excluding</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>12,500</td>
</tr>
<tr>
<td>Lantau Fixed Crossing section</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand total</td>
<td></td>
<td></td>
<td></td>
<td>98,600</td>
</tr>
</tbody>
</table>

**Source:** *South China Morning Post, 2 July 1991.*
The immediate reactions of politicians and businessmen were euphoric. All of the world’s leading construction companies were poised with tenders for the Lantau suspension bridge, the Chep Lap Kok reclamation and Western Crossing. Gains were anticipated by the banking, construction, property (especially luxury flats and serviced apartments) and utility sectors with the main corporate beneficiaries being identified as China Light and Power, Swire Pacific, Sun Hung Kai Properties, Kumagai Gumi and Hong Kong Resorts International (South China Morning Post, 29 July 1991; Paisely, 1991).

The euphoria has to be tempered with the alarm experienced by bankers in the Territory because of the concessions made to China on funding. As the Hong Kong Government will find it difficult not to have more than $HK5 billion to be repaid after 1997, bankers fear that this will give China effective control over financial matters. While the project will spur growth in Gross Domestic Product by an estimated 0.5 - 1.5 per cent it will also boost inflation and trigger wage rises. The anticipated tighter labour market and higher wage levels will be eased by up to 10,000 imported workers from Guangdong in 1993 and 1994. Only oblique references have been made to the health risk for residents posed by noise and air pollution created during the five-year construction period.

Once the euphoria subsides there will be those in Hong Kong who feel that the spirit of the 1997 accord has been eroded to smooth the transition. As the airport had no defence or foreign affairs connotations theoretically it should have been a matter for the Hong Kong Government to decide but, in practice, this right has been overridden by decisions in London and Beijing. Initially overbearing, the Hong Kong Government was subdued by the course of events and compromised by the final agreement, to the chagrin of its frustrated but timid populace. As a confidence booster PADS has proved to be a costly test case. Unwittingly, the Hong Kong Government had presented the Chinese Government with the opportunity to press its claims prior to 1997.

Yet the Chinese and British Governments recorded benefits. Resolution of the impasse has led to the re-establishment of relations between them at the highest levels. More importantly, no major

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4 Six consortia have pre-qualified for reclaiming the site of the new airport at Chep Lap Kok. Five have Mainland China links.
decision can proceed in Hong Kong without Beijing’s input. The progressive change in attitude from quiet resignation over happenings in Hong Kong through a conscious watching brief to outright support has brought rich dividends. Much will depend in assessing the outcome on the degree to which China’s new port and airport facilities will attract traffic from Hong Kong.
CHAPTER 8

CONCLUSIONS: CHINESE PADS AND EAST ASIAN PADS

A recurrent problem in evaluating PADS is the degree to which the Hong Kong Government has taken into account developments in the Pearl River Delta (Pryor, 1991). This paper has highlighted that the Chinese Government has been pursuing its own port and airport strategy. Ports are being planned in the Pearl River Delta which will attract containers from Hong Kong. Similarly, airports are being planned in Shenzhen and Macau which could handle more than 20 million passengers by the year 2000, which may result in a dispersion of China traffic and the new airport operating below capacity. The first stage of a Superhighway is being planned from Hong Kong to Shenzhen. Further, the geographical centre of population is moving from Hong Kong towards Guangdong. The inevitable outcome is a deconcentration of activity from Hong Kong to the Pearl River Delta. Yet Hong Kong is likely to retain its status as a shipping centre in the medium term by virtue of its existing infrastructure at Kwai Chung and role in ships' ownership, management and services which range from chandlers and finance through fuel suppliers to insurers and maritime lawyers.

Decentralisation of transport hub activity has also been brought about by the willingness of the Chinese Government to pander to local interests. This has resulted in a proliferation of port and airport sites and accompanying infrastructure demands and reshaping of urban development. As major ports are restricted to deepwater sites - a condition in favour of Hong Kong - Huangpu, Shantou and Xiamen are likely to remain as feeder ports. Shenzhen's ports - Chiwan, Mawan and, particularly, Yantian - could grow to challenge Hong Kong for the right to be the gateway to south China. This threat will be intensified if delays to trucks at congested cross-border checkpoints are increased and the new port complex on Lantau Island boosts the costs of container movements. In these circumstances some deconcentration of container activity from Hong Kong may be desirable provided it could work in tandem with Shenzhen's ports.
In theory, airport facilities should be concentrated on the geographic centre of Guangzhou at the heart of the Pearl River Delta. This location would be related to the Superhighway and the emergence of a Guangdong-Hong Kong-Macau Megalopolis. Even if an argument for two airports - Guangdong and Hong Kong - could be sustained, the rush to meet the 1997 deadline is likely to produce costs that have been avoided by the judicious use of Shenzhen, and Macau. Indeed, a coordinated approach to airport planning may lead to a smaller airport in Hong Kong. There is nothing sacrosanct about the 1997 deadline - some engineers and bankers suggested that it was impractical anyway.

The 'hollowing out' of Hong Kong needs to be evaluated as part of a study of the overall development of the Pearl River Delta. Questions of finance, technicalities, scale of ports and airports, related transport infrastructure and urban development still need to be addressed. More attention needs to be given to the role of port and airport facilities within the context of an emerging East Asian Development Corridor stretching from Vladivostok to Hong Kong with a possible extension to Hanoi (Rimmer, 1990). Discussions on the effect of the diversion of containers from Hong Kong to Kaohsiung following a rapprochement between China and Taiwan are muted. The possibility of Singapore, located in a Southeast Asia Development Corridor running from Chiang Mai to Bali, playing a key role in siphoning-off transhipments has not been detailed. Yet Hong Kong appears to be at a competitive disadvantage compared with both Singapore and Kaohsiung. These potential challenges raise the question as to whether Hong Kong's strategic location, laissez faire policy, deepwater port facilities, and efficient cargo handling operations will be sufficient to withstand competition from its Asian rivals. Belatedly, Hong Kong's Port Development Council has been given the task of providing comparisons of the competitiveness of Hong Kong against other Asian hub ports by examining their respective price structures (Tam, 1990).

Also, little attention has been given to the second terminal and planned third terminal being developed at Changi Airport, Singapore; the expansion of Bangkok's Airport; and the addition of a second passenger terminal in Jakarta scheduled for opening in 1991 (AWAST, 1991). Little interest has been shown in the effects of the expansion of the New Tokyo International Airport at Narita, the new Kansai
Conclusions: Chinese PADS and East Asian PADS

Airport in Osaka and the planned airport in Seoul (see PADIU, 1990: 6). More importantly, scant consideration has been given to the prospect of direct flights between Mainland China and Taiwan which, according to the Study Group for Infrastructure Development (SGID, 1991a: 2.5), will account for a predicted 23 per cent of Hong Kong's passenger volume and 34 per cent of aircraft movements between 1992 and 1996. Yet Hong Kong's future as a regional transport hub under free enterprise for the next fifty years after 1997 will hinge on an East Asian Port and Airport Development Strategy.

Hong Kong, China: Fifty Years On

In 2047, when China's socialist system and policies can legitimately be practised in Hong Kong, will there be a new agenda? Will the Japanese ascendancy based on Tokyo as the centre of information technology hardware have succumbed to a new national system of innovation; will a new hub in south China, the Hong Kong-Shanghai-Taipei Triangle, have emerged - a hub based on information technology software and value added services; will the new hub draw on the skills of the Overseas Chinese living in extended metropolitan areas around the Pacific Rim; will the Trans-China Railway (TCR) traverse the entire country and link with the Trans-Siberian Railway and Europe; will Hong Kong, as suggested by Chu (1991), become, like Shanghai, a major port-rail terminal for this new route to Europe; will both ports draw cargo destined for Europe from Southeast Asia and Australasia; will London retain its importance as a supra-regional financial centre for the Overseas Chinese, thus matching San Francisco in North America? Or, will San Francisco's influence have waned following substantial investments by the Overseas Chinese in Vancouver?

Will Chep Lap Kok have exceeded its planned capacity; and will its role have changed due to the internationalisation of the United States' hub and spoke airport system? Instead of handling jet aircraft, will it be used as a spoke airport for tilt-rotor, vertical take-off and landing (VTOL) planes (Hoyt, 1990); will it have been superseded by a remote transfer wayport: a superhub using long-distance, high-speed trains or VTOL planes to provide local connections and located 160 km to 800 km outside the East Asian Development Corridor to avoid
environmental problems? Will this nascent superhub offer inter-continental connections on conventionally fuelled 747-XXX series subsonic aircraft or on the first generation of supersonic and hypersonic aircraft; and will the new superhub also become a global industrial complex in its own right through its facility in handling air cargo?

Responses to these issues will determine the future of Hong Kong, China, as a regional transport hub fifty years beyond 1997.
## APPENDIX A ANALYSIS OF RELEVANT HONG KONG GOVERNMENT REPORTS

<table>
<thead>
<tr>
<th>Title</th>
<th>Planning Period</th>
<th>Purpose</th>
<th>Source and Commentary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Territorial Development Strategy, July 1984 (updated 1986)</strong></td>
<td>To 2001</td>
<td>Long-term development strategy for five separate sub-regions which provided input for a model determining the optimal land use and transport networks. It incorporated sectoral studies covering such topics as the expansion of the Kwai Chung Container Terminal and the relocation of Kai Tai International Airport.</td>
<td>Choi, 1985, Eason, 1985, Pryor 1985</td>
</tr>
<tr>
<td><strong>Second Comprehensive Transport Study, May 1989</strong></td>
<td>To 2001</td>
<td>To project growth in transport demand and to evaluate transport infrastructure and policy proposals for coping with future needs.</td>
<td>Transport Department, Hong Kong Government, Wilbur Smith and Associates, 1989</td>
</tr>
<tr>
<td><strong>PADS: Gateway to New Opportunities, Hong Kong’s Port and Airport Development Strategy, October 1989</strong></td>
<td>To 2011</td>
<td>Port and infrastructure strategies designed to meet demand forecasts. They include: an expansion of port facilities; the relocation of the Hong Kong International Airport from Kai Tak to Chep Lap Kok; new roads and an Airport Railway; and the development of new settlements.</td>
<td>Hong Kong Strategic Planning Unit, Lands and Works Branch, 1989</td>
</tr>
<tr>
<td><strong>Moving into the Twenty-first Century: The White Paper on Transport Policy, January 1990</strong></td>
<td>To 2001</td>
<td>It identified the major factors affecting the strategy for the development of transport infrastructure, including the expansion of port facilities; the relocation of the airport to Chep Lap Kok; and increased cross-border traffic.</td>
<td>Transport Branch 1990</td>
</tr>
<tr>
<td><strong>METROPLAN: The Foundations and Framework</strong></td>
<td></td>
<td>A sub-regional plan for the metropolitan area of Hong Kong which covers Hong Kong Island, Kowloon, New Kowloon and the new town of Kwai Chung-Tsuen Wan.</td>
<td>Planning and Environment Branch 1990</td>
</tr>
</tbody>
</table>
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After the reversion of Hong Kong to China in 1997, will the port maintain its commanding position in the worldwide operation, ownership and management of container shipping; will its airport remain as a major focal point in the global aviation network linking East Asia with the North American and European economic blocks; will the location of the associated transport infrastructure be able to accommodate the changed situation; and will the linked urban developments made with respect to Hong Kong’s past settlement patterns and existing political boundaries be suitable? Above all, how will its Port and Airport Development Strategy (PADS) affect economic and political relations between Hong Kong and China? Will Hong Kong be able to maintain its competitive advantage into the twenty-first century, which will be dominated by ‘time-based’ competition (i.e., ‘just-in-time delivery’, minimal inventories and faster turnaround of capital)? Resolution of these issues will determine Hong Kong’s future as a regional transport hub.

Before considering PADS, this monograph reviews relevant aspects of Hong Kong’s economy underpinning its transformation from an entrepôt into a regional transport hub. With this background, it addresses the key issues by distilling PADS into its separate components and examining each in turn: port expansion, airport relocation, land transport infrastructure, and implications for urban development. Initially, it explores each component’s past developments and new proposals before evaluating criticisms of aspects of the strategy. Then it assesses the degree to which the recommendations complement or duplicate developments in the Pearl River Delta and southern China. After these analyses the monograph repacks PADS and discusses its intertwined economic and political aspects, with reference to the respective roles of the Hong Kong, Chinese and British governments. Finally, it draws conclusions about Hong Kong’s likely future as a regional transport hub.