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香港理工大學



Construction Industry Institute
HONG KONG

Final Report
of the
Construction Industry Institute, Hong Kong
Research Project on
Reinventing the Hong Kong Construction Industry
for its Sustainable Development

THE UNIVERSITY OF HONG KONG
AND
THE HONG KONG POLYTECHNIC UNIVERSITY

Research Team:

Project Team Leaders:

Professor Chack-fan Lee
Professor Andrew N. Baldwin

Research Manager

Dr. James M.W. Wong

Project Coordinators:

Dr. S. Thomas Ng
Professor Albert P.C. Chan

Research Assistants

Ms. Joyce W.S. Cheung
Ms. Joanne W.S. Ng
Mr. Ryan Y.C. Fan

Team Members:

Dr. Y.H. Chiang
Professor Mohan M. Kumaraswamy
Dr. Patrick T.I. Lam
Ir Peter K.K. Lee

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Task Force Member	Position	Organisation
Ir Raymond T.K. CHEUNG (Task Force Chairman)	Chairman of Executive Board	Construction Industry Institute, Hong Kong
Mr. Kam-ling CHAN	Chief Executive Officer, Director	NWS Holdings Ltd.
Mr. Lawrence Y.K. CHOI	Vice Chairman	Shui On Construction & Materials Ltd.
Mr. Thomas O.S. HO	Chief Executive	Gammon Construction Ltd.
Mr. M.L. KU	Consultant	Davis Langdon & Seah HK Ltd.
Ir Henry H.C. LAM	General Manager – Project	MTR Corporation
Mr. Wo-hei LAM	Director	Wong & Ouyang (HK) Ltd.
Mr. Chi-keung LAU	Former General Manager Former Executive Director	Henderson Land Development Co. Ltd. Henderson Investment Ltd.
Mr. Edward C. PONG	Executive Director	Shiu Wing Steel Ltd.
Ir Otto L.T. POON	Managing Director	ATAL Engineering Ltd.
Ir Vincent W.S. TONG	Executive Board Member Former Deputy Director	Construction Industry Institute – Hong Kong Hong Kong Housing Authority, HKSAR
Mr. Robert TSOI	General Manager	Sun Hung Kai Properties Ltd.
Prof. Conrad WONG	Vice Chairman President	Yau Lee Holdings Ltd. The Hong Kong Construction Association Ltd.
Dr. Nicolas S.Y. YEUNG	Convener and Director	Construction Industry Institute, Hong Kong
Mr. C.N. YIP	Executive Director	China State Construction Engineering (HK) Ltd.

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Mr. Stephen FONG	Swire Properties
Ms. Ada FUNG	Hong Kong Housing Authority
Mr. Daniel HO	Urban Renewal Authority
Mr. Keith KERR	Construction Industry Council
Mr. Michael KONG	Hong Kong Trade Development Council
Mr. K.C. LAM	Development Bureau
Ms. Linda LAI	(Commerce and Economic Development Bureau
Mr. Stephen LEE	Shui On Construction Co. Ltd.
Ir C.K. MAK	Development Bureau
Mr. K.H. TAO	Development Bureau
Mr. Billy WONG	Henderson Land Development Co. Ltd.
Ms. Iris WONG	Hong Kong Trade Development Council

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EXECUTIVE SUMMARY

A. Background and Objectives of Study

1. The construction industry has long been serving as a powerful engine for economic growth in Hong Kong. However, following the Asian economic turmoil in late-1997, the industry experienced a drastic reduction in workloads and a change in market structure.
2. To address the challenges facing ahead, a research study entitled “**Re-Inventing the Construction Industry of Hong Kong for its Sustainable Development**” (the RICH project) was commissioned jointly by the Construction Industry Institute, Hong Kong (CII-HK), and implemented by The University of Hong Kong and The Hong Kong Polytechnic University.
3. The research aims to identify available opportunities and the way forward for various construction stakeholders to reinvent the construction industry of Hong Kong in a sustainable manner. The objectives of this study are to: (i) review the development of the local construction industry; (ii) explore strategies to ‘reinvent’ or revitalise construction industries in advanced countries; (iii) identify opportunities and strategies for the industry’s sustainable development; and (iv) confirm the feasibility of the identified opportunities and strategies.
4. Data is collected through (i) extensive literature review; (ii) official statistical reports; (iii) semi-structured interviews; (iv) focus group meetings; (v) questionnaire survey; (v) expert forum; and (vi) validation interviews. Three prominent scholars participated in the expert forum and interacted with various construction stakeholders in order to identify a list of feasible and practicable strategies for the construction industry to move forward.

B. Review of the Hong Kong Construction Industry

5. The Hong Kong construction industry produced a total gross value of work of nearly HK\$90 billion in 2006 in nominal terms, accounting for around 5.5 percent of total local GDP. The gross value of investment in construction activities was 28 percent of total fixed capital formation in 2006. During the second quarter of 2007, the construction industry in Hong Kong employed more than 270,000 people, representing almost 8 percent of the total labour force indicating its importance to the local economy.
6. The total construction volume in Hong Kong has been declining since its peak in 1997 primarily due to the Asian financial turmoil and its aftermaths. After discounting for price differences, the total construction output in Hong Kong shrank from HK\$139 billion in 1997 to HK\$96 billion in 2006 in real terms, which is only approximately 65 percent of the peak volume. Both the public and private sectors followed a declining pattern subsequent to the financial crisis as the public housing programme was scaled back and there were fewer large-scale infrastructure projects and private building developments.
7. The gross value of repair and maintenance work, however, reached HK\$48.3 billion contributing to over 53.6 percent of the total construction market in 2006, i.e. up by 72.3 percent in real terms over 1995. This is partly due to the increasing number of ageing buildings and hence the needs for repair and maintain them in good shape.
8. With the substantial decline in new orders, the construction industry has been undergoing a consolidation process in recent years. Weaker players were eliminated under the competitive business environment. Many construction stakeholders have also already downsized their organisation; increased the proportion of outsourcing, participated in projects outside the territory (e.g. Macau and Mainland China); and diversified their portfolio into other business units.

9. The competitive advantages and weaknesses of the Hong Kong construction industry were identified through a series of semi-structured interviews, focus group meetings and a questionnaire survey. The competitive advantages of the industry are perceived to be its: (i) experience in high-rise building and prefabrication; (ii) project management skill; (iii) high end-product quality; and (iv) great flexibility. Perceived weaknesses of the industry are: (i) inadequate support from the government; (ii) lack of industry-specific forward planning; (iii) sluggish technological advancement; and (iv) slow acceptance of innovative ideas.

10. In 2001, the Construction Industry Review Committee (CIRC) recommended 109 improvement measures to uplift the quality and cost-effectiveness of the industry. Through the joint efforts of the government and the industry, substantial progress has been achieved on the recommendations including the formation of the Construction Industry Council, improvement on construction safety, subcontracting management and worker registration. Some industry practitioners considered, however, that the effectiveness and the impact of CIRC's report to the industry are limited, suggesting that the industry still has much room to improve. For instance, the implementation of non-adversarial procurement approaches; public private partnerships; safety and technology improvement; market insurance mechanism; and more extensive use of prefabrication to improve quality and to reduce wastage.

C. Lessons Learnt from Overseas Countries

11. The construction industry of some advanced industrialised countries has also undergone the adjustment period after maturity. The lessons learnt by these countries would be valuable to the Hong Kong construction industry. Strategies adopted, at the government level and industry level, to support the recovery of construction industries were identified by means of an extensive literature review and overseas study tours to Australia, Japan, Singapore, South Korea and the United Kingdom (UK).

12. Various government policies adopted in some developed economies to reinvent the construction industry which included (i) increase in publicly funded projects; (ii) strategic planning and reforms; (iii) regulating the market; (iv) incentive schemes; (v) initiating and driving industry reforms; (vi) continual education and research; (vii) regulating tender and procurement practice; and (viii) exporting services support.
13. Long-term forward planning for the construction industry is prevailing in advanced countries as government recognises the importance of the industry's role in the economy development of a country. The Office of Government Commerce (OGC) in the UK, for instance, adopts a dynamic model of the construction sector at the macro level to assist government to analyse the potential impact on construction demand and supply caused by major public sector construction investment programmes. The Australian government develops strategic plans for the next 30 years, and closely monitored the manpower planning, technical planning, capability and capitalisation across the country.
14. To help revitalise the construction industry by initiating new infrastructure and housing programmes, the South Korean and Singaporean governments have also promoted their industries to emerging international markets during recessions in their own countries. The Korean government organised visits and meetings with those of other countries to promote the Korean construction industry. The Singaporean government, on the other hand, reached out to the Middle East and second tier Mainland China cities to showcase her construction industry works.
15. At the industry level, key initiatives during construction downturn included (i) forming joint ventures/merger/acquire; (ii) adopting alternative procurement approach; (iii) adapting to the repair and maintenance sector; (iv) encouraging further education; (v) diversification into other business; (vi) company restructure; (vii) exploring the international market; and (viii) forming industry commissions and research groups.

16. Japanese small and medium contractors have formed alliances to share resources and complement skills. In the past, the big Japanese contractors formed joint ventures with smaller contractors to facilitate technological transfer. However, the recent trend is towards forming alliances among similar size contractors to enable more workable co-operation and develop new technologies or organisational modes to enter the urban renewal market.
17. Construction firms in South Korea ventured overseas during the recession in 1997 including the Middle East and North Africa. Small and medium contractors also went overseas as homebuilders in China, Vietnam, Russia, and Pakistan. While risk could be high for overseas projects due to the differences in legislative requirement and practices, overseas markets have provided good opportunities for survival and further expansion for the Korean construction-related companies.
18. Singapore construction companies downsized and diversified their business during construction downturn. Firms have been actively seeking opportunities in such countries as India, Vietnam and Mainland China. Value chain consortia business model was promoted to seek job opportunities in the international market. The industry has invested in innovations in order to sharpen its competitive edge in the international market.

D. Future Opportunities in Construction

Local Market

19. Following a long hibernation period, the Hong Kong construction industry shall be able to recover strongly as the HKSAR Government has determined to revitalise the economy by promoting infrastructure development as reflected in the Chief Executive's 2007-08 Policy Address. Mr. Donald Tsang envisages a "progressive development" concept in the Policy Address and pushes ahead 10 large-scale infrastructure projects in order to consolidate Hong Kong's status as a global city and lay a new foundation of sustained development in the future. An estimation of the added value to the local economy brought about by these projects would be more than HK\$100 billion annually, amounting to some 7

percent of the Hong Kong's GDP in 2006 price. Over 250,000 additional jobs will also be created consequently. Most of the interviewees also envisage a stable growth of the Hong Kong construction industry in the foreseeable future. However, the adverse impact of the recent financial to the local construction industry is still uncertain.

20. Although the forecast completion rate of residential units in the ensuing two years tends to be low, housing demand is expected to increase in the long-run due to the expanding population, which is estimated to reach 8.6 million in 2036, improving living standard and changing household formation. Suitable development areas to accommodate the growth needs include new development areas in rural New Territories as mentioned in the Chief Executive's 2007-08 Policy Address.
21. The local population is expected to follow a continuous ageing trend. The percentage of those reaching the age of 65 or above is projected to increase from 12 percent in 2006 to 26 percent in 2036, representing an increase from 0.85 million in 2006 to 2.26 million elderly population. Correspondingly, the median age would rise from 39.6 in 2006 to 46.1 in 2036. The Transport and Housing Bureau has also assessed that elderly housing are required for 73,000 households each year from 1999/2000 to 2008/09. Hence, the provision of public housing and community facilities to support the ageing population is needed which shall create substantial work for the local construction industry.
22. Hong Kong's role as an international financial centre and the "gateway to China" is expected to be maintained. Accounting for the local and regional economic growth, population trend, persons engaged in different employment sectors as well as broad assumptions for worker density, the demand for office and commercial properties should be strong in the long-run. It is estimated that the demand for economic floor space between 2010 and 2030 will be over ten million square meters. Yet again, the significant downturn of the current global economic climate and the volatile financial sector may affect the demand of office rents.

23. An apparent increasing stock of ageing buildings along with the government's building management and maintenance schemes initiated by the Buildings Department, Hong Kong Housing Authority, Hong Kong Housing Society and Urban Renewal Authority, the repair and maintenance sector will become an important market for various local industry stakeholders in the foreseeable future.

International Market

24. The intra economic situation may not adequately sustain the local construction industry in the long-run, many construction-related companies worldwide have capitalised on their competitive edges and expanded their business in overseas markets not just to overcome the diminishing construction volume in their countries but also to enjoy a constant growth in turnover and revenue in other countries which prosper.
25. Investment in infrastructure developments is a key element of China's Tenth and Eleventh Five Year Plan (2001-2010), with a special focus on roads, rail systems, ports, airports and energy generation projects. With the advantage of strategic geographic location *vis-a-vis* Mainland China Infrastructure projects, housing development and facility management in the "second-tier cities" in China will also provide golden opportunities for the Hong Kong construction-related companies. Possibility of investing in the real estate market, and providing architectural, engineering, surveying and construction services especially in (i) investment and capital acquisition; (ii) building design/inspection; (iii) development project proposals in low cost housing projects; and (iv) property and facilities management shall be explored.
26. Currently, contractors in Hong Kong have limited involvement in the China market as they do not possess competitive edges in pricing and technology over and above the local contractors. 'Indigenous law and regulations', 'bureaucratic procedures' and 'local conditions and circumstances' are identified as the major obstacles to penetrate into the Chinese construction market.

27. The gaming industry being recognised as one of the pillars of Macau's economy may continue to provide some opportunities for Hong Kong construction-related firms. The construction volume in Macau has been increasing significantly since 2003, reaching nearly MOP \$8 billion and representing 8.6 percent of its GDP in 2005. Launching cross-border projects together with the local government's investment and the flourishing tourism industry will continue to stimulate demand and created plenty of opportunities in the construction sector for short to medium term. However, the prospect of the Macau's construction market is uncertain in a few years following the completion of casinos, hotels and infrastructure projects.
28. Fuelled global and local economic growth, favourable demographic fundamentals, growing commercial prominence, and booming tourism have led to an unprecedented construction demand in the Middle East, particularly in the United Arab Emirates and Saudi Arabia. The markets in the Gulf region provide opportunities for the Hong Kong construction-related companies especially in providing the architectural, engineering, surveying and construction services, as well as supplying quality building materials, furniture and interior products.

E. Strategic Directions for Sustainable Development of the Hong Kong Construction Industry

29. A set of strategic directions and the way forward are proposed, based on the collective views of experts from the industry stakeholders as to how to develop the Hong Kong's construction industry in a sustainable manner. The proposed strategies are underpinned by a three-tier hierarchy namely: (i) vision; (ii) planning and coordination; and (iii) implementation.
30. A long-term vision specific for the Hong Kong construction industry shall be formulated by the Chief Executive after consulting relevant bureaux, organisations and the society. Extensive consultations with various industry practitioners are imperative before developing the vision and policy so as to position the industry correctly.

31. A centralised planning body shall be set up to strategically plan and coordinate the future construction work in a sustainable manner. As a significant economic sector contributed to the general economy and labour market, a SUSTAINABLE LEVEL OF CONSTRUCTION VOLUME is essentially imperative to the stable economic and social development of the local economy. Anticipating the revitalising of the construction industry in Hong Kong, planning of various resources and skills to match the future market demand is also considered timely and crucial.
32. Knowledge of the future demand as well as the industry's capacity for products and services is vital in maintaining a sustainable development of the industry for formulating viable industry policy, corporate strategy and business plan. Econometric models shall be developed to predict the medium-term demand for construction in Hong Kong, while vision-based, non-econometric approaches based on international experiences should be formulated for longer-term forecasts.
33. At the implementation level, the Government of the HKSAR is encouraged to sustain the construction output for a steady growth of a healthy industry, particularly on the essential infrastructure development, community facilities, urban regeneration projects and housing programmes for the expanding and ageing population, in order to meet the needs of the society, generate employment opportunities, and more importantly, preserve the skill sets and knowledge of the Hong Kong construction industry. Streamlining the legal procedures and working hand-in-hand with members of Legislative Council and District Council, as well as various social groups, political parties and the community at large during the consultation process are desirable for future public capital work.
34. After the recent transformations and changes in competition environment of the Hong Kong construction industry, timely diversification and appropriate adjustments in business model are needed. The trends of local construction volume have already shifted from capital investment to repair, maintenance, alteration and addition works, urban renewal and heritage construction.

Sustainability is another important focus where the construction industry has shifted to, including energy saving/efficiency, waste management, sustainable construction methods, etc.

35. With intense competition in construction services, various industry stakeholders should continuously strive to sharpen their competitive edges so as to stay ahead of their competitors from around the world. Speciality and niche expertise in certain unique areas are crucial if they were to compete locally and internationally. Competitiveness enhancement especially on technological and managerial aspects is essential. Through the 10 large-scale infrastructure projects, local construction companies profile and competitiveness can be substantially promoted and they should capitalise this added knowledge and experience to develop an appropriate platform for technology transfer. In addition, multi-directional alliancing in the form of joint venture / partnership / merger and acquisition / consortia throughout the entire supply chain is highly desirable in order to enhance companies' market capacity and competitiveness.
36. A sustainable future for the construction industry shall also be built upon export of construction expertise and acquisition of the capacity required. Developing towards the high-end market and teaming up with local partners are considered as critical in exploring overseas market. The HKSAR Government is urged to support the construction services sector by improving the platform for cooperation with construction stakeholders in overseas countries and offering export credit / export credit insurance.

F. Significance of the Study

37. This research has comprehensively reviewed on the economic status, market structure and competitiveness of the Hong Kong construction industry. Through this study, construction stakeholders should have a better appreciation of the implications regarding the prevailing market conditions as well as future opportunities available. With this information, everyone could capitalise on its strengths and prioritise the identified opportunities to achieve a sustainable growth. More importantly, the results of the study provide the industry with

pointer to, and indicators of potential niche markets in the immediate term, while serving as a source of reference for policy-makers when formulating medium to long terms development strategies for promoting sustainable development of the Hong Kong construction industry.

38. With the announcement of the 10 large-scale infrastructure projects and a strong growth in local economy, the construction industry has eventually shown a sign of recovery. The next question the construction industry shall focus on is whether there are sufficient resources to cope with the increasing construction volume in Hong Kong as well as the opportunities in Mainland China and other overseas countries. The recommendations for formulating a long-term vision to sustain construction development in Hong Kong should retain manpower and professionals i.e. the core competency of the industry. Nevertheless, further research into the development of a series of comprehensive and reliable forecasting models to predict the short to medium terms overall and sectoral construction volume is imperative as this should provide crucial clues about prospective construction manpower demand at various levels so that suitable plans for education and training can be put forward to ensure a stable supply of construction manpower and professionals in future.

G. Major Limitation of this Study

39. This study commenced on 1 October 2006 and completed by the end of 2007. Therefore, the research was based on the opinions of experts and market condition during that period of time, and the findings would have ignored the impacts of the recent financial tsunami.

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ABBREVIATIONS

AIC	Advanced Industrialised Countries
BCA	Building and Construction Authority
BD	Buildings Department
BOT	Build-Operate-Transfer
BTL	Build-Transfer-Lease
CBD	Central Business District
CEDB	Commerce and Economic Development Bureau
CEPA	Closer Economic Partnership Arrangement
CERIK	Construction and Economy Research Institute of Korea (South Korea)
CIC	Construction Industry Council
CII-HK	Construction Industry Institute, Hong Kong
CIRC	Construction Industry Review Committee
CITA	Construction Industry Training Authority
CITB	Construction Industry Training Board (Australia)
C&SD	Census and Statistics Department
DEVB	Development Bureau
ETWB	Environment, Transport and Works Bureau
GDP	Gross Domestic Product
GNP	Gross National Product
GST	Goods and Services Tax
HDB	Housing and Development Board (Singapore)
HKHA	Hong Kong Housing Authority
HKHS	Hong Kong Housing Society
HKSAR	Hong Kong Special Administration Region
IVS	Individual Visit Scheme
KICT	Korea Institute of Construction Technology (South Korea)
LDC	Less Developed Countries
MOU	Memorandum of Understanding
MTRC	Mass Transit Railway Corporation Limited
NDAs	New Development Areas
NIC	Newly Industrialised Countries

ODA	Official Development Assistance (Japan)
OGC	The Office of Government Commerce (UK)
PCICB	Provisional Construction Industry Coordination Board
PFI	Private Finance Initiative
PPP	Public Private Partnership
PRD	Pearl River Delta
R&VD	Rating and Valuation Department
SMEs	Small & Medium Enterprises
TDC	Trade Development Council
UAE	United Arab Emirates
UK	United Kingdom
URA	Urban Renewal Authority
US	United States
WKCD	West Kowloon Cultural District

CHAPTER 1 INTRODUCTION

- 1.1 Background
 - 1.2 Aims and Objectives of the Research
 - 1.3 Research Approach
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CHAPTER 1 INTRODUCTION

1.1 Background

The Hong Kong construction industry plays an important role in meeting the expanding needs of the community. The output of local construction has made possible the remarkable social and economic transformation of our society by providing a better living environment and making notable contributions to the advancement of the community as a whole (CIRC, 2001). In the 1990s, the industry's contribution to Gross Domestic Product (GDP) in percentage terms ranged from 4.6 to 5.7 percent. It also represented approximately 40 percent of the gross domestic fixed capital formation. At its peak in 1997, the industry had over 19,000 construction-related establishments and absorbed around 9 percent of the local labour force, indicating the importance of the construction industry as a backbone of the local economy.

The potential for high profits attracted unprecedented level of investments in the property sector resulting in a superfluous supply of residential and commercial properties in the years leading to 1997. Together with the domino effect of the Asian economic turmoil, the surge in both private and public residential supply towards the end of the last millennium have brought down the property price by almost 60 percent in 2003 compared to its peak in 1997. The collapse of property market led to a sharp decline in new construction orders including those from the public sector. The impacts have been propagated throughout all levels of the construction supply chain. On reflection, there were lessons that the industry could have learnt from this bitter experience. It appears that a lack of critical review, foresight, planning and control has contributed to an imbalanced industry development.

Nevertheless, some construction stakeholders have been able to grasp the opportunity and export their expertise particularly to Mainland China and Macau, having seized the opportunities of her rapid economic growth and liberalisation of markets. There is also a shift of focus from capital investment to repair and maintenance works. Although there is sign of short-term relief, the needs for identifying a clearer direction for the construction industry of Hong Kong is imperative as the development of the industry cannot simply rely on exporting services or directing all our resources to a particular type of work without any thorough analysis, plan and control. Otherwise, it would be difficult if not impossible to sustain the development of the industry and a consistent growth of the local economy.

It is usual for the construction industry in Hong Kong to take eight to ten years to recover from a cyclical trough. There are signs indicating that the in construction demand has already come out from the gloom. Besides, there are a number of deficiencies within the construction supply chain which call for a radical rethink of a better framework to improve its efficiency and an identification of a more sustainable source of work. Construction stakeholders should be preparing for the next challenge. Instead of looking for opportunity to recoup their losses over the last few years, they should ensure that the industry could sustain the next shock wave through a better planning and control regime as well as the introduction of good practices. Without such an initiative, it is possible that the construction industry may suffer irrevocably.

Consequently, the Construction Industry Institute, Hong Kong (CII-HK) has commissioned The University of Hong Kong (HKU) and The Hong Kong Polytechnic University (HKPU) to conduct an imperative research study entitled “**Re-Inventing the Construction Industry of Hong Kong for its Sustainable Development**” (the RICH project). The research attempts to put forward a package of strategic directions and recommended measures to reinvent the construction industry of Hong Kong to attain a more sustainable future.

1.2 Aims and objectives of the research

The aim of this investigation is to identify available opportunities and the way forward for various construction stakeholders to develop the construction industry of Hong Kong in a sustainable manner. The research is executed in several inter-related stages. The objectives of this study include:

- i) To review the development of the local construction industry and identify the key factors contributing to the present status of the construction industry in Hong Kong;
- ii) To explore the ways in which the construction industry of advanced countries reacted and adjusted during periods of construction recession;
- iii) To identify available opportunities and possible options in response to the prevailing market conditions and regional development trends; and
- iv) To confirm with construction stakeholders the feasibility of the identified strategies and their potential values in promoting a more balanced and sustainable industry.

1.3 Research approach

To achieve the objectives set, the following research methodology has been adopted. Detailed research methods are presented in Chapter Two.

- (a) Literature on construction industry development as well as strategies for recovering from construction recession in advanced countries are extensively reviewed, including books, research reports, journals, proceedings from conferences, websites and other sources.
- (b) Local construction output data and other relevant official statistics are collected to critically assess the development and current status of the Hong

Kong construction industry. Data to derive alternative scenarios of the future construction workloads in Hong Kong and potential international construction markets is also collected.

- (c) Semi-structured interviews and focus group meetings are held with various stakeholders to further review the Hong Kong construction industry and explore opportunities in response to the prevailing market conditions and regional development trend.
- (d) Two-round of questionnaire surveys are administered to (i) assess the status and edges of the Hong Kong construction industry and solicit views, reasons, considerations and future expectations with regard to the overseas construction market; and (ii) verify and prioritise the identified strategies to achieve a sustainable development for the industry.
- (e) Study tours to Australia, Dubai, Japan, Singapore, South Korea, and the United Kingdom (UK) are conducted to review how the construction industry of other advanced countries reacted and adjusted during periods of construction recession and to explore opportunities for sustainable development of the construction industry.
- (f) An expert forum, facilitated by prominent scholars, is organised to establish the feasibility, impact, suitability and priority of the identified opportunities and strategic directions for the industry to develop in a sustainable manner.
- (g) A validation exercise is conducted, via a cross-sectional study involving a spectrum of construction experts, to confirm the relevancy and significance of the proposed strategies.

1.4 Structure of the report

The report is composed of seven chapters. This introductory chapter provides background of research, states the aim and objectives of the research and outlines the overall research approach.

Chapter Two explains the methodology adopted for the research. The research framework and approaches employed to achieve the individual research objectives are depicted.

Chapter Three reviews the economic performance, market structure and past patterns of construction demand and employment of the Hong Kong construction industry. Particularly, the competitive advantages and weaknesses of the industry are examined. A brief review of the Construction Industry Review Committee's (CIRC) recommendations is also presented.

Chapter Four focuses on the lessons learnt from other advanced countries, including Australia, Japan, Singapore, South Korea, and the UK. It explores how the industry stakeholders and government of these countries coped with the recession to sustain and reinvent the construction sector.

Chapter Five presents the future market opportunities, both within and outside the territory, for various construction stakeholders in Hong Kong. Concerns, interests and options of the government, private developers, consultants, contractors, subcontractors and suppliers are identified for the construction industry to move forward.

Chapter Six, based on the key research findings, recommends the strategic directions for the construction industry at the policy, planning and implementation levels. Proposed measures with implementation plans are put forward to facilitate the sustainable development of the Hong Kong construction industry.

Chapter Seven summaries the major findings derived from the research. Recommendations for further research are also provided.

CHAPTER 2 RESEARCH METHODOLOGY

2.1 Introduction

The Hong Kong construction industry has experienced a hibernating period as a result of the mature economy and overbuilding in the recent past. To reinvent the construction industry for a more sustainable development, various research methods have been applied to achieve the objectives set for this study. Both qualitative and quantitative analytical methods are adopted and to identify the strategic directions for the Hong Kong construction industry.

2.2 Overall research framework

To achieve the stated research objectives, this study is undertaken in two main phases as graphically shown in Figure 2.1: (i) reviewing the Hong Kong construction industry and exploring strategies in advanced countries to reinvent the industry; and (ii) identifying opportunities and formulating strategies for a sustainable development of the industry.

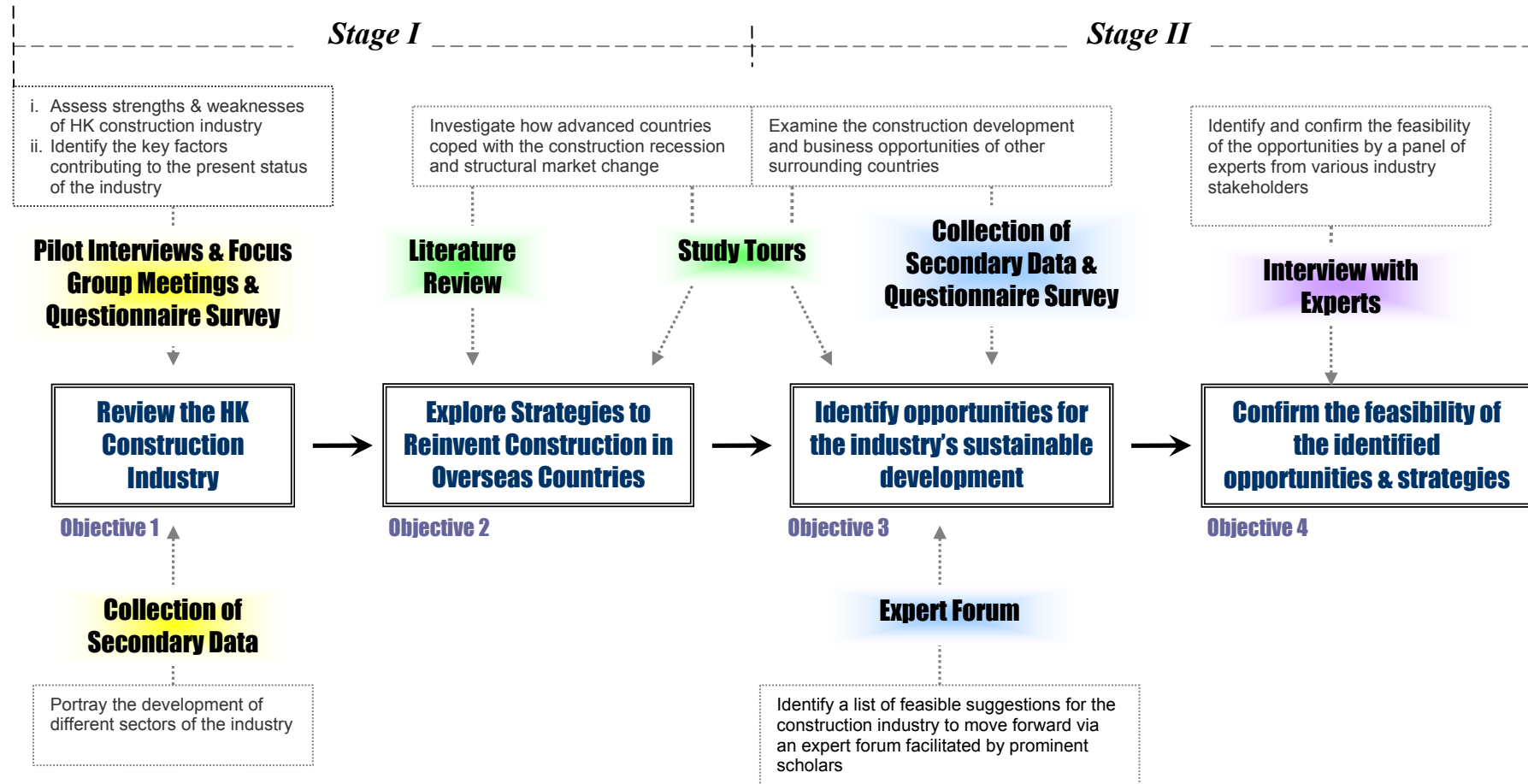


Figure 2.1 Research methodology

The study combines the use of analyses on secondary data, questionnaire surveys, semi-structured interviews, focus group meetings and study tours to collect relevant information and research data. The triangulation of primary and secondary data enables an understanding of the current state of the construction industry and contributes to the formulation of strategic directions for its sustainable development.

Literature on construction industry development and overseas experience in tackling structural change in construction has been extensively reviewed. The sources of reference include books, journals, magazines, newsletters, government reports, proceedings from conferences, workshops, seminars, websites and other sources. Past and current performance of the local construction industry has been documented. The outcomes of literature review exercise forms a crucial basis for the development of instruments to conduct the interviews, focus group meetings and questionnaires for achieving the stipulated objectives.

Based on the findings of the literature review and the identified opportunities from various construction stakeholders, a list of feasible suggestions has been drawn up, evaluated and validated via an expert forum, a second-round questionnaire survey and interviews. The information collected from the interviews, questionnaire surveys, focus group meetings and study tours are fully documented individually. This study also consists of three formal meetings with the research task force to integrate the experts' views for verifying and fine-tuning the identified strategies for the construction industry.

2.3 Research methodology

Specific methods adopted in accomplishing the research objectives are summarised in Table 2.1.

Research Objectives	Research Methods Adopted
1. Review the HK Construction Industry	i. Desk research
	ii. Semi-structured interviews
	iii. Focus group meetings
	iv. Questionnaire survey
2. Learn from the construction industry in overseas countries	i. Literature review
	ii. Study tours to: Australia Japan Singapore South Korea UK
3. Identify opportunities for the industry's sustainable development	i. Desk research
	ii. Semi-structured interviews
	iii. Expert forum
	iv. Study tours (as above and Dubai)
4. Confirm the feasibility of the opportunities and strategies	i. Interviews with experienced practitioners
	ii. Questionnaire survey

Table 2.1 Research methods adopted for this project

Objective 1 – Review the Hong Kong construction industry

Secondary data over the past 25 years from the Census and Statistics Department (C&SD) and various sources was collected to unveil various aspects of the construction industry in Hong Kong. To assess the strengths, weaknesses, opportunities and threats facing the Hong Kong construction industry, a total of 14 semi-structured interviews (see Appendix I for the interview protocol and Appendix II for interview reports) were conducted between November 2006 and February 2007 with various stakeholders including the private developers, consultants, contractors, subcontractors, trade specialists, suppliers, and government officials. Factors contributing to an excessively long hibernation period in various forms of construction activities were examined through the interviews. Available opportunities and options in response to the prevailing market conditions and regional development trend are also explored.

Two focus group meetings, i.e. one for clients, publicly listed contractors and consultants; and the other for small and medium contractors, sub-contractors, trade specialists and suppliers (see Appendix III) involving 25 senior practitioners, were conducted to further ascertain the peculiar situation of the Hong Kong construction

industry and identify measures to reinvent the industry. Summaries of the meetings are recorded in Appendix IV. Results derived from the interviews and focus group meetings were cross-referenced and made complementary to each other.

Based on the findings obtained from the semi-structured interviews and focus group meetings, a questionnaire survey was developed to evaluate the status of the Hong Kong construction industry and to solicit views, reasons, considerations and future expectations with regard to overseas construction markets. The questionnaire was pilot tested during the focus group meetings (Appendix V) and fine-tuned subsequently to acquire extensive views from the industry (Appendix VI). The skeleton of the questionnaire covers: i) review of the Hong Kong construction industry; ii) responses to the prevailing market situations; iii) international construction market; iv) opportunities of the future construction markets; v) critical success factors for operating in overseas construction markets; and vi) review of the CIRC's recommendations. Over 500 questionnaires were distributed to the industry practitioners through the CII-HK taskforce and memberships. A total of 58 responses were received by April 2007. Focus group meetings and questionnaire survey served as effective means to collect a vast amount of information from a group of participants to supplement the findings from interviews and desk research.

Objective 2 – Explore strategies to reinvent construction in overseas countries

A decline in construction volume is not unprecedented. Similar to Hong Kong, the construction industries of many advanced countries have gone through a long adjustment period in the past. The experience and lessons learnt by these countries would be extremely useful to Hong Kong. An extensive review of literature was therefore carried out to identify the strategies our counterparts adopted in recovering from construction recession in the advanced countries.

In order to further acquire reliable and in-depth findings, study tours to the advanced countries including Australia, Japan, Singapore, South Korea, and the UK were organised between January and August 2007 to review how the construction industry of these countries reacted and adjusted during the periods of construction recession, and to explore opportunities for a sustainable development of the construction industry (see Appendix VII for the interview protocol and Appendix VIII for interview

reports of the study tours). 31 interviews, engaging 47 industry experts, academics and government officials in total, were carried out in these countries. The findings of the literature review and interviews combined to form an important basis for formulating strategic directions for a sustainable development of the Hong Kong construction industry. Additionally, copies of relevant materials including the research reports, official government documents, textbooks as well as website materials were obtained as secondary source of evidence to support primary opinions and information gleaned during the interviews.

Objective 3 – Identify opportunities for the industry's sustainable development

Knowing the future opportunities within and outside the territory would undoubtedly enable construction stakeholders to prepare themselves for the changes. To accomplish this, the economic and construction development in the local context and in neighbouring Asian and Middle East countries were firstly examined. In particular, the growing economy in Middle East countries has provided job opportunities to many Hong Kong construction stakeholders. Hence, an additional study tour to Dubai was conducted to evaluate the economic status, indigenous construction market situation, risk and barriers for working in Dubai (see Appendix IX for the interview protocol and Appendix X for interview reports of the Dubai study tour).

Data to assess alternative scenarios of the future construction workloads in Hong Kong were collected from the Development Bureau (DEVB), Hong Kong Housing Authority (HKHA), C&SD, Buildings Department (BD), Rating and Valuation Department (R&VD), Trade Development Council (TDC), Urban Renewal Authority (URA), and other relevant organisations. To take the interests of various stakeholders into account, the aforementioned interviews and questionnaire were also designed to solicit opinions from different levels of the supply chain to identify the available opportunities and options in response to the prevailing market conditions and regional development trend.

In addition, an expert forum was conducted on 2 June 2007 to identify the concerns, interests and options of the government, developers, consultants, contractors, subcontractors and suppliers (see Appendix XI for details). The expert forum enables a panel of experts to provide their professional judgement and opinions on the specific

subject areas. Three renowned international scholars in construction management and economics: (i) Professor Roger Flanagan from the University of Reading, UK; (ii) Professor George Ofori from the National University of Singapore; and (iii) Professor Göran Runeson from the University of Technology Sydney, Australia were invited to share their experience and facilitate the expert forum and interact with various construction stakeholders in order to identify a list of feasible and practicable suggestions to achieve a sustainable growth of the industry. A pre-forum discussion was arranged to allow the invited scholars and the research team to discuss the preliminary research findings and formulate strategies for the expert forum. A post-forum discussion involving the invited scholars, core Task Force members and the research team was also organised to establish the feasibility, impact, suitability and priority of the identified opportunities and options.

Objective 4 – Confirm the feasibility of the identified opportunities and strategies

The findings of this study could bring a substantial impact to the development of the Hong Kong construction industry. Consequently, the credibility of the results especially the relevancy of the overseas experience and the applicability of the identified opportunities and options to the peculiar situation of Hong Kong are of paramount importance. It is, therefore, critical to conduct a prudent validation exercise, via a spectrum of construction experts, to confirm the relevancy and significance of the proposed strategies. This validation was carried out by means of a questionnaire survey (Appendix XII) and a series of interviews with experienced practitioners (see Appendix XIII for the interview protocol and Appendix XIV for interview reports). The aim of the second stage questionnaire survey was to verify and prioritise the identified strategies for achieving a sustainable development for the industry. A total of 57 responses were obtained by September 2007. Five in-depth discussions with construction experts, financial agencies and relevant government officials were then performed to verify the relevancy and significance of the proposed strategies. Four research Task Force meetings were also held to discuss preliminary conclusions with experienced practitioners to moderate the results obtained and to confirm the conclusions drawn.

2.4 Summary

This chapter has introduced and justified the research design and strategy to achieve the stipulated research objectives. This research comprises two phases embracing both qualitative and quantitative analyses. Phase One aims to review the current status of the Hong Kong construction industry and explore how advanced countries cope with the structural change of the industry, mainly through literature review, expert consultations, questionnaire survey and study tours. Phase Two focuses on identifying opportunities and strategic directions for a sustainable development of the industry. The feasibility and significance of the proposed strategies were verified via the second round questionnaire survey and a series of interviews with construction experts.

CHAPTER 3 THE CONSTRUCTION INDUSTRY OF HONG KONG

- 3.1 Introduction
- 3.2 A Review of the Hong Kong Construction Industry
- 3.3 Strengths and Weaknesses of the Industry
- 3.4 Regional Construction Markets
- 3.5 Summary

CHAPTER 3 THE CONSTRUCTION INDUSTRY OF HONG KONG

3.1 Introduction

This chapter reviews the economic performance, demand trends, market structure and characteristics of the Hong Kong construction industry. Based on the information collected from a series of semi-structured interviews, two focus group meetings and the first-round questionnaire survey, strategies adopted by the local industry stakeholders for coping with the recent recession, as well as the competitive advantages and disadvantages of the industry, are also highlighted in this Chapter.

3.1.1 Sample size and respondents' profile of the first questionnaire survey

A questionnaire survey was conducted between March and April 2007 to assess the current status of the construction industry of Hong Kong. Local experienced practitioners in the construction industry were the targeted respondents of the questionnaire survey. For this survey, two stages of data collection were carried out. The first stage involved direct distribution of questionnaire to the senior staff of some selected construction-related organisations (i.e. government officials, private developers, consultants, contractors and suppliers), identified through available information from Internet resources¹ and personal networks of the research team members. Subsequently, with the full support of the CII-HK, a total of 1,200 self-administered survey questionnaires were distributed to individual industrial practitioners by means of postal mail during the second stage. Follow-up telephone calls and electronic communication platforms were undertaken where possible to elicit more detailed responses and/or provide further clarifications for any ambiguous

¹ Internet resources include: i) Building Materials Category at <http://bmcat.com>; (ii) Yellow Pages at <http://yp.com.hk>; and (iii) Times Directory at <http://timesdirectory.com>.

or misunderstood items on the survey form. Finally, a total of 58 completed survey questionnaires were returned and used for analysis, generating a response rate of 3.59 percent which is commensurate with similar surveys. Table 3.1 shows the detailed breakdown of the questionnaires received.

Questionnaire distributed through	First stage data collection	Second stage data collection	Total
	postal mail	CII-HK member companies	
Number of questionnaire sent out	415	1,200	1,615
Total questionnaires received	31	27	58
Response rate	7.5%	2.3%	3.6%

Table 3.1 Summary of data collection and response rates of the first-round questionnaire survey

Respondents represented different roles in the local construction industry. Table 3.2 and Figure 3.1 show the background of the respondents by types of organisation. About 41 percent and 22 percent of them were from main contractors and subcontractors respectively. Respondents from client organisations also accounted for 22 percent of all respondents. The remaining respondents were consultants, and suppliers / manufacturers.

Type of organisation	Frequency	Percentage
Client organisation	13	22%
Main contractor	24	42%
Consultant	5	9%
Subcontractor	13	22%
Supplier / Manufacturer	2	3%
Missing data	1	2%
Total	58	100%

Table 3.2 Organisation type of the first-round survey respondents (N=58)

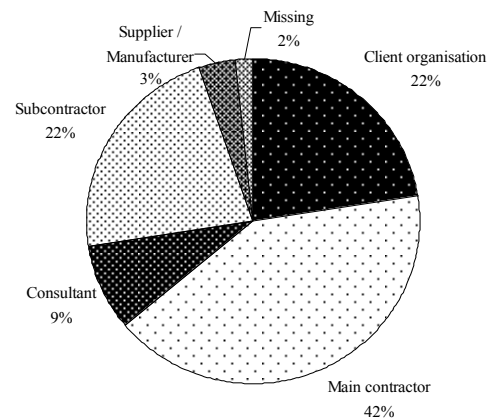


Figure 3.1 Organisation type of the first-round survey respondents (N=58)

Most of the respondents held a senior position in their organisations with abundant experience in the construction industry as indicated in Table 3.3 and Figure 3.2. Nearly two-thirds of the respondents had over 20 years of professional working experience in the construction practice. Hence, the respondents are well experienced to provide reliable information to the research.

Year of Experience	Frequency	Percentage
Less than 5 years	1	2%
5-10 years	5	9%
11-15 years	6	10%
16-20 years	6	10%
More than 20 years	38	66%
Missing data	2	3%
Total	58	100%

Table 3.3 Experience level of the first-round survey respondents (N=58)

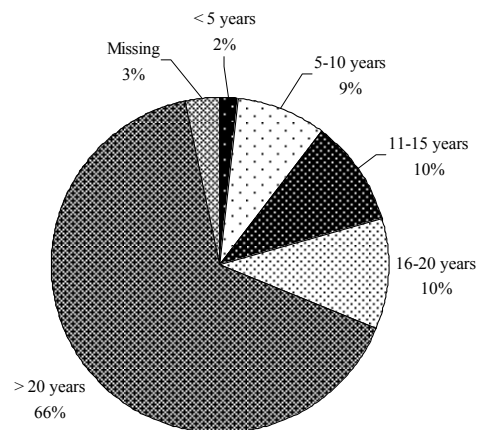


Figure 3.2 Experience level of the first-round survey respondents (N=58)

3.2 A review of the Hong Kong construction industry

3.2.1 Economic performance of the industry

The construction industry has long been an engine of growth in Hong Kong. It essentially serves as a regulator of the economy, and its significance and impact to the economy is well documented (see, for example, Ball, 1988). According to the C&SD of the Hong Kong Special Administration Region (HKSAR) Government, the construction industry produced a total gross value of work of nearly \$90 billion (all money values in this report are in HK\$ in nominal terms unless otherwise stated hereinafter) in 2006, accounting for 5.5 percent of the total local GDP (or 2.9 percent at factor cost). It ranked third in terms of percentage contribution to total GDP from 1980 to 2004, after the services sector and the manufacturing sector. The gross value of investment in construction activities was 28 percent of total fixed capital formation in 2006. During the second quarter of 2007, the construction industry in Hong Kong employed more than 270,000 people, representing approximately 7.8 percent of the total labour force (C&SD, 2007a).

The local construction market can be broadly classified into four sectors: (i) residential building; (ii) non-residential building construction; (iii) civil engineering; and (iv) repair and maintenance. Residential building construction output was about

\$15.5 billion in 2006. Other buildings, including commercial, industrial and storage, and service buildings summed up to a gross value of \$13.9 billion. The value of work in the civil engineering sector was over \$12.3 billion, while the value of non-site activities (including decoration, repair and maintenance, construction work at minor work locations, carpentry, electrical and mechanical fitting, plumbing and gas work, etc.) was over \$48.3 billion. These four categories of construction work contributed approximately 17, 15, 14 and 54 percent respectively to the total construction output in 2006 (C&SD, 2007b).

The construction industry does not only provide high value-added to the local economy, but also stimulates demand with its high level of consumption. The building and civil engineering establishments consumed over \$30 billion on materials and supplies, fuels, electricity and water, and maintenance services in 2005. The real estate development, leasing, brokerage and maintenance management establishments and architectural, surveying and project engineering establishments spent over \$10 billion and \$200 million on materials and supplies, fuels, electricity and water, and maintenance services in 2005 respectively.

3.2.2 Trends of construction demand

Hong Kong was one of the many countries profoundly hit by the Asian economic turmoil in 1997. There were a few years of negative GDP growth since 1998. The recession propagated through all sectors in Hong Kong and inevitably the construction companies and property-related organisations were also severely affected. Figure 3.3 depicts the trend of the total value of construction work in Hong Kong over the past 20 years.

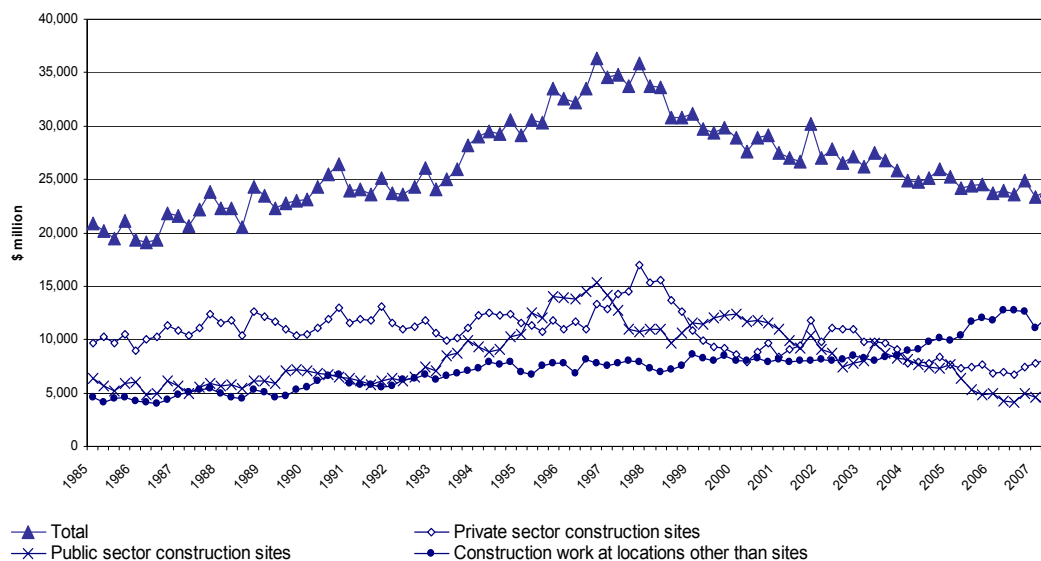


Figure 3.3 Quarterly gross value of HK's construction work at constant (2000) market prices (1985Q1-2007Q2)

Source: Report on the *Quarter Survey of Construction Output, C&SD, The HKSAR Government*

Notes:

- Private sector includes projects commissioned by private developers. Projects under the Private Sector Participation Scheme are also included.
- Public sector includes projects commissioned by the HKSAR Government, Mass Transit Railway Corporation, Kowloon-Canton Railway Corporation and Airport Authority. Projects under the Home Ownership Scheme commissioned by the Housing Authority are also included.
- Construction works at location other than site include decoration, repair and maintenance, and construction work at minor work locations such as site investigation, demolition, structural alteration and addition work, and special trades such as carpentry, electrical and mechanical fitting, plumbing and gas work.

The total construction volume in Hong Kong has been declining since reaching its peak in 1997 primarily owing to the financial crisis. After discounting price changes, the gross value of construction work in 2006 shrank to \$96 billion at constant (2000) prices, having reduced by more than one-third of the peak value at \$139 billion. Although there was a GDP growth of 6.8 percent in Hong Kong in 2006, the construction industry did not benefit much from the general economic recovery. In 2006, public sector works accounted for 39.4 percent of that gross construction value on new works, compared to 44.9 percent in 1997.

The construction sector was overtaken by the electricity, gas and water sector in terms of contribution to the total GDP (indicated in Figure 2.2) to the fourth rank since 2005, for the first time since 1980. The construction site works, both for the public and private projects, followed a declining pattern in the last few years as the public

housing programme was scaled back and there were fewer large-scale infrastructure projects. The volume of construction in the private sector, however, has stabilised and showed an upward trend recently primarily due to the increasing demand and positive prospects of the real estate market.

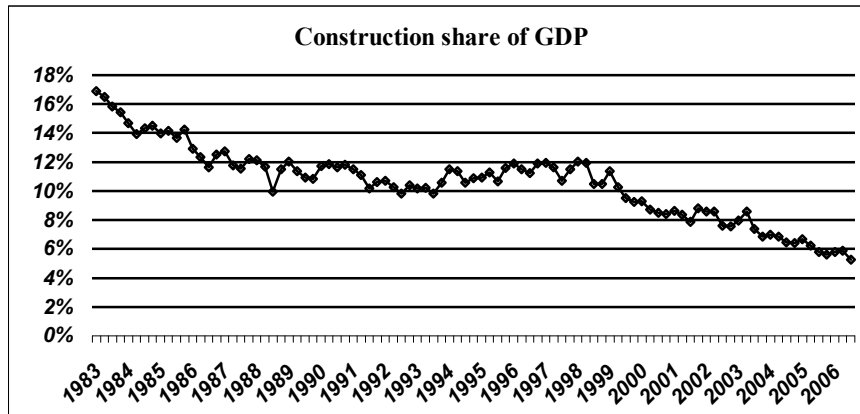


Figure 3.4 Contribution of Hong Kong's construction activities to GDP

Source: C&SD, The HKSAR Government

The role of the construction industry has indeed been changing in line with the development process as Hong Kong transfers from a rural agricultural economy into an urban industrial economy, and consequently into an urban service economy. Maddison (1987) pointed out that following industrialisation, the contribution to Gross National Product² (GNP) by both the construction and manufacturing sectors would start to decline, while the services industry will become the new engine of any Advanced Industrialised Countries (AIC) economy. At the same time, the capital stock that was generally built in the early stages of economic growth tends to age over time. Consequently, the share of repair and maintenance work will upsurge to roughly half of the total construction volume in highly developed countries.

Bon (1992) believed that an inverted U-shaped relationship exists not only in terms of the construction share in total GNP, but also towards the total construction volume as a country develops from a Less Developed Country (LDC) to a Newly Industrialised Country (NIC) and to an AIC with time as shown in Figures 3.5 and 3.6. By examining the output of Hong Kong's construction sector over the past years as shown in Figure 3.3, the inverted U-shaped curve as suggested by Bon could be traced,

² GNP is close to GDP for non-tradable goods such as construction goods, according to Bon (1992)

illustrating that Hong Kong has transformed into an advanced economy in which the construction sector becomes relatively less important.

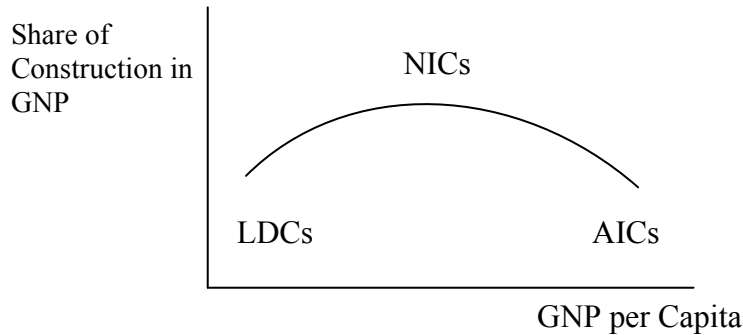


Figure 3.5 Share of Construction in GNP versus GNP per capita
Source: Bon (1992)

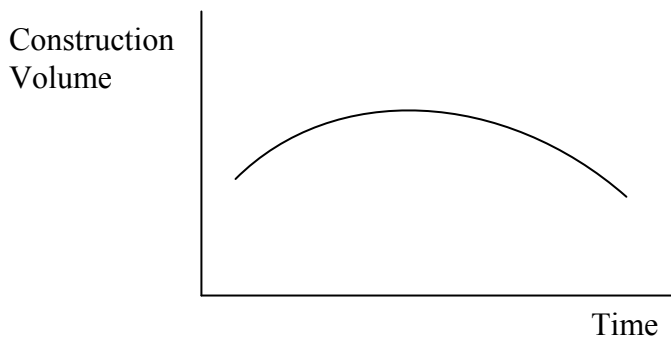


Figure 3.6 Construction volume over time
Source: Bon (1992)

Experts' commentaries were acquired via the focus group meetings, interviews and Task Force meetings to further scrutinise whether the changes of construction volume were indeed structural or cyclical. It is, nevertheless, more reasonable to examine this issue separately by the industry sub-sectors, e.g. building; civil engineering; and repair and maintenance sector. Table 3.4 summarises the output by nature of construction activities at constant (2000) prices from 1995 to 2006. Comparing the data of 1997 (i.e. the peak) and 2006 (i.e. the latest available data set), the following observations have been made in terms of the gross value of construction work:

Total construction market:	Dropped by 31 percent
Total residential:	Dropped by 53 percent
Total non-residential building:	Dropped by 52 percent
Total civil engineering work:	Dropped by 70 percent
Total repair and maintenance	Increased by 59 percent

(Unit: HK\$ million at constant (2000) market prices)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Residential (A)	27,816	32,802	38,525	45,559	49,656	45,703	38,957	36,895	31,722	23,509	20,089	18,086
Non-residential (B)	24,688	27,302	33,454	31,161	17,844	15,395	15,199	17,216	20,597	20,555	19,990	16,066
Civil Engineering (C)	47,735	50,014	38,871	23,216	18,348	21,427	25,068	21,760	20,764	18,595	14,118	11,858
Total Construction Investment (A+B+C)	100,239	110,118	110,850	99,936	85,848	82,525	79,224	75,871	73,083	62,659	54,197	46,010
Repair and Maintenance (D)	29,012	30,524	31,382	29,086	33,301	32,166	32,161	32,806	33,192	38,017	44,077	49,980
Total Construction Market (A+B+C+D)	123,388	134,673	138,975	128,930	120,067	114,691	111,385	108,676	106,273	100,615	98,275	95,990

Table 3.4 Gross value of construction work at current market prices performed by main contractors analysed by nature of construction activity (1995 – 2006) at constant (2000) market prices

Source: Report on the Quarter Survey of Construction Output, C&SD, The HKSAR Government

A significant decrease in the gross value of residential work is noted mainly due to a previous superfluous supply of residential stocks, the aftermath of the Asian economic turmoil in 1997 and the SARS outbreak in 2003. According to the BD (2006), 2005 was the year with the second lowest record of commencement of private building works since 2000. About 1.51 million square meters in gross floor area were built as compared to the average of 1.59 million square meters. The figures confirmed that the volume of buildings completed in 2005 was the least while the number of buildings consent to commence issued by the Building Authority was the second lowest. However, experienced practitioners believed that the demand for properties would be stabilised, and could not ascertain whether the downturn in the building sector was indeed a cyclical or structural change.

Major infrastructure projects have been an important source of construction work in the last thirty years. It is common for a government to adjust her fiscal policy by rolling out more construction projects to boost the economy and to keep construction

workers occupied at time of a slump in residential market. The volume of civil engineering works decreased by more than two-thirds (69.5 percent) as a result of the completion of the new town development, new airport, road and rail links, and associated infrastructure projects, not to mention about the increasing pressure of political pressure groups for conservation in recent years. According to Mrs. Carrie Lam, the Secretary for DEVB, the output of public capital works in 2007/08 has shrunk to the \$20.4 billion trough. As a result, the infrastructure sector was generally considered by a number of experienced industry practitioners as undergoing a structural decline, which is not easily reversible.

The non-construction site works, representing the repair and maintenance sector, have been on an upward swing since 1980s. The sector climbed dramatically since 2004 reaching \$48.3 billion in nominal terms in 2006, contributing to over 53.6 percent of the total construction market in 2006, i.e. up by 72.3 percent in real terms over 1995. This reflects the increasing number of ageing buildings and changing demand in the construction industry. There are currently some 9,300 private buildings which are over 30 years old, and the figure will increase by 50 percent in a decade (CII-HK, 2006). Subsequent to the impending implementation of the mandatory building inspection scheme introduced by the BD, together with building maintenance schemes and redevelopment projects already launched by the HKHS and the URA in response to the higher requirements for quality of life, construction activities in the repair and maintenance sector will remain at a high level in the next few years.

Respondents of the first-round questionnaire were asked to select the reason(s) that have caused the long period of recession in the construction industry. The results are indicated in Figure 3.7. It was found that 'poor economic condition' is the most significant reason of the long period of recession in construction. This perception echoes that the development of the construction industry follows the overall economy (Hillebrandt, 2000). In addition, 'lack of leadership from the government' and 'political influences from pressure groups' were commonly rated as the causes of the long construction recession.

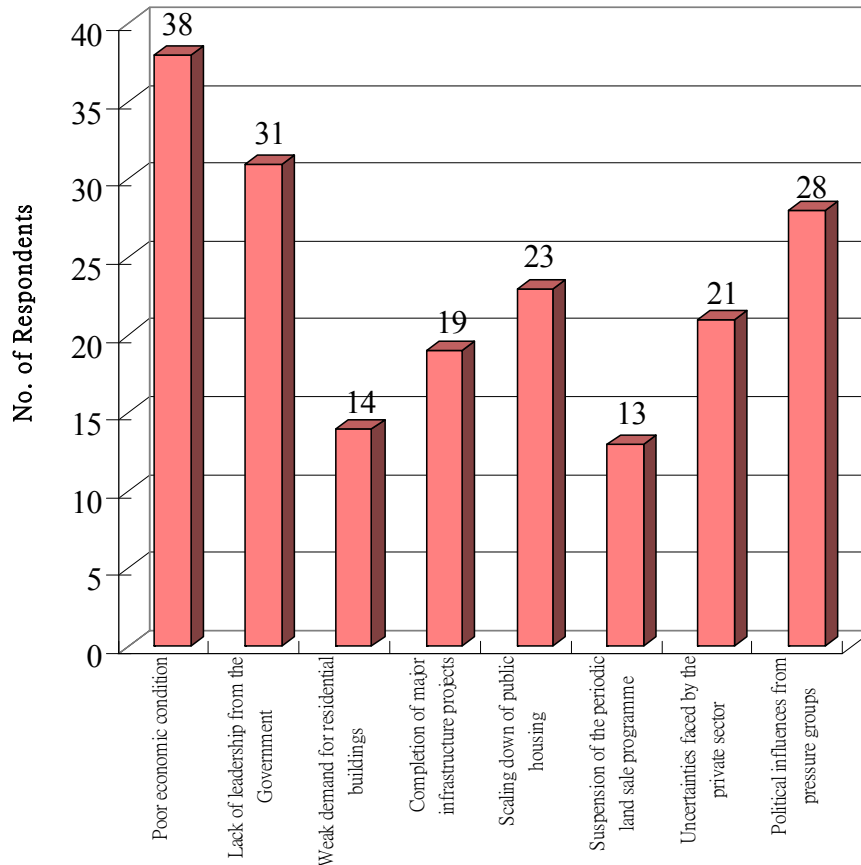


Figure 3.7 Reasons of the long period of recession in the construction industry (*the first-round questionnaire survey, N=58*)

With substantial decline of new orders, the construction industry has apparently been undergoing a consolidation in recent years where weaker players were eliminated through the competitive business environment. Various construction stakeholders have also adjusted their business tactics as shown in Figure 3.8. The most prevailing tactics include downsizing their organisations, and migrating to maintenance and repair or addition and alteration works in order to survive in such a hostile economic and business environment. Some companies have also undertaken projects in Mainland China and Macau, as well as other overseas markets. A number of construction companies have diversified their business portfolios, integrating both horizontally and vertically their business units like building services, property management, real estate investment, project management, and maintenance.

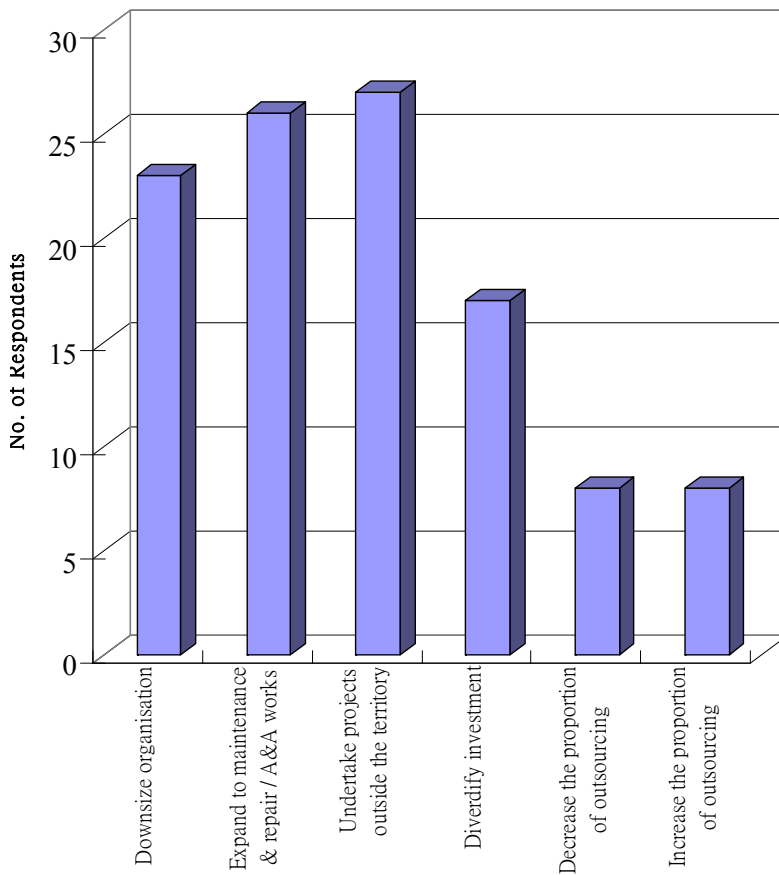


Figure 3.8 Tactics to deal with substantial decline of new orders (*the first-round questionnaire survey, N=58*)

Respondents of the first-round questionnaire were also asked how to ensure a steadier workload for the Hong Kong construction industry. The results are graphically shown in Figure 3.9. Nearly two-thirds of the respondents agreed that maintaining high level of public works would be imperative to achieve a more sustainable future for the Hong Kong construction industry. Additionally, ‘diversification of business’ and ‘expanding to the international market’ were also considered as effective strategies to sustain the industry in the long-run. Respondents also proposed mandatory schemes for maintenance and upgrading the existing buildings to upkeep the construction volume in the repair and maintenance sub-sector.

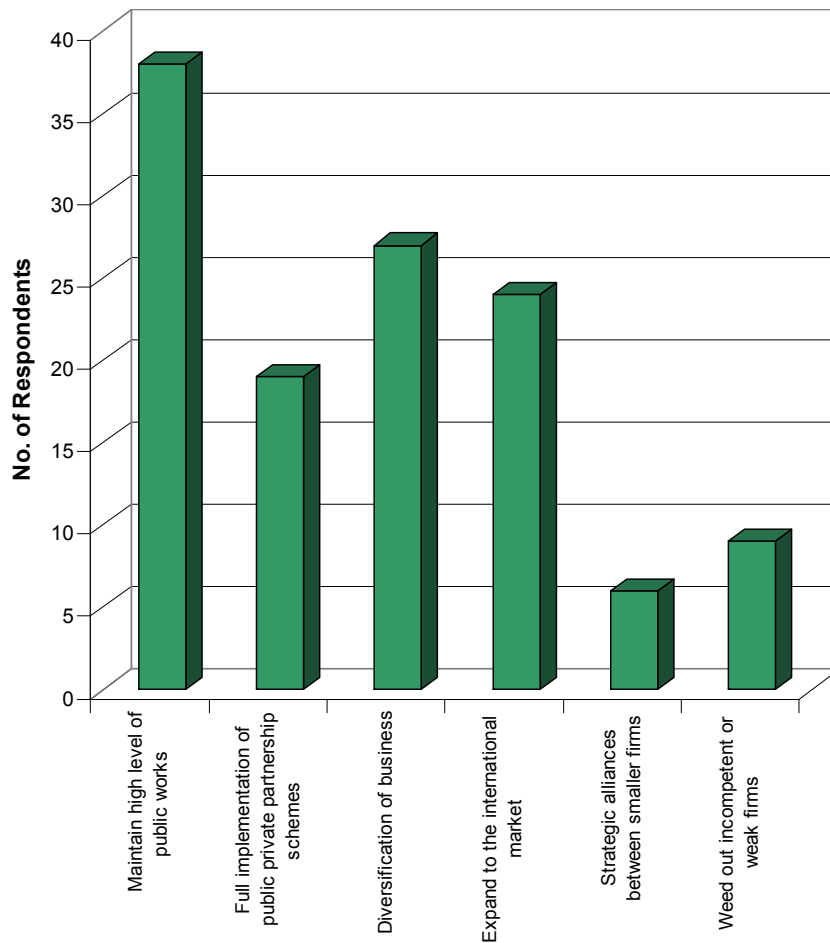


Figure 3.9 How to ensure steady workload for the HK construction industry (*the first-round questionnaire survey, N=58*)

Hong Kong has been exporting its construction and engineering services to overseas markets especially the Macau region, as its economy has made remarkable advancement over the past decade. As estimated by the Statistics and Census Bureau of the Macau Government, there are over 10,000 construction professionals, technicians and workers working in Macau. In addition, as indicated in Table 3.5, the export of construction services alone was almost HK\$2.5 billion, along with over a billion dollars export in architectural, engineering and other technical services, representing approximately 4 percent of the total local construction output in 2005. All of the exported construction services went to Asian countries, while the majority of architectural, engineering consulting and other technical services were exported to Asia (i.e. 88 percent), with the rest going to North America, Western Europe, Australasia and Oceania (C&SD, 2005a).

Major service group/ Service group/Region	Year	Export of services		
		HK\$ Million	Share %	Year-on year % change
<i>Construction services</i>	2003	3,968	100.0	48.2
	2004	2,941	100.0	-25.9
	2005	2,436	100.0	-17.2
Asia	2003	3,737	94.2	39.5
	2004	2,941	100.0	-21.3
	2005	2,330	95.7	-20.8
Australasia and Oceania	2003	@	#	-
	2004	@	#	-
	2005	**	**	**
Central and South America	2003	**	**	**
	2004	@	#	**
	2005	@	#	-
North America	2003	12	0.3	-
	2004	@	#	-100.0
	2005	**	**	**
Western Europe	2003	**	**	**
	2004	@	#	**
	2005	@	#	-
Others	2003	@	#	-
	2004	@	#	-
	2005	@	#	-
<i>Architectural, engineering and other technical services</i>	2003	590	100.0	74.0
	2004	929	100.0	57.5
	2005	1,035	100.0	11.4
Asia	2003	491	83.1	67.0
	2004	780	84.0	58.9
	2005	913	88.2	17.1
Australasia and Oceania	2003	2	0.4	**
	2004	**	**	**
	2005	6	0.5	**
Central and South America	2003	@	#	**
	2004	@	#	-
	2005	@	#	-
North America	2003	43	7.3	**
	2004	107	11.5	148.8
	2005	52	5.0	-51.4
Western Europe	2003	48	8.1	92.0
	2004	4	0.4	-91.7
	2005	22	2.1	450.0
Others	2003	7	1.1	**
	2004	**	**	**
	2005	43	4.1	**

Table 3.5 Exports, imports and net exports of services by major service group, service group and region of destination/source (2003 – 2005)

Source: Report on Hong Kong Trade in Services, Statistics for 2005, C&SD, The HKSAR Government

Notes: - denotes not applicable; # denotes percentage within $\pm 0.05\%$; @ denotes figure within ± 0.5 million.

The HKSAR government has indeed facilitated the local construction companies to extend to foreign countries by the promotional works of economic and overseas trade offices. Several trade offices have been established in main cities, such as Washington, London, Sydney and Tokyo as well as several major cities in China. The offices are responsible for exploring potential opportunities and organising exhibition in overseas. Information and reports would be distributed to the Government and relevant organisations once market opportunities are found. In addition, the DEVB holds regular meetings with China officials for directly communication to promote cross-boundary integration.

3.2.3 Market structure and characteristics of the industry

Chiang *et al* (2001) emphasised that the analysis of market structure is the very first step towards the study of market competition. This section thus assesses the structure of the Hong Kong construction industry in the following sectors: (i) private building; (ii) public building; (iii) civil engineering; and (iv) repair and maintenance. In general, most of the construction companies in Hong Kong are small in size, as 82 percent of the total establishments in building and civil engineering discipline were producing less than \$5 million of turnover according to the 2005 figures (C&SD, 2005b). These small companies hired only 37 percent of total workforce in the discipline, while a substantial portion (about 30 percent) of workforce was employed in companies producing work valued at more than \$100 million in 2005.

(i) Private building sector

The five largest developers supplied around 70 percent of all local private residential units (HKCC, 1996). According to Business Week (2000), out of the top ten property firms which made it to the list of the 1,000 largest firms in the world, three were from Hong Kong, occupying the first, third and fifth positions in terms of market capitalisation. Local developers have their in-house construction arms or subsidiary firms. They have enjoyed high bargaining power over building contractors. Consequently, the building market is hyper-competitive in Hong Kong. Technical and financial barriers to entry are low, and building contractors thus compete intensely on cost reduction rather than on technological improvement, leading to poor construction

safety and product quality (Chiang *et al*, 2001). Their construction methods are traditional and labour intensive. However, competitiveness based on cost reduction is not sustainable, as it creates minimal enduring competitive edge.

Foreign contractors are less interested in the private building sector. Firstly, the traditional building sector is labour intensive and does not require proprietary or advanced technology. Foreign contractors do not have the cost advantage over smaller and often indigenous local players whose overhead structure is appropriate for smaller scale building works. Secondly, major developers in Hong Kong have their in-house or 'inner-circle' contractors as well as consultants already.

(ii) Public building sector

The growing adoption of design and build contracts and stringent requirements by the public sector clients would tend to favour larger contractors, as they could capitalise on their technological advantages and managerial competence. They also have more capacity than their smaller counterparts in absorbing the design costs of unsuccessful tenders. Finance is another major barrier to entry, it is always difficult for domestic contractors to raise enough finance to improve and develop their technology. Even for those few contractors who managed to become publicly listed in the stock market, their costs of finance are much higher than the property developers (Chiang and Yue, 2001).

As a major client in the market, the HKHA has long been promoting the use of prefabrication, standardisation and modularisation in public housing construction. Originally intended to improve concrete quality, such measures have incidentally worked to raise the technology of their contractors (Ganesan *et al*, 1996). Barriers to entry were raised and contractors have since then competed on technology, past performance on time, quality, safety, as well as on cost. Should the HKSAR Government adopt the recommendation of the CIRC report in promoting further industrialisation in building construction, all contractors would have to gear up towards such requirements. In the last twenty years, there were around ten contractors who managed to have consistently captured large market shares of the public building sector in Hong Kong. How they have become successful in public housing and institutional building construction remains to explore. However, they have generally

been regarded as having possessed resources and expertise in prefabrication technology.

(iii) Civil engineering sector

The civil engineering work can be further categorised into (i) traditional work including site formation, drainage, roads and bridges, etc.; and (ii) complex infrastructure projects. Traditional civil engineering work is typically undertaken by local contractors. However, only a few local contractors can compete with the technologically and financially superior foreign contractors for complex infrastructure project (Walker, 1995). There is a wide technological gap between the local and international contractors. The latter are often armed with their own proprietary technologies (such as tunnelling) and are expected to dominate this sector in the near future. Local contractors could only gain access to advanced technologies through joint ventures or partnership arrangements at present. Hence, many local contractors have indeed established themselves as a local partner for major foreign contractors (Walker, 1995). Technology transfer, however, was considered to be very limited.

(iv) Repair and maintenance sector

As highlighted previously, the repair and maintenance is a booming and expanding market. However, the nature and challenges are different from major capital work. Repair and maintenance works are usually more labour intensive. Labours of multi-skilled operative nature are also required to work in occupied buildings. These specialisations cause the repair and maintenance a market of its own in the construction industry, and this sector is consequently dominated by small-scale (sub-) contractors. For government's term maintenance contracts which require relatively higher technological and managerial skills not to mention about the capital, the market has been mainly dominated by the large local construction companies.

3.2.4 Review of the CIRC recommendations

In April 2000, the CIRC was appointed to comprehensively review the current state of the construction industry and to recommend improvement measures. The Committee recommended 109 improvement measures in 2001 covering the whole spectrum of construction activities to uplift the quality and cost-effectiveness of the industry. An overall review of the progress achieved was conducted by examining relevant documents, interviews and a pilot questionnaire survey with industry practitioners.

According to the working papers issued by the Environment, Transport and Works Bureau (ETWB), through the joint efforts of the HKSAR Government and the industry, substantial progress has been achieved on the CIRC recommendations to date. One of the major achievements was the formation of the Construction Industry Council (CIC) on 1 February 2007 which serves as a statutory industry coordinating body encompassing all key sectors to promote the culture of self-regulation in a market-driven environment. Out of the 109 recommendations, 49 have been substantially completed (ETWB, 2007). Respondents of the first-round questionnaire agreed that some noticeable improvements have been achieved which include construction safety, subcontracting management, environmental concerns, and worker registration system. The outstanding recommendations are being followed up by the Government, CIC and the private sector.

Despite these achievements, industry practitioners interviewed and surveyed perceived that the effectiveness and the impact to the industry are rather limited suggesting the industry still has much room to improve. In particular, although the partnering concept has been extensively implemented by some clients, the Government has seldom solved the problems hand-in-hand with project parties because of the dilemma of public accountability. An interviewee further stressed that more ground works are needed to improve the safety and adoption of new technology. The suggested public private partnerships concept was also considered not robust nor attractive enough to the industry as benefits to investors are limited. On the other hand, an industry practitioner interviewed suggested that use of prefabrication should be extensively promoted in Hong Kong to uplift the quality and safety standards, and to minimise wastage.

New concerns have been raised within the industry subsequent to the CIRC report, as reported by the respondents of the first-round questionnaire survey, including sustainability in construction (i.e. energy efficiency, construction waste, etc.), security of payment, sustainable workload of the construction industry. Relevant parties should therefore address these critical issues in order to improve the performance of the local construction industry and benefit the economy as a whole.

3.3 Competitive advantages and disadvantages of the industry

To help determine the competitiveness of the Hong Kong's construction industry in the international arena, it is crucial to identify our relative strengths and weaknesses. Based on the information acquired from the semi-structured interviews, focus group meetings and the first-round questionnaire survey, the competitive advantages and disadvantages, as well as the threats to the local construction industry are summarised in this section.

3.3.1 Competitive advantages

Table 3.6 shows the perceptions of the first-round questionnaire survey respondents on the competitive advantages of the Hong Kong construction industry using a 4-point scale where 1 = strongly disagree; 4 = strongly agree. The higher ability and efficiency to construct high-rise buildings was considered the top strength of the industry (mean = 3.29). Strategic geographic location of Hong Kong *vis-à-vis* Mainland China was also highly ranked as the industry's strength (mean = 3.09). Other perceived strengths include project management (mean = 2.95) and the "can-do spirit" of the industry practitioners (mean = 2.93). Details of these advantages are discussed below.

Competitive advantages of the Industry	N	Mean	Std. Deviation
We are able to construct high-rise buildings more efficient than most other countries	58	3.29	0.701
We have an advantage because of strategic geographic location of Hong Kong <i>vis-a-vis</i> Mainland China	58	3.09	0.708
Our project management is world class	58	2.95	0.759
The industry has a strong “can-do spirit”	58	2.93	0.645
Our construction works are comparatively durable	58	2.91	0.756
The industry is well experienced in complex contract and financial management	58	2.91	0.657
The industry is sensitive to changing market needs	58	2.90	0.718
Our prefabrication technology is world class	58	2.69	0.706

Table 3.6 Competitive advantages of the Hong Kong construction industry

Note: 1=Strongly Disagree; 2=Disagree; 3=Agree; 4=Strongly Agree

Experience in super high-rise building

The Hong Kong construction industry has superior knowledge and extensive experience in super high-rise building construction and a variety of skills to manage complex and demanding site conditions efficiently. The know-how in designing and constructing tall buildings and cladding system is also a transferable advantage that could help local teams export their services to other countries. Furthermore, an experienced interviewee mentioned that precast technology in Hong Kong has entered into a mature stage, as many local constructors have been using pre-cast components extensively with innovative technologies and jointing details. The advancement in prefabrication technology together with an efficient construction method can definitely increase the competitiveness of the local industry when competing in the international arena. Nevertheless, continuous development in technology is no doubt necessary to sustain the competitiveness of the Hong Kong construction industry in the area.

Project management skill

Project management skill is the key to success for a construction project. Most of the interviewees opined that project management in the Hong Kong construction industry is very rigorous and this is particularly the case for large-scale projects necessitating a high degree of coordination as well as contractual and financial control. Hong Kong

has various specialists who are capable of integrating economic, environmental and social concerns throughout the planning and project cycle so as to formulate sustainable and affordable solutions. International exposure and a strong commercial sense are the advantages of the Hong Kong construction stakeholders in responding to the project requirements effectively. This is indeed our competitive edge in the construction markets of other developing countries not least Mainland China, Macau and Middle East countries. In addition, it is widely recognised that Hong Kong construction professional have demonstrated a high degree of professional integrity and conduct.

High quality of work

Over the last three decades, Hong Kong has developed a reputation for producing high quality work and generating creative design solutions. From airports to deep harbour port facilities, high speed railways to cross harbour tunnels, high-rise residential to luxury hotels and commercial centres, Hong Kong has built up the experience and acquired the skills to integrate fast-track design and complex construction techniques to ensure the quality completion of durable projects. This might also be greatly attributed to the concentrated pool of construction professionals, who have intensive cooperation and competition with eminent international architects and other construction professionals. Hong Kong professionals have been taking up the design and project management roles in Mainland China and other developing countries to capitalise on their experience accumulated in the industry.

Great flexibility

Since the overhead borne by contractors is limited due to the multi-layer subcontracting arrangement in Hong Kong, they can cut down on the costs by reducing the number of in-house staff at time of construction recession and to hire contract staff whenever necessary. Besides, the construction industry in Hong Kong is flexible in the sense that practitioners can adapt in different fields according to the market situations. Under severe competition environment, construction stakeholders acquired practical experience to meet various requirements under the indigenous legal framework as well as the tight budget and schedule set by clients. The industry is also considered to be sensitive to the changing market needs and able to respond to any business opportunities rapidly. In addition, familiarity with the Chinese culture and

the western planning practices together with the strategic geographical location, Hong Kong have an advantage over many overseas competitors in providing creative and practical construction services for the Mainland Chinese market.

3.3.2 Competitive disadvantages and threats

Table 3.7 shows the findings of the first-round questionnaire survey on the competitive disadvantages of the Hong Kong construction industry, similarly, using a 4-point scale where 1 = strongly disagree; 4 = strongly agree. Deficiency of government's support in seeking overseas opportunities (mean = 3.41) and lack of leadership specific to the construction industry (mean = 3.19) were highly ranked as the biggest disadvantages. Additionally, comparing with advanced countries such as Japan and South Korea, the in-house technology development in Hong Kong is inadequate (mean = 3.22). Other perceived weaknesses include manpower training (mean = 3.02), and determination to venture on overseas market (mean = 2.97). Details of these weaknesses are discussed below.

Competitive disadvantages of the Industry	N	Mean	Std. Deviation
The government does not help firms seeking overseas opportunities	58	3.41	0.750
In-house technology development is inadequate	58	3.22	0.773
The government does not provide leadership on the industry	58	3.19	0.783
Training / re-training to local construction workers is inadequate	58	3.02	0.868
Construction companies are unwilling to invest in overseas markets	58	2.97	0.936
The industry is slow in accepting new and innovative ideas	58	2.90	0.742
Our in-house management training is inadequate	58	2.82	0.735
The industry is technologically weak	57	2.64	0.718

Table 3.7 Competitive disadvantages of the Hong Kong construction industry

Note: 1=Strongly Disagree; 2= Disagree; 3=Agree; 4=Strongly Agree

Inadequate support from the government

Indigenous industry stakeholders have been pleading for government's leadership and assistance. Yet, following the principles of positive non-intervention and minimal assistance or protection measures, the HKSAR Government has not been proactively offering direct support to domestic contractors. Infrastructure projects and public housing programme were slowed down while the industry was the hardest hit³. Besides, most Hong Kong firms are small in scale and so they lack particularly the resources and financial capacity to compete with both the overseas and Mainland Chinese contractors. The latter tend to have stronger organisational resources, and often government backing. It is, however, imperative and helpful that if the local construction sector could gain direct support from the HKSAR government, it would not only help revive the local industry but also facilitate contractors capturing overseas construction markets. Without government's support, contractors would have to try harder to set foot in international markets and this would of course relegate our construction sector to a disadvantageous position.

Lack of industry-specific forward planning

Experienced practitioners expressed that the Hong Kong construction industry requires a forward planning for development in a sustainable manner. During the Hong Kong construction boom in the mid-1990s, the employment level of the industry grew significantly without comprehensive and long-term planning in manpower training. In stark contrast, the industry was severely hit by the recent recession and the downturn of the property market, resulting in a great imbalance of workforce in the labour market. A central body to plan and monitor the development of the industry was missing. The long-term investment in research and development was also overlooked. In addition, there is an inherent absence of local manufacturing industry supporting the construction industry as most of the construction materials are primarily imported from the Mainland.

³ Readers should note that the comments regarding the government's efforts for the construction industry were sought prior to the Chief Executive's 2007-08 Policy Address where 10 mega infrastructure projects were pushed ahead to facilitate the economic growth of Hong Kong.

Sluggish technological advancement

Only limited contractors are capable of carrying out large-scale infrastructural projects, which require high level of technology. This might be due to the absence of repetitive mega size projects within the limited development space and little incentives to invest in research and development. In contrast, many Japanese construction companies have injected a substantial amount of money into their own research centres with sophisticated equipment set up. The conservativeness of Hong Kong construction companies in investing in research and development undermines their competitiveness to capture a greater market share outside Hong Kong. While project management is regarded as a strength of the Hong Kong construction industry, this soft skill might not be transferable to countries overseas, and might not be sustainable in the long run.

Slow acceptance of innovative ideas

There is also an opinion that the Hong Kong construction industry is inherently slow in accepting new ideas. Aiming at profits, developers do not necessarily have the financial incentives to implement innovative techniques to improve the efficiency and competitiveness of the industry. It is not uncommon for the government to take the lead specifying the use of new technologies or methods, while the industry would follow suit. Only until recent years have contractors started to exploit the benefits of alternative proposals, and put forward better value-for-money and more cost-effective construction design, methods and materials. In addition, because of higher operating costs, the Hong Kong construction professional firms are generally found to be less competitive than their Mainland counterparts in pricing.

Table 3.8 shows the findings of the first-round survey on the threats of the Hong Kong construction industry, using the 4-point scale. Although Public Private Partnerships (PPP) has been advocated by the Government in provision of public capital works, respondents rated it as a key threat of the industry (mean = 3.60), since it might favour large developers and contractors. Small and medium enterprises (SMEs) may not benefit from PPP projects, thus resulting in further polarisation in the industry. In addition, respondents perceived that the presence of political groups may impede the implementation of construction works in Hong Kong (mean = 3.36). The competitive advantages such as project management and precast technology might not

be sustainable in the long run (mean = 3.09) as international competitors especially the Mainland counterparts could catch up the deficiency swiftly.

Threats of the Industry	N	Mean	Std. Deviation
PPP schemes favour large developers and contractors	58	3.60	0.771
The presence of political groups reduces the volume of new construction works	58	3.36	0.892
Our competitive advantages are not sustainable in the long run	54	3.09	0.875
Hong Kong loses out to Mainland cities in attracting foreign investment	58	2.97	0.936
Our laws and regulations are stringent, thus favouring large contractors and driving out the smaller ones	58	2.83	0.798
We have never had many opportunities in the Mainland	58	2.74	0.870

Table 3.8 Threats of the Hong Kong construction industry

Note: 1=Strongly Disagree; 2= Disagree; 3=Agree; 4=Strongly Agree

3.4 Summary

This chapter reviews the Hong Kong construction industry in terms of economic performance, trends of construction demand, market structure, progress of the CIRC recommendations as well as the competitive advantages and disadvantages of the industry. This review forms an essential basis to seek alternative opportunities and identify strategies for sustainable growth.

The total construction volume has been plummeting since its peak in 1997. Most construction companies and property-related organisations were seriously affected by the severe downturn. Although there has been an apparent increase in decoration, repair and maintenance, and minor works since 2003, many local construction stakeholders have downsized their organisation; increased the proportion of outsourcing, participated in projects outside the territory; and diversified their of business. The lessons learnt from advanced countries in coping with structural changes in construction and in reinventing the industry are presented in the next Chapter.

CHAPTER 4 LESSONS LEARNT FROM OVERSEAS COUNTRIES

- 4.1 Introduction
- 4.2 Economics Background and Construction Sector in the Countries Studied
- 4.3 Recession Period and Causes
- 4.4 Recovery Strategies Adopted
- 4.5 Implications
- 4.6 Summary

CHAPTER 4 LESSONS LEARNT FROM OVERSEAS COUNTRIES

4.1 Introduction

To help the construction industry recovering from recession, there are various measures and tools that both the government policy-makers and industry practitioners can deploy. Experiences from construction industries in other advanced countries are valuable sources of inspiration for these recovery strategies. The chapter reviews and discusses various strategies, based on study tours to Australia, Japan, South Korea, Singapore and the UK, at the government level as well as the industry level that the advanced countries have adopted to overcome the recession and to reinvent the construction sector. An extensive review of literature was also carried out for the abovementioned countries and the United States (US) to support the findings from study tours.

The chapter starts by identifying the recession period of the seven advanced countries studied, namely Australia, Japan, South Korea, Singapore, the United Kingdom, the United States and Hong Kong, together with the various causes led to the recession. The government and the industry initiatives to reinvent the construction industry are then summarised and discussed. In the last session, more in depth discussion of these strategies are presented.

4.2 Economic background and construction sector in the countries studied

The six studied overseas countries have some of the top constructors in the world (ENR, 2006), and represent a wide geographical coverage over several continents in the world. They have all entered into a mature economy, in which the construction

sector has gone through a number of structural changes. Table 4.1 shows the basic geographical and economic information of the selected countries.

	Hong Kong	Singapore	Japan	Australia	UK	South Korea	US
Area (sq. km)	1,092	692.7	377,835	7,686,850	244,820	98,480	9,826,630
Population	6,980,000 (July 2007 est.)	4,553,000 (July 2007 est.)	127,433,000 (July 2007 est.)	20,434,000 (July 2007 est.)	60,776,000 (July 2007 est.)	49,045,000 (July 2007 est.)	301,140,000 (July 2007 est.)
Population density (pop. per sq. km)	6,392	6,573	337	3	248	498	31
GDP (after adjustment for purchasing power parity)	\$259.1 billion (2006 est.)	\$141.2 billion (2006 est.)	\$4.218 trillion (2006 est.)	\$674.6 billion (2006 est.)	\$1.928 trillion (2006 est.)	\$1.196 trillion (2006 est.)	\$13.06 trillion (2006 est.)
GDP - real growth rate	6.9% (2006 est.)	7.9% (2006 est.)	2.2% (2006 est.)	2.7% (2006 est.)	2.8% (2006 est.)	5% (2006 est.)	2.9% (2006 est.)
GDP per capita (after adjustment for purchasing power parity)	\$37,300 (2006 est.)	\$31,400 (2006 est.)	\$33,100 (2006 est.)	\$33,300 (2006 est.)	\$31,800 (2006 est.)	\$24,500 (2006 est.)	\$43,800 (2006 est.)
GDP - composition by sector	Agriculture: 0.1% Industry: 8.6% Services: 91.3% (2006 est.)	Agriculture: 0% Industry: 34.8% Services: 65.2% (2006 est.)	Agriculture: 1.5% Industry: 25.6% Services: 73% (2006 est.)	Agriculture: 3.7% Industry: 26.2% Services: 70.1% (2005 est.)	Agriculture: 0.9% Industry: 24.1% Services: 75% (2006 est.)	Agriculture: 3.2% Industry: 39.6% Services: 57.2% (2006 est.)	Agriculture: 0.9% Industry: 20.9% Services: 78.2% (2006 est.)
Labour force	3.583 million (2006 est.)	2.47 million (2006 est.)	66.57 million (2006 est.)	10.74 million (2006 est.)	30.48 million (2006 est.)	23.98 million (2006 est.)	151.4 million (includes unemployed) (2006)

Table 4.1 Comparison of the studied countries

Source: *The World Fact Book 2007, Central Intelligence Agency, US*

Note: A nation's GDP at purchasing power parity (PPP) exchange rates is the sum value of all goods and services produced in the country valued at prices prevailing in the United States.

The US is the largest economy in the world, as reflected in its highest national GDP as well as GDP per capita (CIA, 2007). It is also the largest country among the seven in terms of area. Australia, Japan, UK and US share similar pattern in their economic structure, of which around 70 to 80 percent was made up of the service sectors and 20 to 30 percent was made up of the industrial sectors. Apart from Australia, the agriculture sector in the selected countries only accounts for a very insignificant portion of total GDP. A main characteristic shared by all seven countries is that their economy has all moved into the stage of "maturity". The services sector accounts for the largest portion of these countries' GDP indicating that they have transformed from an industrial-driven economy to the service-driven ones. During the process, it can be anticipated the construction sector must have gone through some forms of structural

change, as the importance of the sector would decline as the economy transforms (Bon, 1992).

4.3 Causes of recession

Australia experienced its last recession in construction industry during the early 1990s, around 1992-1994. The recession was triggered by the stock market crash in 1987, which led to migration of investment into the property market and created bubbles. During 1992-1994 appeared the adjustment on property value backed to the line of what the economy to building and the investment so worth (Australian Interviewee 4). Interest rate also went up significantly, while the mining sector performed weak (Australian Interviewee 2). Pressure built up as the state government went bankrupt, as a result they had no money and no capital works projects during that period (Australian Interviewee 1). There was another downturn in the construction in Australia in 1998 when a major financial institution collapsed. The cyclical downturn continued until 1999 (Australian Interviewee 1). The construction sector experienced another sharp decline in work volume during 2000 and 2001. The value of work done dropped from US\$24.7 billion in 2000 to US\$17.3 billion in 2001, representing a shrinkage of 30 percent.

On the other hand, it was also suggested that Australia is a large country which has a rather stable economy. The industry is largely diversified in civil works, mining works and commercial works. As a result, there is no apparent recession in Australia, as the fluctuations in work volumes are usually subsidised by another sectors. For example, the downward trend of construction volume in Sydney will not seriously affect the local economy as a whole because new works are generated elsewhere, e.g. in Newcastle at the same period, the construction firms can move to another city for alternate work sources (Australian Interviewee 2).

Previous recessions in Japan were due to external factors such as oil crises and they did not last very long before economic revivals (Japanese Interviewee 8). Japanese construction value met its early decline in the mid 1970s. Following that, another decline in investment came in during the mid 1980s. During those recessions,

Japanese people demanded for social infrastructure, and as a result the government increased her spending in public works correspondingly (Japanese Interviewee 8). Thus construction firms did not have to go through significant reform. In the latest recession starting since the burst of economic bubble in 1992, there was a 40 percent reduction in construction work volume (Japanese Interviewee 9). The diminishing volume of construction works in Japan lasted for several years causing a structural recession. Both the public and private sector have agreed that it is no longer necessary to maintain a high construction level as it was in the past, partly owing to the politicians' view that the government should decrease her public work investments (Japanese Interviewees 1, 2).

Singapore experienced a cyclical recession during 1984-1988 as the small of population (2.8 million) did not generate sufficient demand (Singaporean Interviewee 4). During 1997-2006, the Singapore construction industry had another recession which was triggered by the regional economic crisis (Singaporean Interviewee 2, 6). There was a short peak in 2000, but the market went downward again until 2003.

The UK construction industry went through a recession in late 1980s from around 1989 to 1991. From 1975 to 1985, the housing price went up by factors of ten (UK Interviewee 1). One of the major reasons leading to the recession was the coincidental completion of several mega projects like the Channel Tunnel (UK Interviewee 2). The output volume during 1988 to 1994 dropped by over US\$10 billion in real terms, representing a fall of almost 15 percent from the earlier peak in 1987. The work volume climbed up after mid 1990s, indicating that the UK has successfully recovered from the short recession.

The Korean construction industry experienced its first recession in 1997 due to the International Monetary Fund crisis (Korean Interviewee 1). Subsequently, there was a sharp decrease in housing demand, but at the same time revealing a natural trend of economic development (Korean Interviewee 2). Many companies, especially the small and medium companies went bankrupt (Korean Interviewee 1). The second recession occurred in 2004 due to the mature and saturated domestic market (Korean Interviewee 1).

The US construction industry has been on an upward trend in general. There were two short recession periods during the mid and late 1980s, although the industry picked up quickly after the short adjustments. Since then, the construction volume has been steadily increasing.

The decline and recession experienced by the construction industries of these countries are often related to the general economies conditions. Therefore, the contributing factors as identified in Table 4.2 are not only related to the incidents in the construction industry, but also relevant to the overall economy as a whole. Some causes leading to the collapse of the construction industry are found to be common among the countries being analysed.

Countries	Years of recession	Contributing factors
Hong Kong	Since 1998	i. 1997 Asian economic turmoil. ii. Government's policies to stabilise the housing market. iii. Completion of large-scale infrastructure projects (e.g. Airport Core Project). (Chiang <i>et al</i> , 2004)
Singapore	1985 – 1988 1998 – 2004	i. The small population (2.8 million) did not generate sufficient demand (Singaporean Interviewee 4). ii. 1997 Asian economic turmoil. iii. Reduction in the construction of new Housing and Development Board (HDB) flats from 1999 in response to the significant overhang of unsold flats and the weak property market. iv. The property developers adopted more conservative approach during the economic slowdown. (Walker and Flanagan, 1991; Ofori, 1993, BCA and Hui, 2004)
Japan	Mid 1970s – Late 1970s 1992 - 2003	i. 1973 oil crisis. (Hasegawa and the Shimizu Group FS, 1988) ii. 1997 Asian economic turmoil. (RICE <i>et al</i> , 2004) iii. Burst of the economic bubble (Japanese Interviewee 9). iv. Surge in value of assets such as land and a 180% rise in the Tokyo Nikkei stock market index led to the “bursting” of the economy bubble. (WebJapan, 2004). v. The tremendous volume of non-performing loans left over after the bursting of bubble economy had hindered the Japanese economy to resume growth. (RICE <i>et al</i> , 2004) vi. Reduction in public investment in an attempt to reduce budget deficit (RICE <i>et al</i> , 2004). vii. Fall in wages and salaries further impeded consumer spending (WebJapan, 2004).
Australia	1992 - 1994, 1998 - 2001	i. Stock market crash in 1987 led to migration of investment into the property market and created bubbles (Australian Interviewee 4). ii. A major financial institution collapsed (Australian Interviewee 1). iii. The introduction of Goods and Services Tax (GST) on 1 July 2000 led to a prolonged slump in the construction industry (CII and Sharma, 2004). iv. Post-Olympics slump after Sydney hosted the 2000 Summer Olympics (CII and Sharma, 2004).
United Kingdom	1988 – 1994	i. A tightened monetary policy was introduced in the late 1980s in which interest rates were increased from 7.5% to 15% in seventeen months' time. Mortgage rates rose at the same pace as interest rates, which resulted in nearly doubled housing costs and consequently sharp decline in housing affordability. ii. Oversupply in residential and commercial property market (Hillebrandt <i>et al</i> , 1995).
South Korea	1997, 2004	i. The International Monetary Fund crisis ii. The mature and saturated domestic real estate market (Korean Interviewee 1)
United States	Mid and late 1980s, 1988 - 1994	i. Collapse of oil industry caused by the oil price falls. (Ball <i>et al</i> , 1988) ii. Tight monetary policy (Strassmann and Wells, 1998) iii. Coincident end of several big projects like the Channel Tunnel (UK Interviewee 2).

Table 4.2 Contributing factors to recession of the 7 studied economies

4.4 Recovery strategies adopted

The surveyed advanced countries, including Australia, Japan, South Korea, Singapore, the United Kingdom and the United States, adopted various strategies, both initiated by their governments and the industry, to deal with the economic hard times as well as decline in construction demand and output. The construction sectors in these countries showed substantial signs of revitalisation after the implementation of these strategies.

4.4.1 Government initiatives

(i) Increase in public projects

The Australian government tried to increase its public spending in a wide spectrum of works, such as uranium extraction and underground mining (Australian Interviewee 1). The government increased the infrastructure work using the PPP model in roads, schools and hospitals projects. The focus of industry has shifted from relying on the government to being private sector driven (Australian Interviewee 4). The Queensland government in face of population growth and aging infrastructure, which has stimulated the employment market significantly (Australian Interviewee 1). The government increased the public projects not only to sustain the construction volume, but also to preserve the local contractors (Australian Interviewee 2).

The UK government introduced the Private Finance Initiative (PFI) into public projects after the government cut down on the finance and increase the volume of public sector infrastructure projects (Hillebrandt *et al*, 1995).

The Japanese government maintained the public works projects at high level in an attempt to fight the recession after the oil crisis (Hasegawa and the Shimizu Group FS, 1988). After the bursting of the bubble economy in the late 1980s, the Japanese government also tried to revive her economy by actively promoting public projects in successive economic policies (RICE *et al*, 2004). Furthermore, the Ministry of Construction adopted measures to ensure an adequate supply of funds to construction firms in January 1998 (RICE *et al*, 2004).

Korean government introduced more Build-Operate-Transfer (BOT) / Build-Transfer-Lease (BTL) and PPP projects since the Asian economic crisis, as more investments went to the financial sector rather than the construction sector (Korean Interviewee 2). The government revised the law and allowed private companies to tender for public jobs using BTL model (Korean Interviewee 3). To further assist the industry, the government increased the public investment and relaxed the regulation, which resulted in a housing boom (Korean Interviewee 3).

In the earlier recessions, the Singapore government increased the public spending to support the construction industry. Singapore's public spending on construction work grew by 5 percent in 1985 to 1986, when the private sector shrank to a level that the public sector was responsible for about 90 percent of new construction work (Ofori, 1993). About 200 public projects worth nearly SG \$4 billion were accelerated (CIDB, 1987; Ofori, 1993), and these projects were carefully chosen such that priority was given to works with high local content (Ministry of Trade and Industry, 1987; Ofori, 1993). During the recent recession, the Housing and Development Board (HDB) sustained the building programme to match the public housing demand as well as the upgrading programmes on existing public housing (Singaporean Interviewee 3). Recently, the government is promoting tourism by building new tourist facilities, such as the integrated resorts with recreational, convention and gambling facilities (Singaporean Interviewee 4).

(ii) Strategic planning and reforms

The Australian government has a strategic plan for the next 30 years (Australian Interviewee 1). She closely monitored the manpower needs, technology, capacity and capitalisation across the country. There are various ministries relating to the construction industry in Australia that would form taskforce to propose strategic directions and policies for the construction industry. Such policies may include forbidding foreign workers during downturn and requiring employers to register for the foreign workers. The Ministry of Manpower in Australia carries out projections into future to formulate policies that counter the cycle of the construction industry (Australian Interviewee 2).

The UK construction industry has gone through several reforms over the years, from the Latham report to the Egan report. The reports proposed setting up an organisation to coordinate the strategic development of the industry and to achieve various performance targets including a more integrated project team, providing the industry with workforces with right quality and quantity and improved design quality of buildings. In 2007, there is the “2012 construction commitments”, which mainly concerns the London Olympic Game but has a much wider application across the industry (UK Interviewee 2).

An econometric model formulated and coordinated by the Office of Government Commerce (OGC) would be used to generate the “what if” questions - for instance, what if the projects of certain government department were started at different times to smooth out the overall construction demand together with proposed projects from other departments. General industry stakeholders can also access the database with different level of security such that they can find out the distribution of future works and adjust their market strategy accordingly. The OGC has an expert team of private sector professionals and economists to produces forecasts for future construction work volume which is included in the model (UK Interviewee 5).

(iii) Regulating the market

Korean government had put lots of efforts in regulating the property market after the real estate price went abnormally high (Korean Interviewee 1). However, following the collapse of the housing market, Korea financial institutions began to provide real estate loans to boost the housing sector. Providing loan does not necessarily speed up the housing business cycle, rather the expectation of homebuyers on the future market was the critical reason in pushing up the demand for housing (Korean Interviewee 2).

Indicative planning to both public and private sectors was applied in Japan during the 1980s. Competition between domestic firms was restricted, and imports were controlled to protect the construction industry (Bennett *et al*, 1987). The Japanese government has introduced policy to help the market determining the number of contracting firms. It is the intention of the government to force out bad contractors, including those “gangsters” contractors and paper companies (who would simply sub-

contract work out) (Japanese Interviewee 3). The government is now paying greater attention to the quality of works and is taking the opportunity to eliminate contractors who submitted dumping prices. Although price is still an important consideration, assessment criteria of tenders now include management and life-cycle cost issues (Japanese Interviewee 9). More recently, the Japanese government is promoting policies to ensure the revitalisation of small and medium contracting firms, and these include (i) elimination of incompetent and unqualified firms; (ii) reforming business operation; (iii) alliancing amongst enterprises; (iv) supporting revitalisation of small and medium size contractors; and (v) preparation of “a safety net” (Kensetsunews, 2006). The number of licensed contractors has been reduced from 586,000 in 2001 to 563,000 in 2005, whilst bankruptcy cases amongst them have been reduced from 6,154 to 3,783 in the same period (MLIT, 2006).

The Singapore government has adopted a “build-to-order” system for the construction of public housing in order to ease the mismatch between demand and supply of public housing. Public flats could only be built when most of the apartments in a specific project (i.e. 70 percent or more) have been taken up by residents under the scheme, as introduced by the HDB in 2001 (BCA and Hui, 2004). The government has also resumed its planned release of land, following the suspension of land sales in 2002, as an attempt to mitigate the imbalance of supply and demand in the private housing market (Singaporean Interviewee 1).

(iv) Incentive schemes

The Australian government follows the market-driven economy concept. The government would not provide subsidies, grants or favour any sectors at the time of recession but incentives (Australian Interviewee 4). For example, companies investing into technology or research can claim for the tax reduction on such investment. There are also investment incentive scheme for residential contractors by means of low interest loan and cash back policy (Australian Interviewee 5). The Australian housing market benefited from a reduction in mortgage-interest rates (Construction Industry Institute Australia, 1997). The doubling of the first-time-home-owner scheme grant for buyers of new homes promoted housing affordability (CII and Sharma, 2004).

In the early 1980s, Japanese government provided loanable funds to firms at artificially low rates to drive for growth (Bennett *et al*, 1987). She later formulated an action plan of measures to reduce the cost of public works in 1997. The aims of the action plan were “making the best possible use of limited financial resources, and efficiently carry out public work projects so as to ensure solid progress in the building of public infrastructure” (RICE *et al*, 2004). In the late 1990s, Japan implemented similar strategies again to stimulate the housing demand, which included the lowest base interest rate in history, a relaxation of credit requirements, tax reduction on new home loans and an extension of the application period for housing loans (RICE *et al*, 2004). Currently, the Japanese government is providing subsidy for owners to investigate the conditions of their properties (Japanese Interviewee 8). On top of that, the private sector took the initiatives to redevelop some old districts into urban areas. Conversion projects, such as changing the schools into houses are becoming more common (Japanese Interviewee 9).

As the construction industry in Korea contributes significantly to the economy, there is a drive for the government to reinvent the construction. The Korean government provided incentives to the private sector to maintain the sector’s focus on local market and to support its transportation projects. Build-Operate-Transfer (BOT) / Build-Transfer-Lease (BTL) approaches were used which composed around 15 percent of the total construction projects. The government also provided incentives to boost the local economy by developing new towns (Korean Interviewee 1).

In the US, despite a rather stable construction output, a number of government and quasi-governmental associations monitor the flow of funds to the mortgage market since 1968, as an attempt to stabilise the housing construction (Lange and Mills, 1979). On another front, the Environmental Protection Agency of the US implemented a government/private sector cost-sharing programme known as the superfund innovative technology evaluation, which aimed to encourage developmental technologies at construction sites (Yates *et al*, 1991).

(v) Continual education and research

The Korean government help developed numerous continual education programmes during that recession period. It encourages high technology construction through increasing the research fund by 10 times. Construction and Economy Research Institute of Korea (CERIK) is a research centre that aims to assist the government and contractors on the soft-side research (i.e. management and economics) while the Korea Institute of Construction Technology (KICT) focuses on the technological research. In practice, research outputs on power plant construction, construction market structure and future market trends will be distributed to relevant parties for further implementation (Korean Interviewee 1). Three hundred billion Won was invested in the research fund in 2005 (Korean Interviewee 2).

(vi) Regulate tender and procurement practice

In Japan, the requirement on the lowest contract sum of having to adopt open tendering is lowered from 7.2 million yen to 2.0 million yen. The construction works are divided into smaller parcels as long as it does not become economically inefficient. Prefecture governments may require the main contractor to establish joint ventures with smaller contractors so that the smaller companies would have more work opportunities (Japanese Interviewee 3).

The Korean government prohibited sizeable construction companies to participate in small-sized construction projects by means of regulation (Korean Interviewee 2). On the other hand, disputes on payments in Singapore have led to the Security of Payments legislation during the recession. As a consequence, the pay-when-paid clause is almost removed (Singaporean Interviewee 5).

The UK developed alternative procurement approaches and passed the Housing Grant and Regeneration Act to resolve payment problems. The UK highways agency involves the suppliers at very early stages in road building programmes and achieves significant saving in construction costs. The highways agency also divides the country into several regions in which a prime contractor is hired for designing, building and maintaining traffic facilities in each of these regions for five years. The department of health has arrangements with eight prime contractors in maintaining the

hospital facilities. These contractors are guaranteed for a certain amount of work and at the same time their performances in delivering the works are evaluated. Such a long-term arrangement can motivate construction partners for high performance as their long-term profit is better guaranteed. Saving in projects can also be turned into shared profits such that collaborative efforts in improving efficiency can be encouraged (UK Interviewee 5).

(vii) Exporting services support

Regarding the PPP projects, the Japan Bank International Corporation, a national bank, provided financial assistance by granting loans to Japanese contractors, making tied-in Yen loans and investing directly in overseas private projects (such as power stations) being constructed by Japanese contractors (Japanese Interviewee 5). However, it is reported that the Japan International Cooperation Agency (JICA) and Official Development Assistance (ODA) loans (especially the tied loans) have been reduced (Japanese Interviewee 9). The previous reliance on Yen tied-loans (such as ODA) as a means to generate business for Japanese enterprises is lessened due to the criticism of the World Trade Organisation. As a result, the provision of un-tied loans to aid developing countries has brought new challenges to the Japanese construction industry despite having increased the transparency (Menoru, 2003). Apart from coordinating finance through arranging buyer's credit, Japanese financial organisations now provide other forms of assistance such as tender bonds and performance bonds to their contractors working overseas (as exemplified in Figure 4.1).

There were indirect incentives provided by the Korean government for the exporting contractors. Since the credit rate in Korean country was low during recession, major overseas construction clients are unwilling to purchase bonds from commercial banks. Consequently, Korean government provided guarantee to commercial banks to issue bonds for overseas projects (Korean Interviewee 2). On top of that, the Korea export-import asset bank also guaranteed the bond and performance of Korean construction companies (Korean Interviewee 1). Korean construction companies enjoy competitive edge in plant construction (e.g. power plant, gas plant and oil refinery plant) as the Ministry of Construction and Transportation in Korea formed a plant-team to support the overseas works especially in the Middle East countries (Korean

Interviewee 2). In addition, the Korean government helps the countries' export by promoting the various industries while visiting other countries such as China and Vietnam (Korean Interviewee 1).

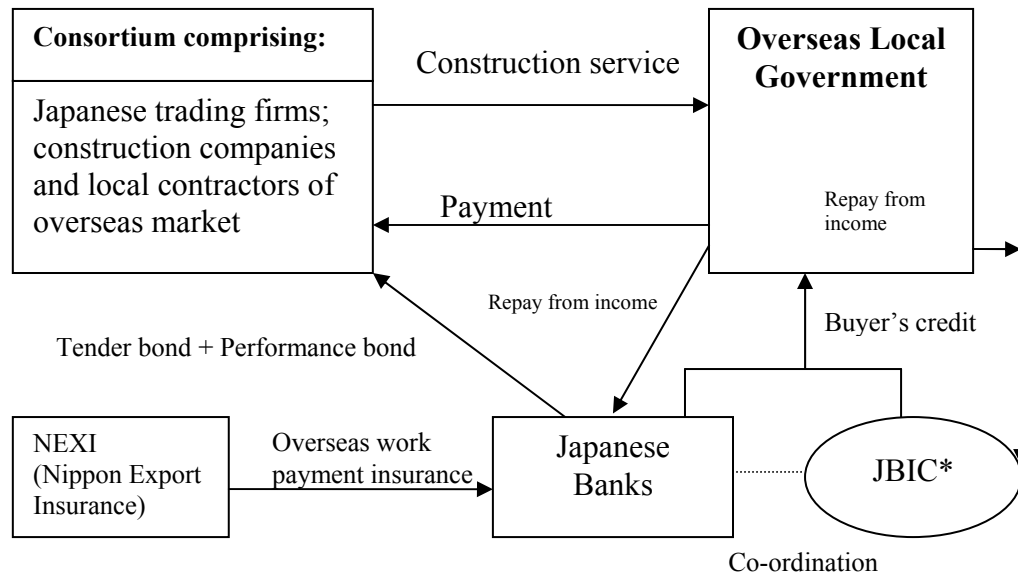


Figure 4.1 Financial assistance for Overseas Works by Japanese banks

Source: MLIT, 2006 – translated from Japanese

* JBIC: Japan Bank for International Co-operation

The Singaporean government started through the BCA a few schemes in earlier recessions to help export of services – like the Attachment of Public Sector Professionals for the Export of Construction Services (where public sector experts were seconded to assist private sector project teams). Initiatives such as the International Enterprise (IE) helped the SMEs to venture abroad. The IE also helped develop the value chain consortia, trade missions and incentive schemes. BCA helps promote value chain consortia that could be formed by more than ten companies including planners, landscape architects, and contractors (Singaporean Interviewee 6). Developers went along with the Real Estate Developers' Association of Singapore to explore the markets in overseas countries (Singaporean Interviewee 2). The Singaporean government reached out to the 7-hour 'flying time zone', which extends up to Middle East as well as those second-tier Mainland China cities to advertise the Singaporean construction industry, especially its strengths in commercial and township development (Singaporean Interviewee 6).

The UK government provides valuable statistics to help companies exploring overseas markets. The business assistance service provides information on the markets ranging from business practices to local culture. The information includes economic data and statistics (UK interviewee 3). For instance, the Business Enterprise and Regulatory Reform provides information on overseas markets (UK interviewee 5). In general, there is only little financial aid given by the government in supporting construction companies to explore opportunities in other countries. However, for larger projects like dam construction, the government would help companies to reduce their risks by providing export service guarantee (UK interviewee 6).

4.4.2 Industry initiatives

(i) Forming joint ventures/merger/acquire

One of the survival strategies adopted by major Japanese contractors is to form joint ventures. There are examples of merger in bigger contracting organisations. It was reported that “the industry was starting to see movements towards business consolidation” (RICE *et al*, 2004). Possible forms of business consolidation include merger, disposal of unprofitable divisions and acquisition of growth companies.

Several Singaporean architectural firms have joined force to bid for large projects and they still stay together afterwards. In general, project-based consortia are more successful than the permanent ones (Singaporean Interviewee 8). Construction practitioners took initiatives during the recession in the mid-1980s to form joint ventures to undertake local and international projects (Ofori, 1993). The contractors’ association also sent open invitations to consultants urging them to team up with its members to bid for projects at more competitive prices (The Contractor, 1987).

Some larger UK companies have acquired the middle-sized ones, may be as a strategy of diversification to prepare for future recessions. Smaller contractors attempted to form joint ventures with other contractors to bid for bigger projects. Even the largest contractors would also consider joint venture as an effective measure in limiting their exposure to risk. In some cases, UK contractors formed joint ventures with companies from Europe to acquire expertise and capital to outbid their rivals. Apart

from increasing companies' competitiveness to win projects, joint venture also served as a means to produce a stronger balance sheet. Some contractors in the UK linked with traders/developers to form joint ventures, in a manner described as "off-balance sheet financing". By doing so, both parties would hold an equal share in a project, permitting short-term finance to be kept off from either company's balance sheet. As a result, the developer's reliance on short-term finance to carry out construction works would be concealed (Hillebrandt *et al*, 1995).

In the US, construction members formed partnership or strategic alliance so as to share each other's resources such that productivity could be improved and adversarial construction environment can be avoided (Yates *et al*, 1991). Small and medium sized builders also formed direct partnerships with financial institutions in order to face the competition from large house builders with strong financial background.

(ii) Adopting alternative procurement approach

Despite being a fragmented industry, the UK construction industry is now seeing more partnership formed while accepting the fragmentation and trying to develop relationship with clients having portfolio projects over time. Partnership may be formed with clients and a pool of contractors and could last for five or six years such that the clients do not have to look for new construction team every time. After that, the clients would simply re-tender the partnership agreement. An example would be a 300 million US dollar worth of construction made up of about 20 projects. The partnership contract formed for the package involves a few consultants and contractors. The client would always ask for tenders from this pool of consultants and contractors. Although the sub-contractors remain quite fragmented, the client can at least build relationships with the primary design team. Even not going out for general tender, the client can still enjoy some price competition among the pool of consultants and contractors (UK Interviewee 6).

In Japan, there has been a gradual change to one-stop service offered by some general contractors covering everything including planning, design, construction and user support (RICE *et al*, 2004).

The Singaporean contractors rented vacant lands as storage yards for their idling plant and equipments during the mid 1980s. Some of them decided to hire out their plant and equipments as a way to reduce cost as well as easing their cash flow. Other contractors faced the difficulty of not having enough projects in hand to pay for the monthly recurrent cost. Hence, they decided to dispose all their equipments and pay for the resulting liquidated and ascertained damages to end the leases before they expire (Ofori, 1993).

In the UK, companies have prepared more detailed financial budget spanning from twelve to eighteen months. Cost reduction was achieved by closing down their regional offices. Alternatively, some contractors decided to cut back on the scale of their head office while making regional offices responsible for more service functions. There was a more stringent control over capital expenditure on new acquisitions. Redundant staff was phased out, with salaries frozen whilst bonus suspended (Hillebrandt *et al*, 1995).

(iii) Adapting to the repair and maintenance sector

Around 67 percent of firms in the Australian construction industry are of less than five people. Many of these organisations are husband-and-wife organisations, which are very efficient organisation as they are highly specialised. In the downturn, these small firms could still survive with insufficient job. The repair and maintenance sector is one of the areas where they could find works in despite economic downturn. Repair and maintenance work in Australia is about 20-25 percent of the total work volume. Throughout the recession period, it helped the industry survive (Australian Interviewee 4). Even major companies like Leighton have a significant proportion of works in large maintenance operation. Part of the reason is due to the fact that a lot of out-sourcing is happening in Australia and this includes the public maintenance works. These major construction companies can bring their management skills into maintenance projects and capture this market sector quickly (Australian Interviewee 3).

(iv) Encouraging further education

There was an increased demand in Australia during the recession period for further education. Many larger organisations sent their staff for further training or education. Some smaller firms also allocated resources for training their staff's management skills so that their workforces are equipped with new skills to further improve their services for possible expansion when the recession was over (Australian Interviewee 4).

(v) Diversification into other business

The industry stakeholders in Australian diversified their services and found new business in the building environment, such as facilities management, maintenance and refurbishment. In particular, smaller firms became part of the supply chain being hired by the big companies in different projects (Australian Interviewee 5). Internal migration of workforce is made possible since Australian construction workers have been well adapted to working in other States. Besides internal migration across geographical regions, Australian workers are usually multi-skilled such that they can move across sectors as well. For example, farmers who are used to operating agricultural equipment can find job opportunities in the mining or construction industries easily (Australian Interviewee 1).

Many smaller Japanese contractors have gone into other non-construction industries. Japanese construction firms have been exploring business opportunities in the environmental technology field. There have been an increasing number of construction firms applying for the ISO 14000 series environmental management certification. Apart from environmental business, major construction firms were also reported to have begun in developing new technologies and organisational modes to enter the building renewal market (RICE *et al*, 2004). Figure 4.2 shows some of the reorganisation patterns which emerge after the recession.

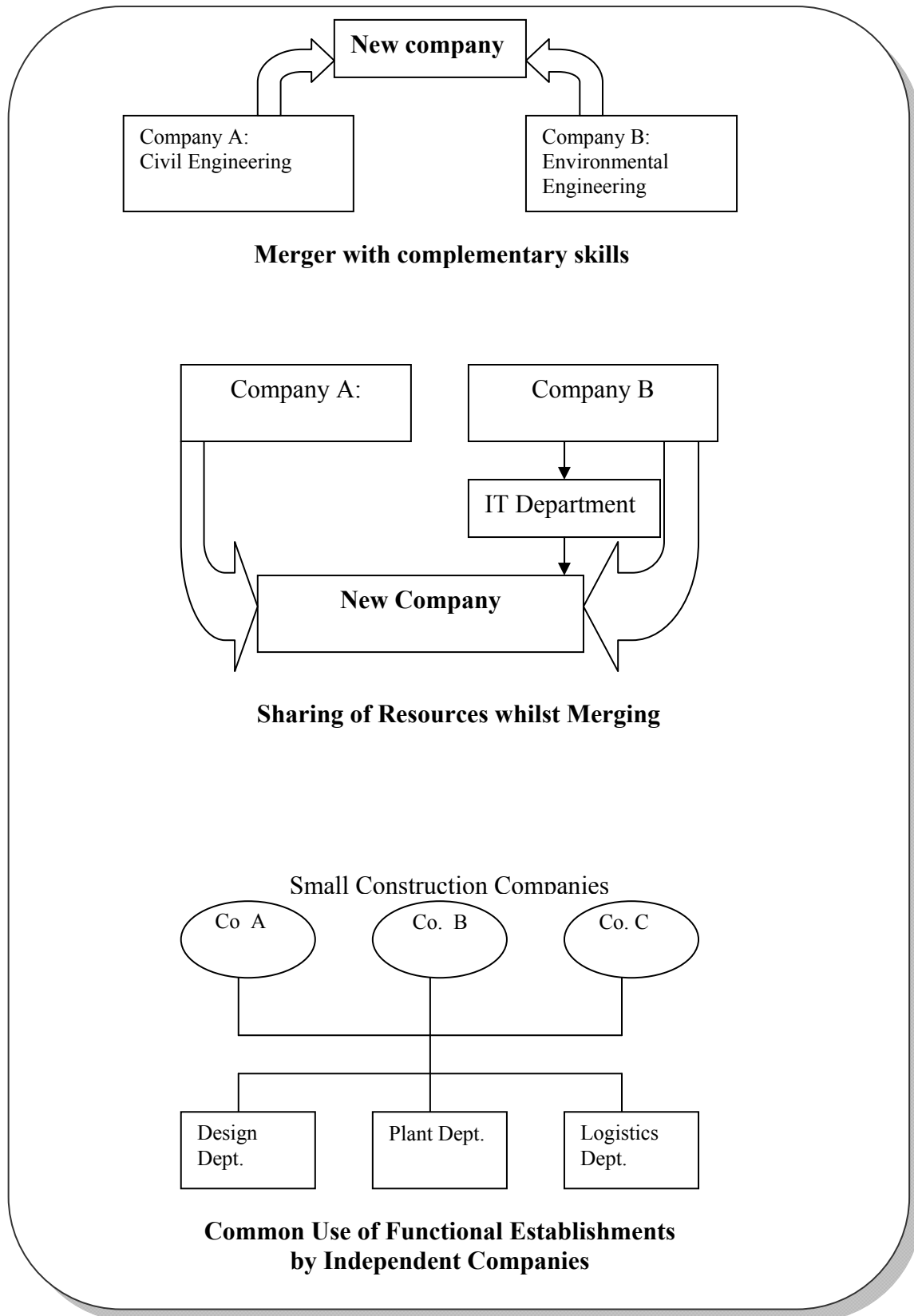


Figure 4.2 Different patterns of re-organisation in Japan

Some middle-sized Korean contractors attempted to transform into developers, engineering contractors and consultants (Korean Interviewee 1). Many construction workers shifted to alternative sectors because of the shrinking construction volume (Korean Interviewee 2). The big companies had to sell their land as a result of the poor financial status during recession; consequently their major business has changed to contracting services. This may be attributed to the government's request on the construction companies to reduce their debt ratio. Due to the shortage of land stock for these companies and the significant decline in private investment, more contractors are attempting to bid for public construction projects (Korean Interviewee 4).

(vi) Company restructure

Korean construction companies restructured themselves during recession. Before the economic crisis, big construction companies have been playing the roles of both developer and constructor. However, these companies have abandoned the role of developer and focused on providing contracting services after the financial crisis. Many companies went through the process of corporate restructuring in order to improve their efficiency and competitive advantages (Korean Interviewee 2).

By setting up their own mortgage companies, the US builders managed to gain considerable tax advantages by issuing mortgages to house buyers (Ball and Martens, 1988). In addition, some US builders used their own mortgage companies as a mean to raise capital for their internal operations (Ball *et al*, 1988). The US contractors also tried to share the risk of construction projects with other firms (Yates *et al*, 1991).

(vii) Exploring the International market

In the last decade, Australia companies to a certain extent reduced the risks by internationalising and globalising their operation. Most of the corporations recognised that they need a balanced portfolio after the economic crisis so they have expanded to overseas market despite seeing local jobs opportunities (Australian Interviewee 3). Multiplex, a very successful Australian construction firm has demonstrated its ability to export its expertise in stadium construction to the UK (Australian Interviewee 2). The successfulness of internationalisation depends on the

social networking and business relationship of a company. As the construction industry in Australia is rather fragmented and relying on sub-contracting system, most contractors would not have much direct labour. Therefore if they could have established robust relationships with parties such as subcontractors, suppliers and clients, the integration would certainly help them export their service (Australian Interviewee 2).

Major contractors in Japan have also explored their niches to export their services. The Japanese contractors have expanded their business into overseas market after the slump in 1973. The construction order they received from abroad reached ¥1 trillion market in 1983 Fiscal Year, which was almost 6 times more when compared with 10 years ago (Hasegawa and the Shimizu Group FS, 1988). Some Japanese manufacturers brought their contractors to overseas countries to build their plants and factories (Japanese Interviewee 5, 8). However, due to the cultural background, Japanese contractors had problems in communicating with the local workforce. In contrast, advanced technology, project quality and ability to deliver projects in time are considered to be the strengths of Japanese contractors in overseas markets (Japanese Interviewee 1).

Korean construction firms also tried to venture overseas during the recession in 1997. However, due to a high interest rate and limited experience, not many contractors operated successfully in foreign countries at that time (Korean Interviewee 1). After the 2004 recession, many contractors went overseas such as the Middle East and US to start their business. Some big companies went to the Middle East and Asian countries to build power plant; SMEs also went overseas as homebuilders in China, Vietnam, Russia and Pakistan. Risk of overseas projects could be significant owing to different business practices. However, overseas markets have also provided good opportunities for survival and further expansion (Korean Interviewee 2). While working overseas, Korean would hire local labour force. At the same time, there are barriers which include language, lack of local intelligence on the foreign markets, cultural difference and difference in procedures and systems. Despite all these, Korean firms did get some reputations in residential development in those countries (Korean Interviewee 1).

Singaporean construction companies went overseas during recession, including India, Vietnam and recently, Russia (Singaporean Interviewee 2, 4). It is recognised that the local market is highly competitive and hence expanding their business overseas is necessary for the survival and growth for Singapore contractors (Cuervo and Pheng, 2005). Consultants would seek opportunities in overseas projects relating to town planning and architectural design.

(viii) Forming industry commissions and research groups

In Japan, the Central Council on Construction Business in June 1996 established the Fundamental Issues Committee. The Committee later issued a set of recommendations entitled “How the construction industry should respond to restructuring in the construction market” in February 1998 (RICE *et al*, 2004).

In Singapore, an Economic Committee was set up by the government and later published an investigative report towards the countries’ long-term problems and prospects of the economy in 1986 (Economic Committee, 1986; Ofori, 1993). On top of that, another committee focusing on the construction and real estate sectors was set up and it published another series of reports regarding the construction industry in 1986 (Property Market Consultative Committee, 1986; Ofori, 1993). The Construction 21 Steering Committee being appointed and spearheaded by the Ministry of Manpower and the Ministry of National Development once again reviewed the state of construction industry, and the report entitled “Construction 21” was published in 1999 (Dulaimi *et al*, 2004).

In 1983, in order to improve the US’s competitive position, 22 US companies worked with the University of Texas in Austin to form the Construction Industry Institute to foster and enrich relationships among construction team members (Construction Industry Institute, 2006; Yates *et al*, 1991).

4.5 Implications

In general, as the advanced countries move towards maturity, there is less need for new infrastructure works and hence governments are facing more opposition from the

public in injecting funds into public works (Japanese Interviewee 8). Some practitioners believed that it was during the recession period when the construction industry of their countries had the most innovations (UK Interviewee 3). The construction firms became more efficient after each recession (Korean Interviewee 2; Singaporean Interviewee 5). Despite the various attitudes, it seems most of the governments have been trying to introduce private sector finance into public projects through PPP, PFI, BOT, etc. Bringing private sector into public works helps those governments gaining private sector expertise such that projects can be delivered and operated with greater efficiency (Australian Interviewee 4).

On top of that, as major recession in the construction industry usually relates to general economic downturn, the government may have other areas that she wants to allocate her resources to so as to revitalise the overall economy. Moreover, if the recession in the general economy lasts for a long period of time, like the Japanese experience after the bubble burst economy (RICE *et al*, 2004), it would be difficult for the government to inject more money into public projects. Therefore, the privately financed public projects seem rather welcomed from the government's perspective. From the industries' perspective, however, these projects are not always well received (Japanese Interviewee 5; Korean Interviewee 3; Singaporean Interviewee 7). There has been criticism that the use of privately finance models may give the government more chance of not meeting its public investment target (UK Interviewee 1). It is also questioned that most privately finance projects are of large scale and complex in nature which would require huge resources for tender preparation (UK Interviewee 1). The risks involved in delivering the project are not always bearable by even large construction firms. Grout (1997) suggested that a major setback of PFI is in its biased pricing of risk towards private sector provision. Those projects are rather one-off too, despite the effort and resources the companies put into winning them (UK Interviewee 2). Together with further complications in its tendering, legal and accounting aspects, the PPP initiative may be difficult to promote in some countries. Therefore whether the privately finance public projects would become an effective tool in easing the government's financial burden while providing motivation for the growth in construction industry is still questionable. At least it was suggested that there should not be a rush to promote many PFI projects at the same time (Japanese Interviewee 2).

Australia sets examples on how the various government ministries who having influences in the construction industry could join together to formulate strategic directions and policies (Australian Interviewee 2). In the UK, on the other hand, it has been reflected by industry practitioners that the government has too many departments involved in the construction industry and each of them is taking charge of some aspects of the industry. Consequently it is difficult to bring together all these departments to provide strategic directions for the industry (UK Interviewee 2, 3). Therefore the OGC and the Strategic Forum try to bring the government and the industry together such that the government can make sure that she is contributing to the long-term stability of the construction industry while the industry can form a stronger alliance to lobby the government. However, concerns are expressed by the CIC in UK that the individual bodies representing different parties in the industry may not want to have its interests and powers gathered and shared by a cross-industry organisation like the Strategic Forum (UK Interviewee 2).

Other than imposing direct indicative planning to regulate the construction market like the Japanese experience (Bennett *et al*, 1987), the governments in the UK and Singapore used other indirect incentive or discouragement schemes to impact the market. The effects of incentives schemes vary across different places in different times. It should be noted that the indirect means of regulating the supply and demand in construction market may need time to fully exhibit their impacts. Therefore it may happen that the incentive scheme would create an overheated construction market such that the government would have to withdraw some of those schemes, as experienced in Australia (Australian Interviewee 5). Therefore, persistently monitoring the construction market seems important in helping the construction industry to stay healthy.

The Japanese government has worked with the industry to eliminate some of the construction firms which did not run their business properly. However, it has been reflected in the interviews that the traditional “Danto” practice of some Japanese construction firms still exists (Japanese Interviewee 6). To deal with the dumping price practice in which the contractors bid for projects with unreasonably low price, clients could introduce other non-monetary measures including quality, track records and the impact on environment into bid evaluation.

Government can help distribute the work packages at least in public projects to the smaller contractors by requiring main contractors to involve smaller contractors or simply by letting the project in smaller work packages (Japanese Interviewee 3). Government can also help improve the procurement practice by enacting the payment security regulations (Singaporean Interviewee 2). At the same time, the legislation tools would probably be used as a last resort to try maintaining good relationship with clients (suggested by Singaporean Interviewee 8).

To help local industry exporting their professional services, the common practices of the governments are to provide financial and credit guarantee as well as to provide the market intelligence of the overseas markets to the industry (Korean Interviewee 2, 3; UK Interviewee 3, 5). From the Japanese experience, the need for an understanding on local culture seems important to build a communication platform with the local workforce (Japanese Interviewee 1). To win overseas projects, the construction firms can form consortia to pair better financial and credit support, as well as to absorb the local market's features into their team to satisfy the local needs. Moreover, construction firms could learn from overseas construction firms when forming joint ventures with them (Singaporean Interviewee 5). On the other hand, it is reported in the Singapore experience that project-based consortia seems to be more successful than the permanent consortia (Singaporean Interviewee 8). Workforce can be brought from home country if the skills required are very specific and is more expensive to train locally (Australian Interviewee 3). As construction teams must have good business relationships and communication skills, government's support is required in both providing opportunities for the construction firms to meet and form the consortia as well as in providing information for the construction firms to better understand the culture of the overseas countries. On top of these, it is pointed out that the brand name of the exporting construction companies at their home country should be well looked after despite doing business in overseas markets (Singaporean Interviewee 2).

The repair and maintenance sector is a "safe haven" for the construction industry during recession period. Bon (1992) mentioned that since the repair and maintenance market represents all forms of construction activities other than new construction, the works in this sector plus some new construction works would form the lower bounds in the process of construction volume decline. Even if the market were going

through a recession, the existing buildings would still need to be maintained, hence providing opportunities to the industry, especially to smaller business due to the variety of project scales, for works to sustain their business. Major companies can also diversify themselves into large maintenance projects as they can bring their management skills to those projects (Australian Interviewee 3). A reasonable distribution of maintenance projects among different sizes of firms would be important to ensure all firms are benefited.

To diversify into other local business during recession, construction workers shall diversify their skills and be prepared to be more mobile. Since the workforce may find opportunities in agriculture, mining or fields which are not shrinking as construction, loss in construction workforce would be expected during the construction recession period. When the construction work volume bounds back, shortage of construction workforce could occur (UK Interviewee 1, 2). Importing foreign labour may be a solution, but the language barrier and skill level may need time to overcome (UK Interviewee 6). Hence the industry should try to retain its key staff during hard times, and the government can help the industry by sending redundant workforce for further training and education such that when the recession period is over, the industry can have enough well-trained workforce to meeting the increasing demand. It is suggested that workforce left for other industries and countries to seek job opportunities during recession would come back to join the industry when the recession is over with experience and skills acquired from those sectors and countries (Australian Interviewee 4). Nevertheless, it should be noted that there are also workers not willing to come back to the construction industry after they left during recession as the poor treatment and non-payment during the hard time is fresh in their memories (UK Interviewee 2).

There are numerous ways in which construction companies can consider to keep themselves in the business. However, some of these measures may give rise to other long-term consequences to the industry perhaps no one would notice during the recession. Therefore the government and the industry should try to allocate resources to look after the industry all times, such that corrective measures can be implemented in time (UK Interviewee 3). This would help sustain the construction industry for its sustainable growth.

4.6 Summary

A summary of recovery strategies identified from overseas experiences is provided in Table 4.3.

Government Policies	1.	Increase in publicly funded projects
	2.	Increase public spending on areas which construction is involved, e.g. mining
	3.	Promote privately financed public projects like the PFI, PPP, BOT and BLT projects
	4.	Provide longer-term work guarantee public projects
	5.	Smooth out construction work demand of different government departments
	6.	Collect and benchmark project delivery performance of the whole industry
	7.	Indicative planning to public and private sector
	8.	Restrict domestic firm competition
	9.	Strategic planning of the industry, by closely monitoring the manpower planning, technical planning, capability and capitalisation
	10.	Construction ministries join together to suggest strategic direction and policy
	11.	Expelling foreign workers and requiring employers to register in order to bring any foreign workers
	12.	Provide predicted work volume to the industry
	13.	Initiate industry reform studies
	14.	Force out the bad contractors
	15.	Get rid of contractors who submitted dumping prices to improve quality
	16.	Build public flats only if demand exceeds certain level
	17.	Uphold housing and upgrading programmes
	18.	Co-sharing with residents to afford upgrading programmes
	19.	Control of land sales
	20.	Provide loanable funds to firms at low rates
	21.	Companies investing into technology or research can claim back on the tax by 150% on what the company has spent
	22.	Encourage private sector to redevelop old districts into urban areas
	23.	Reduce cost of public works
	24.	Engage private consultants to design public works
	25.	Provide capital fund
	26.	Reduce statutory payments
	27.	Tax reduction
	28.	Suspension of intended increase in foreign workers' levy
	29.	Implement government/private sector cost sharing program
	30.	Reduce mortgage interest rates
	31.	Increase first time home buyers' grant
	32.	Shared equity scheme to those who can't afford housing
	33.	Developers get their planning permissions on the basis that a certain portion of the completed development is affordable houses or educational support
	34.	Provide real estate loan
	35.	Relaxation on housing loan requirements
	36.	Develop continual education programmes
	37.	Encourages high technology construction by increasing the research fund 10 times
	38.	Lower threshold when open tendering must be adopted
	39.	Construction works are divided into smaller parcels as long as it does not become economically inefficient
	40.	May require the main contractor to establish joint ventures with smaller contractors
	41.	Prohibited sizeable construction companies to participate in small-sized construction projects
	42.	Security of Payments legislation
	43.	Involves the supply team in the projects at very early stages
	44.	Divides the country into 6 or 7 regions where a prime contractor is hired for designing, building and maintaining traffic facilities in each of these regions for 5 years
	45.	Arrange about 8 prime contractors who maintain the hospital facilities. These contractors are guaranteed for a certain amount of work and at the same time their performances in delivering the works are recorded and published.
	46.	Some guaranteed profit margin arrangements with contractors
	47.	Saving in projects can also be turned into shared profits
	48.	Provide financial assistance by granting loans, making tied-in or un-tied Yen loans, providing tender bonds and bonds and investing directly in overseas private projects
	49.	Provide guarantee to commercial banks to issue bonds for overseas projects
	50.	Public sector experts were seconded to boost private sector teams
	51.	Help to develop value chain consortia, trade missions and incentive schemes

52. Provide information on overseas market practices, culture, economy data and other details
53. When providing loans and grants to other countries, the government would require recipient countries to buy 100% of its construction services (especially those of superior technology) from its countries' contractors, and spend at least 30% of materials expenditures on its countries' imports
54. Go to targeted overseas countries to promote the construction industry and its strengths

Industry Initiatives	1. Explore overseas markets
	2. Establish connection with high profile architects
	3. Explore business opportunities in environmental technology, renewal market, repair and maintenance, trading, electronic component manufacturing, property development, mortgage market, facilities management, transportation, energy projects, health facilities and airport.
	4. Build cost and project management team, management consulting group, tax group, specification group, legal advising group and a number of specialist functions
	5. Mergers and acquisitions
	6. Close down unprofitable divisions and purchase companies in growing divisions
	7. Sharing of resources
	8. Form joint ventures, partnership or strategic alliance
	9. Small and medium sized builders formed direct partnerships with financial institutions
	10. Partnership maybe formed with clients and a pool of contractors and lasts for five or six years such that the clients do not have to go out to market and find new construction team every time. After five or six years the clients would just re-tender the partnership agreement.
	11. Keep the number of clients to certain number
	12. Total quality control programs
	13. Human resources reduction measures
	14. Spend resources on staff skill training such that they can expand their organisations after the recession was over.
	15. Offer one-stop service that covers everything
	16. Reduce involvement in land transactions
	17. Hire out idle plant and equipment
	18. Prepare more detailed financial budget
	19. Cut back on head office scale
	20. Reduction in company vehicles
	21. Less unnecessary training
	22. Hold on to key staff
	23. Document all the process of projects in great detail
	24. Adopt I.T. technologies
	25. Keep dividends up
	26. Right issues to raise fund
	27. Sell assets or business for cash
	28. Pre-sell developments and take deposits on house-sales
	29. Bid for more but smaller projects
	30. Acquire unfinished contracts and key staff from other companies
	31. Adopt non-traditional procurement approaches
	32. Forecasting on industry output and tender price
	33. Formation of industry commissions and research groups

Table 4.3 Summary of strategies adopted by the advanced countries

CHAPTER 5 FUTURE MARKET OPPORTUNITIES IN CONSTRUCTION

- 5.1 Introduction
 - 5.2 The Hong Kong
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 - 5.3 The International
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-

CHAPTER 5 FUTURE MARKET OPPORTUNITIES IN CONSTRUCTION

5.1 Introduction

The development of a long-term strategy with due consideration of the market cycle and future demand of various facilities would be beneficial to the long-term stability of the construction industry (Hillebrandt *et al*, 2000). This chapter presents the future construction market opportunities in different sub-sectors, both within and outside the territory of Hong Kong. Concerns, interests and options of the government, private developers, consultants, contractors, subcontractors and suppliers are identified for the construction industry to move forward.

5.2 Local construction market

Following a long hibernation period, the Hong Kong construction market might recover considerably due to the HKSAR Government's determination to revitalise the economy by promoting infrastructure development, sustaining employment and improving living standard as reflected in the Chief Executive's 2007-08 Policy Address, the Financial Secretary's 2007-08 Budget and the specific recommendations of the four Focus Groups of the Economic Summit on "China's 11th Five-Year and the Development of Hong Kong". In particular, Mr. Donald Tsang envisages a "progressive development" in the Policy Address and push ahead 10 large-scale infrastructure projects in order to consolidate Hong Kong's status as a global city and lay a new foundation of sustained development in the future. A rough estimation of the added value to the local economy brought about by these projects, from commissioning to a mature stage, would be more than HK \$100 billion annually,

amounting to some 7 percent of the Hong Kong's GDP in 2006 price. In addition, over 250,000 additional jobs would be created. Details of the projects are:

Transport Infrastructure

- (1) **South Island Line.** The construction of the seven-kilometre rail line will start in 2011 and cost more than HK \$7 billion. The South Island Line will be commissioned no later than 2015.
- (2) **Sha Tin to Central Link** will connect the Northeast New Territories and Hong Kong Island via East Kowloon at a cost of HK \$30 billion. The Government expects construction work to start in 2010.
- (3) **Tuen Mun Western Bypass and Tuen Mun - Chek Lap Kok Link** at a cost of over HK \$20 billion to be completed in 2016.

Cross-boundary Infrastructure Projects

- (4) **The Guangzhou – Shenzhen - Hong Kong Express Rail Link:** The government's target is to complete the planning and design processes within 2008, so that construction will commence in 2009 with completion in 2014 and costing HK \$30 billion.
- (5) **Hong Kong – Zhuhai - Macao Bridge.** Government aims to complete the financial arrangements in the near future and to discuss specific investment and financing arrangements by the three governments at the next stage.
- (6) **Hong Kong - Shenzhen Airport Co-operation.** A rail link can forge even closer ties. To further co-operation, the two governments will form a joint task force. It is anticipated that specific work plans can be drawn up by early 2008.
- (7) **Hong Kong - Shenzhen Joint Development of the Lok Ma Chau Loop.** A high-level co-ordinating mechanism will be established to steer further research and planning work on other cross-boundary issues.

New Urban Development Areas

- (8) **West Kowloon Cultural District (WKCD)** represents a major investment in our cultural and arts infrastructure. The Government has introduced the bill on establishing the WKCD Authority in early 2008 and enacted the legislation in mid-2008.
- (9) **Kai Tak Development Plan.** Statutory procedures to amend the Kai Tak Outline Zoning Plan are almost finished, after which the project will enter the implementation stage. The first berth of a new cruise terminal is expected to be operational in 2012.
- (10) **New Development Areas (NDAs)** will provide land for various uses such as housing, employment, high value-added and non-polluting industries. The NDAs are Kwu Tung North, Fanling North, Ping Che and Ta Kwu Ling and Hung Shui Kiu.

Most of our interviewees also anticipate a stable growth of the construction industry in the foreseeable future. Table 5.1 further indicates the industry practitioners' positive perceptions on the future opportunities of the local construction markets. In particular, it is expected that the increasing trend of the repair and maintenance works shall continue in the next five years (mean = 3.74).

	N	Mean	Std. Deviation
Repair and maintenance works	53	3.74	0.812
New private building works	51	3.33	0.712
New civil engineering works	52	3.17	1.024
New public building works	52	3.08	0.926

Table 5.1 Opportunities of the local construction works in the next five years (*first-round questionnaire survey*)

Note: 1=Large decrease; 2=Decrease; 3=Maintain as it is; 4=Increase; 5=Large increase

5.2.1 Private building sector

Residential sector

The prospect of the private residential sector in the short run in terms of construction volume might still be rather stagnant, which partly attributable to the low level of residential investment in previous years and uncertain business outlook. As shown in Figure 5.1, residential apartments completed in 2006 amounted to 17,300 units, and expected to drop to 12,740 units in 2007, representing 26.4 percent shrink, then bounce back to 16,010 units in 2008 (R&VD, 2007). This resulted in 13,000 units of unsold completed units in the private housing primary market. Forecast completions in the ensuing two years tend to be low but the units available for occupation should be sufficient to meet the demand taking into account the vacant stock.

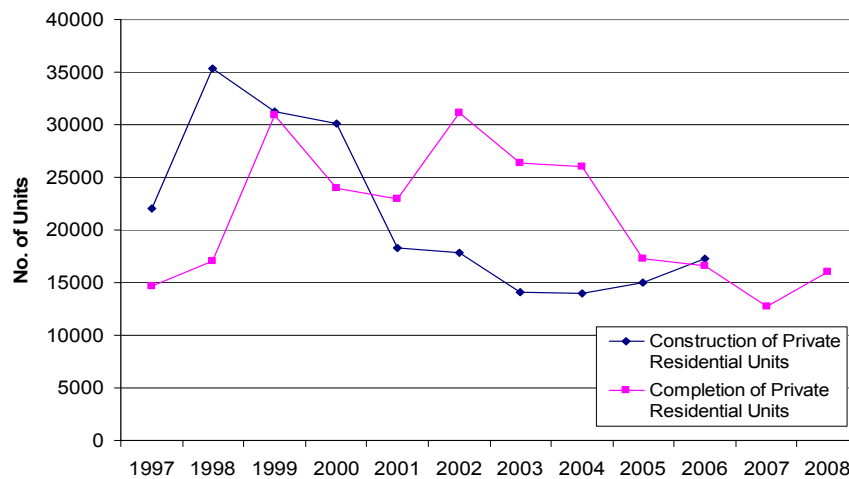


Figure 5.1 Construction and completion of private residential units (1997-2008)

Source: Hong Kong Property Review 2007, Rating and Valuation Department

Notes:

- Village housing is excluded
- Figures for 2007 and 2008 are forecast completion figures

However, the demand for residential properties might increase in the long run, primarily due to the expanding population as indicated in Figure 5.2. The population is projected by the C&SD to increase at an average annual rate of 0.7 percent, from 6.86 million in mid-2006 to 8.57 million in mid-2036 (C&SD, 2007c). Potential land supply for private housing includes the public residential sites which are yet to be sold, railway and URA sites which are yet to be awarded to joint venture developers, and privately-owned sites with planning approval for residential use but for which requisite lease modifications/land exchanges have yet to be agreed with the

government. The recent upsurge of residential prices, transaction volume, high land price and better living standard requirements also reflect the positive prospects and confidence of the private residential market in the foreseeable future.

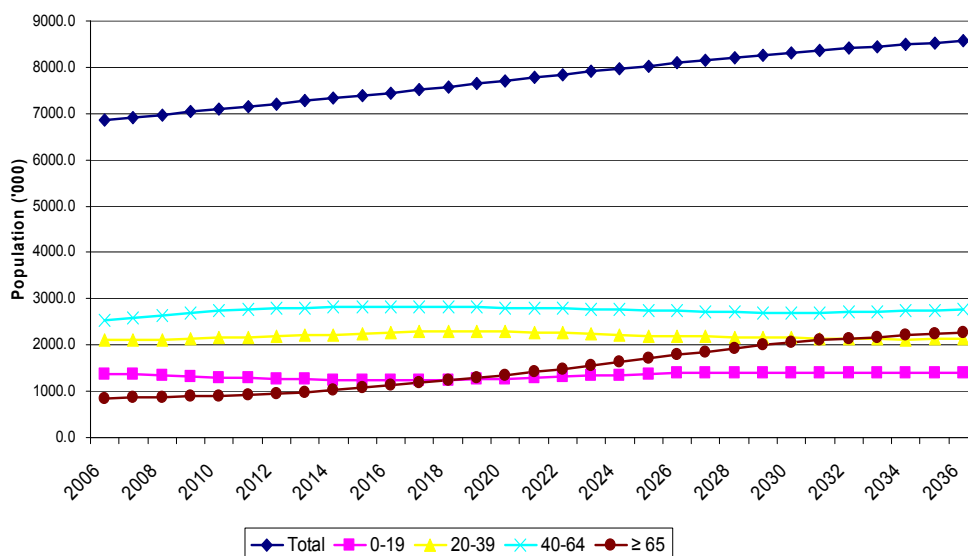


Figure 5.2 Trends of Hong Kong resident population by age group (2006-2036)

Source: *Hong Kong Population Projections, 2007-2036, C&SD*

The demand for the residential units is also affected by the trends of marital status, number and size of households and affordability. According to the report of “Hong Kong 2006 Population By-census”, the proportion of the male population aged 15 and over who were now married decreased slightly from 62 percent in 1996 to 61 percent in 2006. During the period, the proportion of now married female population declined gradually from 59 percent in 1996 to 55 percent in 2006. Significant increase was observed on the proportion of persons who were divorced or separated in relative terms over the last ten years. For males, it increased from 1.6 percent in 1996 to 2.8 percent in 2006 and for females, from 2.2 percent to 4.7 percent.

The number of domestic households increased by 20 percent from 1.86 million in 1996 to 2.2 million in 2006. The number of households increased at a faster rate than the population. The trend towards smaller household continued in the last five years. The average household size decreased from 3.3 in 1996 to 3.1 in 2001 and 3.0 in 2006. In particular, the proportion of households with 6 persons or over dropped from 8.2 percent in 1996 to 3.9 percent in 2006. Hence, with the government’s resumption of

land sale by the Application List System since 2004, these trends might induce an upsurge of demand for the local residential market *although* the median monthly household income was \$17,250 in 2006 representing a decrease of 7.8 percent when compared with 2001.

It is critical to postulate a long-term scenario under which housing and infrastructure needs arising out of additional population will exceed the capacity of our existing and committed development areas. Suitable development growth areas to accommodate the growth needs include the new development areas in rural New Territories as put forward in the 2007-08 Policy Address. These new development areas offer the largest potential reservoir of land for further urban development especially in Northwest New Territories and Northeast New Territories. However, constraints prevail in developing these rural areas, including the long and costly process of resumption/acquisition of scattered, small land-holdings in private ownership and the huge costs of land formation and infrastructural provision (PlanD, 2002a). The HKSAR Government also proposed to substantially reduce the frontier closed area in the northern New Territories adjoining Shenzhen from about 2,800 to about 800 hectares and the commencement of the planning study to draw up a preliminary proposal on the potential uses of land to be exercised.

Office, commercial and industrial sector

Table 5.2 indicates the future volume of private building sectors covering the residential, office, commercial and industrial buildings up to 2008. The office sector in 2006 witnessed an increase in acquisitions by institutional investors and en-block transactions on the back of solid economic growth and tight new supply in core districts (R&VD, 2007). The improving economy and expansion of the financial sector had lent support to the growth of office rents, giving both local and overseas investors confidence in the property market.

	Unit: '000 m ²			
	2005	2006	2007	2008
Residential (no. of units)	17,320	16,580	12,740	16,010
Office	34	108	249	342
Commercial	111	183	52	125
Flatted Factories	0	0	16	73
Industrial / Office	4	0	0	4
Specialised Factories	0	16	53	11
Storage	13	27	0	5

Table 5.2 Short-term forecasts for the private building sector

Source: *Hong Kong Property Review 2007, Rating and Valuation Department*

Office completions in 2006, at 108,200 m², tripled that in 2005, though still far less than the 5-year average of 171,000 m². Take-up outstripped completions for the third consecutive year which saw the overall vacancy down to 7.7 percent of stock. Completions in 2007 and 2008 are estimated by the R&VD to increase further to 248,700 m² and 341,900 m² respectively, with nearly all being found on top of or near the mass transportation routes in non-core districts. However, completion of commercial spaces is expected to fall in the following two years, to 52,200 m² in 2007 and 125,300 m² in 2008. On the other hand, as the requirements for logistics business and investors purchasing for the alternative use, factories and industrial buildings might have a slight rebound in the next few years.

Long-term forecasts up to 2030 of the economic floor space demand, including Central Business District (CBD) Grade A Office, General Business Uses⁴, and Special Industrial Uses⁵, were produced by the Planning Department applying an econometric approach as shown in Table 5.3. Accounting the local and regional economic growth, Hong Kong's population estimates, persons engaged in different employment sectors as well as broad assumptions for worker density, it is estimated an increase of 10,500,000 m² gross floor area for the economic floor space demand between 2010 and 2030 is needed.

⁴ General business uses cover non-CBD Grade A offices, flatted factories, industrial/office uses and private storage etc.

⁵ Special industrial uses include industrial estate, science park and Cyberport etc.

Unit: '000,000 m ²							
Economic Land Category	2010		2020		2030		Increase 2010-2030
CBD Grade A Offices	4.1	(10%)	5.1	(12%)	6.7	(13%)	2.6
General Business	33.0	(80%)	35.5	(76%)	38.2	(74%)	5.2
Special Industries	4.0	(10%)	5.5	(12%)	6.7	(13%)	2.7
Total	41.1	(100%)	46.2	(100%)	51.6	(100%)	10.5

Table 5.3 Forecast of economic floorspace demand

Source: *Forecast of Economic Floorspace Demand, Working Paper No.43, Planning Department, March 2007*

Hong Kong's role as an international financial centre and the "gateway to China" is anticipated to be maintained. A survey conducted by C&SD in 2006 recorded a total of 3,845 overseas companies having established their regional operations in Hong Kong. The number of regional headquarters increased from 966 in 2003 to 1,228 in 2006; the number of regional offices increased by 17 percent from 2,241 in 2003 to 2,617 in 2006, both being the all time highs. Initiatives of InvestHK have helped to maintain this growth and will continue to boost up demand for high-grade offices (PlanD, 2007).

The signing of Closer Economic Partnership Arrangement (CEPA) in 2003 has brought about an impact on office demand in Hong Kong (CITB, 2005). More local companies indicated that both the number of staff and the accommodation area have increased. The rise in Mainland tourists under the Individual Visit Scheme (IVS) has generated new jobs and capital investment in Hong Kong – over 6 million trips were made by Mainland visitors as in 2007 by September, representing a 26.1 percent year-on-year increase. Incremental visitor spending is estimated at HK\$9.9 billion (US\$1.3 billion) in 2005. As regards the economic impact of CEPA in the first two years of implementation, it is estimated about 29,000 new jobs were created for Hong Kong residents, generating HK\$5.4 billion in services receipts, and inducing HK\$5.5 billion capital investment in Hong Kong. Much of this growth could stimulate demand for tourist facilities, hotels as well as offices at secondary locations.

Being "Mainland's springboard to the world" is another important role of Hong Kong. The implementation of CEPA has also facilitated the setting up of operations in Hong Kong by Mainland private enterprises. Over the past few years, in compliance with

the Central Government's policy of inspiring Chinese enterprises to "going out" and explore the overseas market, the State Administration of Foreign Exchange (SAFE) has gradually relaxed its controls on exchanging Renminbi into foreign currency for investment purposes. As a result, more Mainland private enterprises are expected to establish operations in Hong Kong. As advised by the Commerce and Economic Development Bureau (CEDB), many of those already established here tend to be small and medium-sized enterprises demanding less prime locations. In this regard, we could assume that in future, there will be a continuous demand for land for general business uses.

In the past few decades, Hong Kong's economy has been changing rapidly, from a manufacturing base to a logistics and hi-tech services hub. It is envisaged that there will be a growing demand on the land for value-added and high-tech industries. As understood from CEDB, there has been a recovery in the take-up rate for land at the existing industrial estates. It is therefore anticipated that the demand for accommodation of special industries in future would exceed 6,000,000 m² in 2030.

5.2.2 Public building sector

The HKSAR Government has committed to ensure an adequate and steady supply of public rental flats to low-income families, targeting the average waiting time at three years. A total of 107,000 rental flats were developed from 2001/02 to 2005/06 by the HKHA. The public expenditure on housing, however, has a significant decline over the past years as shown in Figure 5.3. The expenditure shrank from \$42 billion in 2000/01 to \$16 billion in 2005/06, lowered to 6.3 percent of the total public expenditure.

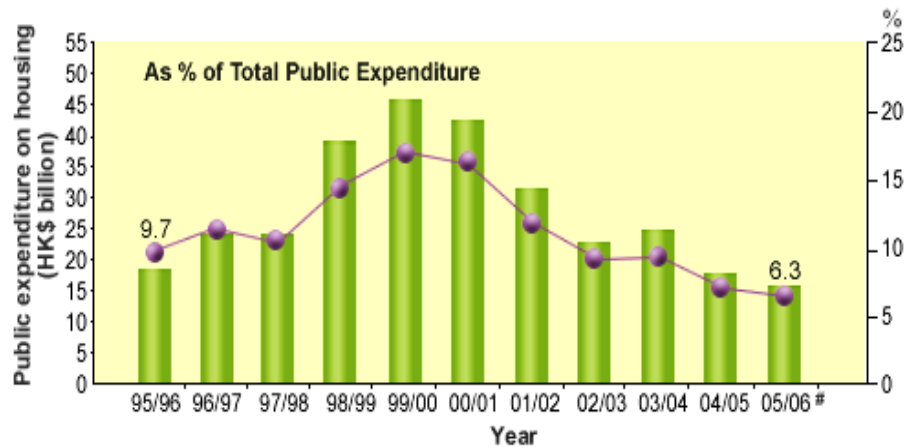


Figure 5.3 Public expenditure on housing

Source: Hong Kong Housing Authority (2006)

In the next few years, the HKHA and HKHS has provided with land for the construction of over 65,000 public housing units for the four years between 2007/08 and 2010/2011 (HKHA, 2007; HKHS, 2007). However, in order not to interfere the market-driven real estate sector, the production of HKHA's sale flats will still put into a halt in the next few years. In addition, the government will also implement a number of capital building works and subvented projects in the next decade, which offers encouraging prospects to the future construction. The selected list of these public projects under planning cost over \$300 million is shown in Table 5.4.

As revealed in Figure 5.2, the population is projected to follow a continuous ageing trend. In 2006, 14 percent of the population were aged under 15. This is projected to decrease to 12 percent in 2036. On the other hand, the proportion of those aged 65 or over is projected to rise from 12 percent in 2006 to 26 percent in 2036, representing an increase from 0.85 million residents in 2006 to 2.26 million residents. Correspondingly, the median age would rise from 39.6 in 2006 to 46.1 in 2036. The Transport and Housing Bureau has also assessed that about 73,000 households require elderly housing each year from 1999/2000 to 2008/09 (PlanD, 2002a). Hence, the provision of public housing and community facilities to support the ageing population may create substantial work for the local construction industry.

id	Project Title	Scheduled Start and Completion	Estimated Project Cost	Building Type
1	Phased Reprovisioning of Cape Collinson Crematorium	2009Q2 – 2013Q4	\$300M - \$400M	Burial Grounds, Columbaria and Crematoria
2	Junior Police Officers' Married Quarters in Area 44, Tuen Mun	2007Q4 – 2010Q1	\$300M - \$400M	Quarters
3	Siu Sai Wan Complex, Chai Wan	2008Q2 – 2010Q4	\$300M - \$400M	Mixed Amenity Packages
4	Tin Shui Wai Public Library cum Indoor Recreation Centre	2007Q4 – 2011Q2	≥\$500M	Mixed Amenity Packages
5	Tamar Development Project	2007Q4 – 2011Q2	≥\$500M	Intra-governmental services
6	New Civil Aviation Department Headquarters	2008Q3 – 2011Q4	≥\$500M	Intra-governmental services
7	Tseung Kwan O Complex in Area 44, Tseung Kwan O	2008Q4 – 2011Q2	\$300M - \$400M	Community Centres and Halls
8	Swimming Pool Complex in Area 2, Tung Chung - Phase 1	2007Q4 – 2010Q2	\$400M - \$500M	Sports Facilities
9	Swimming Pool Complex in Area 1 (Sun Wai Court), Tuen Mun	2008Q4 – 2011Q2	\$400M - \$500M	Sports Facilities
10	District Open Space at Po Kong Village Road, Wong Tai Sin	2008Q1 – 2010Q4	\$400M - \$500M	Open Spaces
11	Sun Yat Sen Memorial Park, Phase 2	2008Q2 – 2011Q2	≥\$500M	Open Spaces
12	Redevelopment Phase II – Caritas Medical Centre	2007Q4 – 2012Q1	≥\$500M	Hospitals
13	Redevelopment of Yan Chai Hospital	2009Q4 – 2015Q1	\$300M - \$400M	Hospitals
14	New Campus for the Hong Kong Design Institute and the Reprovisioning of Hong Kong Institute of Vocational Education Lee Wai Lee Campus	2007Q3 – 2010Q1	≥\$500M	Tertiary/Other
15	Redevelopment of Hong Kong Sports Institute	2008Q4 – 2011Q3	≥\$500M	Sports Facilities

Table 5.4 List of capital public building works (over \$300 million)

Reference: ArchSD (2007)

Urban renewal also provides numerous opportunities for the local construction stakeholders. An Urban Renewal Strategy study completed by the Planning Department in 1999 has identified 200 priority projects with 90 percent of them are over 30 years old, covering about 55 hectares of land. The URS Study focuses on renewal actions in areas where there are urgent needs for eradicating run-down buildings, preserving buildings of heritage value, area-wide replanning and restructuring. Upon redevelopment of all the 200 priority projects, it is anticipated that 62,800 new flats, 51,500 m² open space and 70,700 m² community facilities will be provided as well as 27 buildings of local character will be preserved (PlanD, 2002b).

The URA has formulated strategic direction and a Five-year Corporate Plan for prioritising the competing claims between past commitments and future expansion, the urgent need for slum clearance and the gradual rejuvenation of old districts, compulsory redevelopment and voluntary rehabilitation, limited financial resources

and high public expectations. The Financial Secretary has approved the URA's sixth Five-year Corporate Plan for 2007/08 to 2011/12 and the Annual Business Plan 2007/08. The Corporate Plan covers a total of 81 redevelopment projects comprising:

- Eight projects commenced by the former Land Development Corporation, 23 projects commenced by the URA since its establishment to end of 2006/07, nine projects scheduled to be commenced in 2007/08, 33 redevelopment projects scheduled to be launched between 2008/09 and 2011/12 and eight redevelopment projects undertaken in association with the HKHS, all of which have already commenced.
- The Corporate Plan and Business Plan also see the continuation of the URA's expanded rehabilitation strategy launched in 2004/05 comprising a Rehabilitation Materials Incentive Scheme, an interest free Rehabilitation Loan Scheme and a Hardship Grant Scheme. The various schemes are estimated to cover over 1,000 buildings.
- Revitalisation initiatives to capitalise on and integrate other activities within many of the 20 Action Areas to achieve overall environmental, economic and social regeneration are also included in the URA's Plans.

5.2.3 Civil engineering sector

Realising the 10 major infrastructure and railway projects valued at \$100 billion annually, the civil engineering sector in particular will be substantially benefited. These projects will not only expand the room necessary for Hong Kong's further development, but also improve transportation, thereby linking up socio-cultural and business with more efficient transportation systems. More importantly, with closer rail and road transport links between Hong Kong and the neighbouring regions and the Pearl River Delta (PRD), further cross-boundary integration can be fostered.

In accordance with the 2007-08 budget plan of the HKSAR Government, \$29 billion per annum on average has been earmarked for infrastructure projects and capital

works projects over the next few years. In the next financial year, the construction of a number of major projects will commence, and these include the improvement and upgrading works for the 2009 East Asian Games sports facilities, Stage 2 of the Replacement and Rehabilitation Programme for Water Mains, drainage works in various districts. In addition, the HKSAR Government is pushing ahead several major projects, including the Central - Wan Chai Bypass and Wan Chai Development Phase II and Central Kowloon Route which involve expenditure of \$25.2 billion and \$12.5 billion respectively. The committed and assumed major infrastructure projects in Hong Kong are listed in Table 5.5 and the details are depicted in Appendix XV.

	By 2010 (Committed in addition to existing rail network)	By 2020 (in addition to 2010 network)	By 2030 (in addition to 2020 network)
Railways Projects	<ul style="list-style-type: none"> ▪ Tseung Kwan O South Station ▪ Kowloon Southern Link ▪ Sheung Shui to Lok Ma Chau Spur Line 	<ul style="list-style-type: none"> ▪ Shatin to Central Link (SCL) ▪ Kwun Tong Line Extension ▪ Northern Link (NOL) ▪ Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link ▪ West Island Line ▪ South Island Line (East) 	<ul style="list-style-type: none"> ▪ North Hong Kong Island Line ▪ South Island Line (West)
Major Road Projects	<p><u>New Territories</u></p> <ul style="list-style-type: none"> ▪ Route 8 (Shatin to Tsing Yi) ▪ Castle Peak Road Widening (Tsuen Wan Area 2 to Siu Lam) <p><u>Cross-boundary</u></p> <ul style="list-style-type: none"> ▪ Deep Bay Link 	<p><u>Hong Kong</u></p> <ul style="list-style-type: none"> ▪ Central -Wan Chai Bypass ▪ Island Eastern Corridor Improvement <p><u>Kowloon</u></p> <ul style="list-style-type: none"> ▪ Gascoigne Road Flyover widening ▪ Central Kowloon Route ▪ Trunk Road T2 <p><u>New Territories</u></p> <ul style="list-style-type: none"> ▪ Tolo Highway/Fanling Highway widening ▪ Tseung Kwan O - Lam Tin Tunnel ▪ Cross Bay Link at Tseung Kwan O ▪ Hiram's Highway Dualling ▪ Lantau Road P1 ▪ Strategic North-South Link between NWNT and North Lantau <p><u>Cross-boundary</u></p> <ul style="list-style-type: none"> ▪ Hong Kong-Zhuhai-Macao Bridge (HZMB) ▪ HZMB's North Lantau Highway Connection 	<p><u>Hong Kong</u></p> <ul style="list-style-type: none"> ▪ The Fourth Harbour Crossing ▪ Route 4 (Kennedy Town – Aberdeen) as an alternative to South Island Line (West) <p><u>New Territories</u></p> <ul style="list-style-type: none"> ▪ Eastern Highway (NENT to Kowloon) ▪ Tsing Yi Lantau Link – with Coastal road and Chok Ko Wan Link Road (Pa Tau Kwu Section)

Table 5.5 List of committed and assumed major transport projects

Source: *Hong Kong 2030 (2007), the HKSAR Government*

Note: ^ The Governments of Guangdong, Hong Kong and Macao have commissioned a consultant to study on the locations and arrangements of the Boundary Crossing Facilities (BCF) under the mode of “Separate Location of BCF” for the HZMB. It should be noted that projects assumed are purely postulates for strategic transport assessments of the development scenarios under the Study. The need, scope and timing of each of the assumed transport projects would be subject to further review.

5.2.4 Repair and maintenance sector

In consequence of an apparent increasing stock of aged buildings together with government's mandatory initiatives on building maintenance, the repair and maintenance sector remains an important market for various local industry stakeholders in the foreseeable future. The BD, the HKHA, the HKHS and the URA will continue implement the Building Management and Maintenance Scheme, Building Rehabilitation Programme, Coordinated Maintenance of Buildings Scheme, Building Safety Loan Scheme and other building safety initiatives in order to carry out works voluntarily, or in compliance with statutory orders, including building and slope repairs, maintenance and upgrading works on fire services installations, lift installation, electrical installation, windows and gas risers, regular slope maintenance works, removal of unauthorised building works and to improve the conditions of more buildings in Hong Kong and to regenerate older urban areas.

A total of \$830 million has been earmarked to the BD over a period of five years starting from 2006/07 for the purpose of removing over 180,000 unauthorised structures and to promote proper building management and maintenance. Through the Coordinated Maintenance of Buildings Scheme and other building safety initiatives, the BD will continue to urge building owners to carry out timely building maintenance and repair. The HKSAR Government also plans to introduce the Mandatory Building Inspection Scheme to all buildings in Hong Kong and Building Energy Codes by legislation.

For public housing, the HKHA will increase expenditure on capital building and civil engineering works, with \$6.3 billion being spent on a Total Maintenance Scheme to carry out territory-wide inspection and maintenance for public housing flats in the next three years. A number of improvement measures will also be implemented including a \$100 million programme to fund the provision and improvement of facilities and caring service for visually impaired residents.

Additionally, Hong Kong has a number of monuments which need proper preservation. There are a total of 82 monuments declared under the Antiquities and Monuments Ordinance (AMO, 2007). Besides, out of about 8,000 pre-1950 buildings

recorded, it is preliminary estimated that about 1,200 are with considerable historical value (PlanD, 2002). Hence, built heritage conservation and revitalisation of historical buildings would provide valuable opportunities for the construction sector. According to the Chief Executive's Policy Address 2007-08, \$1 billion has been earmarked by the government under the Capital Works Reserve Fund to preserve and revitalise the heritage buildings. They can be applied for adaptive reuse and transformed creatively into unique cultural landmarks. The government will also offer financial support for the maintenance of privately-owned graded historic buildings.

5.3 International construction market⁶

Construction services are exportable to the international market (Bon and Crosthwaite, 2001). Many construction-related companies worldwide, capitalising on their competitive edges, have indeed expanded their business into overseas market not only to overcome the local construction recession but also to secure a constant amount of the revenue and hence laying the firm's foundation to the construction industry (Hillebrandt *et al*, 1995). This section assesses the opportunities and constraints of the international construction markets including Mainland China, Macau and Middle East. There are also potential but less prevailing markets elsewhere such as India, Thailand, Vietnam which are not covered in this report.

Local industry practitioners' perceptions on opportunities of the international market were first obtained through the first-round questionnaire survey. The results are shown in Table 5.6. The respondents highly rated "high-quality fitting-out in China" (mean = 3.58), "Macau construction market" (mean = 3.55) and "Middle East construction market" (mean = 3.54) as the sources of offshore work for the local construction stakeholders.

⁶ For this study, international construction market includes Mainland China and Macau.

	N	Mean	Std. Deviation
High-quality fitting-out works in China	48	3.58	0.846
Macau construction market	51	3.55	1.026
Middle East construction market	48	3.54	1.010
New building works in China (especially M&E elements)	49	3.45	0.959
India construction market	48	3.40	0.917
Repair and maintenance works in China	50	3.20	0.782

Table 5.6 Opportunities of the overseas construction works in the next five years (first-round questionnaire survey)

Note: 1=Large decrease; 2=Decrease; 3=Maintain as it is; 4=Increase; 5=Large increase

Survey respondent's general views of the overseas market were sought through the first-round questionnaire, and the results are shown in Table 5.7. In general, respondent company's turnover (mean = 2.80) and size of overseas offices (mean = 2.83) has increased over the past few years, but not the case for the number of foreign companies acquired by, or joint-ventured with the local construction companies (mean = 2.53). On the other hand, local industry practitioners might not prefer developed countries⁷ than developing countries as the relatively high levels of construction demand within the latter (mean = 2.48). This finding is consistent with the Seymour's (1987) theory, but contrary to the UK construction practice as revealed by Crosthwaite (1997) as the major share of UK construction companies' overseas activities appears to be conducted within developed, rather than developing, regions. In addition, it was found that it is more crucial to go with the client, or be a client, to succeed in overseas market (mean = 2.98) instead of bringing along subcontractors (mean = 2.64) to the overseas market.

⁷ According to the United Nations, there is no established convention for the designation of "developed" and "developing" countries. In common practice, Japan, the US, Australia and Europe are considered "developed" regions. Countries emerging from the former Yugoslavia, and Mainland China are treated as developing countries because of the relatively low GNP per capita.

	N	Mean	Std. Deviation
Your company's overseas turnover has increased during the period 2000-2006	41	2.80	1.005
Your company's overseas offices have increased in size during the period 2000-2006	40	2.83	0.984
The number of foreign companies acquired by, or joint-ventured with, your company has increased during the period of 2000-2006	40	2.53	0.960
Your company prefers developed countries more than developing ones	50	2.46	0.706
It is crucial to bring along your subcontractors if you are to succeed in overseas markets	42	2.64	0.692
It is crucial to go with your client, or be your own client, if you are to succeed in overseas markets	45	2.98	0.628

Table 5.7 General views of the overseas market (*first-round questionnaire survey*)

Note: 1=Strongly Disagree; 2=Disagree; 3=Agree; 4=Strongly Agree

The critical success factors for operating business in overseas countries were rated through questionnaire survey. The results are shown in Table 5.8. It seems the identified factors were highly rated as crucial for exploring the overseas markets with mean value higher than three. In particular, “project management” (mean = 3.63) and “connection with client” (mean = 3.63) were ranked as the most critical factors to successfully operate in the international markets.

	N	Mean	Std. Deviation
Project management in general	3.63	0.486	52
Connection with client	3.63	0.525	52
Connection with government	3.47	0.608	53
Reputation in a niche area	3.47	0.631	44
Sub-contracting management in particular	3.39	0.635	51
Advanced or proprietary technology	3.29	0.572	52
Equity investment in construction projects	3.15	0.545	48

Table 5.8 Critical success factors for operating in overseas construction markets (*first-round questionnaire survey*)

Note: 1=Very unimportant; 2=Unimportant; 3=Important; 4=Very important

5.3.1 Mainland China

With a quarter of the total global population, China has become the fastest growing economy in the world since the introduction of the “Open Door Policy” since 1980s. The transition from a planned economy to a market economy has encouraged non-state owned sectors to make capital investment on an increasing scale (Lu and Fox, 2001). Manufacturing facilities have sprouted especially in Southern China especially the PRD region resulting in booming construction of residential, hotels and serviced apartments. This has resulted in an intensified and rapid city modernisation, giving rise to huge demand on infrastructure and real estate development. Investment in infrastructure developments is a key element of China’s Tenth and Eleventh Five Year Plan (2001-2010), with a special focus on roads, rail systems, ports, airports and energy generation projects. Continued massive infrastructure investment by the Chinese government, high economic growth rates, rapid urbanisation, and the 2008 Beijing Olympics as well as 2010 World Expo, Shanghai will bring the China construction and economy to a peak.

The construction industry benefits from heavy investment in capital projects. The contribution of construction output to China’s economy is evidenced by the statistical data in Table 5.9. The GDP of construction works constituted over RMB 141 billion in 1992 and substantially increased to RMB 1,013 billion in 2006, representing an increasing rate of about 17 percent per annum but constantly contributing around 5.5 percent of the overall GDP of China. In addition, the booming real estate sector also provides opportunities for the Hong Kong construction stakeholders as reflected by the apparent increase of the floor space under construction over the past 15 years. Although the recently announced credit squeeze has dampened the rate of growth, the investment in construction will still be maintained at a high level in the next few years.

Year	Gross Domestic Product (billion RMB)	Construction		Floor Space Under Construction (10,000 m ²)
		Gross Output Value of Construction (billion RMB)	% of GDP	
1992	2,694	142	5.25%	51,885
1993	3,526	227	6.43%	65,374
1994	4,811	296	6.16%	78,032
1995	5,981	373	6.23%	89,863
1996	7,014	439	6.25%	129,087
1997	7,806	462	5.92%	128,680
1998	8,302	499	6.01%	137,594
1999	8,848	517	5.85%	147,263
2000	9,800	552	5.63%	160,141
2001	10,807	593	5.49%	188,329
2002	11,910	647	5.43%	215,609
2003	13,517	749	5.54%	259,377
2004	15,959	869	5.45%	310,986
2005	18,474	1,013	5.49%	352,745
2006	21,181	1,185	5.60%	410,154

Table 5.9 GDP of construction in China (1992-2006)

Source: National Bureau of Statistics, *Statistical yearbook of China (2007)*

A number of cities in China have strong economic growth over the past few years and worth considering and exploring by the Hong Kong construction stakeholders. The leading cities include Beijing, Shanghai, Chongqing, Shenzhen and Guangzhou of the Guangdong Province. The GDPs of construction in selected cities and provinces are shown in Table 5.10. In addition, infrastructure projects, housing development and facility management in the “second-tier cities” in China also provide golden opportunities for the Hong Kong construction-related companies to invest in the real estate market, and to provide architectural, engineering, surveying and construction services. These include, but not limited to:

- Dongguan of the Guangdong Province;
- Fuzhou of the Fujian Province;
- Changsha of the Hunan Province;
- Chengdu of the Sichuan Province;
- Nanchang of the Jiangxi Province;
- Nanning of the Guangxi Province.

Unit: billion RMB

Year	Beijing	Shanghai	Chongqing	Guangdong	Fujian	Hunan	Sichuan
1992	5.3	4.1	2.1	20.1	5.0	5.3	6.3
1993	8.1	5.6	2.9	32.1	7.6	7.1	8.5
1994	9.5	7.4	3.5	39.4	11.0	9.2	11.5
1995	11.1	11.1	5.2	46.3	14.6	11.7	14.8
1996	14.2	14.3	7.0	48.1	17.0	13.7	17.8
1997	15.0	17.4	8.6	48.9	20.1	14.8	21.0
1998	17.6	20.1	10.5	52.9	23.6	17.7	25.5
1999	19.1	19.5	11.2	55.8	23.8	20.1	26.3
2000	19.8	20.7	13.0	57.4	24.1	23.1	30.7
2001	21.4	23.4	15.1	60.9	25.9	26.4	34.9
2002	24.2	25.2	17.7	64.7	27.7	29.6	43.1
2003	28.0	26.5	20.9	77.4	34.6	34.1	49.5
2004	32.0	29.5	25.4	87.9	41.8	43.3	52.5
2005	31.9	32.3	23.6	85.8	35.8	40.7	54.0
2006	37.0	35.8	26.7	93.2	43.2	45.8	63.0

Table 5.10 GDP of construction in selected cities and provinces of China (1992-2006)

Source: National Bureau of Statistics, *Statistical yearbook of China (2007)*

The HKSAR Government has been working actively towards bringing about a rebound of the Hong Kong economy and with the support of the Central Government of Mainland China signs of economic recovery are emerging. The CEPA opens up the market for Hong Kong goods and services, greatly enhancing the already close economic cooperation and integration between the Mainland and Hong Kong. Achievements for the construction industry include securing preferential access treatment for the Hong Kong construction industry in the Mainland market and expediting the conclusion of mutual recognition arrangements for a number of construction professions.

Preferential measures also include allowing Hong Kong service providers and suppliers to establish wholly-owned operations in a number of construction services and to fully acquire Chinese construction companies, relaxing the requirements for qualification assessment as well as the residency requirements for Hong Kong construction professionals and technicians. These arrangements together with the geographical advantage and proximity to capital and culture give Hong Kong companies an exclusive competitive edge in the Mainland construction market when compared with the foreign competitors. Statistics published by the CEDB, previously the Commerce, Industry and Technology Bureau in June 2007 recorded that 58 percent and 72 percent of the responding companies in the architectural and engineering sector considered CEPA beneficial to their industries and establishments respectively (CITB, 2007).

Many construction industry stakeholders in Hong Kong, particularly the large private developers, architectural firms, surveying consultants and engineering consultants (especially the building services discipline), have been successfully engaging in the Mainland market. However, the construction surveying and engineering professional strengths did not match perfectly with the general requirements of the Mainland projects as shown in Tables 5.11 and 5.12. Hong Kong surveyors and engineers wished to provide high-end professional services in China such as feasibility studies, project management and valuation / appraisal, etc., but the Chinese firms' demand for these services was lower than the expectations from the Hong Kong firms. Nevertheless, there are opportunities for Hong Kong professionals in providing surveying and engineering services in (i) investment and capital acquisition; (ii) building design/inspection; (iii) development project proposals in low cost housing projects; and (iv) property and facility management (Wong *et al*, 2004).

	HK surveying firms would like to develop in China (%)	Actual demand for surveying service rated by Chinese firms (%)
Feasibility studies	64.4	30.0
Valuation / appraisal	46.7	17.7
Development project proposals	44.4	33.0
Project management	44.4	25.6
Property agency / marketing	33.3	32.5
Investment and capital acquisition	28.9	35.0
Property and facility management	29.9	19.7
Quantity surveying	28.9	15.8
Building design / inspection	15.6	14.8
Land surveying	11.1	3.5
Construction	4.4	8.4
Sample size (N)	97	203

Table 5.11 Comparison of professional services offered by Hong Kong surveying firms and the actual demand for these services by the Chinese firms

Source: Wong *et al* (2004)

	HK engineering firms would like to develop in China (%)	Actual demand for engineering service rated by Chinese firms (%)
Project management	69.2	24.1
Construction	50.0	16.3
Building design/inspection	46.2	35.0
Feasibility studies	42.3	14.8
Development project proposals	26.9	21.2
Valuation / appraisal	11.5	8.9
Investment and capital acquisition	3.8	19.7
Property and facility management	3.8	25.1
Property agency / marketing	0.0	14.8
Sample size (N)	97	203

Table 5.12 Comparison of professional services offered by Hong Kong engineering firms and the actual demand for these services by the Chinese firms

Source: Wong *et al* (2004)

The demand for Hong Kong engineers and contractors were also more concentrated on foreign invested construction projects or those schemes which are constructed by the overseas and Hong Kong construction companies (Ng *et al*, 2005), as they preferred employing Hong Kong companies due to better quality assurance, contract performance, good quality of fitting-out works and expertise in electrical and mechanical engineering services. However, these competitive advantages might not be sustainable since more major projects are successfully completed by the Mainland contractors.

In addition, construction especially the building sector is a localised industry. Many projects are undertaken by local specialist subcontractors. It would take a long time to develop a relationship with these subcontractors. Hong Kong contractors are small in scale and they lacked resources to develop their business networks in the Mainland. They are also less competitive in pricing comparing with the local competitors. Wong *et al* (2004) also identified ‘indigenous law and regulations’, ‘bureaucratic procedures’ and ‘local conditions and circumstances’ are the major obstacles to explore the Chinese construction market by Hong Kong construction professionals. Hong Kong construction stakeholders are therefore advised to equip themselves and sharpen their competitive edge to explore the booming construction market in the motherland.

5.3.2 Macau

Macau is another market providing opportunities for the Hong Kong construction industry. Figure 5.4 shows the trend of construction output in Macau over the past 15 years. The Macau construction and real estate industries took off in the late 1970s when Macau’s economy experienced rapid recovery and growth, which stimulated the demand for housing, office units and a number of major infrastructure projects. The Macau government commenced construction of many major infrastructure projects in the beginning of the 1990’s, e.g. the international airport and deep water port. These initiatives stimulated the property and then construction markets in the mid 1990’s. However, the property bubble burst after the Asian financial crisis in 1997. There was a glut of completed properties, resulting in a high vacancy rate and consequently

the construction industry suffered seriously. The industry only contributed an average of three percent of the Macau's GDP from 1998 to 2002. Both the main contractors and sub-contractors have been seriously tarnished because of the construction recession.

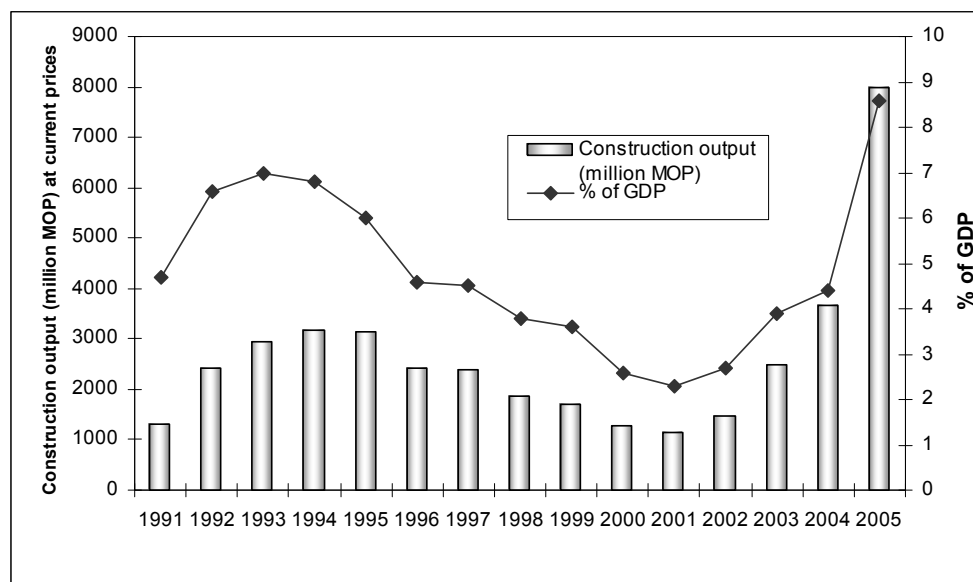


Figure 5.4 Construction output in Macau (1991 – 2005) at current prices

Source: *The Statistics and Census Service (DSEC), the Macao SAR Government*

Subsequent to the handing over to China in 1999, the construction industry of Macau began to thrive. The construction volume has been increasing significantly since 2003, reaching nearly MOP \$8 billion and representing 8.6 percent of its GDP in 2005. According to official statistics, 36,500 people were engaged in the Macau's construction industry in the second quarter of 2007, representing 12 percent of the total workforce (DSEC, 2007). Table 5.13 further shows the detailed building works in Macau at the second quarter of 2007. Construction together with tourism and gambling, export processing and banking, are recognised as the four pillars of Macau's economy.

	Residential (no. of units)	Commercial (no. of units)	Office units (no. of units)	Hotel (m ²)
Under approval	24,050	336	1	1,776,294
Under construction	8,584	534	140	3,426,903
Total	32,634	870	141	5,203,197

Table 5.13 Buildings under approval and construction in Macau (June 2007)

Source: *Land, Public Works and Transport Bureau of the Macao SAR (2007)*

The liberalisation of the gaming industry since 2002 has greatly benefited the general economy of Macau. The Macau government has opened up the gaming industry by awarding three casino-operating concessions which would expand the so-called MICE industry (i.e. meetings, incentives, conventions and exhibitions). “Following the opening-up of Macau’s gaming industry, billions of dollars will be invested in Macau in the construction of theme hotels and other tourism infrastructures, something that will contribute to expand tourism related with the MICE industry”, said the Government’s Secretary for Social Affairs and Culture at a press conference to announce the ‘tourism promotion strategies’ of the Macau Government Tourist Office in 2003. The service industry comprising public administration, cultural, recreational, gambling and others has been thriving since the return of sovereignty in 1999, and has become the major engine of economic growth in recent years. The industry generated some 50 percent of Macau’s GDP in 2006, when the special administrative region welcomed a record 22 million visitors’ arrival owing to the implementation of the Mainland’s “facilitated individual travel” policy.

Substantive measures have been taken for various cross-border traffic solutions to link Macau up with other parts of the PRD region. The launching of the projects together with the local government’s investment and the flourishing tourism industry will continue to stimulate domestic demand and created plenty of opportunities in the construction sector, resulting in a shortage of local professionals, technicians and construction workers to cope with the huge volume of construction works in Macau. This will create plenty of opportunities for various Hong Kong construction industry stakeholders for short to medium term. However, owing to the market size of the Macau construction industry, it should be stressed that most of the interviewees expressed uncertainties to the prospects of the Macau construction market after a few years.

5.3.3 Middle East

Oil-fuelled economic growth, coupled with favourable demographic fundamentals, growing commercial prominence and booming tourism, has led to an unprecedented construction boom in the Middle East, particularly in the United Arab Emirates (UAE)

and Saudi Arabia. Other key catalysts include repatriation of investment funds from the US after the 9/11 incident, governments' encouragement to private investment in the construction sector, as well as liberalisation of laws regulating foreign business activities and property ownership.

There were over 2,100 construction projects either planned or underway in the Gulf region, i.e. six Gulf Cooperation Council states - Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the UAE, plus Iran and Iraq, with a total value exceeding US\$1 trillion in 2006 (MEED, 2006). Out of this US\$1 trillion, the UAE and Saudi Arabia accounted for 29 percent and 20 percent, respectively. The increasing trend of total construction output is anticipated to continue in 2007. The basic economic indicators of the UAE and Saudi Arabia are shown in Table 5.14. The continuing strong economic performance in the two countries has not only led to increasing demand for residential and commercial real estate, but also generated a high derived demand for supporting infrastructure. Hotel accommodation and tourism facilities such as shopping malls and theme parks are also in great need as existing accommodation has been working at virtually full occupancy amid rising demand for vacation and shopping.

Basic Indicators of the UAE Economy		Basic Indicators of the Saudi Economy	
Population	4.5 million (2006) 6.9 million (2025)*	Population	23.9 million (2006) 37.0 million (2025)*
GDP	US\$163 billion (2006)	GDP	US\$347 billion (2006)
Real GDP growth	10% (2005) 8.9% (2006) 5.8% (2007)*	Real GDP growth	6.5% (2005) 4.2% (2006) 4.3% (2007)*
GDP per capita	US\$36,000 (2006)	GDP per capita	US\$15,000 (2006)

Table 5.14 Economic indicators of the UAE and Saudi Arabia

Source: MEED (2006)

*forecast figures

Having some 15-25 percent of the world's 125,000 construction cranes in operation, Dubai has been the "construction capital" of the Gulf. Despite speculation that Dubai's property market may slow down drastically, the short to medium-term market outlook remains positive amid sustained favourable demographic and commercial fundamentals. With around 330 buildings under construction and 10 super-tall (higher

than 300 metres) skyscrapers being built, the UAE will remain a prosperous market for Hong Kong construction companies specialising in high-rise and skyscraper construction. Developers in Dubai also have substantial interest in sustainability and environmental friendly projects primarily due to the climate condition and the soaring demand for electricity supply. Packaging services in the form of turnkey projects and PPP schemes which demonstrating the sustainability can also attract the client's attention.

Concerning the capital city of the UAE, the government has planned to develop Abu Dhabi into an international tourism spot. For instance, Abu Dhabi is going to host the Formula One Grand Prix in 2009 and build the US \$2 billion Louvre Abu Dhabi. Among many other initiatives, the government has planned to build 100 new hotels by 2015, including resort hotels and the development of 218 surrounding islands off Abu Dhabi, where Al Raha Beach and Saadiyat Island are the two major ongoing projects, among many others. Special marine work and infrastructure such as bridges, roads and tunnels will be needed for the work due to be commenced and transportation between the islands and the city centre. Hence, riding on Dubai's success, Abu Dhabi is realising to become "the next Dubai".

Being the largest economy in the Middle East and the world's leading oil exporter, Saudi Arabia, on the other hand, is accelerating its pace of economic diversification under its eighth five-year economic development plan. Among many government initiatives, six mammoth economic cities have been planned, including the King Abdullah Economic City, which will be the first 'Smart City' in the world with the most advanced ICT facility upon completion. All these new and aggressive development projects are destined to further increase the economic prominence of the Kingdom in the region. With its traditional commercial port status being rejuvenated and superb location being better utilised, Jeddah is benefiting from the Kingdom's plan to quicken the development of its western region and will also be a hot spot of development that Hong Kong companies should not overlook.

Owing to the construction boom, construction costs in the Gulf Cooperation Council have increased by more than 20 percent since 2003. In light of the unprecedented level of construction activity and insufficient local production (in terms of quantity,

quality and variety), the UAE and Saudi governments, as well as property developers, are increasingly interested in sourcing competitive and quality building materials, furniture and interior products from all over the world, with China being one of their prime targets, according to the interviewees in Dubai. Building materials exports from Hong Kong to UAE and Saudi Arabia also show a significant increase over the past few years as indicated in Table 5.15.

Unit: US\$M

	2004		2005		2006		2007*	
	UAE	Saudi Arabia	UAE	Saudi Arabia	UAE	Saudi Arabia	UAE	Saudi Arabia
Building Materials	20 (+43.0%)	6 (+15.1%)	24 (+19.3%)	6 (-2.3%)	35 (+47.8%)	7 (+13.0%)	12 (+23.5%)	3 (+102.6%)
Interior Furnishing Products	10 (+8.1%)	7 (-11.5%)	13 (+23.1%)	7 (+0.1%)	14 (+12.3%)	5 (-26.7%)	4 (+16.6%)	3 (+54.9%)
Household Goods	195 (-7.2%)	59 (+14.5%)	201 (+3.2%)	57 (-4.7%)	203 (+0.7%)	51 (-10.3%)	169 (+165.5%)	18 (+44.4%)

Table 5.15 Hong Kong's total exports to UAE and Saudi Arabia

Source: Report on Hong Kong Trade in Services, Statistics for 2007, C&SD, The HKSAR Government

* Figures between January and April 2007 only

Indeed, the construction boom in the Middle East has not only caused a shortage of materials, but also of manpower. In addition to the US and European construction services providers, companies from Japan, South Korea, Singapore, Malaysia, Indonesia and China are striving to increase their presence in these two countries. Quite a few UAE and Saudi companies have also started recruiting construction professionals from Egypt, Jordan and Lebanon, and hiring general construction workers from Asian countries such as China, Nepal, the Philippines and Vietnam (TDC, 2007). According to the GulfTalent.com, a leading job site in the Middle East, the construction sector in the Gulf Cooperation Council recorded higher-than-average salary increases in 2005 and 2006, indicating a robust demand for professional construction services in the region. Candidates most in demand include architects, structural specialists, quantity surveyors, planning engineers, project directors, design specialists, contract administrators, urban designers/planners and legal consultants / solicitors.

However, Hong Kong's presence in the Middle East is not significant, most UAE and Saudi companies recognise Hong Kong's edges, including its world-class construction expertise and extensive construction experience in super high-rises and marine work.

With more high-rises being built and planned, Dubai and Jeddah are places where Hong Kong's expertise and experience in high-rises can be an advantage. Extensive marine projects in Abu Dhabi, on the other hand, will also offer plentiful opportunities to Hong Kong construction companies to showcase their strengths in marine work.

Some UAE and Saudi Arabia companies also contend that they are willing to pay a premium for Hong Kong products and services given their superior quality, variety and design. Many UAE and Saudi Arabia companies are inclined to source Chinese products via Hong Kong, and believe that Hong Kong can serve as their risk manager in trading with China by providing better assurance on quality, delivery and payment. Leading products include building materials, interior furnishing products and household goods.

On top of the cultural difference, Hong Kong exporters and services providers should be cautious for competition from other Asian countries. On the regulatory front, although both the UAE and Saudi Arabia are opening up, certain protective measures prevail, and some laws and regulations may change from time to time.

To be successful, Hong Kong companies are advised to clearly identify their niches, find a good local partner or agent, adapt to the differences in the two countries as compared to other overseas markets and, as a rule of thumb, familiarise themselves with the markets before venturing out to the Middle East market. According to the interviewees in Dubai, major contractors, comparing with sub-contractors, have a better chance to succeed in getting a contract, but subcontractors alliancing with large contractors is an effective and feasible way to enter this market. For both the UAE and Saudi Arabia, Hong Kong companies are advised to start their business with a good local partner or agent, who can help Hong Kong companies to operate in these relatively difficult but lucrative markets.

5.4 Summary

This chapter presents the market opportunities of the construction markets, both locally and internationally. Although Hong Kong has developed as a mature

metropolis, there are numerous opportunities for various construction stakeholders in the medium to long term. In particular, the HKSAR Government has pledged to push ahead the 10 mega infrastructure projects as reflected in the Chief Executive 2007-2008 Policy Address, which may bring enormous impact to the Hong Kong construction industry in terms of output and employment level. Housing demand is also expected to increase due to the expanding population in the long-run, upgrading of living standard, and changing household formation. In addition, increasing stock of aged buildings and government's initiatives on building maintenance will sustain the repair and maintenance work at a high level in the foreseeable future.

Internationally, with a rapid economic growth and liberalisation of markets in Mainland China and Macau, the changes in construction demand will continue to have a serious impact on both the level of activity and type of works available to various Hong Kong construction stakeholders. Booming construction market in the Middle East including Dubai, Abu Dhabi, Saudi Arabia, Qatar is also an imperative opening for the Hong Kong construction-related companies to provide architectural, engineering, surveying and construction services. Despite the challenges in the overseas markets, given the competitive edges and experience in various construction projects, Hong Kong construction-related firms may eventually find plenty of opportunities in international business arena.

**CHAPTER 6 STRATEGIC DIRECTIONS
FOR SUSTAINABLE
DEVELOPMENT OF THE
CONSTRUCTION
INDUSTRY**

- 6.1 Introduction
 - 6.2 Findings from the Second-round Questionnaire Survey
 - 6.3 Sustainable Development of the Hong Kong Construction Industry
 - 6.4 Summary
-

CHAPTER 6 STRATEGIC DIRECTIONS FOR SUSTAINABLE DEVELOPMENT OF THE CONSTRUCTION INDUSTRY

6.1 Introduction

This chapter proposes the strategic directions and the way forward for the HKSAR Government and various industry stakeholders to develop the Hong Kong's construction industry in a sustainable manner. The proposed strategies are based on a collection of experts' views from various industry stakeholders via discussion forums, questionnaire survey, and face-to-face interviews. The findings of the second-round survey are firstly presented which form the foundations of the proposed strategies.

6.2 Findings from the second questionnaire survey

6.2.1 Sample size and respondents' profile of the second questionnaire survey

Local experienced practitioners in the construction industry were the targeted respondents of the questionnaire survey. For this survey, two stages of data collection were again carried out. The first stage involved direct distribution of questionnaire to senior staff of corresponding construction-related organisations (i.e. government officials, private developers, consultants, contractors and suppliers), through available information from Internet resources⁸ and personal networks of the research team members. Subsequently, with the full support of the CII-HK, a total of 1,800 self-administered survey questionnaires were distributed to individual industrial practitioners by means of postal mail during the second stage. Follow-up telephone

⁸ Internet resources include: i) Building Materials Category at <http://bmcat.com>; (ii) Yellow Pages at <http://yp.com.hk>; and (iii) Times Directory at <http://timesdirectory.com>.

calls and electronic communication platforms were undertaken where possible to solicit more detailed responses and/or provide further clarifications about the survey form. Finally, a total of 57 completed survey questionnaires were returned and used for analysis, generating a response rate of 2.7 percent. Table 6.1 shows the detailed breakdown of the questionnaires received.

Questionnaire distributed through	First stage data collection	Second stage data collection	Total
	Postal mail	CII-HK member companies	
Number of questionnaire sent out	354	1800	2154
Total questionnaires received	46	11	57
Response rate	12.9%	0.6%	2.7%

Table 6.1 Summary of data collection and response rates of the second-round questionnaire

Respondents represented different roles in the local construction industry. Table 6.2 and Figure 6.1 show the backgrounds of the respondents by types of organisation. About 42 percent and 23 percent of them were from main contractors and subcontractors respectively. Respondents from client organisations and consultants respectively account for around 12 percent and 10 percent of the total respondents.

Type of organisation	Frequency	Percentage
Client organisation	7	12%
Main contractor	24	41%
Consultant	6	11%
Subcontractor	13	23%
Supplier / Manufacturer	1	2%
Others	4	7%
Missing data	2	4%
Total	57	100%

Table 6.2 Organisation type of the survey respondents (N=57)

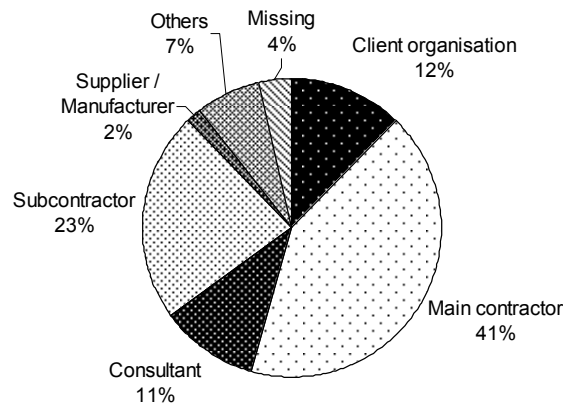


Figure 6.1 Organisation type of the second-round survey respondents (N=57)

Most of the respondents held senior positions in their organisations with abundant experience in the construction industry, as indicated in Table 6.3 and Figure 6.2. Over 70 percent of the respondents have over 20 years of professional working experience in construction, indicating that our respondents generally are well experienced to provide reliable information to the research.

Year of Experience	Frequency	Percentage
5-10 years	3	5%
11-15 years	4	7%
16-20 years	7	12%
More than 20 years	41	72%
Missing data	2	4%
Total	56	100%

Table 6.3 Experience level of the survey respondents (N=57)

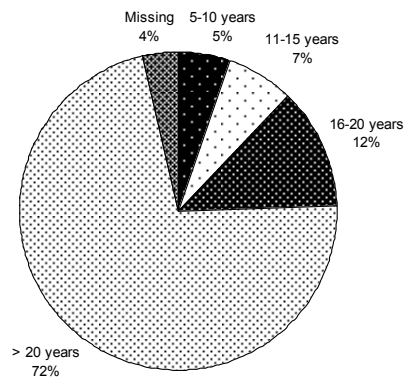


Figure 6.2 Experience level of the second-round survey respondents (N=57)

6.2.2 Strategies for sustainable development of the industry

Table 6.4 shows the perceived applicability of the strategies at the government level as rated by the respondents of the second-round questionnaire survey using a 4-point scale where 1 = extremely inapplicable; 4 = extremely applicable. As anticipated, ‘increase public work investment’ (mean = 3.50) and ‘speed up urban regeneration and renovation’ (mean = 3.41) were considered as the two most applicable governmental strategies to reinvent the Hong Kong construction industry. This reflects the important role of HKSAR Government in supporting the industry as a major investor for Hong Kong’s economic and social development. ‘Developing industry-specific long-term vision and forward planning’ (mean = 3.31) is also highly ranked as a key strategy for government to facilitate the sustainable development of the construction industry.

Strategies at government level	N	Mean	Std. Deviation
Increase public work investment	56	3.50	0.632
Speed up urban regeneration and renovation	56	3.41	0.733
Develop industry-specific long-term vision and forward planning	55	3.31	0.690
Steer, coordinate and provide strategic planning and directions	56	3.25	0.745
Promote modern and innovative building design by updating Ordinance	56	3.25	0.745
Launch mandatory building inspection scheme	55	3.18	0.641
Initiate cross border infrastructure projects	57	3.18	0.710
Provide financial support to research & development for increasing competitiveness	56	3.18	0.606
Resume periodic land sale	51	3.12	0.711
Promote PPP/PFI projects	47	3.11	0.699
Inject funding to preserve historic buildings and improve sustainability/environmental standard	55	3.09	0.674
Export promotion for construction and consultancy services	54	3.04	0.699
Provide market intelligence on overseas markets	54	2.94	0.656
Provide export credit guarantees to industry stakeholders for exploring overseas markets	52	2.77	0.877
Assist with bid bonds, performance bonds for industry stakeholders exploring and contracting in overseas markets	54	2.72	0.787
Provide capital fund to support construction SMEs	49	2.65	0.751
Market intervention	53	2.60	0.743

Table 6.4 Perceived applicability of the identified strategies at government level for sustainable development of the Hong Kong construction industry

Note: 1=Extremely Inapplicable; 2=Inapplicable; 3=Applicable; 4=Extremely Applicable

Table 6.5 shows the perceived applicability of the strategies at the industry level as rated by the respondents of the second-round questionnaire survey. The results indicate that most of the identified industrial strategies are reasonably applicable, with the mean values higher than three. Improving competitiveness, especially in technology (mean = 3.38) and management (mean = 3.36), is perceived as the most applicable strategy for the industry to move forward. Industry is also earnestly advised to ‘adapt to new demand’ such as the repair, maintenance, alteration and addition works’ (mean = 3.36) and to ‘explore overseas markets’ (mean = 3.36).

Strategies at industry level	N	Mean	Std. Deviation
Improve technological competitiveness	56	3.38	0.558
Adapt to new demand	56	3.36	0.586
Improve managerial competitiveness	56	3.36	0.554
Explore overseas markets	53	3.36	0.623
Lobby/negotiate with Government	53	3.26	0.625
Joint venture/ partnership/ merger/ consortia to enhance competitiveness	53	3.23	0.542
Self-regulation (e.g. eliminating inferior firms)	54	3.20	0.711
Improve "image" of the industry	57	3.19	0.667
Improve the network to expand business	55	3.16	0.570
Improve financial competitiveness	55	3.16	0.631
Industry alliancing to enhance collaborative environment	56	3.11	0.679
Invest in research and development	53	3.17	0.700
Plan and provide support for training/retraining at worker level	56	3.13	0.574
Develop a culture of "to lead by example"	54	3.11	0.769
Establish brand name for the industry	56	3.09	0.640
Shift to local alternative markets	52	3.02	0.641
Corporate restructure	48	2.94	0.665

Table 6.5 Perceived applicability of the identified strategies at industry level for sustainable development of the Hong Kong construction industry

Note: 1=Extremely Inapplicable; 2=Inapplicable; 3=Applicable; 4=Extremely Applicable

6.3 Sustainable development of the Hong Kong construction industry

In order to promote sustainable development for the Hong Kong construction industry, the proposed strategies are underpinned by a three-tier hierarchy: (i) vision; (ii) planning and coordination; and (iii) implementation as shown in Figure 6.3.

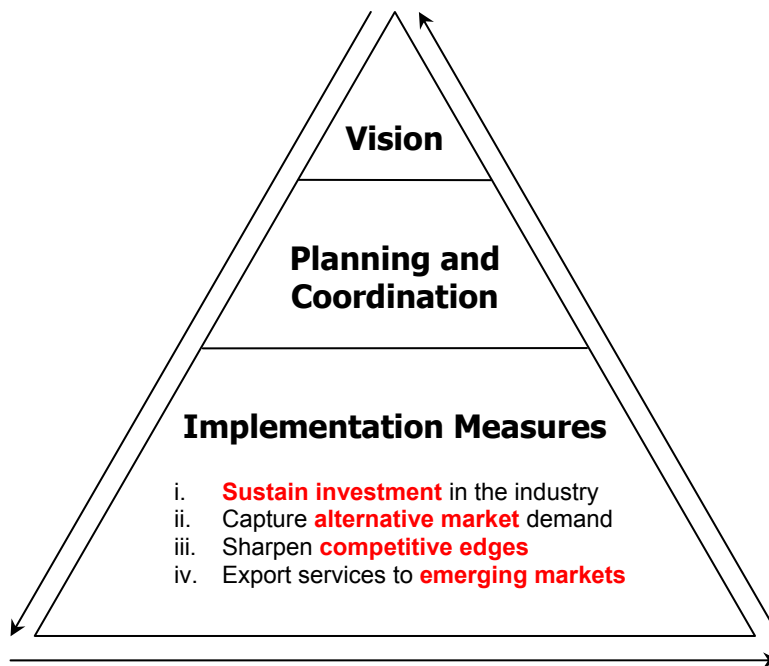


Figure 6.3 Sustainable development of the construction industry

6.3.1 Vision for the construction industry

The recent transformations in the Hong Kong construction industry as discussed in Chapter Two have caused a significant restructure within the industry. A 30-year *long-term vision* is therefore crucial and timely for the construction industry to move forward, as also reflected from the survey findings. The industry-specific vision shall be developed by the Chief Executive via relevant bureaux and organisations including the CEDB, DEVB, and CIC. Extensive consultations with various industry

The PRC Government's Five-Year Plan

The PRC Central Government has a long term vision and strategic planning specific for the Chinese construction industry, in accordance with the CPC Central Committee, State Council's overall strategic plan, and the current status of country reform and development.

Reference: website of Ministry of Construction of the PRC: <http://www.cin.gov.cn/>

practitioners are imperative before formulating the vision and policy so as to position the industry correctly.

Principally, the vision for construction should be in line with the economic vision laid down in the National 11th Five-Year Plan that “*support will be given to Hong Kong’s development on fronts such as financial services, logistics, tourism and information services, and the maintenance of Hong Kong’s status as an international centre of financial services, trade and shipping*”.

Singapore Government’s Vision

The vision for Singapore’s construction industry is to develop into a world class industry in the knowledge age. This encompasses all aspects of the construction value chain, from design to construction to maintenance. 6 strategic thrusts were identified to fulfill the vision: i) Enhancing the professionalism of the industry; ii) Raising the skills level; iii) Improving industry practices and techniques; iv) An integrated approach to construction; v) Developing an external wing; and vi) A collective championing effort for the construction industry.

Reference: Ministry of Manpower and Ministry of National Development, Singapore (1999)

6.3.2 Planning and coordination for the construction industry

With the aim to attain sustainable future for the Hong Kong construction industry, better *forward planning* and *coordination framework* should be formulated. A centralised strategic planning body engaging the core industry stakeholders shall be set up to strategically plan and coordinate the future construction work in a sustainable manner. As a significant economic sector contributed to the general economy and labour market, a sustainable level of construction volume is essentially imperative to the stable economic and social development of the local economy. Anticipating the revitalising of the construction industry in Hong Kong, planning of various resources and skills to match the future market demand is also considered timely and crucial.

Gaining experience and practices in advanced countries, knowledge of the future demand as well as the industry’s capacity for products and services is vital to the sustainable development of the industry and formulation of any viable industrial policy and corporate strategy. The forward planning could be achieved and supported

by econometric modelling techniques to predict future capacity levels of construction demand and related resources (i.e. manpower, materials, plant and machinery, etc.) in Hong Kong (*cf.* OGC, 2005). The **forecasting models** to be developed should be capable of providing reliable estimations and indices on the likely changes in demand for the services of developers, construction contractors and consultants, and the extent to which this will affect their work-load so that the various stakeholders can formulate their respective strategies such as resource planning and competitiveness enhancement.

Construction Forward Planning in Advanced Countries

The United Kingdom

The UK government's projects represent about 40 percent of the total construction works. To enhance the UK construction industry's long term capacity planning and to provide a healthy level of competition, the Office of Government Commerce (OGC) adopts a dynamic model of the construction sector at the macro level to assist government in analysing the potential impact on construction demand and supply caused by major public sector construction investment projects and programmes (OGC, 2005). The OGC wishes smooth out the government's demand through managing the overall procurement requests of various departments. On the other hand, the Construction Products Association (CPA) in UK publishes figures on the predicted work volume for the coming six months. A strategic forum for the development of industry was also initially set up by the UK government to monitor and improve the performance industry.

South Korea

Research centers in South Korea are established to provide forward planning strategies for the construction industry. For instance, the Construction and Economy Research Institute of Korea (CERIK) provides key information to formulate short and long-term management strategies and government policies through estimating trend and forecast Korea's construction economy using econometric modelling techniques. Research efforts are also focused on evaluating relevant policies and developing alternatives for various laws and regulations of the construction industry and government policies to fuel the growth of construction industry. The Korea Institute of Construction Technology (KICT), a public research institute, was dedicated to the development of cutting-edge construction technology and introducing foreign advanced technologies.

Australia

The Australian government has a strategic plan for the next 30 years. It also closely monitored the manpower planning, technical planning, capability and capitalisation across the country. There are four ministries for the construction industry in Australia. These government departments would join together to form taskforce to suggest strategic directions and policies during recession.

While a better coordination is necessary to prevent the generation of another wave of bubbles and to direct scarce resources to a profitable sector, the construction industry can play a more proactive role in formulating long-term policies and provide directions guide its development. The formation of various industry review boards or committees in Japan (RICE *et al.*, 2004), Singapore (Economic Committee, 1986; Property Market Consultative Committee, 1986) were established to prepare

recommendations for identifying the prospect of the industry and restructuring in the construction market. To keep the government and companies better informed, the industry shall capture, analyse and release information related to the supply and demand of various facilities. This would not only help policy-makers and investors in identifying suitable project opportunities, but could also ensure suitable training is provided to those areas of expertise in needs in the foreseeable future.

In order to facilitate the industry development, there is a role required of the HKSAR Government to play in setting up a *proper framework* so as to regulate the construction stakeholders, minimise the market risks and create better environment for improving performance in quality, safety, time, and skill level of the industry. It is imperative to raise the overall performance standards in the industry such that a culture of excellence can be developed, and thereby create a more sustainable business environment in the industry. Being the largest employer in any community, the Government can exercise initiatives or stipulate regulatory requirements that are more effective than those being launched by any other individual party. The Government is recommended to collaborate with the CIC to steer, coordinate and enhance the performance and competitiveness of the industry.

6.3.3 Implementation measures

6.3.3.1 Sustain investment in the industry

The public investment captures a significant proportion of construction volume as well as construction labour force in Hong Kong. The revival of the industry depends largely on the government's investment and policy. Without a strong home base, local parties might not have enough opportunities to gain experience while the trainees also lack a platform to upgrade their skills. As the main client and regulator for the industry, the HKSAR Government thus has a significant role to *motivate and maintain the construction output at a sustainable level*, via a robust plan, to achieve a steady growth of the industry, indigenous economic development, social stability, population trend as well as enhancing the overall quality of life. With the Chief Executive's concept of "progressive development" and undertaking the 10 major

infrastructure projects in the next decade, the government may serve as a regulator of the industry and maintain the pool of expertise by smoothing out the works at a sustainable level. Hence, the HKSAR Government is encouraged to sustain the construction output particularly on the *essential infrastructure development, community facilities, urban regeneration projects* and *housing programmes* for the expanding and ageing population, in order to meet the needs of the society, to generate employment opportunities, and more importantly, to preserve the skill sets and knowledge as the critical assets of the Hong Kong construction industry.

Singapore government actions in sustaining the construction industry

During construction recession 200 public projects worth nearly SG\$4 billion were accelerated and these projects were carefully chosen such that priority was given to works with high local content.

Reference: Ministry of Trade and Industry (1987); Ofori (1993)

To promote Hong Kong's international business status, we recommend that the Government should put more efforts in pragmatically implementing the planned mega infrastructure projects stipulated in the Policy Address 2007/08 including the Shatin - Central Link, Kai Tak Development, the Hong Kong - Zhuhai - Macau Bridge, Guangzhou - Shenzhen - HK Express Rail Link. Particularly, to take advantage of economic growth and further market liberalisation in the Mainland, the Government should seize the opportunities of initiating cross-border infrastructure projects in the next five years. It is anticipated that infrastructure works can lead to the further development of the construction industry and the economy by a large extent. Partnership with the private sector should also be explored to attract their investment, innovativeness and efficiency to the public services provision.

Sustainability is another important focus where the construction industry has shifted to, including energy saving/efficiency, waste management, sustainable construction methods, etc. The Government is also encouraged to inject additional funding to preserve *heritage buildings* and carry out *sustainable construction projects*. The Government's policy on revitalisation of heritage buildings approach is in line with the sustainable conservation concept. However, as suggested by the RICS HK (2007), relevant government departments are advised to take pro-active and flexible approaches in facilitating the proposed "revitalisation uses", which may be

contradicting existing land lease conditions, town planning ordinances, or prevailing building regulations. It is also essential for the URA to implement its 4Rs strategy (i.e. redevelopment, rehabilitation, reservation, and revitalisation) to cover pre-war buildings.

A triumphant sustainable construction project in Seoul – The Cheonggyecheon

For about 30 years Cheonggyecheon was located underneath a large bypass, but it was decided In July 2003 to uncover and restore the stream. This US\$900 million project involved not only remove the highway, but had left the stream totally dry and 120,000 tons of water had to be pumped in daily. The stream was opened to the public in September of 2005 and lauded as a major success in urban renewal and beautification. The stream leads to an enhancement of the value of real estates in the relevant areas, benefits and city's eco-environment and emerges as a new tourist attraction. Following the successful restoration work for the Cheonggyecheon, foreign countries, Japan in particular, have been paying attention to the innovative measures adopted by the City of Seoul in urban planning paradigm.



The Cheonggyecheon area before restoration the Dongdaemun(Gate) area



Simulated view of a restored Cheonggyecheon the Dongdaemun(Gate) area

Reference: Seoul government homepage for the Cheonggyecheon restoration project, <http://english.seoul.go.kr/cheonggye/>

It was noted that the progress of implementing public projects is affected by politicians and pressure groups. The potency from the government for implementing the public projects might be limited by this recent ‘anti-construction’ sentiment. It is crucial to illustrate clearly the development needs as well as the cost and benefit implications of infrastructure development and heritage conservation to a wider community, so that legal procedures and consultation process for implementing public capital work could be streamlined. Leadership and determination of the

Five Stages for Public Engagement

1. Identification of priority areas
2. Preparation of invitation and response document
3. Direct involvement of wider community
4. Reporting
5. Government action

Reference: Council for Sustainable Development

HKSAR government should also be strengthened, and *working hand-in-hand* with Legislative Council members, District Council members, as well as various social groups and political parties. In addition, in order to push forward the smaller scale public works, relaxation of the exemption limit of \$15M from Legislative Council's approval should also be seriously considered.

Smooth Implementation of the Cheonggyecheon project

A temporarily operating wing of the Seoul Development Institute, the Cheonggyecheon Restoration Research Corps was established to carry out researches regarding basic materials and schemes for a successful completion of the restoration work for the Cheonggyecheon in cooperation with some relevant businesses, universities and government institutions. Major activities include:

1. Holding panel discussions

The Corps made some efforts to publicize the needs for restoring the Cheonggyecheon by holding a wide variety of panel discussions.

2. Holding seminars and discussion meetings

The Corps sought for experts' opinions (on the effects of air pollution on human bodies, restoration work process management plan, and measurement of economic value of environmental factors) at the seminars and discussion meetings held once or twice a month.

3. PR activities

The Corps carried out diverse PR activities based upon the results of academic research concerning the work for restoration of the Cheonggyecheon:

- A seminar with 444 members of the Citizen's Committee for the project and nine reporters;
- An international symposium to capture overseas experience in restoration of streams;
- A public hearing session with 500-plus city councilors, civic committee members, storeowners, and ordinary citizens;
- An inspection tour with 16 civic committee members and 7 Seoul City officials
- Two workshops with civic committee members, researchers and relevant officials;
- Two explanatory sessions to explain the design and implementation with civic members, City officials and design firm officials attending.



Reference: Seoul government homepage for the Cheonggyecheon restoration project, <http://english.seoul.go.kr/cheonggye/>

Hong Kong buildings are facing the ageing problem, while in ten years half of the buildings will be older than 30 years. The revival of the local construction industry can further be facilitated if government and other relevant authorities could successfully

Singapore's Housing Upgrading Programmes

The Singapore government launched the Main Upgrading Programme (MUP) in 1990 and the Lift Upgrading Programme (LUP) in 2001 to upgrade and improve facilities in the Housing and Development Board (HDB) estates. Along with the programmes, there are co-sharing schemes to help residents to afford the upgrading costs.

implement strong policies to compel building owners to carry out maintenance and renovation work (e.g. through the Mandatory Building Inspect Scheme; the Building Rehabilitation Programme) to ***upgrade the quality of residential buildings, schools, and other community facilities***. On the other hand, the URA is also advised to strengthen the planning and resources to implement urban redevelopment projects with the liaison of private developers. According to industry practitioners, there should be simplifications in statutory requirements and procedures for minor building works which are introduced by the government through a Building (Amendment) Bill into LegCo in the 2006-07 legislative session.

6.3.3.2 Capture alternative market demand

As indicated from the survey results, adapting to alternative construction markets is another imperative strategic direction under the transformation of industry. The trends of local construction volume have already revealed that there is a shift of focus from capital investment to ***repair, maintenance, alteration and addition works*** and ***urban renewal***. Subsequent to the enforcement of the Mandatory Building Inspection scheme introduced by the BD, together with building maintenance schemes and redevelopment projects launched by the HKHA, HKHS and the URA as well as higher demand for quality of life from the public, construction activities in the repair and maintenance sector will remain at a high level and thereby provide multitudinous opportunities to the industry for the years to come.

The Australia experience

Repair and maintenance work in Australia is about 20- 25% of the total work volume. Throughout the recession period, it made the industry survive and became much more efficient by 1995 – 1996. Even the major companies like Leighton Holdings have a significant portion of work sources from large maintaining operation. Part of the reason is due to the fact that a lot of out-sourcing has happened in Australia including the Government, which also out-sources the public maintenance works. These major construction companies can then bring in the management skills they have developed from previous larger construction projects so that they can enter the market effectively.

Reference: Australian study tour, June 2007

Proactive lobbying to relevant organisations and Owners' Corporations is inevitable to sustain market share in this sub-sector. It is also recommended to cluster a number of ageing buildings coordinated by Owners' Corporations for the maintenance works.

Support (both technically and financially) and coordination by the HKHS and URA would be important to promote the works. However, the job nature, requirements and challenges are different from those of major capital work. Repair and maintenance works are usually more labour intensive. Labours of multi-skilled operative nature are also required to work in occupied buildings. These specialisations make the repair and maintenance a market of its own in the construction industry, and this sector is consequently dominated by small-scale (sub) contractors. However, government's term maintenance contracts normally require relatively higher technological and managerial skills, not to mention the locking up of capital for the contract duration, the market has been mainly dominated by the large local construction companies.

Timely diversification and *appropriate adjustment* in business model are necessary according to the changing market demand and competition environment. For instance, Hong Kong architects are encouraged to widen the scope of their work to road landscaping, urban design, street furniture, etc. Sustainable construction in terms of design and technical aspects (e.g. green materials, environmental technology) and elderly homes have also increasingly been emphasised in the local market.

6.3.3.3 Sharpen competitive edges

In light of intense competitions in construction services, various industry stakeholders should strive continuously to sharpen their competitive edges so as to stay ahead of their competitors worldwide. Speciality and niche expertise in certain unique areas is crucial to compete locally and internationally. *Technological and managerial competitiveness* are the two crucial aspects which the industry is advocated to improve. We therefore recommend relevant government bureaux/departments and private developers providing proper incentives to adopt innovative design, construction technology and improve management skill. Additionally, with the desire to capitalise the 10 large-scale infrastructure projects to enhance local construction companies' profile and competitiveness, *promoting technology transfer* by incorporating supplementary tender specifications would be crucial and valuable. Alternative design and use of technology could also be promoted by adjusting and updating related building ordinances. Producing high-end and quality products,

adopting new technology such as virtual prototyping are also significant for construction-related companies to establish their 'brand name' and thereby enhance competitiveness.

The industry should thus focus on maintaining professionalism and quality of service at individual level, professional body level as well as industry level. A comprehensive and effective strategy and implementation plan for training human resources at all levels for the Hong Kong construction industry is essential, particularly due to globalisation in the field. Tertiary institutions, Construction Industry Training Authority (CITA) and employers should provide more training/educational opportunities for their employees and encourage them to upgrade their knowledge and skills to match the changing demands. Multi-skilling is also considered important in the prevailing market condition. Professional institutes are advised, on the other hand, to provide professional development scheme in developing competence for Hong Kong construction related professional resources.

Multi-directional alliancing in the form of *joint venture / partnership / merger and acquisition / consortia* throughout the entire supply chain is highly desirable for both large companies and SMEs to enhance market capacity and

Alliancing in Japan

Japanese small and medium size contractors have formed useful alliances to share resources and complement each other's skills (Figure 4.2). In the past, the big Japanese contractors had formed joint ventures with smaller contractors to effect technological transfer, but more recently, the trend is towards similar size contractors to form alliances for more workable co-operation

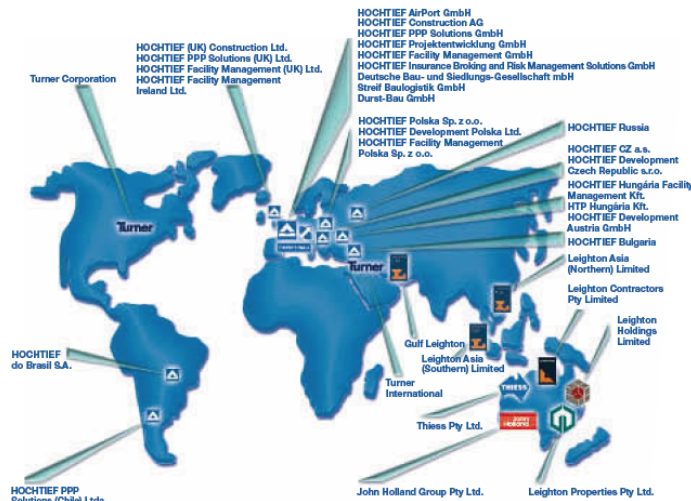
Reference: Japan study tour, April 2007

competitiveness for the local market and to venture outside the territory boundary. A local contractor has been employed by a leading international developer to provide services for overseas projects based on previous co-operating experience. Multi-disciplinary / integrated service by teaming up with other professionals and joint venture between Hong Kong and indigenous firms would serve a success factor to explore the overseas markets. This alliancing business model could also be adopted by SMEs to alliance with large companies to seize business opportunities elsewhere. Strengthening the investment and resources via collaboration, the alliance will facilitate establishing sustainable competitive advantage in various types of construction works.

The success story of Hochtief through merger and acquisition

Hochtief is Germany's largest construction company found in 1874. It is based in Essen, Germany but operates globally, ranking as the top general builder in the United States through its Turner Corporation subsidiary, and in Australia through the Leighton Group, employing 42,000 employees across various divisions including airport operator, construction project planning, finance, construction and operation, facility management, etc. Sales revenues in 2004 were €11.94 billion, with more than 80% coming from operations outside Germany.

Since the 1950s, foreign work was accelerating while domestic orders were receding. By 1980, foreign work accounted for more than 50% of Hochtief's business. A major factor was the contract for King Abdulaziz International Airport (completed in 1981), the largest airport in Saudi Arabia, and the most valuable contract Hochtief had ever been involved with. The focus of the company also began to switch away from purely construction and towards more turnkey work and service provision. In 1983 HOCHTIEF saw the Leighton Group expand its portfolio of work and affirm its standing as one of the leading companies in its field, Hochtief acquired Leighton and became her major shareholder, at the same bringing Thiess, a leading integrated engineering and services provider with diverse operations throughout Australia into the Leighton Group. The 1990s brought an opportunity expand operations in the airport management sector, as many countries privatised their airports. In 1999, Hochtief made big inroads into the United States market through its merger with Turner Corporation.



However, Spain's biggest construction company, Actividades de Construcción & Servicios (ACS) has paid €1.26 billion (\$2.09 billion) for a 25 percent stake in Germany's Hochtief, giving it an indirect stake in Australia's Leighton Holdings. The move by ACS was aimed at reducing its reliance on a slowing domestic market. Madrid-based ACS has a market value of €15.6 billion in 2007, making it the world's third-biggest builder by that measure, after Vinci SA and Bouygues SA of France.

Reference: homepage of Hochtief
<http://www.hochtief.com/>

In addition, the examples in Japan, Korea and Australia reveal that **research and development** is critical to productivity breakthroughs and competitiveness enhancement in the construction industry. Research and development might introduce better materials, more cost-effective design and construction methods, and labour-saving equipment. However, for research and development to be practical, there is a

need to ensure that new technologies and capabilities are efficiently shared and adopted by the players in the industry. Research and development efforts are either driven by the private sector or tertiary institutes or jointly by both with government's incentives. It is considered by the industry that there is inadequate new technology breakthroughs and dissemination of research findings to the industry. To step up research and development efforts and to make them more effective, it is proposed that research and development in construction be overseen by the newly established CIC.

Japanese Big 5

The top five Japanese contractors consistently spend 1% of total revenues on R&D. They also pay a lot of attention to construction technology and productivity, resulting in advancements in construction methods. Examples are Obayashi Corporation and its Big Canopy System, and Shimizu Corporation and its SMART system. The latter company has won 5 Best Buildable Design Awards.

Reference: Construction 21 (1999)

6.3.3.4 Export services to emerging markets

Industry level

The intra economic situation may not adequately sustain the local construction industry, therefore, an export-oriented economy might be adopted (e.g. Singapore and the UK) instead of merely keeping our eyes on the local market. The Hong Kong contractors, consultants firms and suppliers have demonstrated that they can work and position themselves in the international market. In line with the modernisation of the national economy and its integration with international economic development, ***export of the construction expertise*** and acquisition of the capacity required are therefore a key strategic thrust. As analysed in the previous chapter, emerging markets include various cities in Mainland China, Macau, and the Middle East countries.

Experience in advanced countries shows that certain construction expertise can be exported and serve as generators of wealth for the economy. However, to perform well in the competitive international construction market may not be easy. Although some local developers, design firms and contractors have already carved their own niches in construction markets outside Hong Kong, some firms may require assistance in exploring the overseas markets. The industry is advised to make full use of the

existing infrastructure for gathering and disseminating updated information on overseas market opportunities, market information and country specific information, e.g. tax regulations and design standards and practices. Such an infrastructure can be an on-line information service hosted by the TDC to facilitate timely exchange of information to the local construction related companies.

To succeed in the international market, Hong Kong construction industry must develop itself towards the *high-end market* and be prepared to compete with companies from various countries. The industry would need to develop specialties (e.g. super high-rise building construction, pre-fabrication technology, advanced management skill, etc.) and capitalise on these core competences and build up their networks to expand their business in the overseas market. Individual companies also need to build up their knowledge about the economic, social, cultural and political environment of the targeted markets and strengthen communication and technical skills in order to better serve the market. Teaming up with a *right local partner* with good local business network is also critical. However, since the cost for hiring construction workers in overseas projects are relatively high, contractors might only be able to set up a core team of experts and hire local subcontractors or Mainland workers to compete the work.

Professional institutions and trade associations should be more proactive in lobbying for the removal of institutional market barriers, upgrading professional skills and promoting services. These include a whole range of key activities such as pursuing mutual recognition of professional qualifications with the Mainland and other countries; strengthening research, analysis and dissemination of valuable overseas markets information; lobbying government bureaux and TDC to organise promotional events; supporting and steering reforms of local construction education and continued professional development/training; and organising forums or seminars to share experiences in overseas markets amongst industry stakeholders.

It is generally recognised that the construction boom in China provides plenty of opportunities for foreign investors and enterprises. Exploiting the advantage of strategic geographic location of Hong Kong *vis-a-vis* Mainland China, industry stakeholders are suggested to target the urban construction and development projects in *second-tier and third-tier cities in the Mainland*, thereby

Critical steps to explore the Dubai construction market

1. Carry out feasibility study
2. Assess local practice and legal system
3. Set up a 100 percent ownership company in the “free zone” or joint venture with local “sponsor” to form a Limited Liability Company (LLC)
4. Import workforce according to the quota set by the local Labour Department
5. Capitalise on core competences or through allcancing to compete and carry out works
6. Develop reputations and expand indigenous business

Reference: Dubai study tour, August 2007

creating rooms for Hong Kong construction and related engineering stakeholders to alliance as a form of consortium to provide ‘one-stop’ integrated services, embracing planning, building development, project management, material supply and waste disposal, etc.

Alliancing may help overcome the risks/threats by collaborating with a local partner or through joint venture. Local construction companies are, therefore, highly recommended to merge with non-Hong Kong companies for enhancing market capacity and competitiveness to export services. It is advised to adopt the “Hong Kong brandname; Mainland production” strategy with a view to combining the technical strengths of Hong Kong planning firms with low production costs in the Mainland. Additionally, capitalising on financial investment and extensive experience in the building sector, contractors can play the role of developer in emerging markets through equity investment in construction projects.

Another supportive measure for exploring overseas construction and real estate markets is through the **export credit guarantee**. Industry stakeholders are advised to approach The Hong Kong Export Credit Insurance Corporation⁹, the Export Credit

⁹ The ECIC was created by statute in 1966 to encourage and support export trade through the provision of insurance protection for Hong Kong exporters against non-payment risks arising from commercial and political events. Its capital is wholly-owned by the Government of the Hong Kong Special Administrative Region which also guarantees its contingent liability.

Agency in Hong Kong, which offers tailor-made policies that cover exports of services, each designed to meet the specific requirements of different service sectors.

Export Credit Agencies: the engine of globalization

Export Credit Agencies and Investment Insurance Agencies, commonly known as ECAs, are institutions which act as finance companies for private domestic entities who conduct business abroad. ECAs provide government-backed loans, guarantees and insurance covering both commercial and political risk. ECAs are currently the world's biggest group of public International Financial Institutions, collectively exceeding the World Bank Group in size, underwriting around US\$430 billion of business activity abroad. ECA examples include ASGHA The Israel Export Insurance Corporation, Export Credits Guarantee Department, UK; Export Finance and Insurance Corporation, Australia; NEXI Japan; Sinasure of China, Export Credit Guarantee Corporation of India Ltd.

(Reference: Stephens, 1999)

Government level

Targeting the emerging construction markets, the HKSAR Government should continue to play a supporting role, especially in liaising with the relevant ministries and departments, to complement the construction services sector's efforts in improving and enhancing the platform for cooperation with the construction stakeholders in overseas countries especially for South East Asia countries and Middle East countries. It is valuable to make use of the CEPA experiences and extend the support to emerging markets for activities such as professional reciprocity recognition, market information exchange, etc.

For the Chinese market, the Government is encouraged to prolong the liaison with the Mainland authorities at the central, provincial and municipal levels, reflecting the views of individual stakeholders to the Mainland authorities, discussing with the Mainland on streamlining of application and approval procedures and providing timely information on the indigenous regulations, registration and practices concerned. This also complies with the recommendation formulated by the Focus Group on Professional Services, Information and Technology and Tourism set up to follow up the deliberations at the Economic Summit on "China's 11th Five-Year Plan and the Development of Hong Kong" held in September 2006.

In addition, support from the industry authority for SMEs to seize the opportunities and face the challenges in exploring overseas markets is important. The industry,

through the CEDB and TDC, as well as various trade associations and professional bodies, could take more proactive efforts in venturing abroad especially in lobbying relevant authorities and organisations to establish networks for their business and promote all possible forms of exchange (e.g. staff, resources, information, etc.) between Hong Kong and the host countries.

CEDB and TDC should thus reinforce their *export promotion services* through launching trade missions, conferences and exhibitions to explore the emerging overseas market and invite potential developers to Hong Kong for establishing business networks and visiting large projects, so as to promote the achievements and capacity of the Hong Kong construction industry. The DEVB should also actively explore overseas market opportunities and conduct more frequent overseas visits specifically to spearhead the export of construction services.

Promoting the Construction Industry

Korea

The Korean government helps the countries' exporting industry by meeting with other countries such as China, Vietnam. Representatives of the Ministry of Construction and Transportation went to targeted overseas countries to promote the Korea construction industry.

Singapore

The Singaporean government would reach out to the 7-hour 'flying time zone', which extends up to Middle East as well as second tier Mainland China cities to showcase the Singaporean construction industry and its strengths in commercial and township development.

Reference: Study tours, 2007

Market intelligence was recognised important for the local industry stakeholders to explore overseas markets. CEDB and TDC have been providing construction project information in China and insightful analysis on policies, opportunities and developments in emerging markets on its website. We recommend CEDB and TDC extending their information coverage to local practice, tax system, trade laws, contact details of potential clients and networking in the emerging markets and also include medium and small scale projects especially in second- and third-tier cities in China and other emerging markets such as Doha, Abu Dhabi, Bahrain, Vietnam, India, etc. by offering an *one-stop online service*. Setting up trade development branch offices in these cities would definitely assist Hong Kong companies further. CEDB and TDC should focus more on small to medium enterprises and serve as an intermediate to facilitate the business by providing matching service and referring the related business contact points and requirements. Additionally, it is critical to acquire views and

concerns from various industry stakeholders to adjust the direction of promotional strategies on a regular basis. Other measures at government level to support the export of Hong Kong construction services include:

- Assist Hong Kong construction-related firms in solving problems related to taxation, regulatory and currency remittance issues in overseas markets;
- Provide research grants and support to enable the professional and academic institutions to carry out further collaborative research and surveys to monitor the development of the international construction market; and
- Set up a comprehensive database of project information and contact details of potential clients (i.e. municipal government and universities) in the international market through TDC website and newsletter.
- Offer export credit and export credit insurance to the construction-related companies to venture overseas markets and minimise risks.

6.4 Summary

This chapter, based on the findings of various tools adopted in this study, puts forward strategic directions to reinvent the Hong Kong construction industry for its sustainable development. The list of the strategic proposals is summarised in the following table.

Strategic Directions		Proposed Measures	Recommended Implementation Time Frame	Recommended implementing Parties	Organisation to provide assistance and cooperation	Remarks
Vision	Devise a long-term vision for the construction industry	i. Devise the long-term vision and mission for the HK construction industry	Within 1 year	Chief Executive	CEDB, DEVB CIC	
		ii. Formulate Industry-specific policy through extensive consultations with various industry stakeholders	Ongoing Basis	CEDB, DEVB CIC	Industry stakeholders	
Planning & Coordination	Develop forward planning strategies for the construction industry sustainable development	i. Engage a central body to plan and coordinate the future construction work	Within 1 year		DEVB, CIC	
		ii. Assess future capacity of various construction resources supported by econometric modelling on sectoral demand	Within 3 years	Tertiary Institutions	DEVB, CIC	<i>cf.</i> capacity analysis, OGC, UK
		iii. Steer, coordinate and enhance the performance and competitiveness of the industry	Ongoing Basis	CIC		
Implementation Measures	1. Sustain investment in the industry	i. Maintain the construction output at a sustainable level by implementing essential infrastructure development, community facilities, urban redevelopment and housing programmes	Ongoing Basis	CEDB, DEVB	CIC	Leadership and determination of the HKSAR Government should be strengthened.
		ii. Streamline the legal procedures and consultation process for implementing public capital work via involvement of the wider community	Within 3 years	CEDB, DEVB	LegCo members, District Board members, social groups, political parties	
		iii. Implement strong policies to push forward maintenance and renovation work	Within 3 years	URA, BD, HKHA, HKHS	Private developers	
		iv. Inject funding to preserve heritage buildings and sustainable construction projects	Within 3 years	DEVB		
	2. Capture alternative market demand	i. Shift from capital works to repair and maintenance work / urban renewal / environmental engineering work	Ongoing Basis	Industry Stakeholders		
		ii. Lobby proactively to relevant organisations to sustain market share in the RMAA sector	Ongoing Basis	Industry Stakeholders		
iii. Diversification and business adjustment to the increasing demand (e.g. elderly homes, hospitals)		Ongoing Basis	Industry Stakeholders			

Strategic Directions		Proposed Measures	Recommended Implementation Time Frame	Recommended implementing Parties	Organisation to provide assistance and cooperation	Remarks	
Implementation Measures (cont'd)	3. Sharpen competitive edges	i. Enhance market capacity and power through merger and acquisition/ industry alliancing	Ongoing Basis	Industry Stakeholders	CII-HK, CIC	Improvement on technological and managerial competitiveness is critical	
		ii. Develop niche expertise (produce high-end products, adopt new technology e.g. virtual prototype)	Ongoing Basis	Industry Stakeholders			
		iii. Maintain professionalism and quality of service at individual, professional body and industry levels	Ongoing Basis	Employers, Professional Institutes			
		iv. Strengthen R&D at company level with the support/incentives provided by the government; promote modern and innovative building design by updating Ordinance	Within 3 years	Industry Stakeholders			
		v. Strengthen training / re-training programme esp. at technician level adaptable to overseas environment	Within 5 years	Employers, Professional Institutes, CITA			
	4. Export services to overseas markets	<u>Industry</u>					
		i. Develop specialties and high-end product/ services	Ongoing Basis	Industry Stakeholders	DEVB TDC	May form consortium to provide 'one-stop' integrated services	
		ii. Start overseas business with a right local partner or agent and utilise the existing infrastructure for gathering updated information on overseas market opportunities	Ongoing Basis	Industry Stakeholders			
		iii. Target the urban construction and development projects in second- and third-tier cities in Mainland	Within 5 years	Industry Stakeholders	DEVB		
		iv. Remove overseas institutional market barriers, upgrading professional skills and promoting services	Within 10 years	Professional Institutions, Trade Associations	CEDB, DEVB, TDC		
		v. Multi-directional alliancing in form of joint venture / partnership / consortia throughout the whole supply chain	Ongoing Basis	Industry Stakeholders			
		vi. Contractors capitalise on their financial advantage and invest in emerging markets (serve as a small developer)	Ongoing Basis	Industry Stakeholders			
		<u>Government</u>					
		vii. Capitalise on CEPA experience and extend the support to other countries	Within 5 years	CEDB, DEVB, TDC	Professional Institutions		
	viii. Extend the coverage of market intelligence on policies, opportunities and developments in emerging markets and provide one-stop online market intelligence	Within 3 years	TDC				
	ix. Provide export credit & export credit insurance to industry stakeholders for exploring overseas markets	Ongoing Basis	ECIC	CEDB			

CHAPTER 7 CONCLUSIONS AND RECOMMENDATIONS

- 7.1 Introduction
 - 7.2 Review of Research Objectives
 - 7.3 Benefits of the Research
 - 7.4 Limitations of the Study
 - 7.5 Recommendations for Future Research
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CHAPTER 7 CONCLUSIONS AND RECOMMENDATIONS

7.1 Introduction

As pointed out in the “Construct for Excellence” report, the construction industry is one of the main pillars of Hong Kong economy. However, the industry has experienced a hibernating and consolidating period over the past few years. Without any suitable policies and strategies, construction stakeholders will suffer irreversibly and this may also cause a knock on effect to the overall economy. Despite the importance of the construction industry to the economy, limited research has been undertaken to identify effective strategies to reinvent the construction industry. Expertise from the industry practitioners and experiences learnt from other developed countries may help policy-makers and executives of construction establishments to map out viable and suitable strategies for the industry to move forward. This timely study was initiated by the CII-HK to identify possible channels to reinvent the construction industry of Hong Kong so as to ensure a steadier workload and a more sustainable future of the industry.

7.2 Review of research objectives

The purpose of this study is to identify available opportunities and the way forward for various construction stakeholders to develop the construction industry of Hong Kong in a sustainable manner. This section reviews the achievements of the specific research objectives.

Objective 1 – Review the development of the Hong Kong construction industry

(Achieved via data analysis on historical construction output, 14 interviews with local experts; two focus group meetings involving 25 senior industry practitioners; and a questionnaire survey)

- The construction industry serves as a main pillar of economies worldwide, and Hong Kong is no exception, as indicated by the significant contribution to the local GDP, fixed capital formation, employment level and the advancement of the community as a whole.
- The total construction output in Hong Kong has been shrinking since 1997 primarily due to the financial crisis and its domino effects. The gross value of construction work in 2006 fell to HK\$96 billion, which was only 65 percent of the peak volume at constant prices. Besides, Hong Kong was transformed into an advanced economy whereby the role of construction has started diminishing.
- Both the public and private sectors followed an apparent declining pattern subsequent to the financial crisis as the public housing programme was scaled back and there were fewer large-scale infrastructure projects and private building developments. However, the repair and maintenance sector has been on an upward trend and reached HK\$48 billion in 2006 in nominal terms, reflecting an increasing number of ageing buildings and structural changes in the construction industry.
- With a substantial decline in new orders, the construction industry has been undergoing a consolidation process in recent years. Weaker players were eliminated through the competitive business environment. Many construction stakeholders have already downsized their organisation; increased the proportion of outsourcing, participated in projects outside the territory; diversified their portfolio into other business units including building services, property management, real estate investment, project management, foundations and maintenance work.
- The competitive advantages of the Hong Kong construction industry are perceived to be its: (i) experience in high-rise building and prefabrication; (ii) project

management skill; (iii) high end-product quality; and (iv) great flexibility. Perceived weaknesses of the industry are (i) inadequate support from the government; (ii) lack of industry-specific forward planning; (iii) sluggish technological advancement; and (iv) slow acceptance of innovative ideas.

Objective 2 – Explore strategies to reinvent construction industry in overseas countries

(Achieved via literature review and five study tours to Australia, Japan, Singapore, South Korea and the United Kingdom to carry out 31 interviews with 47 industry experts, academics and government officials)

- Construction industry of many advanced industrialised countries has undergone the adjustment period after maturity. The previous strategies being employed to support the recovery of construction industry are particularly valuable to policy-makers and decision-makers of the construction organisations and authorities in the period of construction recession and transformation.
- Various government policies adopted in some developed economies to reinvent the construction industry included (i) increase in publicly funded projects; (ii) strategic planning and reforms; (iii) regulating the market; (iv) incentive schemes; (v) initiating and driving industry reforms; (vi) continual education and research; (vii) regulating tender and procurement practice; and (viii) exporting services support.
- The industry's key initiatives during construction downturn included: (i) forming joint ventures/merger/acquire; (ii) adopting alternative procurement approach; (iii) adapting to the repair and maintenance sector; (iv) encouraging further education; (v) diversification into other business; (vi) company restructure; (vii) exploring the international market; (viii) forming industry commissions and research groups.

Objective 3 – Identify opportunities for the industry's sustainable development

(Achieved via desk research on local and overseas future construction output, interviews with local experts; an expert forum, a study tour to Dubai and the questionnaire survey as above)

- Although Hong Kong has developed as a mature metropolis, numerous opportunities are available for various construction stakeholders in medium to long term. In particular, the HKSAR Government has pledged to push ahead the

10 mega infrastructure projects as reflected in the Chief Executive 2007-2008 Policy Address, which will bring more than \$100 billion added value annually to the local economy.

- Although the forecasted completion rate of residential units in the ensuing two years tends to be low, housing demand is expected to increase in the long-run due to the expanding population, which is estimated to reach 8.6 million in 2036, improving living standard and changing household formation. Suitable development areas to accommodate the growth needs include new development areas in rural New Territories as mentioned in the 2007-08 Policy Address. In addition, provision of public housing and community facilities for ageing population may create substantial demand for the local construction industry stakeholders.
- Accounting the local and regional economic growth in the long-run, expansion in population, persons engaged in different employment sectors as well as broad assumptions for worker density, a demand for over ten million square meters for the economic floorspace demand between 2010 and 2030 is expected. However, the adverse impact of significant downturn of the current global economic climate and the volatile financial sector to the demand of office rents is uncertain.
- As a result of an increasing number of ageing buildings along with the government's mandatory initiatives, the repair and maintenance sector is expected to be an important market for various local industry stakeholders in the foreseeable future.
- Investment in infrastructure developments is a key element of China's Tenth and Eleventh Five Year Plan (2001-2010), with a special focus on roads, rail systems, ports, airports and energy generation projects. With the advantage of strategic geographic location *vis-a-vis* Mainland China Infrastructure projects, housing development and facility management in the "second-tier cities" in China will also provide golden opportunities for the Hong Kong construction-related companies to invest in the real estate market, and to provide architectural, engineering, surveying and construction services especially in (i) investment and capital

acquisition; (ii) building design/inspection; (iii) development project proposals in low cost housing projects; and (iv) property and facility management.

- Contractors in Hong Kong, however, have limited involvement in the China market as they do not possess competitive edges in pricing and technology over and above the local contractors. ‘Indigenous law and regulations’, ‘bureaucratic procedures’ and ‘local conditions and circumstances’ are identified as the major obstacles for Hong Kong construction-related companies to gain access to the Chinese construction market.
- Since the liberalisation of the gaming industry in 2002, Macau has been providing market opportunities for Hong Kong construction-related firms. However, the prospect of the Macau’s construction market is uncertain after a few years following the completion of the casinos, hotels and infrastructure projects.
- Booming construction markets in Middle East including Dubai, Abu Dhabi, Saudi Arabia, and Qatar will also provide unprecedented opportunities for the Hong Kong construction-related companies. Despite the challenges and risks inherent in exploring the overseas markets, given the competitive edges and experience in various construction projects, Hong Kong construction-related organisations may position themselves in the international arena.

Objective 4 – Confirm the feasibility of the identified opportunities and strategies
(Achieved via validation interview with five experienced practitioners and a questionnaire survey)

- The strategic directions are proposed for the sustainable development of construction industry at the policy, planning and implementation levels. A 30-year long-term vision shall be put forwarded by the Chief Executive after consulting relevant bureaux and organisations as well as the society. The vision will serve as a master plan to help the Hong Kong construction industry to move forward.
- A centralised strategic planning body shall be set up to transform the vision into short, medium and long term plans so as to coordinate the future construction

work in a sustainable manner. Knowledge of the future demand as well as the industry's capacity for products and services is vital to the industry for formulating industry policy, corporate strategy and business plan.

- At the implementation level, the HKSAR Government is encouraged to sustain the construction output for a steady growth of the industry, particularly on the essential infrastructure development, community facilities, urban regeneration projects and housing programmes for the expanding and ageing population, in order to meet the needs of the society, generate employment opportunities, and more importantly, preserve the skill sets and knowledge of the high standard and innovative construction design and products. Streamlining the legal procedures and working hand-in-hand with stakeholders in particular the wider community during the consultation process throughout the planning, design and construction are desirable for future public capital work.

- Timely diversification and appropriate adjustment in business model are necessary to cope with the changing market demand and competitive environment. The trends of local construction volume have already shifted from capital investment to repair, maintenance, alteration and addition works; urban renewal; sustainable construction; and heritage conservation.

- Enhancing company's competitiveness especially on technological and managerial aspects is critical. Grasping the opportunities of the 10 large-scale infrastructure projects, the profile construction companies' and competitiveness will further enhance and they should capitalise this added knowledge and experience to develop the platform for technology transfer. Multi-directional alliancing in the form of joint venture / partnership / merger and acquisition / consortia throughout the whole supply chain is highly desirable in order to enhance companies' market capacity and competitiveness for both the local and international market.

- To maintain a sustainable future for the construction industry, export of the construction expertise and acquisition of the capacity would be undoubtedly another key strategic thrust. Developing towards the high-end market and teaming up with local partners are considered critical in exploring the overseas market. The Government is urged to support the construction services sector in

improving the platform for cooperation with the counterparts in overseas countries and offering export credit and export credit insurance.

7.3 Benefits of the research

This research has comprehensively reviewed the economic status, market structure and competitiveness of the Hong Kong construction industry. Focus of the study has also been on identifying various strategies and measures adopted in advanced countries when facing a persistent decline in the volume of construction works. In addition, a list of possible opportunities and options is explored for construction stakeholders' consideration in view of the prevailing market conditions and future development scenarios within and outside the territory.

The study provides the industry with pointer to, and indicators of potential niche markets in the immediate term. It also serves as a source of reference for policy-makers when formulating medium to long term development strategies for promoting sustainable development of the Hong Kong construction industry. It is hope that this study will serve the industry when stakeholders have a better appreciation of the threats and opportunities that we are facing. With this information, they could capitalise on the strengths and prioritise the identified opportunities to achieve a sustainable growth.

Thanks to the 10 large-scale infrastructure projects and a strong growth in local economy, different construction stakeholders in Hong Kong are suddenly becoming very busy. The increasing opportunities in Hong Kong, Mainland China, Macau and other overseas countries have given rise to a resource problem which is currently confronted by all construction stakeholders in Hong Kong. The recommendation for ensuring a sustainable construction development in Hong Kong should help prevent manpower from diverting to another industry especially during industry downturns. Besides, the development of a series of comprehensive and reliable forecasting models being put forward in this study shall help predict the overall and sectoral construction volume so as provide crucial clues about prospective construction manpower demand at various levels in short to medium terms.

7.4 Limitations of the study

The study involved a number of limitations:

- Owing to limited resources and time, this study focuses merely at the industry level. The evaluations of competitive advantages and disadvantages as well as the proposed strategies for individual companies and professional disciplines have therefore not been incorporated.
- The response rate of the questionnaire surveys was relatively low. Although the number was sufficient to allow statistical analysis be conducted, a larger sample size would certainly be desirable.
- The lessons learnt from overseas in reinventing the construction industry were limited to the selected advanced countries. It is possible that additional strategies might have been efficiently adopted in other parts of the world and could be applicable to the Hong Kong construction industry.
- Exploration of offshore market opportunities for the Hong Kong construction stakeholders are confined to Mainland China, Macau and Middle East. Other potential markets such as India, Vietnam, Thailand, etc. should be worth for further investigation.
- Since the study was conducted between 1 October 2006 and the end of 2007, the research findings were based on the opinions of experts and market condition during that period of time only. The impacts of the recent financial tsunami have not been taken into account in this study.

7.5 Recommendations for future research

Areas related to the Hong Kong construction industry development deserving further research include:

- evaluating the competitiveness for different construction professional disciplines;
- examining the factors influencing the supply and demand of residential, commercial and other infrastructure facilities in Hong Kong and to explore their relationships;
- developing a series of predictive models to forecast the future demand for various facilities, tender price and building cost movement and manpower requirements;
- establishing relevant key performance indicators and best practices framework to improve the productivity of construction stakeholders and the industry as a whole;
- identifying detailed local practices, constraints, success factors for exploring the emerging overseas markets.
- evaluating the impact brought by the recent financial tsunami to the construction industry.

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APPENDICES

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Appendix I - List of Interview Questions (for local industry practitioners)

Purpose: The aim of the interview is to (i) review the development of the Hong Kong construction industry and (ii) explore available opportunities in response to the prevailing market condition and regional development trends. Target interviewees include senior staff from different levels of the supply chain: government, quasi-government, private developers, consultants, contractors, subcontractors and suppliers.

I Review of the Hong Kong Construction Industry

1. Please describe briefly the current situation of the Hong Kong construction industry/market in terms of construction demand (e.g. in building/civil/repair and maintenance; private/public; residential/commercial/industrial sectors), employment, productivity, efficiency, etc.
2. What are the factors contributing to the current status of the HK construction industry? What are the reasons causing the excessively long hibernation period in various forms of construction activities?
3. How did your organisation and different construction stakeholders react and adjust their tactics with the substantial decline of new orders in recent years?
4. How did other advanced countries (e.g. Australia, Japan, Singapore, UK, USA) react and adjust to the similar situation that the Hong Kong construction industry is facing?
5. How the industry was improving subsequent to the CIRC recommendations implemented since 2001? Which aspect(s) has not addressed or has not addressed properly in the CIRC?
6. What are the strengths inherent in the local construction industry? List what you think is distinctive about the Hong Kong construction industry compared to the global construction industry.
7. What are the weaknesses (challenges) that the industry ought to improve both in short-term and long-term? and how?

II Sustainable Development of the Hong Kong Construction Industry

8. What are the feasible opportunities/options in response to the prevailing market condition and regional development trends for:
 - a) Developers
 - b) Consultants
 - c) Contractors
 - d) Suppliers
9. How to ensure a steadier workload and a more sustainable future (in both public and private sectors) for the Hong Kong construction industry?

10. How the economic and construction development in neighbouring countries (Mainland China, Macau, Thailand, Vietnam, India, Middle East etc.) will impact on both the level of activity and type of work available to the local construction?
11. How did your organisation diversify her portfolio both geographically and horizontally/vertically (in the supply chain)? What are your organisation's strategies for the prevailing market conditions in the next five years?
12. Did your organisation employ any real estate, engineering and construction staff from Hong Kong to work in neighbouring countries in the past five years? If yes, please briefly describe the discipline and the number. Will this practice continue in the foreseeable future?
13. Please share your visions for the Hong Kong construction industry in the 21st century, compared with the industry today.



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Construction Industry Institute
HONG KONG

Appendix II - Interviews Reports (for local industry practitioners)

Interview 1 (Developer 1)

I Review of the Hong Kong Construction Industry

8. *Please describe briefly the current situation of the Hong Kong construction industry/market in terms of construction demand (e.g. in building/civil/repair and maintenance; private/public; residential/commercial/industrial sectors), employment, productivity, efficiency, etc.*

The Hong Kong construction market now is mainly driven and guided by two parties: the Government and Major Private Developers. The Government (as well as Quasi-Government bodies) carries out projects mainly on civil and housing areas. Private Developers, especially the 7 to 8 major developers, are largely driven by market demand and formulate their strategies according to it. For private sector, while industrial construction can be ignored due to the sector's declining size, the 7-8 major developers take up 70 – 80% of the total projects. Therefore the major developers determine the major direction of the market.

It is worth noticing that, according to the interviewee's opinion, the repair and maintenance market is showing a growing trend and therefore worth paying more attention. A lot of construction companies have started developing their business into this field.

It is noticed that there is seldom overseas investor or construction company now in Hong Kong doing projects. During 1970s when Hong Kong was under rapid development, Japanese and Korean construction companies came to carry out infrastructure projects. They left Hong Kong after new infrastructure projects decrease as the city is better developed. At the same time, local contractors are more equipped with the knowledge and techniques to carry out infrastructure projects (e.g. Gammon). During 1992 – 1993, Chinese construction companies started to come to Hong Kong due to the property boom.

Hong Kong construction companies seldom go to other places to carry out projects. The major reason is considered to be the lack of support and incentive from the Government. On contrast, Japanese and Singapore Government are giving strong support behind the companies (e.g. Japanese Government supports and encourages construction companies to work in China and India, while the later country is given more emphasise due to the realisation of competitive environment now in the Mainland China).

9. *What are the factors contributing to the current status of the HK construction industry? What are the reasons causing the excessively long hibernation period in various forms of construction activities?*

The situation of market being driven by two major parties (the Government and major private developers) to a certain degree has constrained the possible development of the construction industry. For the Government projects, the practices and regulations posted on

all participants largely reduced their ability to innovate and explore for new directions. The Hong Kong Government itself is reluctant to adopt new ideas, which is commonly seen in most governments around the world (except Japan and Singapore maybe). The Government would only follow the practice of private sector, but in a much conservative manner.

Apart from 2-3 major developers who have their own 'construction arm', the remaining major developers usually hire construction companies to complete their projects. Since the developers are trying to minimise the construction cost and therefore maximise the profit, the construction companies hired by them do not have much room for applying new techniques or explore for innovations. On top of that, developers do not pay much attention to the construction process but rather the profit after selling the property.

The excessively long hibernation period is mostly due to the overall economic atmosphere, and therefore cannot be fully explained by construction industry alone. One of the reasons for the long hibernation period that could be originated from construction industry is the disturbed construction cycle after termination of 85,000 public housing units completion per year in 1998. Usually there is an economic cycle which most people would have anticipated and accepted. However, the termination of public housing construction disturbed the economic cycle and brought the industry down to an even deeper trough. The property price dropped to only 1/3 of what it was before. The declining affordability is another factor affecting the demand for private housing.

10. *How did your organisation and different construction stakeholders react and adjust their tactics with the substantial decline of new orders in recent years?*

The Henderson Land has been taking quite a conservative approach towards its investment strategy. Therefore it didn't invest so heavily during the economic boom before 1997 that the following decline in property market became detrimental to the company. Although there was loss for investments made during economic peak and returned at a lower price during the recession, the company still made it through the recession with some other investments in property made at the recession time and returned at a better price during improved economic time.

As have mentioned before, Government and private developers are leading the construction industry. For developers that outsource the construction to outside construction companies, they pushed the construction companies to attain lowest construction cost such that the developers could achieve highest profit margin. Consequently, lots of construction companies couldn't survive through the recession period and therefore had to close down their business, especially during the period of 2003 – 2004 when Hong Kong was severely impacted by SARS.

11. *How did other advanced countries (e.g. Australia, Japan, Singapore, UK, USA) react and adjust to the similar situation that the Hong Kong construction industry is facing?*

For Japanese and U.S., they would go to other places to find business opportunities during recession period. For Europe, the continent itself is already having various countries and therefore should be able to provide enough opportunities for the construction industry if any of the countries is under recession. In Singapore, some of the workers come from nearby countries like Malaysia and Indonesia. Therefore these workers have the choice of going home during recession periods.

12. *How the industry was improving subsequent to the CIRC recommendations implemented since 2001? Which aspect(s) has not addressed or has not addressed properly in the CIRC?*

Most of the 108 CIRC recommendations have some degree of following up. The industry is aware of most of the problems addressed by the CIRC recommendations and is taking steps to implement the recommendations. However, private sector companies often find themselves too busy to deal with the recommendations.

The CIRC recommendations are providing some incentive and improvements to the industry (e.g. safety record). However, on the whole, the recommendations are not yet fully and strongly adopted.

13. *What are the strengths inherent in the local construction industry? List what you think is distinctive about the Hong Kong construction industry compared to the global construction industry.*

Hong Kong is quite capable in the area of construction management. Hong Kong management talents are capable of taking advantages of different people from different backgrounds with various strengths and put them together into a team to carry out a successful project. However, the management talents now are quite dispersed, since a lot of them are working in the Mainland China.

Hong Kong people have the advantage of being very sensitive to money/market issues and therefore are acute businessmen. However, Hong Kong is facing problem of it being a small area, the nil growth in population size as well as aging population. Therefore, Hong Kong construction industry should utilise its advantage of having superior management and marketing skills to enter the Mainland market.

14. *What are the weaknesses (challenges) that the industry ought to improve both in short-term and long-term? and how?*

The industry is quite slow in accepting new ideas. Private developers are aiming only for high profit, and therefore are lacking incentive and motivation to implement new construction techniques. The government, at the same time, fails to understand the mindset of private sector and therefore could not properly promote the use of new techniques.

The interviewee reflected that in the recession year around 1998, there was more time for him to re-think about how the construction industry was operating and explore on new construction means. However, he found it quite difficult when it comes to implementing and promoting the new techniques.

For example, while pre-cast structural elements are very common in other places like Australia, Japan and Singapore, it has been rare for local developers to adopt the technique. Although developers do not mind spending a little bit more on construction cost as long as they can sell the property at a high price, they are lacking the basic incentive to implement the technique. Consequently, the Government has to give extra GFA in return for the private sector to adopt pre-cast technique. However, the incentive scheme is abused by private sectors.

Another example illustrating the fact that the developer is not paying too much attention to construction process would be the environmentally friendly Hardiwall, which is a partition

wall more expensive than usual walls. The Henderson Land has been trying to introduce this technique to Hong Kong industry since 1998 from Australia. However, the industry is not responding actively. Though the slight increase in construction cost is not a major concern for developers as long as the property can eventually be sold at a good price, they are reluctant to take the initiative in implementing the technique.

Hong Kong is lacking technological back up like research centre. In contrast, Japanese construction companies even have their own research centre and sophisticated set-ups like the wind tunnel.

Construction workers' quality is another weakness of the Hong Kong industry. In other countries like Japan, construction workers have strong self-respect and regard their work as a profession discipline. However, Hong Kong's cultural inheritance is creating a lack of self-recognition among construction workers. Although developers try to use the same sub-contractor, the workers hired by the sub-contractor are constantly changing and therefore are hard to be disciplined. The companies are also not providing enough basic training and technical supports to workers when compared with Japan and Australia.

The Government is not providing enough support and incentive for Hong Kong construction companies to explore other markets like the Mainland China.

II Sustainable Development of the Hong Kong Construction Industry

8. *How to ensure a steadier workload and a more sustainable future (in both public and private sectors) for the Hong Kong construction industry?*

The interviewee expects that the residential market shall be quite constant for the coming few years. The industry has been asking the Government to pour more money in capital works. Public housing would probably not resume its full construction. The residential market is expected to have around 10,000 – 20,000 units completed each year, while the market demand for residential units is about the same as the supply. The purchasing power for residential flats is declining while the living cost remains high.

9. *How the economic and construction development in neighbouring countries (Mainland China, Macau, Thailand, Vietnam, India, Middle East etc.) will impact on both the level of activity and type of work available to the local construction?*

To the interviewee's knowledge, only Shui On is developing the China market. It is probably due to the fact that opening up a new market involves a lot of human resources as well as time and money efforts. Determination from the senior management level is also crucial.

Hong Kong practitioners should take this opportunity and start to enter the China market soon since Chinese are actually fast learners. Their technical knowledge is superior. If Hong Kong people do not exhibit their strengths now, Chinese professionals will soon catch up and fill up the market themselves. For example, the Chinese construction industry has adopted 3D or even 4D modelling of building layouts and construction planning while Hong Kong is still making efforts to promote the use of this technique.

It is lucky for Hong Kong to have Macau as an alternative market right now. However, it is a concern for the industry for the unknown Macau market condition after 2008. For instance, 80% of all piling machines are now being used in Macau. Most of the

infrastructures in Macau will be completed by 2008 - 09. The large projects left would be the mass transit system and the reclamation project. If the construction volume in Macau decreases drastically after 2008, it would be a huge problem of where to place those machines and whether to resell them or not since Hong Kong does not have a construction volume that matches the working capacity of available piling machines.

There have been a number of Hong Kong engineers who studied in overseas countries and worked in Hong Kong during the economic boom in 80s and 90s. They acquired a lot of practical knowledge and expertise during that period, but are now dispersed in various places working for overseas companies. Therefore if Hong Kong companies can hire these talents and export their expertise, it would definitely help to open up wider markets like the Mid-East.

10. *Did your organisation employ any real estate, engineering and construction staff from Hong Kong to work in neighbouring countries in the past five years? If yes, please briefly describe the discipline and the number. Will this practice continue in the foreseeable future?*

Henderson's overseas market is mainly concentrated in the Mainland China. The overseas staffs are usually at management level who supervise and manage local employees in that particular market. There are staffs for example in Shanghai, Beijing and Guangzhou also.

Generally speaking, the construction companies in Hong Kong are having 10 to 20 % of their total works in the Mainland China. The figure is unlikely to change drastically in the near future.

11. *Please share your visions for the Hong Kong construction industry in the 21st century, compared with the industry today.*

Infrastructure construction in Hong Kong will not increase in the foreseeable future. The road network is also mature, and the MTR network has only about two more lines to construct (Hong Kong Island West and Kowloon East). The slowing down in infrastructure construction is also supported by the fact that population growth in Hong Kong is not rapid and therefore could be able to handle by the current infrastructure facilities.

For the residential side, urban renewal is not contributing too much to the construction demand as it is going at quite a slow pace, much slower than the Mainland China.

It is hard to determine the future trend and possible ways out. The topic is still under research and investigation right now. At least the industry is pursuing the Government to invest more money into infrastructure construction.

The most basic strategy for Hong Kong construction industry to improve is to better equip and train staff and professionals at all levels to a higher quality. Therefore education is a very important aspect to be considered.

Another aspect worth investigating would be the property management and maintenance of buildings. The newer generation buildings with higher altitude and more complex structures should be studied to formulate updated and appropriate maintenance strategies.

However, the construction industry shall retain a role in the economy because there will be demand for buildings and other construction works anyway. It is the issue of how the industry could place itself and look for ways of survival in various economic times.

The issue should be separated into macro and micro aspect. The macro aspect can be the government's policy towards the development of Hong Kong, legislation framework, culture, major direction etc., while the micro aspect can be how the construction industry can fit into the economic development plan, how the industry can enter other markets especially the China market, alternative markets etc.



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Interview 2 (Design Consultant)

I Review of the Hong Kong Construction Industry

1. *Please describe briefly the current situation of the Hong Kong construction industry/market in terms of construction demand (e.g. in building/civil/repair and maintenance; private/public; residential/commercial/industrial sectors), employment, productivity, efficiency, etc.*

Looking at CITA's construction contract statistics, the local construction industry now only has around 50 – 60% of construction work volume compared with the peak years of 1996 and 1997. Both civil engineering and building works are shrinking. However, it is noticed that repair and maintenance work volume has increased, although the total work volume is still small compared to the total construction volume. Therefore the repair and maintenance work volume is not sufficient to reverse the decline in the overall construction industry.

From the job opportunity perspective, the employment level of the industry is decreasing, especially at the site worker level. However, the professionals are still quite fully employed. The wages of architectural graduates rose after the SARS period 03-04.. It illustrates that there is still demand for professionals in the field. Wong & Ouyang has experienced difficulties in recruiting both fresh graduate architects as well as senior architects recently. The situation is attributed to the fact that, although works available for architects within Hong Kong has decreased, the increase in works outside Hong Kong has sustained the high employment rate. Furthermore, architects are not restricted to their traditional roles anymore, as they are now often hired as development and project managers (especially for developers starting projects in the China market).

Almost all Hong Kong developers are now having some portions of their business in the Mainland China. There are even some developers who have given up the Hong Kong market and put all their resources into the China market. A lot of senior professionals are now being hired by these developers and work in the Mainland. As a result, Hong Kong is now experiencing a shortage of professionals to a certain degree.

The residential market of Hong Kong is shrinking, and public housing built by the Housing Authority for rental is also decreasing. The 85,000 public housing units per year scheme proposed by the Government was originally intended to provide more residential units for sale in the market such that the property price could decrease. Since the demand for residential units is declining now, the Government has therefore suspended the scheme. The residential construction volume has declined as a whole.

For the commercial market, it is reported that there is a slight increase in the construction volume for commercial property. The Government has also proposed a few large-scale commercial projects recently. However, the total construction output of the sector is lower than the residential sector, therefore it cannot help the entire industry too much.

2. *What are the factors contributing to the current status of the HK construction industry? What are the reasons causing the excessively long hibernation period in various forms of construction activities?*

The long hibernation period is more of an economic issue. From the perspective of construction industry, there are some policies by the Government that led to this result. One example was the cancellation of the 85,000 housing units per year policy. The other factor was the suspension of the land sale program. The market was also heavily affected by regional economic recession and SARS.

Another reason for the long hibernation period is the rapid development of major Chinese cities and regions like Beijing, Pearl River Delta that reduces the attractiveness of Hong Kong. For example, large companies are now building their regional head quarters in the Mainland cities rather than Hong Kong. Despite the fact that commercial office demand in Hong Kong is showing a trend of increase, the total volume of works has decreased.

The financial sector has become a major pillar for the Hong Kong economy now due to the tradable nature of Hong Kong dollar; and together with tourism are the only areas for optimism.

3. *How did your organisation and different construction stakeholders react and adjust their tactics with the substantial decline of new orders in recent years?*

The industry is experiencing a decline in both public and private sector works. For private developers, they are mostly public companies already since they are listed. Therefore they have to adjust their marketing strategy with respect to their profit bottom-line. As the local market is shrinking, they start to look for other possible markets and Mainland China naturally becomes one of their most preferred choices. China is actually running a rather capitalist market. As long as the developers have adequate capital for investment, they should be able to compete in the market. When the developers enter the Mainland market, they usually bring with them two types of people: their own senior staff as well as Hong Kong professional firms .

4. *How did other advanced countries (e.g. Australia, Japan, Singapore, UK, USA) react and adjust to the similar situation that the Hong Kong construction industry is facing?*

Countries including Australia, Singapore, the UK and the U.S. pay a lot of efforts into exporting their expertise and services.

The Australian government realises that the local market is limited in size and therefore encourages construction companies to go to other places.

The Singapore government gives a lot of support such as subsidies to local construction industry to go to other places for works. It would also adjust its policies according to situations in overseas countries. For example, the Indian market is way easier to enter than the Mainland market and therefore the Singapore government would encourage construction companies to go to India instead.

UK and US have reputations in high-end construction projects. UK professionals have a high reputation and a wide coverage in the world's construction projects. US professionals are also very influential in the world (e.g. Big-Four accountant firms set world accounting standards). For large US consultancy firms, they may have half of their projects in the

country and half of the projects all over the world. UK companies are having a similar situation and are putting even more emphasis on overseas countries. Therefore local recession in the country would not impose such a huge threat to the survival of their construction industry.

5. *What are the strengths inherent in the local construction industry? List what you think is distinctive about the Hong Kong construction industry compared to the global construction industry.*

Strengths inherent in the local construction industry that can be elaborated as competitive features in overseas markets include:

1. Planning:	Hong Kong has expertise in planning area.
2. Design:	
3. Organising:	Due to the strong financial sector, Hong Kong has an advantage in resources organisation and utilisation.
4. Partnering:	
5. Packaging:	
6. Supervising:	Hong Kong has a high standard in QC and testing. Therefore we have established ourselves as a credible source for quality control.
7. QA and QC:	

Hong Kong has advantages in the high-end of the above-mentioned areas. All the strengths of Hong Kong would rely on individual's brainpower as well as professional ethics. In the "muscle" (i.e., labour intensive or industrial production aspect) demanding areas, Hong Kong would not be able to compete and sustain.

6. *What are the weaknesses (challenges) that the industry ought to improve both in short-term and long-term? and how?*

The weaknesses of local industry are as follows:

1. Manufacturing	For example, tile and steel manufacturing are mostly done in the Mainland. Hong Kong companies would have no chance when competing with Chinese manufacturers, unless their factories are in China.
2. Fabrication	Given the fact that even the pre-fabricated parts being used in Hong Kong now are all made in China, there is no chance for Hong Kong fabrication industry to compete with the Mainland industry.
3. Construction	Chinese workers have the advantage of cheap labour costs. Hong Kong workers would not be able to compete in the Mainland labour market due to their high wages.
4. Construction standards	It would be hard for Hong Kong alone to set up its own Construction Standard due to the size of the Industry here with its limited resources.

II Sustainable Development of the Hong Kong Construction Industry

7. *What are the feasible opportunities/options in response to the prevailing market condition and regional development trends for:*

a) *Developers*

b) *Architects and Consultants*

To enter the Chinese market as a consultant firm from Hong Kong, it is important that the firm has specialties or knowledge in certain unique areas. For example, there would be chances for firms specialised in designing complex shopping arcades, high-end buildings, etc. It should also be recognised that developers in the Mainland market actually have the option of hiring overseas consultant firms. Therefore Hong Kong consultants should be prepared to compete with consultants from various countries. Hong Kong architects are winning some of these opportunities right now. However, it is crucial for Hong Kong architects to get more practice with high-end design works such that they can sustain their competitiveness in the China market.

Apart from the Mainland China, other booming markets such as Dubai and the Middle-East can be ways out for Hong Kong architects. Like Japan 15 years ago, the Middle-East now is experiencing large demand for construction and therefore can provide opportunities for international construction firms. On the other hand, it is hard to say how long the large demand can last for. It is also worth noticing that the Middle-East is repeating the bubble of the 1983 – 1984 period .

Macau is another market that is providing opportunities for Hong Kong firms. Unlike China, smaller Hong Kong architectural firms are experiencing difficulties in winning projects there. It is due to fact that Macau is putting lots of emphasis on Casino and Hotel constructions, which are usually handled by large firms . Therefore smaller firms would often find it easier to survive in China. The prospect of Macau's construction market for the years after 2008 is unclear though.

Landscape architects, architects and planners can find opportunities to work in China if they can identify the major trends in the Chinese property market. For example, these three professionals often work together in planning & designing large residential zones in China. Again, the professionals are working on front-end rather than works like construction detailing and documentation.

Architectural firms like Wong & Ouyang that provides multi-disciplinary services can also be found in the Mainland China. However, the Chinese firms of this type are less coordinated despite the fact that they have different disciplines within one design institute. They do not have a strong sense of coordination and do not treat the entire project as an end product to be delivered to the client. However, despite the advantage of better coordination, Hong Kong multi-disciplinary firms are still facing problems. Since the Hong Kong firms are winning high-end projects, it is hard to gather top professionals from different disciplines in one company to design the projects. For Wong & Ouyang, it is the projects at less developed areas or cities where the advantage of providing multi-disciplinary services would be more obvious.

For engineers, it is hard for them to compete in the Mainland market since there are lots of Chinese engineers in the market already. Among the various engineering disciplines, Hong Kong building services engineers are actually having a competitive advantage over the civil and structural engineers, since the latter two professions are well developed already. Hong Kong structural and civil engineers may still have advantage in very high-end projects like tall steel structures or specialised area, but in

terms of basic construction projects, Hong Kong engineers are definitely not having any advantage.

c) *Contractors*

It would actually be difficult for overseas contractors to enter the Mainland market because China has a tendency to protect its construction industry. Therefore the chances for Hong Kong contractors to enter the Mainland market would be dim unless the parent company of the contractor is a developer who wants to invest in Mainland projects. Even when the parent company of a contractor is indeed a developer, it is anticipated that the contractor would only be able to work as a management contractor due to the large resistance from local Mainland contractors to outsiders. Mainland contractors are still weak in overall planning and coordination of sub-contractors. Facilities management is another area where Hong Kong contractors may find it easier to compete.

d) *Suppliers*

Hong Kong suppliers are hard to survive facing the challenges from Chinese suppliers. A lot of Hong Kong suppliers have already moved to China. They are operating in the Chinese mode, but using the management practices in Hong Kong.

8. *How to ensure a steadier workload and a more sustainable future (in both public and private sectors) for the Hong Kong construction industry?*

The industry needs to raise the quality of works. Hong Kong is still having a high construction volume per capita even at recession times when compared with other developed countries like UK, Denmark, etc. The construction industry in other developed countries still survives because of the high quality works they produce.

Hong Kong architects need to widen the scope of their work, for example, to road landscaping, urban design, street furniture, etc.

Maintenance and renewal market is another area that industry players can find works. Although buildings can be torn down and rebuilt when they deteriorate, there are a lot of aging buildings out there that could not add too much to their value even if they are rebuilt (e.g. Tai Koo Shing). Therefore the design lives of buildings need to be extended by careful maintenance.

In future, workforce that is trained for the construction industry should be trained for not only the local market but also the international markets since the local market will not be enough to support all industry labour forces. Therefore the standards set should not only be acceptable to Hong Kong but recognised by other international countries as well. Unlike the medical profession that is well protected, the construction industry is open and therefore has to face challenges from people of various backgrounds. Hong Kong has to export the local expertise. The scope of skill training should also be lifted up to the international perspective.

Hong Kong construction companies have to go to other places to work such that the work volume can eventually provide enough opportunities for local professionals.

The China market has less respect for the professional's role in the society. Therefore, in order to succeed in the Chinese market, one has to be more concerned with packaging and commercial aspects.

9. *How did your organisation diversify her portfolio both geographically and horizontally/vertically (in the supply chain)? What are your organisation's strategies for the prevailing market conditions in the next five years?*

Wong & Ouyang has almost 80% of works in Hong Kong, while the rest of works in the Mainland, Taiwan and other Asian countries. The company has retained a high work share in Hong Kong due to its well-known reputation built over the years. The company has tried to observe the market trend and put emphasis on the areas where it can exhibit its strengths. For example, although the Hong Kong market generally has shrunk, Wong & Ouyang has been doing quite a number of high-end complex commercial projects and medical and institutional type projects.

Wong & Ouyang used to have offices in Singapore and Kuala Lumpur. Although they were closed down during the Asian economic turmoil, the company is watching closely at the recent developments of the two areas. At the same time the company is trying to find more opportunities in China.. Indonesia is another market that the company has been working. The local profession there is not yet well developed.

Which overseas market should the company work in is also affected by the investor's preferences. The investors usually want to invest in places where they are more familiar with. Therefore it would be hard for Hong Kong investors to start a project in far away areas like India or Pakistan. It is often the case that the developers there want to start a large project and could not find expertise locally. They therefore come to places like Hong Kong and invite professionals to work over there.

10. *Please share your visions for the Hong Kong construction industry in the 21st century, compared with the industry today.*

Hong Kong's local market will not be enough to support the pool of professionals in our City. China will become a very important market in the future. Therefore Hong Kong should pay more attention to the brand name effect as well as to establish a culture of "to lead by examples", which are highly recognised by the Chinese market.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Interview 3 (Supplier)

I Review of the Hong Kong Construction Industry

1. *Please describe briefly the current situation of the Hong Kong construction industry/market in terms of construction demand (e.g. in building/civil/repair and maintenance; private/public; residential/commercial/industrial sectors), employment, productivity, efficiency, etc.*

The construction output in Hong Kong has been decreasing since 2000, resulting in a reduction in demand for steel as well, but the decrease was not very serious. Thanks to the booming construction industry in Macau. Since the big investors in Macau are stringent in quality standard of construction materials and the credibility of the supplier, *SW* was selected as the steel supplier for the large-scale construction projects in Macau. *SW* also has a business advantage in the steel market because it owns a factory in Tuen Mun.

Although there is a sharp increasing demand of the repair and maintenance sector, steel suppliers do not benefit considerably because retro-fitting works to structural elements are limited unless large-scale redevelopment is involved.

2. *How did your organisation and different construction stakeholders react and adjust their tactics with the substantial decline of new orders in recent years?*

Many suppliers had a difficult time during the construction recession period and attempted to enter the market in other countries. *SW* has trimmed down the production during the recession. Part of the investment is shifted to the scrap yards and higher-grade of steel materials (e.g. flatted steel for ships; galvanising; stainless steel, etc.). The products therefore were not limited to the reinforcing bars to be used by the construction industry. This created business for *SW* during the down-turn in the construction market. Contract terms and price of steel were, however, not affected as production of steel is a global market.

Mr. Pong suggested interviewing the Federation of Hong Kong Industries to explore the impact of recession to other suppliers.

3. *How did other advanced countries (e.g. Australia, Japan, Singapore, UK, USA) react and adjust to the similar situation that the Hong Kong construction industry is facing?*

Government in advanced countries will provide support to the industry during construction recession, but minimal assistance is provided by the Hong Kong Government. USA, for instance, made steel which must be used for the highways projects in USA. To *SW*, merely a piece of land in Tuen Mun is awarded by Private Treaty Grant to keep her business in the local area because of the Government's development in TKO in 1989.

4. *How the industry was improving subsequent to the CIRC recommendations implemented since 2001? Which aspect(s) has not addressed or has not addressed properly in the CIRC?*

The quality of local construction projects is unsatisfactory even though the construction cost is relatively high. CIRC has suggested improving the project time, cost and quality by implementing prefabrication in construction. However, the extent of prefabrication practice is insignificant because the industry is reluctant to improve and the high initial cost of prefabrication. Steel bending is still carried out on site. Many construction sites in Hong Kong are dangerous and messy.

Prefabrication should be promoted in Hong Kong to improve quality and safety, and reduce wastage, probably by engineers and developers. Standardisation of design should also be put forward in order facilitate the prefabrication practice.

5. *What are the strengths inherent in the local construction industry? List what you think is distinctive about the Hong Kong construction industry compared to the global construction industry.*

SW produces higher quality products compared with other suppliers in neighbouring regions, in terms of appearance and strength of the steel. Ironically, quality is not the top priority for many local projects.

6. *What are the weaknesses (challenges) that the industry ought to improve both in short-term and long-term? and how?*

Lessening the constraints and increasing the supply of land from the Government is desirable to improve the competitive edge for Hong Kong suppliers.

II Sustainable Development of the Hong Kong Construction Industry

7. *What are the feasible opportunities/options in response to the prevailing market condition and regional development trends for:*
- a) *Developers*
 - b) *Consultants*
 - c) *Contractors*
 - d) *Suppliers*

Government should support the local manufacturing industry by looking into the quality of the local products, not only limited to the cost. In any cases, export can indeed contribute to the Hong Kong economy. Products “made in Hong Kong” should be promoted.

8. *How to ensure a steadier workload and a more sustainable future (in both public and private sectors) for the Hong Kong construction industry?*

The URA projects should be started as soon as possible in order to revive the construction industry. Politics is one of the obstacles to put forward the public works. The Timar project and Kai Tak redevelopment are typical examples.

9. *How the economic and construction development in neighbouring countries (Mainland China, Macau, Thailand, Vietnam, India, Middle East etc.) will impact on both the level of activity and type of work available to the local construction?*

The steel market globally has been quite balanced until the booming China market since the 1990s. The recent infrastructural development in China is also remarkable, causing shortages of iron and steel in the global market. Currently the market is more balanced.

China has been a potential market in the past few years. It was expected that the CEPA could have helped entry into the Chinese market. However, the price was returned to normal after obtaining the zero tariff under the CEPA. Therefore the opportunity to enter to the Chinese market is limited, but the future business opportunities should not be excluded. *SW* has already set up an office and bought a piece of land in China. A concrete block production facility was commissioned in 2006. The competition with suppliers in China is high as the quality standard of large factories is not inferior to that of *SW*.

The construction works in Macau including hotel and casino has a great and positive impact to the steel supplier in Hong Kong. The Middle East is another steel import market. If the price is attractive, the products can be exported to the markets in other countries such as the USA. However, exploring overseas market entails considerations of delivery and overhead costs. Trading business is also an option.

10. *How did your organisation diversify her portfolio both geographically and horizontally/vertically (in the supply chain)? What are your organisation's strategies for the prevailing market conditions in the next five years?*

Higher-quality steel such as stainless steel will be considered for production because the price is much higher. The products will be diversified to a 'high-quality market' in the future, and for this reason, the software system of the reinforcing bars production line has been upgraded. This can be considered as horizontal integration whereas the recycling of scrap steel can be considered as vertical integration.

11. *Please share your visions for the Hong Kong construction industry in the 21st century, compared with the industry today.*

It is expected that there will be constant steel demand in the foreseeable future. Mr. Pong anticipated that the local market will recover slightly in the coming year mainly as more capital works are expected. It is, however, not possible to restore to the high construction volume in 1997/98 as the space for further development is limited in Hong Kong. The construction boom in Macau will be continued within the next couple of years.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Construction Industry Institute
HONG KONG

Interview 4 (Quasi-government Organisation 1)

I Review of the Hong Kong Construction Industry

1. *Please describe briefly the current situation of the Hong Kong construction industry/market in terms of construction demand (e.g. in building/civil/repair and maintenance; private/public; residential/commercial/industrial sectors), employment, productivity, efficiency, etc.*

There are two main types of construction works carried out by the MTRC: i) railway and ii) property development. The railway construction is now at the trough subsequent to the large-scale projects including the TKO Extension line, Ma On Shan line and West Rail. The trough brought a negative impact to the Hong Kong construction industry, loss of experience in constructing railway systems.

Construction industry is one of domain in the GDP. Although the activities are not as much as in 1997-98, the construction industry has a great impact to other industries. Project insurance, worker's insurance, project finance and logistics arrangement are all involved in construction projects. The government should not overlook this point.

The quality and efficiency of railway project delivery have been improving through developing local projects. However, because of the declining railway projects, some staffs experienced in railway are forced to move to Taiwan (high-speed train), Singapore, Vietnam and Macau. Personnel still working in the infrastructure sector are mainly at the management level, such as senior engineers, construction managers and project managers. However, it is even more worrying to see those staff changed their working field to building or maintenance sectors.

2. *What are the factors contributing to the current status of the HK construction industry? What are the reasons causing the excessively long hibernation period in various forms of construction activities?*

The absence of support by the local Government to the HK construction industry leads to the long hibernation period in construction activities. Infrastructure projects must be led by the local Government and should be put forward during recession period in order to revive the industry at relatively low cost. However the HKSAR government is indecisive and short of a long-term vision for the local construction industry. This may be attributed to the government bureaucratic structure, civil servants attitude, as well as the price of democracy (e.g. the West Kowloon project). Development should not be revisited once decisions have been made. The Government is also weak in bearing responsibility and work together with the industry to solve problems. There is a long way to go for the integration between the Government and the industry.

3. *How did your organisation and different construction stakeholders react and adjust their tactics with the substantial decline of new orders in recent years?*

MTRC has struggled for a few years as the decreasing railway works in Hong Kong. The number of staff has decreased from 1,000 to around 300 within these few years. However, MTRC has kept a core of competence staff.

In order to maintain a desirable amount of staff and earn international experience, MTRC has been proactive to expand their business in overseas countries. She has provided consultancy services to Mainland China, Taiwan and India railways. However, revenue generated from consultancy has been limited.

4. *How did other advanced countries (e.g. Australia, Japan, Singapore, UK, USA) react and adjust to the similar situation that the Hong Kong construction industry is facing?*

Governments usually take the lead in reacting to the similar situation that the HK construction industry is facing. For example, Singapore government initiated more capital projects during economic recession, and moderated the construction investment during construction boom. The government there serves as a regulator of the industry and thereby maintains the pool of expertise.

The Macau government is decisive. Projects commenced swiftly once contracts are signed, and the government will not reconsider the project once the decision is made. In countries like France, Germany and Singapore, the government will help the companies liaise with overseas government for the co-operation of construction projects. The positive support from the local government will certainly help local construction companies to explore opportunities in other countries.

5. *How the industry was improving subsequent to the CIRC recommendations implemented since 2001? Which aspect(s) has not addressed or has not addressed properly in the CIRC?*

It is disappointing that not all CIRC recommendations have been implemented satisfactorily, for example, PPP and partnering.

The PPP concept suggested by the government is not robust and not attractive to the industry since benefits to investors are limited. PPP has to create a win-win situation so that both the Government and the private developer can enjoy certain benefits. A typical example is the Kwun Tong Swimming Pool project, investors are not allowed to develop residential property on top or near the facilities to recoup the investment. Investors would therefore have no interest to undertake the project if the IRR is not attractive. The numerous restrictions of development also impeded the adoption of PPP in Hong Kong. A railway project in Beijing has already implemented PPP but similar discussions are still undergoing in Hong Kong.

Although partnering concept has been extensively implemented by a number of client parties in Hong Kong including the MTRC, Housing Authority and CLP Power, the actual situation is more of talk the talk but not walk the walk. Government seldom solves the problems hand-in-hand with Contractors. They are concerned about their public accountability. They would avoid incurring liabilities, and consequently tend to put compliance with contractual obligations as their top priority. However, clients should be more open to accept or even put forward innovative ideas as long as ultimately those can

meet their requirements.

6. *What are the strengths inherent in the local construction industry? List what you think is distinctive about the Hong Kong construction industry compared to the global construction industry.*

China professionals have in-depth knowledge in their individual specialist areas, but weak in integrating different works and systems into a package. Co-ordination and integration skills were the strengths of the local construction industry. E&M system development is another competitive edge of the local construction industry, which can be applied to Mainland China as their systems are not as sophisticated as in Hong Kong.

The maintainability and finishes of building/infrastructure works in China are also weak, because the asset life of buildings has not been carefully considered. Therefore the ability to provide high quality fit out works is an advantage in local construction industry. The intelligent building technology in Hong Kong is also mature and highly accepted by Mainland.

The reason why Mainland China would seek MTRC's investment is that they would tap in both design and construction of the railway, and at the same time incorporate end-user/operator's inputs with proper project management and high cost effectiveness (operator railway). Other firm may only provide infrastructure design but not operational input (engineer railway). They may use a high-tech system without considering operation and maintenance issues. This resulted in huge cost in the long-run. Hence, China brought in MTRC to learn project management and operation management developed in HK.

7. *What are the weaknesses (challenges) that the industry ought to improve both in short-term and long-term? and how?*

MTRC is currently communicating with the Wuhan Government on the Routes 2 and 3 investment. Competitors include MRT of Singapore and a railway firm of France. Both of them are backed by their Government through negotiation. But Hong Kong companies lack the Government's support on competition in overseas market. MTRC therefore was put in a relatively disadvantageous position. The HK Government should receive feedback from the industry and learn from Singapore, France and Germany Governments by promoting the industry and liaison with the foreign countries (positive non-intervention).

II Sustainable Development of the Hong Kong Construction Industry

8. *How the economic and construction development in neighbouring countries (Mainland China, Macau, Thailand, Vietnam, India, Middle East etc.) will impact on both the level of activity and type of work available to the local construction?*

Resulting from construction boom in Mainland China, MTRC has more chance to cooperate with Mainland companies. However, due to cultural difference and discrepancy in corporate governance, development in Mainland is challenging and the risk of investment is high. There is also hindrance by the local influence. For example, Shenzhen railway is the first BOT project in Mainland. Due to different views in regulations and frequent internal flow of personnel within the Government, the project could not come to a final decision and has delayed. It takes time, efforts and costs to learn the overseas business.

There is barrier in competing infrastructure works in Mainland China. The civil engineering sector in China, especially tunnel construction, is quite advanced and mature. They are also

good at providing power supply. However the skills in E&M systems (including signalling system, control system, automatic fare collection involving software) and renovation/maintenance technology may not match with the international standard. Hong Kong construction industry therefore has advantages in these aspects in Chinese market.

For MTRC, UK is another potential market as the legal system in UK is similar to that in HK. MTRC has bided 4 operations franchise in UK, but the contracts were not awarded. It costs around \$30M to submit a tender. Assessing local risk profile was learnt from these experiences.

9. *How did your organisation diversify her portfolio both geographically and horizontally/vertically (in the supply chain)? What are your organisation's strategies for the prevailing market conditions in the next five years?*

There are three types of market for MTRC's overseas business, the first is capital investment (mainly in Mainland China). They require HK expertise to provide solutions and recommendations for railway construction, as they improve on their infrastructure. The second is the operation franchise in UK and EU, which can gain revenue from day one with much less capital investment than the infrastructure investment. The third is to provide the consultancy service all over the world. New markets including Mid-East, Dubai and India are actively considered by MTRC for offering consultancy services. MTRC was recently shortlisted for a railway project management job in Mumbai. MTRC has been trying to find strategic partners and understand the local situations through providing consultancy jobs. It also serves as a platform for investment in future. Some of the overseas businesses were initiated by invitation but at the same time MTRC is proactive to explore opportunities outside Hong Kong. The former would yield twice the result with half the effort, especially when the MTRC is also involved in capital investment.

10. *Did your organisation employ any real estate, engineering and construction staff from Hong Kong to work in neighbouring countries in the past five years? If yes, please briefly describe the discipline and the number. Will this practice continue in the foreseeable future?*

Starting from 2003, MTRC has started considering investment in Mainland China because of the rapid increasing demand for infrastructure works. The projects include a railway plus property development in Shenzhen and a railway project in Beijing (E&M only). These projects are procured by BOT or PPP approach. MTRC also has business in EU as the railway operation is going through a deregulation / privatisation process.

11. *Please share your visions for the Hong Kong construction industry in the 21st century, compared with the industry today.*

There will still be demand in construction industry. For example, policy approval has been obtained for the West HK Island line project. It is now evaluating the funding gap by developing property along the line. Other projects such as Shatin to Central Link, South HK Island line will commence once the merger of MTRC and KCRC is accomplished. The merger will give out green light for these large-scale projects and the Government would find it easier to initiate the projects.

As mentioned earlier, the government is indecisive, the consultation process is slow. It is imperative to accelerate the consultation and decision making process. HK Government

leadership should also be strengthened. The development should not be revisited once decisions have been made. It is anticipated that infrastructure development could stimulate the development of the construction industry in the region.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Construction Industry Institute
HONG KONG

Interview 5 (Government 1)

I Review of the Hong Kong Construction Industry

1. *Please describe briefly the current situation of the Hong Kong construction industry/market in terms of construction demand (e.g. in building/civil/repair and maintenance; private/public; residential/commercial/industrial sectors), employment, productivity, efficiency, etc.*

The general situation of the industry is quite bad. The situation is even worse for the building work sector compared with other works. The sector is on a downward curve, and the turning point is uncertain. The 90s used to be the golden age for the Hong Kong construction industry. During the peak years, the housing authority was constructing more than 10,000 units at the same time. During 1998 – 2000 period, the housing authority was completing 60,000 to 70,000 units per year. Now the completion rate has decreased to around several thousand units per year. In the foreseeable future, it is anticipated that the completion rate will remain rather constant at the level of around 10,000 to 12,000 units per year. At the same time, private sector is not taking the chance of the slowing down in public sector construction, which would otherwise be an opportunity for them to increase their residential construction volume. As a result, the whole building sector of the industry is slowing down. The future of the infrastructure construction sector is also not optimistic. Following the completion of West Rail system, there has been no major infrastructure project started yet.

Therefore the future of the industry is still quite gloomy. Luckily Macau is now providing a lot of opportunities to Hong Kong construction companies, especially the larger ones, which indeed help sustain the local construction industry. Macau construction companies involve mostly in smaller residential projects. The Macau construction industry has been developing quite slowly, and therefore would not be able to handle large projects like Casino and Hotel constructions. Hong Kong construction companies are taking up a large market share in Macau, probably more than half of the entire market. 80 – 90% of large projects invested by overseas developers in Macau are done by Hong Kong construction companies (e.g. Gammon, Hsin Chong, Hip Hing, China Overseas). High-end projects like the hotels and casinos in Macau require sophisticated and experienced experts, which are not found in either Macau or the Mainland China. While doing large projects in Macau, it is often that the foreign developer would use architects and designers from large U.S. and other overseas firms. In order to find a project manager who is familiar with the practice of these international firms, it is often that Hong Kong project managers would be hired, as neither Macau nor Mainland project managers would have this kind of expertise.

2. *What are the factors contributing to the current status of the HK construction industry? What are the reasons causing the excessively long hibernation period in various forms of construction activities?*

The decline in construction volume is partly due to the gradual saturation of room for construction. The major infrastructure projects are mostly completed already. Even the MTRC has only Southern Island and Shatin transit development projects left after so many years of development. The remaining works would definitely not be able to sustain the

entire workforce in the local construction industry.

Hong Kong's income distribution is quite extreme. There are a group of people who are gaining a large sum of profit by grasping certain opportunities in times of economic boom. On the other hand, the working class is experiencing frozen or even decreased wage level, and therefore is lacking incentives to buy property. There are still lots of people choosing to live in Hong Kong even though they are earning quite a decent income. The reason is due to the fact that Hong Kong still serves as an entrance to the Mainland market, and these people often have a sense of belonging to Hong Kong. As a result, the luxury residential market is attracting a lot of developers' investments while the middle class residential market (e.g. 500 – 700 sq. ft residential flats) is not getting much attention from the developers. However, the problem with luxury residential units is that there are only a few number of these units completed each year (1000-2000 units) due to the high investments involved. Therefore these projects would definitely not be able to sustain the construction industry and provide enough work volume for construction workers.

The construction industry should be mainly drove by the mass property market (the mid class residential market). However, the Government has stopped construction of public rental housing, and has slowed down as well the construction of public housing. At the same time, infrastructure projects are starting at a very slow pace. Even if there were infrastructure project, the project would only benefit local construction workers but not project managers. The project managers and investors of these large-scale projects are often foreign experts (e.g. the airport). Most local companies do not have the related expertise and technology in these demanding projects as well, which add to the difficulty of finding new business direction, especially in overseas markets. An exception would be the China Overseas, who has the nation's back up in resources. When the company is bidding for major overseas projects (mostly BOT projects), it utilise resources from its headquarter in Mainland while the Hong Kong branch serves merely as an arm for the bidding process. Even the large Hong Kong construction companies or developers would not be able to finance large-scale project (over 10 billion). The way out for Hong Kong construction companies in regional and international competition may therefore lie on their specialties, e.g. the high-rise building construction, pre-fabrication technology, etc.

There are fewer students joining CITA programs, as the prospect of the industry is known to be dim. The CITA programs may face the risk of closing down as well.

3. *How did other advanced countries (e.g. Australia, Japan, Singapore, UK, USA) react and adjust to the similar situation that the Hong Kong construction industry is facing?*

Pre-fabrication technology in Japan is very mature. The driving force behind the development of the technology is the shortage of construction workers. Also, the construction workers are facing aging problem. Therefore pre-fabrication become the way to sustain large and high quality projects.

Singapore is facing the similar situation as Hong Kong (Housing Development Project). Most of the early housing developments in Singapore were done by the HDB. Almost 70% of the total population is living in HDB housing. However, when public house construction reaches its capacity, the Singapore Government dismissed the HDB six years ago. The employers were encouraged to start their own business. At the same time, construction industry practitioners in Singapore have realised that the local developments would not be able to sustain the entire industry and therefore tried to seek opportunities elsewhere (e.g. Malaysia, Indonesia, Thailand, Hong Kong, etc.). When they go to other countries, they bring along with them local management expertise and capitals.

4. *How the industry was improving subsequent to the CIRC recommendations implemented since 2001? Which aspect(s) has not addressed or has not addressed properly in the CIRC?*

Report concerning the construction industry done by committee lead by Henry Tsang in 1998 is outdated already, as it is dealing with discrepancies and aspects for improvement in the industry. The problem nowadays is more of the survival of the industry, which is of different nature from that addressed in Henry Tsang's report. The industry has indeed improved following Henry Tsang's report, after there were some heavy penalties and consequences following misconduct of the industry (e.g. number of sub-contractor limited for piling work, registration of construction workers, etc.).

It is hard in the industry to form long-term partnering relationships between developers and contractors, as the prospect of a partnership is often based on the individual projects, and thus short lived. The contractor, though forms partnership with the owner, is often not guaranteed with a real long term working relationship (unless it is the case of those contractors owned by developers, e.g. Sun Hung Kai). For the public sector, the staffs now are very careful about possible accusation of favouring certain parties and therefore are very prudent in selecting contractors. They try to follow the regulation book strictly, which often restricts considering factors not included in those regulations. It is very hard for the public departments (e.g. Housing Authority) to maintain a long term partnering relationship with certain contractor.

5. *What are the strengths inherent in the local construction industry? List what you think is distinctive about the Hong Kong construction industry compared to the global construction industry.*

Hong Kong has some very good architects and designers. However, the traditional practice of Hong Kong has restrained these talents from fully utilising their inspiration and abilities. Due to the high land price, developers aim to use every single bit of the site to make profit. Therefore the architects are restrained by a lot of commercial considerations when they design the structures.

6. *What are the weaknesses (challenges) that the industry ought to improve both in short-term and long-term? and how?*

Hong Kong construction companies are usually slow in accepting new ideas. It's commonly the case that Government (e.g. the Housing Authority) has to put these new technologies or methods into the specs and conditions in the work contract that the industry would really implement them. Contractors rarely propose any alternative proposal in construction method and other aspects, which slowly becomes a tradition in the industry. Therefore it is hard for the industry to have the incentive of implementing different means to achieve a better project. At the same time, as the construction volume is declining, companies are cutting their expenditure as much as they could. As a result, it would be hard for the industry to invest in the research and implementation of new methods. Another reason is that a lot of the construction companies are small companies owned by a family or listed companies. For these kinds of companies, it would be hard for them to invest in something uncertain and brings risk to the company.

II Sustainable Development of the Hong Kong Construction Industry

7. *What are the feasible opportunities/options in response to the prevailing market condition and regional development trends for:*
- a) *Developers*
 - b) *Consultants*
 - c) *Contractors*
 - d) *Suppliers*

A large number of Hong Kong construction workers are also working in Macau nowadays. A rough estimation by industry practitioners for the number of Hong Kong workers working in Macau is around 10,000 people. Among these workers, those specialised in building services related works are finding more opportunities in Macau than workers from other sector. The reason is mainly due to the fact that most construction projects in Macau are related to Hotel or Casino development. In these types of structures, content and quantity of building services involved are higher than those in the normal building projects. The demand on workers' skills is also much more sophisticated. Macau does not have such expertise, while workers from Pearl River Delta Area are not as skilled and well trained as those from Hong Kong. Therefore Hong Kong building services workers could find opportunities in these Hotel and Casino construction projects.

Renovation workers in Hong Kong were also enjoying more opportunities in the past two years. It was due to the heated property market with increasing property price and residential units completed. The Government is also encouraging the growth of this sector and has put a lot of resources into helping the sector to develop. For example, the Housing Authority has just implemented the Total Maintenance Scheme, which involves annual investment of about 1 billion into the maintenance of public housing estates. The Government is also advocating for the compulsory building maintenance scheme, which is already raising public awareness towards the issue although the proposal has not passed the legislation yet. Therefore it is anticipated that maintenance market would become more important in the future. In the past when the construction industry was still under prosperity, maintenance work only took up about one tenth of the total construction work volume. Now the ratio has probably grown to about one sixth, as other sectors are shrinking in sizes and the maintenance sector itself is growing.

The Hong Kong developers are investing more and more in the Mainland market. They are slowly shifting their focus from the local developments into opening up the Mainland market. These developers are not just investing in the major China cities but are also starting to explore the smaller cities. The investments involved could be tens of billions. In this process, the Hong Kong Government is not providing much assistance though.

Other than Macau and China, India and Mid-East are two other markets which are undergoing rapid development and expansion. However, there are local construction companies and other overseas companies already working in these markets. Therefore Hong Kong companies have to equip themselves with appropriate qualities and strategies that would help them to win a share of these markets.

Pre-fabrication technology started to become popular in Hong Kong due to two reasons: the need for higher quality and the shortage of construction labour. During the few peak years following 1994, the industry was experiencing shortage of workers. Therefore pre-fabrication became a viable mean to solve the problem. In Mainland, the main drive behind implementing pre-fabrication is the need for higher quality control in the building materials. There are some Hong Kong pre-fabrication companies that have set up plants in Mainland

and gained some market share. However, pre-fabrication process is not a very sophisticated technology that takes years to learn. Any competitive advantage arising from prefabrication, if any, is not sustainable in the long run. In order to keep Hong Kong in the leading position, more research should be done in the area. The research should not only be about the production process, but should involve also the design and other parts of the process such that the construction projects using the pre-fabrication technique could be improved in terms of time, cost and quality.

8. *How to ensure a steadier workload and a more sustainable future (in both public and private sectors) for the Hong Kong construction industry?*

The Hong Kong Government has always been implementing the strategy of non-intervention. However, at times like now when the economy is changing into another mode instead of just experiencing cyclic trough, the Government should implement stronger policies to help the industry. For example, the Housing Authority and the Government can put more efforts into researching and applying the pre-fabrication technique and therefore promote the refined technique to the private industry sector, e.g. to reduce the cost or to mitigate for the increase in cost.

It might be useful to gather people familiar with the Mainland market and share their experiences with the construction industry such that the industry could enter and invest in the China market more efficiently. This would be a useful addition to just reviewing the Hong Kong construction industry, as the local industry needs to enter into other markets in order to sustain itself. The industry is no longer at a time of cyclical economic trend now, but rather at a crossroad where it needs to find a new direction. Therefore the industry will not be able to get out of the trough of the economic cycle if nothing is done.

To succeed in the international market, Hong Kong construction industry must develop itself towards the high-end. The industry should develop some specialties, such that companies can win projects and contracts in international up-markets. At the same time, knowledge and skills in certain high-end fields might eventually be acquired by the local people in the developing regions, hence bringing capital to overseas countries for investment is another important criteria for success if Hong Kong wants to get a share in the international market.

9. *How the economic and construction development in neighbouring countries (Mainland China, Macau, Thailand, Vietnam, India, Middle East etc.) will impact on both the level of activity and type of work available to the local construction?*

Macau itself is not a big place, and most of the investments coming in now are concentrated in Casino business. Therefore it is impossible for the work volume there to sustain at such a high level as now for a very long time. It is estimated that the Macau market would be able to provide opportunities for the Hong Kong construction industry for a few more years. The peak of this boom would probably arrive this year or the year after. However, the remaining works would probably last until 2008.

The Hong Kong Government can not provide much help to developers or companies interested in entering the Mainland market because even the Government officials can not establish links and networks with Mainland official in the short period after Hong Kong returns to the Mainland China.

10. *Please share your visions for the Hong Kong construction industry in the 21st century, compared with the industry today.*

The two large development projects left that could bring new experience and idea to the industry are the West Kowloon area and the Kai Tak airport area. The shrinking construction volume will not be able to sustain the entire industry. The large construction companies may still be able to survive, but the smaller companies would have quite a difficult time to struggle for survival. The situation would particularly be severe for the sub-contractors. Even if the main contractors succeed in finding opportunities elsewhere other than Hong Kong, it is quite possible that they will use Hong Kong senior supervisors but hire local sub-contractors instead. At the same time, voices from these smaller contractors are often not heard and not represented. Therefore the way out for these workers may lie on the maintenance work sector.

Hong Kong buildings are facing the aging problem. In ten or twenty years there will be more than half of the buildings age 30 years or more. Therefore if Government is willing to implement strong policies to force building owners to carry out maintenance work, there will be a lot of business opportunities in this field.

The Hong Kong construction industry is not really having a great advantage in terms of maturity and technology. Therefore it would be hard to compete in the international market, although it is the possible way out for the industry.

The Government might consider construction industry as no longer a pillar for the Hong Kong economy and therefore give less support to the industry. In this situation, the industry has to find new directions and ways for survival thru various means, including the CII-HK's RICH project.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Construction Industry Institute
HONG KONG

Interview 6 (Main Contractor 1)

I Review of the Hong Kong Construction Industry

1. *Please describe briefly the current situation of the Hong Kong construction industry/market in terms of construction demand (e.g. in building/civil/repair and maintenance; private/public; residential/commercial/industrial sectors), employment, productivity, efficiency, etc.*

Over the past 3 years, the construction volume in Hong Kong had not rebounded as the industry expected. The volume attained a peak in 1997/98, which involved \$125 billion of construction projects. Since then the construction volume shrank to around \$43 billion in 2004/05 and 2005/06. The local construction volume has reached a mature city level at around \$40 billion (The figures are calculated based on the CITA's levy). However, the volume of maintenance and repair works has been increasing recently.

Not only most of the large-scale infrastructure development in Hong Kong has been completed, the demand for residential building is also slump. Low earning power and slow paces in salary increment may account for the reduction of residential demand. Even though the demand for deluxe house is increasing, the share is relatively limited. This leads to two extremes in the property market.

2. *What are the factors contributing to the current status of the HK construction industry? What are the reasons causing the excessively long hibernation period in various forms of construction activities?*

The excessively long hibernation period may be accounted by the absence of new and strong mission from the HKSAR Government. Large scale infrastructure projects are crucial to drive the industry to rebound.

3. *How did your organisation and different construction stakeholders react and adjust their tactics with the substantial decline of new orders in recent years?*

By the result of decline of new orders, the company has been trimmed down, especially at the management and technical levels. Recently, certain amount of the Shui On's business has shifted to real estate investment and project management in Mainland China.

Currently some contractors, depending on the individual corporate strategies, may focus their business on repair and maintenance works. The private sector R&M market, however, is not mature and the project scale is relatively small and difficult to manage. Shui On does involve in maintenance projects, but limited to Government's maintenance/term contracts and Institutional projects. They select the projects carefully and base on proper management from the clients.

To ensure a better quality, Shui On would directly carry out some works such as bricklaying, tiling, plastering if the sub-contractors' performance is not satisfactory, especially during the construction boom. Suppliers and sub-contractors who have good

performance will be designated continuously by Shui On's projects.

4. *How the industry was improving subsequent to the CIRC recommendations implemented since 2001? Which aspect(s) has not addressed or has not addressed properly in the CIRC?*

There is a lack of support from the HKSAR government, although a number of important issues were addressed out in the CIRC report, the implementation and effectiveness is limited. Many burdens are transferred to the local contractors for trial purpose. Up to now, only worker's registration system addressed in 2001 has been implemented. The overall impact on the construction industry is limited.

5. *What are the strengths inherent in the local construction industry? List what you think is distinctive about the Hong Kong construction industry compared to the global construction industry.*

Hong Kong construction industry has proven her capability in constructing high rise buildings due to the local market demand. The clients in Dubai might prefer Hong Kong contractors because of good quality of workmanship; and their expertise, experience and managerial ability to construct high rise buildings. We understand China States Construction (HK), Paul Y, have already started their business in Dubai.

Project management skill and high efficiency are also the strengths of local construction industry and it is demandable in China Mainland, Macau and Dubai. Design quality is another asset of the Hong Kong construction. Many Hong Kong consultants have business outside Hong Kong. However, there are probably not too many contractors, say half a dozen, who have the necessary resources and/or competence in getting access to international construction markets.

6. *What are the weaknesses (challenges) that the industry ought to improve both in short-term and long-term? and how?*

Hong Kong contractors are unwilling to invest in new markets, and get familiar with the local environment. This however requires a long-term investment. For example, Shui On started its construction business in Shanghai in 1985, but they just focused and invested more in Shanghai recently and became more competitive in the construction market. In addition, the Hong Kong construction is a quite localised industry. There is no large-scale contractor who has the expertise to carry out infrastructural projects requiring high level of technology. This also affects the ability to capture market share outside the Hong Kong boundary. Lack of support from the government is another limitation of the local construction industry.

II Sustainable Development of the Hong Kong Construction Industry

7. *What are the feasible opportunities/options in response to the prevailing market condition and regional development trends for:*
- a) Developers*
 - b) Architects and Consultants*
 - c) Contractors*

The opportunity in HK is not very bright as the government is slow in implementing policies and the statutory building requirements are also strict for Hong Kong contractors.

The profit margin is not as good as the market conditions in 1980s-90s. Contractors should make use of their competitive advantages to match up with the market demand such as the R&M sector.

There are numerous opportunities in China. However, it is quite difficult to initiate construction business in China because of difference in culture and organisational structure, and weaker competitiveness compared with the Chinese contractors. Therefore the gate for Hong Kong contractors to enter the China Mainland market would be narrow unless they have a parent company with strong construction expertise backup in Mainland. Chances would also be higher if the company is willing to invest so that a few local points can be set up and build up project management credibility in the Mainland. The risk would be reduced by setting up bases in different cities so as to allocate resources flexibly.

The labour cost in Mainland China is low, however, it is not easy to supervise the local workmanship. Very seasoned construction experts may also be unwilling to base in Mainland China. Hong Kong contractors are required to pay large efforts in local setup. At this moment, less than five large Hong Kong contractors have entered the China market and are affordable for such risks. Their main focus, however, is limited to project management.

Dubai is another great market because of its open market system and shortages of resources. Hong Kong contractors have opportunities in Dubai because of their expertise in constructing high-rise buildings. But contractors are required to bring a team of management staff and workers who are capable to carry out works. China States Construction Co. is a successful case in Dubai as it is a state-owned company, which can mobilise a large team of workforce, and they also have experience in the construction management. Management skill is still a keen point for Hong Kong contractors in regional developments.

8. *How to ensure a steadier workload and a more sustainable future (in both public and private sectors) for the Hong Kong construction industry?*

It is necessary to moderate the political issues by the HKSAR Government and initiate/accelerate more projects such as the West Kowloon Cultural District Project and the Kai Tak Project. This is also critical to stimulate the local economy when the property/construction markets are not good.

9. *How the economic and construction development in neighbouring countries (Mainland China, Macau, Thailand, Vietnam, India, Middle East etc.) will impact on both the level of activity and type of work available to the local construction?*

Hong Kong contractors have opportunities in Macau because the US investors developing casinos and hotels have trust on Hong Kong contractors as they are experienced in constructing high quality buildings. The geographic location and culture in Macau also make it preferred to the Hong Kong workforce. Therefore Macau is a good opportunity for next 3 years, but it is not a long-term market.

The market for Hong Kong contractors to carry out work in Mainland China is limited because of high risk and different organisational structure in China. CEPA did not help much for the local contractors to obtain license in China. It is difficult for overseas contractors to enter the Mainland market because of the difficult entry barriers (practices, legal framework, bureaucratic structure, etc).

The ability of project management and financial status of the contractors are critical to bid construction works for foreign investors in China. The financial status can be reflected by the company's readiness to obtain performance bond. It is not difficult to purchase bond in Mainland given that the reputation and performance for the company are satisfactory, and guaranteed by her parent company. Networking in China is also important for survival.

To expand business to overseas countries, the strategies formulated by the senior management level are crucial, given the company is competitive and resources are available. It also depends on the local government policy to import construction technology outside the country.

10. *Did your organisation employ any real estate, engineering and construction staff from Hong Kong to work in neighbouring countries in the past five years? If yes, please briefly describe the discipline and the number. Will this practice continue in the foreseeable future?*

Shui On Group had started investing in Shanghai since 1985, about 20 management staff have been assigned to be based in Shanghai recently. The primary service provided by HK staff in China focuses on project management for in-house property development projects, which is the Hong Kong contractors' competitive edge. Hong Kong construction industry would not be a major revenue base for Shui On in the future.

11. *Please share your visions for the Hong Kong construction industry in the 21st century, compared with the industry today.*

Hong Kong construction market has been attained a mature status. The construction volume will not return the peak level as achieved in 1997, but expected to be stable in the next 5-10 years. By the promotion of PPP projects, the construction markets may be divided by two extremes: a few large contractors would dominate the industry and other contractors might play the role as sub-contractors. To achieve a more sustainable development, HKSAR government should invest more in the local infrastructure projects when the economy is not good.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Construction Industry Institute
HONG KONG

Interview 7 (Subcontractor)

I Review of the Hong Kong Construction Industry

1. *Please describe briefly the current situation of the Hong Kong construction industry/market in terms of construction demand (e.g. in building/civil/repair and maintenance; private/public; residential/commercial/industrial sectors), employment, productivity, efficiency, etc.*

The construction volume in new works has been decreasing since 1998. The overall practice has no significant change; large projects are still subcontracted out to small/medium contractors and the main contractor deals with management issues. The practice is maintained partly due to the tendering system of Government major projects, which would require the bidding contractors to be of some scale (license B, C). Small and poor performance contractors have been moving out from the industry during the market recession. They are not yet fully closed down, but are at least working on significantly fewer projects. High quality contractors and qualified personnel are survived. Construction workers are facing fierce competition, which results in elimination of under qualified workers accumulated from the peak years before. In these perspectives, the recession would actually be a good reformation for the construction industry to improve site safety and environmental awareness.

The volume of private properties maintenance projects has increased sharply these years compared to the peak i.e. 1997. From the interviewee's experience, his company has increased the share of works on existing structures including maintenance and redevelopment of the total work orders from 30% during the peak years to almost 100% nowadays. It is estimated that the trend is also found in the general industry, maybe to a less extent. However, these kinds of job are usually done by a few large contractors in HK because they have a good relationship with the clients and they also have a gang of in-house specialists. Small and medium size contractors are relatively difficult to enter this market. The competition in the market is still keen for small and medium size companies. Another problem for small and medium companies interested in entering the market is the opening tendering system. There are companies can offer exceptionally low tender prices, by sacrificing some quality of works. It often violates principles of some other companies, which can only bid at a higher price with better quality commitment. However, to a lot of large clients, these detailed qualities are often overlooked and the main consideration for accepting a tender would be the price.

The tender price is greatly affected by the overall economic environment but not heavily impacted by the total construction demand. It is due to the fact that although the industry experiences ups and downs in the past years the number of companies being able to survive. Therefore the degree of competition among companies remains more or less the same, despite the difference in number of companies competing in various economic times.

Foreign construction companies would find it difficult to enter the Hong Kong market. Hong Kong construction workers (even the owners of the companies), especially those in small and medium companies, usually work for long hours with low labour cost.

2. *How did your organisation and different construction stakeholders react and adjust their tactics with the substantial decline of new orders in recent years?*

Mr. Ping's business has 100% changed to maintenance sector. The allocation of business was 70% in new works and 30% in maintenance works in 1997-98. Mr. Ping hopes to build up a reputation in maintenance sectors by good performance and high quality product. To be successful, the cost must be effective and the experience, quality and financial background of a company must be good to maintain the business in the current market situation.

Other small and medium companies react to the recession by means to cut down their operation costs, including trimming human resources and considering more suppliers to reduce material cost (sometimes to obtain from Mainland suppliers).

3. *What are the strengths inherent in the local construction industry? List what you think is distinctive about the Hong Kong construction industry compared to the global construction industry.*

Flexibility is the strength in the local construction industry. Practitioners can easily change among different fields and various sizes of projects. For example, Mr. Ping started his career as a plasterer; he established his own company by his rich experience after many years. His core business is in fitting out sectors nowadays. By his experience, it is not difficult to survive in the industry; the critical factor of his success is to employ outstanding foremen from different trades to work on the projects.

Hong Kong construction workers are also very quick in adapting to new construction methods and techniques.

4. *What are the weaknesses (challenges) that the industry ought to improve both in short-term and long-term? and how?*

There is a room for improvement for the skills and qualities of foreman. Although government provides training to foremen, they have no responsibility to perform the tasks. Another weakness of the industry is the culture in contract payment. Clients are always awarded tender by choosing the lowest bid. Wrong calculation is always resulted in the successful bid and SME contractors are not affordable to take such risk. Even though the SME contractors are awarded the tender, consultant QS always cut the payment to contractors by 30% and the rest is received from the client later. The contractors are required to pay the salary to the workers first by themselves otherwise they will be charged of deferring workers' salaries. As a result the cash flow is really difficult for the contractors. The final account (30% left after 70% of payment is awarded during the project) will be closed faster if the contractor has a good relationship with the client. Many contractors are closed (especially during the peak years) because they cannot receive payment and have no power to reject the clients (the contractors will be black listed by the clients if they have unreasonably numerous claims). The smaller contractors often do not have extra resources to hire people having expertise in contractual disputes and claims. These contractors are also reluctant and lazy to document every detail of the projects. Therefore they are in disadvantage when disputes over contractual payments arise.

Apart from the contractors, suppliers to the contractors are also affected. The contractors would not be able to pay the suppliers at the beginning because the incomplete payment

they received would be use for paying off workers' salaries. If the contractors could not complete the project due to financial difficulties and therefore is closed down, suppliers would not be able to recover their costs from the contractors as well. There is no regulation or supervising body to monitor the payment practice in HK construction industry.

Moreover, it is common that clients do not follow strictly to all contractual arrangements.

Another weakness of the local industry is the declining quality of frontline management staff. Despite the resources put into the training of these people, their qualities have deteriorated compare to the older generation. It is partly due to the changing social culture, in which being responsible is less treasured.

Small and medium size companies are also facing problem of lacking successors as well. Even the owners of these companies would a lot of time have to work on the projects themselves with their wide experiences in the field. It would be difficult for them to pass on these experiences to their later generations. These companies usually close down after their owners reach retiring age. At the same time, employees of these companies would also mostly reach their retirement age. Therefore only about 10% of these companies would be able to find successors and sustain in a longer run. There are new companies set up by younger generations, despite only 20% of these new companies would be able to stay in business.

II Sustainable Development of the Hong Kong Construction Industry

5. *What are the feasible opportunities/options in response to the prevailing market condition and regional development trends for:*

a) Contractors

Contractors can work in Mainland China and Macau. There are many local contractors work in Mainland China for building and fitting out projects. However, they are relatively difficult to work for larger infrastructure projects because Mainland contractors have most of the resources needed ready. Chinese people learn first from HK people. They can monitor the project once they learnt the technique from the HK people. Due to language barrier, HK workers will not work in overseas; they prefer to stay in HK.

b) Suppliers

Companies should establish a good reputation, based on their track records of delivering the projects on time, with high standard of quality and with optimum cost, as well as a healthy financial background.

6. *How to ensure a steadier workload and a more sustainable future (in both public and private sectors) for the Hong Kong construction industry?*

The market will be regulated automatically by the larger economy. To have a sustainable future, Mr. Ping suggested the government to set up a 'consumer council' for the construction industry. Construction stakeholders can provide feedback to the council in order to get a fair balance in the contract. The council may not be statutory, but it provides a channel to stakeholders for making suggestions, comments and complaints.

Hong Kong Government should also help the industry to explore China market by sorting out detail arrangement with Mainland authority about registration and other issues.

7. *How the economic and construction development in neighbouring countries (Mainland China, Macau, Thailand, Vietnam, India, Middle East etc.) will impact on both the level of activity and type of work available to the local construction?*

Contractors can get profit from Macau's projects, as there is not enough resource and skill level in Macau's construction industry. The profit is pushed even higher by the high demand on project delivery time. It would be about 3 years before the major hotel and casino developments are completed and Hong Kong construction companies no longer find such high level of work volume in Macau anymore.

There is approximately 80% of local contractors willing to explore the Mainland China market. Although the market in Mainland is large, it is not so easy to enter the market because there is a registration system in Mainland China. Only a few large contractors who have Class C licenses can register in Mainland. Foreign investors interested in China market still trust HK people. HK contractors are usually involved in management level. Difficulties would be faced, as contractors are not easy to receive payment in Mainland. Small contractors would be more difficult to enter the market, as they are not qualified for registration. They need to explore into other construction-related business that does not require registration (e.g. material suppliers). It is advised that the officials from HKSAR government who are familiar with the construction industry should take the lead to liaise with Chinese central government for the recognition of HK contractors. It would certainly be beneficial to SME companies. Most of the Hong Kong contractors entered China market are working on smaller fitting out and renovation projects. However, the volume of fitting out works which done by HK contractors are decreased from 100% to 10% nowadays in Mainland. It is because the Chinese construction industry is quickly learning from Hong Kong's experience and the labour cost in China is lower. As a whole, Hong Kong contractors working in Mainland China would be beneficial to both places since Hong Kong expertise can be passed to Mainland construction industry. To work in China market, Hong Kong companies usually bring along with them management staff in various fields.

8. *Please share your visions for the Hong Kong construction industry in the 21st century, compared with the industry today.*

The construction industry is stabled in the short-term. The construction volume would be able to reach the level attained in 1990. Due to feasible characteristics of HK people, the construction industry has long way to go. Hong Kong will still serve as an entrance to foreign investors interested in the Mainland China. Foreign investors would still invest money in HK. There will also be wealthy people coming from the Mainland who wants to invest in a more opened and reliable market, which Hong Kong would be one of their top choices. Therefore the demand for construction industry shall sustain. Despite the ups and downs in the industry cycle, the industry shall still be on an upward trend in the long run.



CII-HK Research Project
Reinventing Hong Kong Construction Industry
for its Sustainable Development



Construction Industry Institute
HONG KONG

Interview 8 (Main Contractor 2)

I Review of the Hong Kong Construction Industry

1. *Please describe briefly the current situation of the Hong Kong construction industry/market in terms of construction demand (e.g. in building/civil/repair and maintenance; private/public; residential/commercial/industrial sectors), employment, productivity, efficiency, etc.*

The new construction volume of Hong Kong in the past few years has been maintained at the level of around HK\$ 50 billion. During the peak years of around 1998, the new construction volume once rose to about HK\$ 120 billion. Both public and private sectors have shown signs of decline over the past years. Comparing with the peak years, the figure has decreased by 60 – 70%. The downturn embraced both cyclical and structural changes in terms of construction volume.

On the other hand, Macau's construction market is quite active now. A lot of Hong Kong construction companies have already started looking for opportunities in the Macau market. It helps sustain part of the Hong Kong construction industry, but not yet enough to support the entire industry.

The Hong Kong Government has been imposing more regulations on the construction industry in recent years, including requirements on safety, environmental issues and construction workers' minimum wage. All these extra rules lead to increase in construction costs and force the construction companies to take extra measures to comply with the legislation.

The industry is also facing changes in construction contractual arrangements. In the past, most of the projects were procured by the traditional contract. However, new contract types like design build and project management are now being implemented and the construction industry needs to adapt to these new arrangements.

Big construction companies may have more resources to deal with the said changes, they are also facing challenges such as the needs to re-train a large number of employees to adapt those changing requirements, and higher chances to be penalised due to some stringent regulations to contractors.

The industry now is more concerned with the management of supply chain. Hong Kong construction industry is acting like assembling imported components together. Therefore the control over the supply chain becomes critical success factor of a construction company.

2. *What are the factors contributing to the current status of the HK construction industry? What are the reasons causing the excessively long hibernation period in various forms of construction activities?*

The political framework in Hong Kong leads to the complex consultation process in starting

large-scale infrastructure projects. Even if the consultation period has passed, it may happen that the project is being put onto the table again and banned afterwards. The general atmosphere right now is that construction of any structure other than parks may be seen as a disturbance to the environment. There seems now an anti-construction sentiment going on at the moment. It is getting harder to private developers to find a right piece of land for property development such that residents nearby would not object to the project. Therefore it would be hard for the local construction industry to reach the peak times (HK\$ 120 billion of new construction volume per year), but it is not impossible to climb up to the level of 80 billion in the future.

For example, the revised development proposal of the Kai Tak redevelopment project now may not even have one third of the construction volume as that being proposed in the original proposal. Therefore from the pure point of view of construction demand, regardless of the social benefit, the general atmosphere now is discouraging the growth of the industry in terms of construction volume.

Another reason of the recession is related to the fiscal situation of Hong Kong Government. It is anticipated that the situation would probably be improved after the Government is back onto the track of a healthy fiscal system recently.

Although the population of Hong Kong is growing, it is not necessarily the case that demand for construction of residential property will increase, since the purchasing will of people may be affected also by property prices, availability of land, affordability and other factors than the population alone.

Maintenance sector, despite its continuous growth in recent years, is not a field that any construction stakeholder can enter. It is regarded as a separate market, same as civil and building sector, which needs expertise and related knowledge to enter. However, the field itself will have steady demand and should be able to support the entire industry in a stronger role than before. The growth in need for maintenance is contributed by factors including the increased needs from public sector for maintenance and redevelopment projects done in the private sector. Additionally, once the mandatory building inspection scheme has been implemented (probably in the next year), the volume in the maintenance sector will continue to increase. It's worth noting that the maintenance sector is actually quite a labour intensive sector. Therefore the growth of the sector could somehow help support the local construction companies including the large ones.

In addition, Hong Kong is tearing down buildings in a slower pace compared with older times due to the fact that a lot of more newly built buildings have already maximised its use of the available plot ratio. In the past, the sites were redeveloped as the old building has not achieved its maximum plot ratio and therefore should be torn down and rebuilt such that more profit can be made from that piece of land. This also boosts up the demand for repair and maintenance, revitalisation or renovation works.

3. *How did your organisation and different construction stakeholders react and adjust their tactics with the substantial decline of new orders in recent years?*

Yau Lee has been trying to diversify its business in the past years, into fields like manufacturing, maintenance, I.T. and real estate. Yau Lee is running different companies like pre-cast concrete factory and software company. Pre-cast factory does not only enable Yau Lee to obtain materials at a lower price, but also, and more importantly, allow the company to have a better control and management over its supper chain (e.g. delivery time, risks, products) such that the construction progress of its projects can be optimised.

Relatively speaking, Yau Lee is hiring fewer sub-contractors in carrying out the works. The company tends to manage the various components of its business by itself, and therefore employs more direct labour.

Sub-contractors may be thought as the ones suffering the most from industry troughs. However, for main contractors like Yau Lee, who insists to maintain a long term relationship with the sub-contractors, it would even be a harder time since the responsibility of supervising and managing the sub-contractors would lie on the main contractor. In contrast, some main contractors would choose to hire the sub-contractors only when they have projects going on.

There are various strategies employed by the construction stakeholders. Some may choose to explore the Mainland market, some may switch to the project management field and some may choose to work in overseas markets like the Mid-East and Taiwan.

A lot of large construction companies have a diversified portfolio of business units, of which many are horizontally and vertically integrated. There are branches of business not limited to construction only. Those branches may include business like building services, property management, project management, foundations, maintenance, etc.

4. *How did other advanced countries (e.g. Australia, Japan, Singapore, UK, USA) react and adjust to the similar situation that the Hong Kong construction industry is facing?*

The industry practice is varying over different places. For example, in Singapore, import of labour is allowed and therefore overhead can be saved in construction projects.

The Japanese Government had once encouraged the local construction companies to open up the overseas market. However some of these companies have experienced obstacles in overseas markets and returned to work in Japan.

5. *How the industry was improving subsequent to the CIRC recommendations implemented since 2001? Which aspect(s) has not addressed or has not addressed properly in the CIRC?*

The implementations of recommendations in CIRC are almost completed and some of them are in progress. Overall construction practices are improving. Construction safety is a good indicator for implementation of CIRC. Accidents in construction industry is in decreasing trend over the past few years. Accidents figures of Yau Lee Holding Ltd. in eight years ago was more than 100 but now are reduced around 10. For whole industry, the accidents figures are about 60. Of course, there is a room for improving. The Government has implemented the recommendation about contractual arrangement in CIRC. Risk sharing, simple ground commission, pay for safety & environment, sub-contractor measuring system, worker registration system and safety training is improving but not perfect.

In general speaking, the construction stakeholders are more conscientious and have strict procedures for monitoring the works; therefore, no more shortened piling incidents are emerged in recent years.

There are much professional training provided by Universities in response to demanding requirement for working at site. City University has some part-time degree course for training site supervisors. However, the challenges of construction industry are absent of

clear direction and perspective on future development that will lower the numbers of new comers to the industry and their quality in the future.

The construction industry is fragmented therefore we hope the coming regulations from Building Department and construction stakeholders can work together to let the contractors follow the right track.

It is the time to investigate and look forward to the future development of whole construction industry after Construction Industry Council (CIC) was established rather than still sticking on the old problems and the corresponding ah hoc reactions mentioned in CIRC report.

6. *What are the strengths inherent in the local construction industry? List what you think is distinctive about the Hong Kong construction industry compared to the global construction industry.*

Under the rigorous competition in construction industry, the contractors are trained as very experienced and professional. The project management and coordination skills, efficient and flexible in precasting and semi-precasting techniques in Hong Kong are outstanding among the neighbouring countries. Furthermore, we are able to finish a quality works under very limited construction time and labour force.

The edge inherent in the local construction industry should rather be seen as each company's competitive advantage. For example, a company maybe good in doing dredging work, while another company may have the expertise in high-rise building design and construction. Therefore each company should find its own niche in the market. Although smaller companies may not have such a great advantage compared with the larger ones in winning overseas projects due to their limitation in resources and expertise, they may still find opportunities in areas like maintenance or smaller projects that larger companies are not interested in.

Wai Kee, Gammon, Chun Wo and ITC have been winning projects in overseas markets including Saudi Arabia, Taiwan, Macau, Singapore and Mid-East. The factors helping them to win the projects may include the relationship they share with the clients, expertise/technology (e.g. dredging) or possessing of machinery (technical capability), the past experience in Hong Kong for the similar nature of work (e.g. high rise buildings), financial capability, etc. Some of the contractors were successfully awarded construction project without investment.

Pre-cast technology in Hong Kong is very well-developed. However, it should be noted that for companies not having much experience before in the use of pre-cast members in construction, it actually won't be too hard for them to catch up within 2 or 3 years. Therefore a continuous development in this technology is important to maintain the leading role of Hong Kong industry in the area.

Project management is another field where Hong Kong has a great knowledge and expertise in compare with other areas.

7. *What are the weaknesses (challenges) that the industry ought to improve both in short-term and long-term? and how?*

Some small contractors and private developers are not willing to follow the current regulations and still remain their old working practices of many years ago. Some of their safety facilities are still far away from normal standard and not being acceptable in public works. Hence, Building Department are now preparing for issuing a new registration system to regulate the minor works.

The payment procedures and process from contractors to workers was well established in Hong Kong. However, there is no legal regulation for control the payment process from developers to main contractors as in overseas countries. To avoid defaulting payment of developers, there are legal regulations to protect and shorten the time for payment argument in some overseas countries. The second issue followed by establishing a regulation system is to identify the training needs of workers and effective methods to increase their techniques by re-training so as to facilitate the development of whole industry.

The Hong Kong Government is not giving much support to the industry in exploring overseas markets. For example, the Chinese Government may invest in African countries to assist the countries' development. A state-owned company would properly be employed to carry out infrastructure projects invested by the Chinese Government there. However, this kind of situation is not found in Hong Kong, as Hong Kong does not have export credit. Therefore it becomes a weakness for the local industry that there is seldom a company supported by the Government to compete in the international market, especially when bidding for large-scale infrastructure projects in other countries.

II Sustainable Development of the Hong Kong Construction Industry

8. *What are the feasible opportunities/options in response to the prevailing market condition and regional development trends for:*
- a) *Developers*
 - b) *Consultants*
 - c) *Contractors*
 - d) *Suppliers*

Either big or small construction companies, they need to develop its unique competitive advantages for expanding their business, such as technology, project and quality management. Company can enhance its advantages and explore to overseas countries by partnering and joint venture with other companies. The companies which have high flexibility and adaptability towards change can be international intermediate/facilitators to global value chain and provide value added services.

9. *How to ensure a steadier workload and a more sustainable future (in both public and private sectors) for the Hong Kong construction industry?*

Government acts as proprietor and monitor in Hong Kong construction industry. As a proprietor, she has a responsibility for motivating construction works; however the strength is not enough due to the current anti-construction atmosphere in Hong Kong. For construction stakeholders, they are more active in lobby against Government and political parties. In order to facilitate the industry, the monitor role of Government is needed to set up proper system to regulate and reward the contractors, minimise the market risks and

provide better environment for survival of construction stakeholders. In addition, it is necessary to illustrate the construction and development needs as well as the cost and impacts of historical assets reservation and environment protection issue to public.

10. *How did your organisation diversify her portfolio both geographically and horizontally/vertically (in the supply chain)? What are your organisation's strategies for the prevailing market conditions in the next five years?*

Overseas markets are one of the focuses for solving the current of construction industry. The strategy of each company is to suit the current market needs.

11. *Please share your visions for the Hong Kong construction industry in the 21st century, compared with the industry today.*

The most important aspect of sustaining a construction company in Hong Kong should be a good human resource management system. Therefore managing the in-house management staff is vital to the success of a construction company.

Mid-size companies may become harder to sustain and survive in the future. As there are more regulations imposed by the Government, the companies would need to hire experienced engineers and professionals to participate in the projects. Hence it's either large companies that have the resources to do this, or it would be the smaller companies focusing on small projects that will survive.

The construction industry should be able to improve in the future. As a modern city, Hong Kong still needs further developments and upgrade of current facilities (e.g., hospitals) to assist its future growth.

As the Hong Kong Government's financial situation is improving, it should put in more resources into helping the construction industry to sustain. This will also hold back the implementation of PPP scheme.

As long as the Government can implement appropriate policies (e.g. split the land for bidding into smaller lots) to provide opportunities suitable for various sizes of companies, both larger and smaller construction companies should be able to survive.

However, it is anticipated that fewer small construction companies would be able to grow into large-scale companies in the future, due to the increased complexity in statutory requirements from the Government that leads to more commitment of resources/overhead into carrying out construction projects. But it should be noted that having the path clear for competitive small companies to grow into larger ones is important to the overall health of the industry as well as the harmony of the society.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Interview 9 (Government 2)

The Interviewee recommended the research team to explore the ratio between private and public sectors of the whole Hong Kong construction industry. The ratio should be approximately 1:3 in the public to private sectors respectively in terms of construction volume, therefore around one quarter of the local construction works were held by the HKSAR Government.

Besides, it is also important to investigate the driving forces of the development of Hong Kong construction industry from 50s to 90s till now. Population, geographical position and economic relationship with the China Mainland are the three main motivation forces for the whole industry over the past decades.

Population growth has brought great housing, new towns and other supporting facilities development. The works of Urban Council and Regional Council in the past Government structure were dedicated to building communities in response to the economic growth.

Hong Kong is situated on the eastern banks of the Pearl River Delta on the south-eastern coast of the China. It has facilitated goods transport in the past and logistic industry nowadays. From 70s, there were series of development in Hong Kong including containers port, lane extension of airport, electrification of Kowloon-Canton Railway. Because of Hong Kong's geographical position and consequently created demand for various of transportation supporting facilities and thereby huge amount of construction projects were initiated.

Afterward several of Hong Kong industries were north-shifted to China and spurred on logistic services on both marine transit and air freight. In addition, Hong Kong is a well-known international city; the demand for both hardware and software equipment and facilities are highly required hence put forward the local construction industry.

The first public housing estate was built subsequent to the conflagration at Shek Kip Mei in 50s. Thereafter a 10-year housing plan was proposed to boost the public housing construction and enhance development of New Towns. That was flourishing period of the construction industry. Different designs and a large number of public housing were successfully developed. Development of new towns such as Shatin, Taipo, Fanling and Tuen Mun also generated abundant construction opportunities to the industry.

In the 60s, Hong Kong suffered from shortages of water supply from Plover Cove to High Island Reservoirs. As a result, a large amount of construction works were employed for building water pipes to convey Dongjiang Water and constructing Reservoirs.

Hong Kong had significant population growth and opened up the highway to development in 70s. Under urbanisation, one of the slopes collapsed on Po Shan Road near the University of Hong Kong. The Government therefore established a section for geo-technical control and named as Geo-technical Engineering. 10 years Landslip Preventive Measures of Civil Engineering & Development Department was established for maintaining slope safety in Hong Kong. Throughout 20 years maintaining slopes from 70s to 90s, a lot of works has been generated for the industry.

Hong Kong was facing overcrowded transportation problem in 80s, so three Comprehensive Transportation Studies (CTS) and a White Paper for transportation strategies were formulated to improve transport infra-structure. It had thus abundant investment capital for building roads and projects of Mass Transit Railway (MTR), Kowloon-Canton Railway (KCR) and the Airport Core Programme. These core projects brought the construction industry to its peak in the 90s.

With the compositions of population growth, favourable geographical position and intense economical relationship with the PRC, the whole Hong Kong construction industry was flourished. Speed and quantity for construction therefore became a focus and phenomenon during economic growth.

Because of a number of large scale of international projects, the traditional contracting system has been changed in construction section. Many large international contractors came to work in Hong Kong, including those from Japan, Australia and Europe. This motivated the traditional English styled contracting system in Hong Kong to further improve and refine.

Strengths of Hong Kong construction industry can be concluded into three areas; (i) Openness; (ii) Equity; and (iii) Competitive Contracting System. Many foreign companies were attracted for submitting tenders in Hong Kong under an open and fair tendering system; they all would have equal opportunity in competition. On the other hand, numerous construction projects in Hong Kong and Middle East in the past that trained up large numbers of experienced and professional talents of project management and capable in handling large scale of projects. In spite of merely part of the technology from overseas construction companies was imported, most of the projects can be delivered to certain quality standard under the schedule and budgets by high level of management know-how of Hong Kong's talents. The finished products have competitive price with high standard and quality. However, under the increased labour and materials cost and inflation, the final cost therefore increased and consequently moderated its competitive advantage.

Since the 80s to 90s, the Hong Kong economic situation was transforming and tended to profit-driven, a large number of general labour were employed in the construction industry. At the same time, some companies with society responsibility would provide resources for training and take caring of its own labour. However, it is still having quite a lot of problems in contracting, defaulting on salary or payment and poor performance. As a result, Construction Industry Council (CIC) then Construction Workers Registration scheme which has been enacted by Construction Workers Registration Ordinance (Cap. 583) (the Ordinance) have to be established to cope with the shortcomings in the industry. These two most significant initiatives were made based on the demand of the industry practically and in line with the proposal made by the Construction Industry Review Committee (CIRC). CIC will be established officially on the 1st February 2007, to stipulate that only registered works are allowed in construction sites which enhancing requirement and quality to the works. The formation of CIC and the Ordinance were composed by high involvement of industry stakeholders and sincere discussion with the HKSAR Government. It also illustrated the Government's intention to delegate powers to the stakeholders themselves instead of making policies by her own policy. CIRC report in 2001 addressed nearly all the essential issues, CIC is the biggest issue in the report for handling some shortcomings and further follow up the problem in industry.

In addition to the above-mentioned domestic conditions of Hong Kong, its regional roles are getting important under the globalisation, and especially after Mainland China and Hong Kong have joined the World Trade Organisation (WTO). Hong Kong is regard as the most integrity and open WTO member city due to the absence of protectionism. The industry has been

disadvantaged in tender bidding in other countries with protectionism, especially on the procurement procedures. On the other hand, the role of Hong Kong as the only exporting door to international markets of Mainland China has no longer existed. This is because some cities in Mainland China have rapidly developed and becoming mature in recent years. Under the globalisation and after its speedy development, it is now capable to approach the international by its established assets and channels. Thus, the geographical and economic situations of Hong Kong require re-position. The above are the exterior situations of Hong Kong.

Experienced around forty years in rapid development, no matter cities its own, population structure and demands from society are changing. The recent hot issue of “Collective Memories” and one of the hot topics between Mr. Alan Leong Ka Kit and Mr. Donald Tsang, “Vision of Hong Kong” reflected that the city has already changed into another stage. How should we respond to political and economical system change as well as value, ideal and notion of citizens? It is not only concern about technical issue but the value. Neither economic benefits nor efficiency is the demand of community nowadays. The pace of development and the cost for the demand are altered consequently. Stepped into 21st century, demands for the whole society changes along with different stages of Hong Kong development from focused on pace of growth, to quality of growth and sustainable growth. How’s the readiness for this change and facing those challenges in Hong Kong construction industry? The section 70 recorded in Policy Address 2006 has made very clear and comprehensive recommendations on the challenges. It mentioned the first challenge in Hong Kong is to sustain economic growth and development in Hong Kong and formulate framework of sustainable development strategies. It also provided clear conclusion on the layout of the remaining two challenges as well as coming development directions.

HKSAR Government has reserved 29 billions for large-scale of infrastructure projects per annum and it may not be completely exhausted according to the past experience. What are the implications for this? What are the factors affecting the ratios of private and public sectors as well as total volume of constructional works and the trends? It may emerge from the employment rate, value of works and annual expenses among construction industry. There is no city capable for unlimited development; it might come along with rapid developing stage then the pace of development will diminish. Hence, the most important is that how can the city handle the continuous decline and maintain steady growth.

The developing status in China nowadays is similar to Hong Kong in 80s-90s. Huge of capital is invested into different kinds of construction projects. It may take shorter time for development than Hong Kong under the central planning and execution of the PRC Government, then it may also experience the same problems as happening in Hong Kong today.

A proverbial saying “Risk comes along with Opportunity”. Many companies are now looking back to China and search for better opportunities under speedy development in land and properties of China, such as MTRC as well as Shui On Construction and Materials Ltd have already been invited for China projects. Actually it would be an edge for the stakeholders because of the experience and pervious successful projects in Hong Kong. Those second-tier cities have already started developing followed by the first-tier cities in China, so Hong Kong construction stakeholders should not be bounded in Hong Kong but extend to international markets. Hong Kong companies participated in casinos building projects in Macau is one of recent examples for the trends. Many of Hong Kong companies were involved in building mass transit railways in Thailand in 90s and rapid development in Dubai nowadays, showing that we have a high level of mobility and flexibility. In response to the continuously decline in construction volume in Hong Kong, the stakeholders are therefore encouraged to actively look for construction projects and opportunities in overseas markets. Our Chief Executive addressed the Central Government’s eleventh five-year plan on 15 January 2007, the concept of “Hong

Kong's Brand" can be also adopted for construction industry. This is because no matter for the system, management talents and past experiences, it would regard as a brand of Hong Kong construction industry. Positive effects would be obtained by utilising this brand to facilitate cooperative projects with China organisations and Hong Kong companies as well as enhance the competitive advantage in overseas competition.

New and modern procurement systems such as the concept of assets management, partnering and PPP have evolved recently. The adjacent regions may only capable to compete with Hong Kong on technical aspect, however they have not sufficient experience to manage large scale of construction projects. It would be an edge for the future if we can seize this advantage.

The Hong Kong Construction Association and the stakeholders clearly understand the current status and demands of the industry. Efforts are made to enhance construction safety, morality, work performances, environment, building and quality services. More concerns are about sustainable construction recently, which refers to handling of constructional disposal and waste re-cycling.

For long-term vision of sustainable development for construction industry, maintaining sustainable business is important to the industry stakeholders, at the same time workers should be treated with fair rewards. A balanced construction industry is composed of three reduplicated circles of community acceptance, environmental protection and economic development. If we can effectively adopt, it would be a way forward to the industry. We must understand that this mode is not for the 90s, it is a new one for nowadays but not completely eliminate the old components. Forty years ago is a status of economic growth and development in Hong Kong. To look forward forty years from 2007, we could not just implement the same set of current components and experiences to 2047. We should select the most adequate and practical elements from those past experiences and add with new thoughts to develop continuously.

The HKSAR Government played an important role during the economical growth and development since the 50s. From the Government point of view, she does hope investment from public sector and development would be maintained stably and without large fluctuation. She has recently reserved around HK\$ 29 billion for all public construction projects each year. This budget was based on the capital that was not greater than twenty percentage of GDP. The Government tends to initiate more public works, such as sewerage discharge, cross-border transportation projects, urban renewal and a new issue of heritage preservation. At the same time, she expects to act as facilitator for private construction projects. For community demands, Home Affairs Bureau has done a lot of works, including building hospital, community hall, swimming pool and other facilities.

Capital work of Government is based on society needs and it is necessary to pass through all the legal procedures and obtain agreement on works and budget from Legislative Council prior to execution. Therefore, the approval might not be granted to all projects proposed by the Government. Sometimes, there is a gap between the value and the ideal. Each Government department has their own procedures and policies and response to majority of public needs and for infrastructural development.

Some people may say what did the development of Hong Kong not like Paris or others cities in the world to have many scenic and historical spots. This is because Hong Kong did not have such planning and positioning at beginning stage, as a result, many of historical assets may not be retained. Thus we just can look forward and decide the best ways to protect the heritages in the future. When we foresee the next forty years, we may learn from previous unsuccessful experience. For good experience and practices, we may continue to adopt. The value of maintaining collective memories should be support, but it depends on each unique situation and

incident. It is good and significant to respect and take care of historical heritage of public especially for youth. We must consider the cultural background into the whole planning during developing stage. Nowadays, many people just express their ideas without considering the cost. However, anything that would be protected and retained by Government is incurred a cost and public money. It is therefore necessary to maintain a balance on this issue and seek for social acceptance after explaining the cost for heritage and cultural preservation to public. Then the Government may take the most suitable ways based on the public opinions as well as measuring the corresponding pros and cons.

The Environmental and Transport and Works Bureau (ETWB) response to public demands, such as policy of environmental protection, air pollution and water pollution. Then the Bureau will start to work for sewerage discharge and commence other subsequent construction works. Purifying harbour and sewerage discharge are two big projects. For air pollution problem, Transport Department has monitored the fuel of cars. If the two electricity companies could consume fewer coals, it may purify the air conditions. Although it is not government projects, it would involve construction stakeholder and companies invest huge of resources into the related projects. The CLP Power Hong Kong Limited built oil pipes for transmitting natural gas to replace burning coals, it has involved and generated a lot of construction works.

The Hong Kong-Zhuhai-Macau Bridge project is still pending. For private sector, a recent speaking of the Chairman, Dr. Lee Shau Kee of Henderson Land Development Company Limited about he got high return on IPO than land and property business would be a significant indicator for current construction stakeholders. It implies that people may not be willing to take high risk with long rewarding period on construction business, but than invest in IPO or other favourable businesses. For the recent case of exceptionally high luxury residential land price, some people have positive expectation but what is the long term perspective of construction developers and other stakeholders.

Redeveloping old districts may generate huge opportunities for the local construction industry in the future. A successful example is the APM at Kwun Tong which dismantled a whole aged building and developed a modern commercial centre. Urban renewal in Wanchai, Kwun Tong and Mongkok are the coming mega projects for Urban Renewal Council.

The Government facilitates local construction companies to extend to foreign countries by the mass and comprehensive promotional works of economic and overseas trade offices. She has established several trade offices in main cities, such as Washington, London, Sydney and Tokyo as well as several major cities in China. The offices are responsible for exploring potential opportunities and organising exhibition in overseas. They would report to the HKSAR Government and relevant organisations once any opportunities are found. In addition, ETWB would have regular meeting with China to have directly communication and discussion.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Construction Industry Institute
HONG KONG

Interview 10 (Government 3)

I Review of the Hong Kong Construction Industry

1. *Please describe briefly the current situation of the Hong Kong construction industry/market in terms of construction demand (e.g. in building/civil/repair and maintenance; private/public; residential/commercial/industrial sectors), employment, productivity, efficiency, etc.*

The building construction sector does exhibit cyclic behaviour. The construction market enjoyed prosperity during the peak year of 1997. Following that, the demand suffered decline.

Public housing construction volume is determined by the government's guarantee of providing flats to applicants on the roster list within three years from their submission of applications. In 2006 - 2011, around 70,000 units were completed. Demand for public housing depends on a lot of social trends. In the past there were a group of people in need of the public housing because their old living places were demolished due to potential risks, and that part of demand is gone now. Furthermore, the Government is trying to maintain the existing public housing buildings rather than tearing them down and redevelop. The peak construction period for public housing in the past was mainly due to Government's large surplus in land stock. The Housing Department hence accelerated their construction program to fully utilise the vacant land. There were once about 85,000 - 90,000 units completed each year. However, new public housing construction has stalled in recent year due to the suspension of public housing sale in the end of 2002. Industry practitioners and construction workers used to participate in public housing construction is inevitably affected by the decline in job opportunities. On the other hand, the Housing Department is now putting a lot of resources in maintaining the completed but vacant buildings. Workers specialised in this area are therefore given adequate job opportunities.

Since mid 1990s, Hong Kong construction industry has started to transform from a labour intensive business where all components were manufactured locally to the practice that the components are imported and only assembled on site. The types of workmanships and skills involved in the two practices are different. In the past when building components were all made from raw material, labour was the most important resources determining the productivity of construction industry. In times when workforce was in shortage, there was even a need to import labour from other places. However, the practice now is to import semi-finished products for use directly in construction projects, like the partition walls and lightweight panels. About 18 – 20% of concrete volume used in construction projects is pre-cast member. Pre-cast members can assure better quality in some building components, reduce construction site pollution and enhance occupational safety. For instance, pre-cast façade performs better in preventing water leakage along window seal. However, there are also times when contractors would rather use cheaper in-situ techniques in parts like floor slab where pre-cast member does not have such a great advantage compare to the cost. Hence the construction workers now facing decline in construction demand have to adjust themselves to suit the new economic environment, by acquiring more than just one skill to find wider job opportunities.

Unlike private building projects, public housing projects are regulated not only by the

Building Ordinance but also under a lot of other guidelines. These guidelines include inspections of construction site, quality assurance schemes, safety auditing, etc. Large construction firms would definitely have advantages in terms of their capability and resources in handling these projects. Smaller firms would have to prove their ability in raising capital as well as management the construction progress in order to win the bid. Firms familiar with the procedures and requirements are preferred by the Housing Department in handling their projects.

The Housing Department keeps various lists of pre-qualified contractors. NW1 list is for the smaller firms while NW2 is for the larger firms. Among the larger firms on the list, if there were anyone of them being able to exhibit excellent track records, human resources management and R&D, the firm would be able to enter the Premium League. There are now 5 contractors on the Premium League list, including Gammon, Leighton, Yau Lee, Shui On and Mitsubishi. These contractors are enjoying a higher “capping limit” i.e. 25%, comparing with 20% for the non-league contractors. The capping limit is a restriction of the contractors’ workload for housing projects and it is also a tool by the Housing Department to distribute the risks in completing the projects. Apart from being given more capping limit, the contractors on the Premium League are also invited for submitting their tenders for projects involving high financial and technical risks, along side with other qualified contractors. Because the contractors on Premium League are not given exclusive rights but rather just automatic eligibility, the Housing Department does not consider this as an anti-competition mean. All the listing practices serve only as a tool to establish pre-qualification of some contractors.

On the other hand, repair and maintenance sector, together with the smaller projects, provide a rather stable demand. However, these sectors are not given too much attention by industry practitioners, and there are less regulations being placed on them.

2. *What are the factors contributing to the current status of the HK construction industry? What are the reasons causing the excessively long hibernation period in various forms of construction activities?*

Mid-class management members of some construction companies are facing a hard time now. Owners of these companies may have already given up the business when the construction market turned to the sharp decline in 1997. However, the middle class management and workers were not able to withdraw from the business easily and therefore had to sustain the company even in really hard times.

3. *How did other advanced countries (e.g. Australia, Japan, Singapore, UK, USA) react and adjust to the similar situation that the Hong Kong construction industry is facing?*

Japanese construction projects use a lot of pre-cast technologies. They sometimes demand even higher precision than Hong Kong in using the technique. The construction workers’ ethic is an important feature and advantage of Japanese construction industry. The workers have high respect to their work and strong motivation towards delivering high quality products. For example, construction sites in Japan do not use the PASS system to monitor performance of workers, as they are very self-disciplined already. In the rest of the world including Hong Kong, the system is recognised as an effective mean to maintain workers’ productivity.

4. *How the industry was improving subsequent to the CIRC recommendations implemented since 2001? Which aspect(s) has not addressed or has not addressed properly in the CIRC?*

The 108 recommendations by CIRC are quite comprehensive. There has been some improvement to the industry after the report was published. For example, the registration system for construction workers, the voluntary sub-contractor registration scheme and the Industry Council have all been implemented.

5. *What are the strengths inherent in the local construction industry? List what you think is distinctive about the Hong Kong construction industry compared to the global construction industry.*

Pre-cast technology is one of Hong Kong construction industries' strengths. Hong Kong was one of the earlier pioneers in developing pre-cast technologies, although there were other countries that explored the technology before Hong Kong did. In terms of applying pre-cast technologies in domestic building construction, Hong Kong constructors have used the pre-cast members extensively and the quality assurance is satisfactory. The application of the technology has grown more mature after the transformation of public projects under generations of different contract arrangements and construction programs. The first generation started in 1980s. At the time, there was once a kind of contract arrangement called 'mechanised contracts' in which the winning contractors were given permission to change the entire design, for example from in-situ construction to completely pre-cast construction. In 1990s, contracts specifying the use of pre-cast façade started to appear. At the beginning, the frame was firstly finished and the pre-cast façade member was placed onto the frame and grouted along the edge. Later in mid 1990s, contractors found that if the façade were fixed in position first while the in-situ walls around the façade being constructed later, the seal and bonding of pre-cast member and the structure would be even better. This technique that gives much better quality has been used until now. The Housing Department now is carrying out a pilot study at their Kwai Chung factory redevelopment site about using pre-cast members as shear walls. Due to the high risks involved to the final product, the pre-cast process has to be carried out on site and supervised by Housing Department representatives. Other pre-cast members like the façade are now being manufactured in Shenzhen. Another type of pre-cast members is called volumetric pre-cast, which is the pre-casting of bathrooms, stair cores and lift wells, is also done off-site now. Pre-cast members have the advantage of saving concrete volume, good functional performance, environmentally friendly and safe. They don't help much in saving time and cost. However, the durability and performance of the technique has found favour in the Housing Department's view.

There are several large local contractors who have been researching on the pre-cast technology for a while. These contractors include Gammon, Hip Hing, Shui On, Yau Lee and China State. They started their research partly due to the Housing Department's requirements and partly to improve construction efficiency. It is difficult for other smaller contractors who do not have the resource and capacity to carry out that much of R&D like the ones mentioned above. However, this would not result in the domination of the public housing construction market by the large contractors, according to the Housing Department's view, due to the capping limit they place on the large contractors (the contractors cannot bid for more than 20% of the total number of public flats under construction usually). Dickson, for instance, has been working for the Housing Department for a long time until their failure to complete the project earlier. The contractor has been performed satisfactorily; despite its smaller size, to the Housing Department's standard and is therefore able to keep winning bids from the Housing Department. The assessment method by the Housing Department composes not only of the financial aspect of the

bidding contractors, but also the corporate file, management ability and past performance.

Hong Kong construction industry has given more attention towards training of workers in areas of working ethics and occupation safety and health other than the usual construction skills. This is an advantage compare to nearby regions.

High-rise buildings have been a tradition in Hong Kong. Hence the local constructors have great knowledge and expertise in this kind of projects. The Housing Department requests the designers to consider also the buildability, using the modular approach, hence improves the efficiency of its projects. Hong Kong design teams having the knowledge of high-rise building design and the buildability design would be a strength that the local industry can export.

6. *What are the weaknesses (challenges) that the industry ought to improve both in short-term and long-term? and how?*

While trying to explore overseas construction market, being able to communicate with the locals is an important skill.

Architects face the inherent problem that they will not get paid for the variation requested by the client on their design. There is nothing like the variation order in construction contracts that the contractor can get paid for variations ordered by the client in architectural discipline.

There are inherent conflicts existing among various parties in construction. The conflicts are probably inevitable due to the different roles the parties play in a project. However, they should be addressed properly to improve the efficiency of carrying out the projects. Although some may doubt the effectiveness of partnering, it could somewhat help ease the conflicts and encourage communication. However, the role of project architects can be very confusing as they are monitoring contractors and supporting them as a partner at the same time. Changing of mindset and behaviour is thus required. Since 2004, the Housing Department has started the Dispute Resolution Advisor Mechanism (DRA) alongside with Partnering in all projects. The DRA aims to advice each party when to or when not to take action against disputes and conflicts, in order to encourage the parties to address the issues together.

II Sustainable Development of the Hong Kong Construction Industry

7. *What are the feasible opportunities/options in response to the prevailing market condition and regional development trends for:*
- a) *Developers*
 - b) *Consultants*
 - c) *Contractors*

Contractors will have to find job opportunities in other markets. Some contractors find jobs in Shanghai, while some contractors are able to enter the maintenance market. They cannot only focus on new construction projects, or only the large projects. There are markets like the decoration business that is not affected by the fluctuation in new construction demand, hence worth contractors' exploration. Repair and renewal of old monuments can be another new market. Some contractors change to developers, or research on creative products. R&D market is also viable in Hong Kong because the manufacture sector is weak while educated workforce is large. Gammon, for example,

has gone through a number of restructuring following the downturn of construction market.

d) Suppliers

A potential business arising from Hong Kong construction industry maybe the authentication of construction workforce, such that the workers can be exported to other markets like Macau where workers' skills need to be proved. Workers from other areas may also come to Hong Kong for construction training and get authentication here. The training should compose not only of construction skills but also working ethics, safety and health issues. It may become strength of the local construction industry.

8. *How to ensure a steadier workload and a more sustainable future (in both public and private sectors) for the Hong Kong construction industry?*

Construction workers will have to find suitable trades for their skills or overseas markets where they can find more job opportunities. They should sharpen up their skills for better preparation.

9. *Please share your visions for the Hong Kong construction industry in the 21st century, compared with the industry today.*

The workload now, after shrinking for almost 40% since 1997, has reached a rather stable level. The future would depend on the market demand. If the demand remains weak, the total construction volume would probably be maintained at this level. However, it may not be a bad thing because a stabled construction demand is better than a fluctuating one, especially if the demand would fluctuate with large amplitude.

There will always be demand for new construction. A strong and well-established maintenance sector is definitely needed for the existing buildings.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Interview 11 (Quasi-government Organisation 2)

1. *Please describe briefly the current situations of the Hong Kong construction industry in the international markets. Will this practice continue in the foreseeable future?*

Owing to the shrinking volume of construction works in Hong Kong, there is increasing number of companies working in China and overseas countries for past five to ten years, some of them have been operating in “first to third-classed” cities in China. Some large enterprises acted as pioneers through their capability and acquisition for referral business to overseas markets at the beginning stage while some small and medium size companies went along with the TDC for investigating and exploring overseas markets.

However, not all of the industry stakeholders are interested in overseas markets, almost half of them and especially for small enterprise may not be ready for it because they have very limited resources to operate in the overseas markets.

2. *Have the following firms sought your help in exporting their services and/or products?*

- *Developers, large and small*

Developers have sufficient capital, human resources and network to acquire business in overseas, so very few of them sought help from TDC. The main organisations seeking help are services providers.

- *Contractors, large and small*

Only contractors with the certificate of authorised quality assurance are eligible to bid projects in China however it may not be easy to acquire the authorisation by the contractors. As a result, not many contractors approach TDC to enter the China market because of their own companies’ limitations.

- *Consultants including architects, engineers and surveyors*

Architects, surveyor, Engineer and Agencies, Interior design and property management firms

The size of participated companies in exploring overseas markets depends on destination of each mission. Majority of participants were big companies in the latest Middle East mission. For the large exhibition in China, it appeared to be more appealing to medium and small size participants. This is because big companies have sufficient resources for promoting themselves by all means directly, whereas medium and small size companies would bear much lower cost or participation fee subsidised by the TDC. There is no discrimination for any size and field in the industry, but very few medium and small size contractors approaching TDC is primarily due to their own limitations in resources and availability of licence for operating in China.

3. *How does the TDC facilitate and support the Hong Kong-based construction companies to explore in the international markets? What did they need from the TDC when they sought help, if any? such as: market intelligence, business matching, risk assessment, advice on corporate and/or project financing, etc.*

TDC is an organisation responsible for enhancing business opportunities and put forward the industry via cooperation with industry stakeholders and commercial promotion. It serves as a promoting media for various industries to explore the international markets since 1996. It consisted of different specialised teams for different service industries. One of them is responsible for promoting capital construction and property development of Hong Kong. The main objective is to facilitate industry to reach their target customers and officials in overseas markets. The main local clients included surveyors, engineers, architects, constructors and interior designers.

Apart from construction, architectural and engineering works, promotion work also includes property management. As the current key target of TDC is to help promote business between local construction stakeholders and China parties, TDC would invite construction developers as well as officials in land approval and managing property projects to participate the promotion activities to establish networks with their potential customers. In addition, TDC would launch missions to explore the China market and invite the China developers and large enterprises to Hong Kong for establishing business networks and visiting large projects as well as recognising the enterprises in Hong Kong. Through these activities, mutual communications and exploring overseas business opportunities for local stakeholders can be facilitated.

TDC provides subsidies to local construction companies in term of groundwork preparation, other promotion work and free of charged missions rather than financial assistance and sponsorship.

It was found that the market intelligence was very important for bringing business opportunities to the local industry stakeholders; therefore a consultant in Beijing was employed to upload the latest news of projects there and insightful analysis on policies, opportunities and developments in different China cities to the TDC website. It included the background information, investment amount, tender submission date, tender submission deadline, authorised institute and contact information. TDC would have opportunities to work with government for mission and exchange information regularly.

4. *Which countries TDC is more focusing on when promoting construction business? Any variations in strategies in promotion amongst region?*

In recent years, TDC has started exploring the Middle East market as is the construction industry is booming and requiring for high-rise building. In response to the feedback and demand of the local construction stakeholders, the emerging markets in India and Vietnam are also under-exploring. Then missions will be arranged to these new markets.

To arouse the interest and understand the local situations of the emerging economy in Vietnam and India for the Hong Kong construction companies, TDC is preparing some groundwork and briefing about their new policies conducted by the local officials. Then it would have mission to visit these markets if they are interested. The government of such emerging markets would also have some policies to attract for foreign enterprises. For instance in Vietnam, it offers new policies to facilitate foreign enterprise set up an office.

In order to effectively promote the Hong Kong construction industry, TDC has established close connections with the construction stakeholders so as to understand their target markets,

plans and needs thoroughly. Based on Ms. Wong's understanding, the construction works have been decreasing over the past ten years, therefore many of them are focusing on China Mainland under the capital construction and property development booming. As a result, TDC has also selected China as the target market for promotion and carried out various activities frequently such as conferences, exhibitions and missions. An annual exhibition on the Infrastructure and Real Estate (IRES) industry has been organised for eight years which composed of exhibition and conference (for senior officials, management staff and academics), mainly targeted at big cities in China such as Beijing, Shanghai and Guangzhou. In response to the opinions of some middle to small size companies having difficulties in enter into market in the big cities due to lack of capitals and resources, TDC is assisting them to explore the second-tier cities in China recently including Chengdu, Chongqing and Hangzhou.

To collect different voices and opinions from industry stakeholders, TDC would contact various Institutes and Industry Associations regularly as well as take part in their activities. The information would be delivered and gathered through their channels in both sides. The advisory committee was also established for each service industry. TDC has invited the industry representatives as advisory members for consulting the direction of promotional strategies to gather opinions from industry business leaders one or two times a year.

TDC acts as an intermediate to facilitate the business for small to medium companies by providing business matching service and referring the related business contact points and requirements. TDC would also provide information and consultation section about CEPA as well as encourage industry to follow. TDC would provide essential information to the local clients in penetrating the China and other overseas markets. Then TDC would collect the feedback and deliver to the corresponding HKSAR Government Departments and China authorities.

TDC also provides market intelligence services to the construction stakeholders through its website. The latest information of the industry would be uploaded regularly providing updated news and listed of china projects. The construction stakeholders could browse the projects name, owners, investment amount and other useful information prior to bidding projects through the China infrastructure project news website. TDC has established ten branch offices in the main China cities to extend assistance to the Hong Kong companies. Besides, TDC has experienced staff that are conversant with China situations. There are regular meetings with Hong Kong enterprises to understand the problems they are encountering and to give practical advice.

5. *How does the HKSAR Government facilitate and support the Hong Kong-based construction companies to explore the international markets.*

The Environment, Transport and Works Bureau (ETWB) plays a key role in policy making to facilitate regular dialogue with industry stakeholders and work together for some promotional work. In addition, the Trade and Industry Department (TID) is responsible for making policies regarding to the development of trade and industry. SME Funding Schemes administrated by TID are available for small and medium size enterprises in Hong Kong. It offers financial support from the local Government for those companies participating in TDC promotional work. There are plenty applications for this funding. However, Hong Kong does not provide subsidy on material price as in Singapore.

Besides, HK Government provides free China advisory services on legal and contract dispute matters for all Hong Kong companies. It also maintains connection with Department of Commerce of China Mainland and would invite some Chinese officials to visit the TDC's research department for certain period of time.

6. *What are the strengths inherent in the local construction industry and companies? List what you think is distinctive about the Hong Kong construction industry compared to the global construction industry.*

Some specialists such as architects, interior designers and surveyors have high mobility and are able to export their services overseas. Small and medium enterprises could compete for projects that are not labour intensive. Therefore architects, interior designers and landscape architects have already penetrated into China market. Some interior designers and architects are well-known and successful in China. Their design talents with worldwide experience and exposure would be their critical factors for success. They have been trained for handling high-rise building due to the geographically situation in Hong Kong.

7. *What are the weaknesses (challenges) that the construction industry and companies ought to improve its competitive advantages both in short-term and long-term? and how?*

To differentiate from other competitors would be the main challenge after penetrating into the markets. World-classed design would have greater perceived value in first-classed cities in China whereas in second and third-classed cities are still eager for Hong Kong style and design. As a result, some of Hong Kong enterprises are keeping an eye on the opportunities in those cities.

As operating in overseas markets involve huge cost in transporting hardware and setting up as well as uncertainty in business, many contractors prefer to work in Pearl River Delta on the south-eastern coast of the China rather than in faraway overseas markets. It would be the fundamental weaknesses of construction stakeholders in allocating manpower, assets and other resources.

8. *What are the major reasons and considerations for the local construction companies operating in overseas countries?*

The main considerations for the companies to extend their business to overseas market are: the long-term investment for construction and building projects, cost of operating business, existence of rules favour their works and bidding projects, presence of reliable partners and the availability of sustainable business. Therefore, TDC would approach related officials to introduce new policies and make connections between overseas contractors with Hong Kong enterprises to seek for potential co-operations.

9. *What are the major barriers for the local construction companies to export their services?*

Since there is different requirements in different countries, the needs for high-rise building in Middle East countries may be much less than in Hong Kong due to the abundant supply of land. Hence adaptation to local specified requirements would be common barriers and major difficulties in starting business in overseas countries. Moreover, availability of resources in companies is another barrier because only large contractors could afford sending a team of labour forces to overseas.

In China, almost large and well-structured contractors could get the working licence under the strict standard in business capitals, labour forces and structure. Therefore, industry stakeholders have already discussed with Commerce, Industry & Technology Bureau (CITB) and ETWB about this issue closely via the CEPA.

10. *What are the feasible opportunities/options in response to the prevailing regional development trends for (i) Developers; (ii) Consultants; (iii) Contractors and (iv) Suppliers?*

There are many potential projects in the Middle East. In Dubai, there is insufficient local material supply so it would directly import materials from foreign suppliers or invite them to establish factory lines in the country.

11. *What are the critical success factors for operating in overseas construction markets?*

The critical success factors for the companies to operate in overseas construction markets include their own reputation, capabilities in networking and resources, as well as successful promotion work. Some of them may gain benefits from the introduction and connection through TDC. By their great efforts and follow up work after TDC's mission, they may be able to set up an office and continue to run the business there.

There are many active contractors now working in Middle East such as China State Construction Engineering Corporation. Moreover, because of high mobility of architects, many of them already have business there for specific projects.

Contrary to the success, the reasons of failure in tendering overseas projects would contribute to very late notices and tight deadline. Some firms do not have sufficient manpower for preparing tender because of the time limited. In addition, some firms are incapable to support a local representative to establish connection with potential partners and clients. Some political concerns are also involved in large projects in China, for example the construction work for the 2008 Olympics Game in Beijing; only the Chinese contractors and overseas construction companies were awarded the contracts.

12. *Please share your visions for the Hong Kong construction industry in the 21st century, compared with the industry today.*

In the next ten to twenty years, there will be many opportunities for construction stakeholders to export their services to overseas markets. This is because many construction projects are emerging under the developing stage in the Middle East and other emerging markets. Hence, they are eager to hire overseas construction talents and expertise.



CII-HK Research Project

Reinventing Hong Kong Construction Industry for its Sustainable Development



Interview 12 (Developer 2)

I Review of the Hong Kong Construction Industry

1. *Please briefly assess the current state of the Hong Kong construction industry/market in terms of construction demand, employment, productivity, efficiency, etc. Is the change cyclical or structural? What are the factors contributing to the current state of the HK construction industry?*

The current state of the construction industry is not very healthy, since there is a lack of new and major developments in Hong Kong. Although there are residential developments, those were committed some years ago. As a result, there is major migration of construction labour force from Hong Kong to Macau and Mainland China. If this situation persists for a longer period, the exported technologies and expertise may be lost. However, there are many renovation projects providing opportunities for the construction industry. It is beneficial for various industry stakeholders to adapt and tackle this new market.

The productivity of the industry has improved but is still not very satisfactory, it will not be significantly improved until consultants and tradesmen start looking at this issue in a more definite manner. The industry is still using conventional design tools and fairly basic construction equipment. The biggest inherent obstacle in the improvement of productivity is that too much of the cost is spent on the land (50-70% of the development cost), leaving little incentives to invest in the productivity improvement. Additionally, the construction personnel, especially on daily basis, at all levels do not have pride working in the industry, which may have affected the enhancement of productivity.

The current application process for developing buildings is labour and paper intensive, e.g. Buildings Department requires 2D drawing submission at this stage. 3D prototyping technology should be increasingly used to improve the productivity of contractors and consultants. The technology has already proven its actual benefits in project delivery, cost saving, waste management and environmental management, etc. Additionally, the productivity of the whole industry could be improved if there is a greater support from the government. On one hand, government should take the lead in enhancing productivity, but on the other hand, obstacles exist in that the industry does not fully understand the benefits of advanced technology and the changing of its mindset.

The recent change is structural as there is lack of work and the construction volume may not rebound back to the peak in 1997. Construction has been accounting for around 9% of the GDP of Hong Kong, whereas the figure in New York or London is about 4-5%, indicating the maturity of these cities. The percentage for Hong Kong might be too high for a mature city to be sustained in the future. Macau and Mainland construction boom can provide temporary and long-term relief to Hong Kong respectively. However our labour could not benefit from the China market unless they are highly skilled.

2. *How did your organisation react and adjust your strategies with the recent downturn?*

We basically contracted and focused on selling (leasing office and selling flats) and generating cash flow; whilst taking other common measures to tackle the downturn. Swire tried to avoid laying off staff, as this problem to Swire was quite minor compared with other big developers having their own construction companies. Using the period of downturn with adequate time and resources, the process and efficiency were improved. Government has put forward a couple of PPP type projects, but did not arouse much interest the private sector and these are perceived by some developers as just another land deal. The return has to be very attractive as investing in PPP projects is a long-term business in the market.

3. *In what ways has the industry improved subsequent to the implementation of the CIRC recommendations? Which aspect(s) need further improvement?*

The transparency of the industry has been improved. The partnering concept has also been implemented extensively, where some major developers including Housing Authority and Housing Society helped foster it. However, it was considered that the CIRC has influences to the industry but not sufficient to cause major changes.

More ground works need to be done in the future, such as safety improvement and insurance issues for the industry. Although safety has been improved, further efforts are necessary for further improvement, especially for small-scale construction projects with the support of HKCA and REDA. Private sector should also have better technology, use of prefabrication and site hygiene condition. It would be a longer-term process to fully implement the CIRC's 109 recommendations and improve the overall efficiency of the industry.

4. *What are the strengths and weaknesses inherent in the local construction industry?*

Management skills and ability for high-rise building can be regarded as the strength of the local construction industry. However, local developers hesitate in employing foreign contractors due to the indigenous practice (i.e. multiple layers of subcontracting), cultural and language difference, unless the construction work depend heavily on technology and highly specialised such the Tsing Ma Bridge project. Other strengths of the industry include ability to work in tight space and the capable workman with good skill sets.

It is doubted if the local government is regarded as a weakness for the construction industry. Government set up CITA for industrial training, but the output might not be tailored for the local needs. Government also spends around \$29 billion yearly in infrastructure projects. However, the prevailing lowest bid strategy causes associated problems of quality, safety, time, etc. Being the largest employer in any community, the impact of initiatives or regulatory requirements announced by the government will be higher than those launched by any individual party.

II Sustainable Development of the Hong Kong Construction Industry

5. *What are the potential opportunities/options in response to the prevailing market condition?*

The private sector has capital to invest in Hong Kong. However, it lacks the opportunity due to high land cost and recently the increasing presence of lobby groups against construction. The continuous changing regulations in the sector would also weaken private developers' desire on long-term property investment in Hong Kong because what they need is certainty. Therefore one of the keys to offer opportunities to the construction industry is government's facilitation. The business of development should be recognised as an imperative engine for economy growth.

Although government will continue to invest in the infrastructure sector, the investment should be productive to the economy in a longer term. Therefore it is important to have a valuable and long term local works strategy which really means good to Hong Kong, and execute it over a period of time through a robust plan, in order to maintain the construction output at a sustainable level.

A potential market for the local construction industry is the repair and maintenance sector because there is a huge housing stock that needs to be renovated which will create plenty of jobs in the industry. Government could help by encouraging the market consumption through renovating / redecorating their properties. Increasing ownership is a strategic target for motivating refurbishment. However, there has been a concern of whether projects available in this market would be able to be undertaken by major contractors, due to the mismatch in project sizes and their capacities.

6. *What are your organisation's strategies for the prevailing market conditions in the next five years?*

Construction industries often choose to turn their attention to overseas market during recession. China has been perceived the most attractive construction market. Swire will invest in the Mainland market in the next five years.

7. *How could the CIC and the government help to the development of the Hong Kong construction industry?*

The PCICB has been working on two key aspects: (i) increase the transparency of the industry; there were lots of initiatives not solely launched by the PCICB such as the "Demonstration Projects"; and (ii) focus on building blocks for change, as the knowledge of the building industry is very fragmented. Voluntary subcontractor registration scheme and other improvements measures were therefore initiated.

The CIC and the government will help lead the change and face the challenges that the industry is currently facing. It is imperative to raise standards such that we could develop more cultural excellence and exportable products, and thereby create pride in the industry. It also needs to be more creative in design and technology. We can subsequently lead the edge in areas such as safety and sustainability. The industry should also commit in the product as well as the process through promoting the partnering concept. Risk sharing is another issue in the industry. Concerns have been raised over excessive risks on the contractor side, and the problem came down to clarity of information.

In Singapore, most of the major developments are not government-led. Through a more efficient planning application and subsequent approval system, a lot of smaller developers, contractors and consultants are fostered to expand their scope of design and enhance creativity in construction.

8. *How would the economic and construction development in neighbouring countries (Mainland China, Macau, Thailand, Vietnam, India, Middle East etc.) influence both the level of activity and type of work available to the local construction?*

It is inevitable that private developers need to invest outside Hong Kong because of the maturity of the city. The construction boom in China provides plenty of opportunities for foreign investors. Developers do not have much trouble in exploring overseas market because they bring capital, but they might have difficulty such as foreign ownership restrictions in the Philippines, Vietnam and the Middle East, which may be our potential markets.

However, generally speaking, similar to Singapore, Mainland China will still be the major market to the local construction industry because of i) high growth rate, ii) HK's mother country, iii) geographical advantage, iv) no discrimination between local developers and foreign developers, v) proximity to capital and culture, i.e. people will understand each other easily. However, the opportunity of entering the Chinese market is narrower for construction firms when compared with the service side, i.e. professionals.

9. *Please share your visions for the Hong Kong construction industry in the 21st century, compared with the industry today*

The industry has to entail greater automation and use of design technology. The efficiency has also to be improved to minimise waste. The proportion of Hong Kong construction in GDP will be less important due to the maturity of the city. It is a painful period for the industry, and it has to adapt to the changing business environment and gear itself for the local conditions as well as exploring overseas market. Macau and China markets could provide some relief to the industry. It is anticipated that Hong Kong will be a lead exporter with her financial capability.



CII-HK Research Project

Reinventing Hong Kong Construction Industry for its Sustainable Development



Construction Industry Institute
HONG KONG

Interview 13 (Government 4)

1. *Please describe briefly the current situations of the Hong Kong construction industry in the international markets. Will this practice continue in the foreseeable future?*

The Commerce and Industry Branch (CIB) of the Commerce, Industry and Technology Bureau (CITB) is responsible for the formulation of Hong Kong's overall trade policy as well as the implementation of Hong Kong's external commercial relations. It also looks after inward investment promotion, intellectual property protection as well as industry and business support. Given that the interests of specific industry/economic sector are taken care of by other bureau, *viz.* the Environment, Transport and Works Bureau (ETWB) in the case of the construction industry, CIB does not have specific knowledge on the operation of the local construction sector. Generally speaking, as the local construction market slows down, developers, consultants and construction firms as well as material suppliers would likely be more interested in exploring overseas market, especially markets in the Mainland and the South-East Asia region. Since the Government does not monitor the operation of our business in the overseas, we do not have the business achievement and detailed figures of local companies operating in the overseas markets.

2. *How does the CITB facilitate and support the Hong Kong-based construction companies to explore in the international markets? What did they need from the CITB when they sought help, if any? such as: market intelligence, business matching, risk assessment, advice on corporate and/or project financing, etc.*

CIB promotes the market access interests of the Hong Kong business through the multilateral forum like the World Trade Organisation (WTO), plurilateral channels like the Asia Pacific Economic Cooperation (APEC) and bilateral measures like the Mainland and Hong Kong Closer Economic Partnership Arrangement (CEPA). At present, CIB is actively exploring market access opportunities for our trade through the WTO negotiations and further consultations on liberalisation under CEPA. Our trade may also advance their business interest through market intelligence, trade exhibitions (e.g. road show) and trade delegations provided by our economic and trade offices in the overseas as well as the Trade Development Council. As for overseas visits specific for the construction industry, they are taken care of by ETWB. CIB also gathers the needs of the industry through consultations with relevant trade associations and feedback from relevant bureaux. We welcome proposals from the trade on enhancing Hong Kong's international trade relations.

Financial support from the Government is offered to the trade where necessary and appropriate (a recent example is the assistance offered to the film industry). The SME Funding Scheme helps SMEs including those in the construction industry upgrade their operations through loan guarantee, launch training programme, and promote their products and services in the overseas market. The fund is granted on the basis of a number of evaluation criteria.

3. *Which countries CITB is more focusing on when promoting construction business? Any variations in strategies in promotion amongst region?*

CIB promotes the market access interests of our business as a whole. As for the construction business, we believe that they are more interested in the South-East Asian market; especially the Mainland and we are working to advance their interests particularly in these regions in the current round of WTO negotiations.

4. *How did the CEPA help the companies to operate in the Mainland China? What is the future development of CEPA for the local construction industry?*

The Closer Economic Partnership Arrangement (CEPA) opens up markets for Hong Kong goods and services, greatly enhancing the already close economic cooperation and integration between the Mainland and Hong Kong. Achievements for the construction industry so far include securing preferential access treatment for the Hong Kong construction industry in the Mainland market and expediting the conclusion of mutual recognition arrangements for a number of construction professions. ; Preferential measures include allowing Hong Kong Service Suppliers (HKSS) to establish wholly-owned operations in a number of construction services and to fully acquire Chinese construction companies, and relaxing the requirements for qualification assessment as well as the residency requirements for Hong Kong construction professionals and technicians.. These arrangements give Hong Kong companies a better competitive edge in the Mainland business market when compared with foreign competitors. The Government would continue to discuss with the Mainland on further liberalisation measures under CEPA including those for the construction business. That said, the role of the Government focuses on enhancing the business environment. The trade would need to capitalise on these advantages to develop their own strengths and networks to expand their business in the overseas market.

5. *What are the strengths inherent in the local construction industry and companies? List what you think is distinctive about the Hong Kong construction industry compared to the global construction industry.*

CIB does not have an in-depth understanding on the strength and weakness of the construction industry since we do not specifically look after the industry. That said, we believe the industry enjoys a number of strengths with its long history of smooth operation :

- Well-experienced in various nature of construction projects
- Well-trained and diligent manpower
- International outlook
- Strong and effective regulatory framework

6. *What are the weaknesses (challenges) that the construction industry and companies ought to improve its competitive advantages both in short-term and long-term? and how?*

With the same caveat, we believe the construction industry, like other labour intensive industries, is disadvantaged by high labour cost.

7. *What are the major barriers for the local construction companies to export their services?*

Some general observations are :

- Getting registered in overseas countries, as in the case of the Mainland market; and
- Adaptability in different regulatory environment.

8. *Please share your visions for the Hong Kong construction industry in the 21st century, compared with the industry today.*

CIB advised that interview with representatives of ETWB would be useful for obtaining more specific information regarding the operation and development of the construction industry. Generally speaking, the slowing down of the local construction industry, together with globalisation, would induce more construction related companies to go overseas in the future.



CII-HK Research Project

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Interview 14 (Main Contractor 3)

The construction volume in Hong Kong has rapidly decreased since 1998. However, it was still ranked as top 15 largest construction volume in the world until 2003 according to the ENR. The construction investment in China, India, Basil and Russia - “the four golden countries” has been gradually increasing over the past few years. Since the construction cost in Hong Kong is high, the amount of construction in Hong Kong is still higher than that in India.

As a result of the shrinking of Hong Kong construction volume, a limited number of contractors have looked for overseas markets since 2004. Small contractors are relatively easier to work abroad (markets outside Mainland China) as their risks is lower, and thereby more flexible than the big companies. Medium size contractors are more difficult to move overseas because of limited resources and flexibility. Most overseas projects will employ local labour instead of Hong Kong labour. For some projects in Dubai and India involved by the China Overseas Holdings Ltd. (COHL), labour up to 2,000 are employed from China, depending on the local supply of labour and cost considerations. For most Hong Kong companies, they will bring their partial assets and know-how to explore the overseas market.

The competitive advantages of the Hong Kong companies in overseas market are based on their individual core competence and sensitivity to the markets. There are nearly 20% overseas projects in terms of volume for the COHL(HK), covering both building and infrastructure development. Future overseas investment will depend on whether current projects are successful. Most of the overseas projects involved by COHL are self-performed rather than via JV approach. Central government support is not granted for any COHL’s overseas projects.

TDC has organised trade missions which aim to open the overseas markets for Hong Kong contractors, engineering consultants and developers, the success of running a business in overseas, however, depends heavily on the core competence and development of an individual company. And more contractors are interested to participate those missions. Nevertheless, many local staff prefers not working in overseas due to family reasons and the background/culture of the overseas countries.

Tax system, financial capacity, cultural impact, indigenous legal system, business networking and social environment have to be evaluated before entering to a new overseas market. Small companies are relatively easy to enter the overseas market as they are not restricted by bureaucratic systems and complex structures. There is no special requirement for entering the overseas markets, except Malaysia, where joint venture with a local company is a prerequisite for bidding the project there. A company can also import labour to an overseas market to carry out the project, but they are required to prove the need.

The overseas market will continue to grow in the coming 5 years and therefore providing huge opportunities for construction enterprises worldwide. The Hong Kong government is not expected to interfere the operation of the private enterprise. Government supports the film industry because it helps develop the local economy, and money can also be earned from selling the films to overseas countries. However, this concept cannot be applied in the construction industry as financial support for exploring overseas construction market cannot significantly benefit the local economy. On the other hand, PPP is not popular in Hong Kong as

the system and contracting mechanism is not comprehensive and attractive enough to convince practitioners to adopt the PPP contracting.

To sharpen the competitive edge, local contractors are encouraged to work overseas in order to increase their experience and core competence in the overseas market. Macau market can last for further 5-6 years, the proportion in Macau is still dominating in the overseas market for COHL. Consortium is a possible business model for entering overseas markets, but the need of this approach depends mainly on the procurement strategy in different overseas markets.

Hong Kong has a mature economy, it is difficult to attain the construction level back to the peak in 1998. Hence, contractors are encouraged to explore the 'cross regional markets' for their sustainable development, provided that they have good quality and background. Both consultants and contractors are increasingly relying on global market as well as management skill in order to get success. Tertiary institutes such as HKU and PolyU should also train the students to have a global perception.

Government should have a long term vision, yet there are many projects approved but they are still on the shelf and the progress is affected by politicians at the Legislative Council and pressure groups. In fact, government could offer assistance in helping the local companies enter the overseas markets, cross-departmental co-operations are needed to compromise the views from different parties.

Semi-governmental organisations are relatively easier to cooperate with the industry stakeholders. For example, MTRC has Project management in Mainland China, they can liaise with Hong Kong contractors to work in the Mainland market. For instance, HK International airport is famous in the world, but Airport Authority did not attempt to combine forces with local contractors to bid PPP projects overseas. Singapore is a successful case in financing construction business because many indigenous financial institutions are established by Singaporean, while many Hong Kong financial institutions are foreign companies, e.g. HSBC and Morgan Stanley. Partnering of investment in construction is more successful in Singapore as the stakeholders regard the projects as a kind of investment and business, which is contrary to the situation in Hong Kong.

More multi-directional alliance can be set up throughout the whole supply chain. For example, contractors can join consultants to bid the job. There is no fix pattern, clients can also have such practice, e.g. Whampoa employs local contractor to provide services for overseas projects with reference to the trust and previous co-operating experience. Overseas clients may request Hong Kong companies to provide services overseas, however, many contractors may not want to go as they are not familiar with the local practice.

The successful factors for the Hong Kong contractors to go overseas include the ability to utilise core competence in knowledge base; adequacy of resources in terms of capital and human; and the company's determination.

For the next five years, the construction volume would be more or less constant in Hong Kong. Companies should expand to overseas markets as the Hong Kong market is limited. Mr. Cheong believed that construction companies in Hong Kong might reach the 97-98 peak level if their business can expand to overseas markets.



CII-HK Research Project
Reinventing the Hong Kong Construction Industry
for its Sustainable Development



Appendix III - Details of Focus Group Meetings

Date : 27 January 2007 (Sat)

Time : Group A: 10:00a.m. – 12:30p.m.
(Clients, publicly listed contractors and consultants)
 Group B: 2:00p.m. – 4:30p.m.
(Contractors, specialist & sub-contractors and suppliers)

Venue : Room Y508, The Hong Kong Polytechnic University

Facilitators : Dr. S.T. Thomas Ng (HKU)
 Dr. Y. H. Chiang (HKPU)

Aims : (i) review the development of the Hong Kong construction industry;
 (ii) explore available opportunities in response to the prevailing market condition and regional development trends.

Programme

Time (Group A)	Time (Group B)	Agenda	Action by
9:45 - 10:00am	1:45 - 2:00pm	Registration	All
10:00 - 10:15am	2:00 - 2:15pm	Welcome Address & Introduction of the Research Project	Dr. Thomas Ng
10:15 - 10:30am	2:15 - 2:30pm	Review of the Hong Kong Construction Industry	Dr. Y.H. Chiang
10:30 - 11:00am	2:30 - 3:00pm	Discussion (topic 1)	
11:00 - 11:15am	3:00 - 3:15pm	Tea Break	
11:15 - 11:45am	3:15 - 3:45pm	Discussion (topic 2)	Focus Groups
11:45 - 12:15pm	3:45 - 4:15pm	Discussion (topic 3)	
12:15 - 12:25pm	4:15 - 4:25pm	Questionnaire Survey	
12:25 - 12:30pm	4:25 - 4:30pm	Closing Remark	Dr. Thomas Ng

Discussion Topics:

- i. How do you see the past and future workload of the Hong Kong construction industry in various sectors (building/civil/R&M; private/public)? Is the recent construction recession cyclical or structural? What are the impacts to the stakeholders of the industry?
- ii. What are the strengths, weaknesses, opportunities and threats of the Hong Kong construction industry?
- iii. What strategies should be adopted by various stakeholders of the industry to survive or excel in the next five years?

Appendix IV - Summary of Focus Group Meeting Findings

Date : 27 January 2007 (Sat)

Time : 10:00a.m. – 4:30p.m.

Venue : Room Y508, The Hong Kong Polytechnic University

Group A: Clients, publicly listed contractors and consultants

- i. How do you see the past and future workload of the Hong Kong construction industry in various sectors (building/civil/R&M; private/public)? Is the recent construction recession cyclical or structural? What are the impacts to the stakeholders of the industry?*

It is more reasonable to consider the volume of works in the construction industry separately by building sector, civil & infrastructure sector and R&M sector. It is also suggested that the recent recession of the industry implied a structural change.

Generally speaking, the workload in building (private & public) sector is steady and it is market-driven, there will be minimal major up and down in the market. It is not specifically to be a cyclical or structural change. However, the market is now reshaping itself in certain extent. Overbuilding was a problem before 1997 as people just focused on the quantity demand for housing and office buildings, and the buildings were just built as fast as they can, while people nowadays are aware more about the quality of life, not purely cost driven when compared with 1997.

The demand for civil & structural works will be steady, however, the progress is slow and involves many political issues. This sector was considered facing a structural change as civil works have shrunk dramatically which depend on government mission and the presence of social obstacles. The approval time for allowing the implementation of infrastructural projects is much longer than before. For instance, a lot of resistances were received from the pressure groups which slowed down the progress of the demolition of Star Ferry Pier in Central.

There is also a structural change for repair and maintenance works. The workload for repair and maintenance works will still be increasing in the next few years due to higher requirements for the quality of life. Many aged buildings also need to be demolished and

renovated. Hence, the upwards trend of the R&M sector can be predicted and it will consist a large portion in the total construction volume.

The current total construction volume should not compare with the peak in 1997 because it was overbuilding in 1997, it is comparable to the level in 1993. It is anticipated that the local construction volume will remain steady and slightly upwards in general. The percentage of construction in GDP will decrease as the growth in construction volume cannot catch up with the GDP in total.

ii. *What are the strengths, weaknesses, opportunities and threats of the Hong Kong construction industry?*

Strengths:

- Project Management – compare with Mainland China & especially in mega projects like airport programme which require high skills.
- Engineers in HK are hardworking & multi-tasking in achieving targets, so the project has better control and co-ordination.
- Hong Kong contractors have world class ability to build, but it is relatively difficult for people to work overseas.
- Quality, time, safety, sustainability.
- Hong Kong contractors have experience in constructing super high-rise building.
- High quality in prefabrication and high efficient in cyclical construction method.
- Efficient and not much overhead borne by contractors due to multi-layer subcontracting system in Hong Kong. Contractors can cut down the cost by reducing the number of in-house staff during the recession. However, subcontracting system scarifies the development of superior PM skills for Hong Kong contractors.
- Hong Kong contractors have rigorous contractual sense compared with companies in China Mainland, but not as keen as the international contractors.

Weaknesses:

- HK Construction Industry is weak in research & development as there is little incentives.
- Innovation is not encouraged and there are not enough platforms for innovation under the current contractual arrangements. In addition, not much return is generated by investing or proposing good ideas in private/public sectors.
- Inadequate training provided for the practitioners in construction.
- Not much support from the HK government, especially in approval of large-scale infrastructure project and interface with overseas government.

- Contractors are suffered because the market still favours the lowest bid.
- Geographic weakness, Hong Kong has limited space to develop.
- Hong Kong people are reluctant to travel to/work in overseas.

Opportunities:

- Dubai, India, Macau Middle East are big potential markets, but the room for construction companies might only last for a few years.
- The awareness of better quality of life enriching cultural & urban design enhance a high quality building and redevelopment.
- Integration with Mainland China creates more opportunities for the Hong Kong construction industry.
- Repair and maintenance in ageing buildings & properties still have demand in the coming years.
- Post contract services in PPP, but government has minimal support in PPP and too many pressure groups in the society, government should provide a framework to facilitate the PPP development.
- Local contractors could have greater development by joint venture with bank/finance institutions.

Threats:

- Political obstacles from pressure groups.
- People overseas are fast learners, so we need to be ahead of competitors.
- Most of the R&M works are small-scale works, therefore large contractors might not be find them attractive and difficult to enter to the market.
- Aged population in the construction industry, less innovation and incentive to change.
- High labour cost
- Excess stringent requirement in regulations
- The combination of project management in Hong Kong and labour in Mainland is good, however, it can only last for a few years and our keen points will be learnt by local workforce in overseas, so it may be a threat.

iii. *What strategies should be adopted by various stakeholders of the industry to survive or excel in the next five years?*

The construction companies should focus in own strengths and sharpen their competitive edges. They can also explore opportunities in neighbouring countries like Middle East and Mainland China by using their strengths. However, it is not easy to enter the

Mainland market unless the company has unique skill sets. Project management skill is not very keen for Hong Kong contractors as they cater merely for the local practice, which may not be applicable to the China market. Another suggested option is to join a few big contractors to enter the market or have good connection with Mainland labour supplier in order to reduce the risk in the Mainland market. It is recommended to proactively lobby relevant parties to expand business.

Besides, investment in Hong Kong construction market is relatively low. Training and R&D activities are also limited. Contractors are suggested to keep a right size according to the market for survive. The companies can cut costs during recession and recruiting staff when the market is recovering.

Group B: Contractors, specialist & sub-contractors and suppliers

- i. *How do you see the past and future workload of the Hong Kong construction industry in various sectors (building/civil/R&M; private/public)? Is the recent construction recession cyclical or structural? What are the impacts to the stakeholders of the industry?*

The annual total completed housing flat amounts to around twenty thousand recently, which might be in excess of the actual demand. During 1996-97, because of shortages of labour, workers' salary has much inflated and consequently raised the cost for contractors. The volume of public construction works has decreased and there is also rare new town development in recent years. For redevelopment projects such as Shek Kip Mei and Kwun Tong, they do involve a lot of government policies that increased both complexity and implementation period. Therefore, the future construction output may not be back to the peak level. The private construction market is mostly occupied by several key developers. The selling price of new buildings remained high which caused the reduction of the property transactions. On the other hand, the repairs and maintenance works has increased significantly due to government regulations and social factors especially after SARS. The public has realised the importance of building maintenance which could benefit their living standard, avoid accidents as well as reduce indemnification from property owners.

In the future, the Hong Kong Government should have a long-term policy to push forward civil projects (e.g. The Singapore government tailor made a set of applicable policies for implementing domestic civil project) and should proceed the West-Kowloon & Kai Tak projects.

Three participants agreed the recent construction recession is structural because it can be anticipated that there are few large-scale projects in the next five years; one participant thought it is cyclical and it is a consolidation period for the industry to adjust its standard and performance; one considered that it is partial structural and cyclical since although there are few new large-scale projects, repair and maintenance sector as well as several redevelopment projects will create plenty opportunities and help sustain the industry.

As small contractors have flexibility whereas big companies have financial advantages, some of the middle size contractors are comparatively difficult to survive, some of these contractors have shifted to repair and maintenance works or made a business connection with large companies. Big contractors enjoy the economy of scale by bulk purchase. They would directly acquire the projects then sublet to a number of sub-contractors. Other than safety management as well as site and office overhead are borne by the main

contractors, the remaining was contracted out. The materials would directly transfer to appointed sub-contractors by their schedule. Under the recent unfavourable conditions in construction industry, some of them did close down or trim down the company size.

ii. *What are the strengths, weaknesses, opportunities and threats of the Hong Kong construction industry?*

Strengths:

- Flexible – many companies had business integration horizontally or vertically or shifted to other favourable area (such as R&M) under adverse business environment.
- Innovation – companies innovated to new technologies to fit specified customers needs.
- Contracting system – comprehensive contracting system is established that the good template protects stakeholders.
- Mechanical and electrical works
- Management skills
- Fast learning

Weaknesses:

- No standard for quality control and verification of materials – there is no specified tools for estimating acceptability of materials hand-over, hence affecting the quality of works
- Contracting system – it may only favourable to main contractors, so it is till unfair to small size of companies either contractors or sub-contractors during legally argument.
- Exploitation – some companies greatly increased costs for industrial injury declarations in order to avoid bad record for project bidding by poor accidents history.
- Government policy – the construction companies are necessary to fulfil government's redundant regulations, such as environment and safety, therefore increased the costs as well as time-cost for documents and meeting.
- Time management – always experienced long meeting but low effectiveness. It may due to cultural introversion that shies to cue the speaker when it is overrun.

Opportunities:

- Repair and maintenance works – it has increasing demand in repair and maintenance works as a lot of ageing buildings are emerged. In addition, it was

enhanced by extended hygiene and safety conscious and living standard of public as well as government regulations. Since it is now in the beginning stage, it would have much opportunity in this aspect for coming years. Hong Kong has better performance in this aspect that would also have opportunity in the China market.

- Upward adjustment in whole construction industry – in order to survive, companies maintain flexible, good quality, reasonable price and responsibility to projects therefore eliminated any one with poor performance. It benefits to whole industry by automatic adjustment of business environment that enhanced overall quality.

Threats:

- Incapable to change – middle to small size of companies would not easy to develop or shift to new working area since lack of resources.
- Incapable to extend to overseas markets – to work overseas, a company is necessary to have good networks with relevance companies and organisations. It would lose the competitive advantage than the domestic companies with existing well established networks. In addition, companies may not fully understand the foreign contracting system and culture.
- Lack of government subsidy – there is lack of government subsidy or support to the construction industry in Hong Kong.

iii. *What strategies should be adopted by various stakeholders of the industry to survive or excel in the next five years?*

Extend to overseas markets – companies would explore to overseas new markets. Some foreign country would like to reduce low-valued works and high environmental cost, Hong Kong stakeholders therefore would supply those required materials to overseas customers. The strategy for overseas markets is to product goods under their requirement and budgets. For the Hong Kong local market, it should provide the best quality products.

Repair and maintenance work in Macau – in Macau, there is also an increasing demand for repair and maintenance works for ageing buildings. The adjacent region, like Shenzhen has insufficient technique and materials. So that construction stakeholders should seize the chance of works outside by their experience and skills. The intra economic situation could not completely sustain the local construction industry, therefore, an export-oriented economy should be adopted (e.g. Singapore and UK) instead of only keeping our eyes on the local market.

Project management – a lot of construction procedures have been replaced by pre-fabrication. There are many mechanical and electrical projects have trained up the techniques of Chinese labour. Thus, Hong Kong companies only need to assign supervisor for management issues and employ the skilful labour in China to reduce cost.

Effective communication channels – the construction stakeholders should establish effective connections with different parties and organisations so as to deliver their voice to political parties and government.

Develop comprehensive systems – upgrade IT support and whole management system in both main contactors and sub-contractors would strengthen the competitive advantage.

In conclusion, the participants considered that the Hong Kong Government should play an important role and put more efforts for reinventing the construction industry. There is lack of effective representative for the industry to successfully deliver voice and demand to government parties. She should have clear planning and policies. Moreover, the pending projects should be implemented as soon as possible once fully compromised with citizens and legally parties. She should try to solve the existing problem of imbalance between technique and salary. From the participants' point of view, the working techniques should be enhanced but salary may be downwardly adjusted. She should also provide more resources in educating young people, and at the same time maintenance her non-intervention practices.



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Appendix V - Pilot Questionnaire Survey

The aims of this survey are to (i) assess the current market situations, strengths, weaknesses, opportunities and threats of the Hong Kong construction industry and (ii) solicit views, reasons, considerations and future expectations with regard to overseas construction market. *All collected data will be kept strictly confidential and used only for research purpose only.*

A. About the Respondent

- Position in your company: _____
- Years of professional working experience in the construction industry:
 < 5 years 5-10 years 11-15 years 16-20 years > 20 years
- Type of organisation in which you are working:
 Client organisation Main contractor Architectural consultant
 Engineering consultant Project management consultant Q.S. consultant
 Subcontractor (M&E) Subcontractor (builders work) Supplier / manufacturer
 Other: _____
- Size of your organisation: 20 staff or below 21-100 staff Above 100 staff

B. S.W.O.T. of the Hong Kong Construction Industry

Please rate the following Strengths, Weaknesses, Opportunities and Threats of the Hong Kong Construction Industry

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Strengths	1. Better project management than international average	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Capability to construct high-quality buildings and engineering works.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Able to construct high-rise buildings faster than international average	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Prefabrication technology more advanced than international average	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Sensitivity to the changing market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. High level of maintainability of construction products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. Strategic geographic location vis-a-vis Mainland China	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. Well experienced in complex contract and financial management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weaknesses	1. Slow in accepting new and innovative ideas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Weak in suggesting solutions to achieve better performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Technologically weak	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. High labour cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. The government does not have a long-term vision	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. The government does not provide support to firms seeking overseas opportunities and markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. Inadequate training / re-training to local construction workers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. Construction companies are unwilling to invest in overseas markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Opportunities (in the next 5 years)	1. New private building works in Hong Kong	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. New public building works in Hong Kong	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. New civil works in Hong Kong	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Repair and maintenance works in Hong Kong	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. New building works in China (especially M & E elements)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Works involving high-quality fitting-out in China	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. Repair and maintenance works in China	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. Macau construction market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	9. India construction market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	10. Middle East (e.g. Dubai) construction market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B. S.W.O.T. of the Hong Kong Construction Industry (cont'd)

Please rate the following Strengths, Weaknesses, Opportunities and Threats of the Hong Kong Construction Industry

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
Threats	1. Stringent laws and regulations favour large contractors, driving out the smaller ones.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Increasing presence of political groups reduce the volume of new construction works.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Shortages of skilled workforce.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Promotion of PPP scheme favours large developers and contractors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Business opportunities in Macau diminish in a few years' time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Competitive advantages of the local construction industry are not sustainable in the long run. Please specify the advantages: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. Hong Kong loses out to Mainland cities in attracting foreign investment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. Diminishing business opportunities in the Mainland due to the central government's macro-control policy on the housing market.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C. Responses to the Prevailing Market Situations

- What are the reasons that have caused long period of recession in the construction industry? **(you may select more than one option)**

<input type="checkbox"/> Poor economic condition	<input type="checkbox"/> Absence of strong mission from the local government
<input type="checkbox"/> Weak demand for residential buildings	<input type="checkbox"/> Completion of major infrastructure projects
<input type="checkbox"/> Scaling down of public housing	<input type="checkbox"/> Suspension of the periodic land sale program
<input type="checkbox"/> Uncertainties faced by the private sector	<input type="checkbox"/> Other: _____
- How did your organisation react and adjust tactics with the substantial decline of new orders recently? **(you may select more than one option)**

<input type="checkbox"/> Downsize organisation	<input type="checkbox"/> Expand to maintenance & repair / A&A works
<input type="checkbox"/> Increase the proportion of outsourcing	<input type="checkbox"/> Undertake projects outside the territory
<input type="checkbox"/> Diversify investment	<input type="checkbox"/> Adopt cheaper construction techniques or process
<input type="checkbox"/> Other: _____	
- How to ensure a steadier workload and a more sustainable future (in both public and private sectors) for the Hong Kong construction industry? **(you may select more than one option)**

<input type="checkbox"/> Maintain high level of public works	<input type="checkbox"/> Introduce private finance initiatives (PFI)
<input type="checkbox"/> Diversification of business	<input type="checkbox"/> Expand to the international market
<input type="checkbox"/> Cut down the number of construction companies	
<input type="checkbox"/> Other: _____	
- Did your organisation employ any staff from Hong Kong to work in overseas countries in the past five years?

<input type="checkbox"/> Yes, please briefly describe the discipline and the number: _____
<input type="checkbox"/> No, please explain briefly: _____
- Regarding the CIRC report published in 2001, (i) How was the industry improving, if ever, subsequent to the implementation of its recommendations since 2001? (ii) Which aspect(s) has/have not been (properly) addressed in the CIRC?

D. International Construction Market

Please rate the following statements regarding the international construction market¹⁰ according to your company's strategies

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. Your company prefers developed countries more than developing ones ¹¹	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Undertaking overseas work is riskier than domestic work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Your company requires higher returns undertaking overseas work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Your company's overseas work in developed countries will increase in the future	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Your company's overseas work in developing countries will increase in the future	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Your company's overseas turnover has increased during the period 2000-2006	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Your company's overseas offices have increased in size during the period 2000-2006	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. The number of foreign companies acquired by your company has increased during the period of 2000-2006	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

E. Reasons for Operating in Overseas Construction Markets

Please rate the importance of the following reasons for operating in overseas countries as perceived by your company

	Very unimportant	Unimportant	Neutral	Important	Very important
1. To increase turnover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. To diversify risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. To balance growth in local and overseas business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. To respond to saturation in local market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. To make better use of resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. To sustain core workforce	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. To maintain edge over competitors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. To follow our strategic clients who are or have gone overseas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

F. Considerations for Operating in Overseas Construction Markets

Please rate the importance of the following considerations for operating business in overseas countries as perceived by your company

	Very unimportant	Unimportant	Neutral	Important	Very important
1. Political stability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Level of competition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Economic growth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Potential for future projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Project size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Home country links	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Openness of market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Language similarities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Long association with market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

¹¹ According to the United Nations, there is no established convention for the designation of "developed" and "developing" countries. In common practice, Japan, the US, Australia and Europe are considered "developed" regions. Countries emerging from the former Yugoslavia, and mainland China are treated as developing countries because of the relatively low GNP per capita.

G. Critical Success Factors for Operating in Overseas Construction Markets

Please rate the following success factors for operating business in overseas countries

	Very unimportant	Unimportant	Neutral	Important	Very important
1. Financial status of the company	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Technical expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Project management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Human resources management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Risk management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Organisational structure to accommodate the demands of international construction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. IT strategy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Network / business partners in the country	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Management of socio-cultural differences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Accurate cost estimating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Specialties in unique areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Multi-disciplinary services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Experience in similar project type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Joint venture with overseas companies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Form a consortium with local partners to mitigate cost and risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Support from the local government	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☞ End of the questionnaire ☞
☞ Thank you for your valuable contribution ☞

Personal Information (Optional)

Name:

Organisation:

Address:

Telephone number:

Fax number:

Email:

Please kindly return the completed questionnaire by your preferred choice: (a) by post to Ms Joanne Ng, Research Assistant, Department of Building and Real Estate, The Hong Kong Polytechnic University, Hung Hom, Kowloon; (b) by fax to 2764-5131; or (c) via email at bswsng@inet.polyu.edu.hk, **on or before 16 February 2007 (Fri)**.



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Appendix VI - Revised Questionnaire Survey

The aims of this survey are to (i) assess the current market situations, strengths, weaknesses, opportunities and threats of the Hong Kong construction industry and (ii) solicit views, reasons, considerations and future expectations with regard to overseas construction market. *Please offer your opinion even if the question may not be directly relevant to your organisation. All collected data will be kept strictly confidential and used for research purpose only.*

A. About the Respondent

1. Position in your company: _____
2. Years of professional working experience in the construction industry:
 < 5 years 5-10 years 11-15 years 16-20 years > 20 years
3. Type of organisation in which you are working:
 Client organisation Main contractor Architectural consultant
 Engineering consultant Project management consultant Q.S. consultant
 Subcontractor (M&E) Subcontractor (builders work) Supplier / manufacturer
 Other: _____
4. Size of your organisation: 20 staff or below 21-100 staff Above 100 staff
5. Annual turnover of your organisation over the last 3 years:
 HK\$ 1M or below HK\$ 1-5M HK\$ 5-50M HK\$ 50-500M HK\$ 500M or above

B. Review of the Hong Kong Construction Industry

Please rate the following statements regarding the Hong Kong Construction Industry (hereafter referred to as ‘the industry’ or ‘we/our’)

	Strongly disagree	Disagree	Agree	Strongly agree	Don't know
1. Our project management is world class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. We are able to construct high-rise buildings more efficient than most other countries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The industry is slow in accepting new and innovative ideas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Our laws and regulations are stringent, thus favouring large contractors and driving out the smaller ones	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The presence of political groups reduces the volume of new construction works	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Our prefabrication technology is world class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. The industry is sensitive to changing market needs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. The government does not provide leadership on the industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. The government does not help firms seeking overseas opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. PPP schemes favour large developers and contractors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Our construction works are comparatively durable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. We have an advantage because of strategic geographic location of Hong Kong <i>vis-a-vis</i> Mainland China	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Training / re-training to local construction workers is inadequate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Construction companies are unwilling to invest in overseas markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. In-house technology development is inadequate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. The industry is well experienced in complex contract and financial management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. The industry has a strong “can-do spirit”	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. The industry is technologically weak	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Hong Kong loses out to Mainland cities in attracting foreign investment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. We have never had many opportunities in the Mainland	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Our in-house management training is inadequate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Our competitive advantages are not sustainable in the long run. Please specify the advantages: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C. Responses to the Prevailing Market Situations

1. What are the reasons that have caused the long period of recession in the construction industry?
(you may select more than one option)

<input type="checkbox"/> Poor economic condition	<input type="checkbox"/> Lack of leadership from the government
<input type="checkbox"/> Weak demand for residential buildings	<input type="checkbox"/> Completion of major infrastructure projects
<input type="checkbox"/> Scaling down of public housing	<input type="checkbox"/> Suspension of the periodic land sale program
<input type="checkbox"/> Uncertainties faced by the private sector	<input type="checkbox"/> Political influences from pressure groups
<input type="checkbox"/> Others, please specify: _____	

2. How did your organisation react and adjust tactics to deal with the substantial decline of new orders recently?
(you may select more than one option)

<input type="checkbox"/> Downsize organisation	<input type="checkbox"/> Expand to maintenance & repair / A&A works
<input type="checkbox"/> Increase the proportion of outsourcing	<input type="checkbox"/> Undertake projects outside the territory
<input type="checkbox"/> Diversify investment	<input type="checkbox"/> Decrease the proportion of outsourcing
<input type="checkbox"/> Others, please specify: _____	

3. How can we ensure a steadier workload and a more sustainable future for both the public and private sectors of the Hong Kong construction industry? (you may select more than one option)

<input type="checkbox"/> Maintain high level of public works	<input type="checkbox"/> Full implementation of public private partnership schemes
<input type="checkbox"/> Diversification of business	<input type="checkbox"/> Expand to the international market
<input type="checkbox"/> Strategic alliances between smaller firms	<input type="checkbox"/> Weed out incompetent or weak firms
<input type="checkbox"/> Others, please specify: _____	

4. Did your organisation send any local staff to work in overseas countries in the past five years?

<input type="checkbox"/> Yes, please briefly describe the i) country; ii) discipline; and iii) number: _____
<input type="checkbox"/> No, please explain why briefly: _____

5. What is the approximate level of domestic subcontracting employed by your company on the following trades in terms of total contract sum for your typical project?

	Residential Building	Civil Engineering
Concrete work (including reinforcement, formwork and prefabrication)	%	%
Other builders' work	%	%
Building services installation	%	%
Total	100 %	100 %

6. Please list out three strategies the industry should implement in order to 're-invent' the Hong Kong construction industry.
 - (i) _____
 - (ii) _____
 - (iii) _____

D. International Construction Market

Please rate the following statements regarding international construction market¹² according to your best guess.

	Strongly disagree	Disagree	Agree	Strongly agree	Don't know
1. Your company prefers developed countries more than developing ones ¹³	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Your company's overseas turnover has increased during the period 2000-2006	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Your company's overseas offices have increased in size during the period 2000-2006	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The number of foreign companies acquired by, or joint-ventured with, your company has increased during the period of 2000-2006	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. It is crucial to bring along your subcontractors if you are to succeed in overseas markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. It is crucial to go with your client, or be your own client, if you are to succeed in overseas markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

E. Opportunities of the Future Construction Markets

Please rate the following opportunities for your companies of the future construction markets in the next five years

	Large increase	Increase	Maintain as it is	Decrease	Large decrease
1. New private building works in Hong Kong	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. New public building works in Hong Kong	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. New civil works in Hong Kong	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Repair and maintenance works in Hong Kong	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. New building works in China (especially M & E elements)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. High-quality fitting-out works in China	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Repair and maintenance works in China	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Macau construction market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. India construction market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Middle East (e.g. Dubai) construction market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

F. Critical Success Factors for Operating in Overseas Construction Markets

Please rate the following as success factors for operating business in overseas countries

	Very unimportant	Unimportant	Important	Very important	Don't know
17. Equity investment in construction projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Project management in general	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Sub-contracting management in particular	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Advanced or proprietary technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Connection with client	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Connection with government	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Reputation in a niche area, such as _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Others, please specify: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

¹² International construction market includes Mainland China and Macau (same applies to the whole survey)

¹³ According to the United Nations, there is no established convention for the designation of "developed" and "developing" countries. In common practice, Japan, the US, Australia and Europe are considered "developed" regions. Countries emerging from the former Yugoslavia, and Mainland China are treated as developing countries because of the relatively low GNP per capita.

G. Review of the CIRC's recommendations

1. How was the industry improving, if ever, subsequent to the implementation of its recommendations since 2001?

2. Which recommendation(s) of the CIRC's has/have not been implemented or has/have not been properly implemented in the industry?

3. Which new concerns(s) has/have been raised within the industry subsequent to the CIRC report?

☞ End of the questionnaire ☞
☞ Thank you for your valuable contribution ☞

Personal Information (Optional)

Name:

Organisation:

Address:

Telephone number:

Fax number:

Email:

Please kindly return the completed questionnaire by your preferred choice: (a) by post to Ms Joanne Ng, Research Assistant, Department of Building and Real Estate, The Hong Kong Polytechnic University, Hung Hom, Kowloon; (b) by fax to 2764-5131; or (c) via email at bswsng@inet.polyu.edu.hk, **on or before 26 March 2007 (Mon)**.



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Appendix VII - List of Interview Questions (for Overseas Study Tours)

Purpose: The aim of the interview is to (i) review how the construction industry of advanced countries reacted and adjusted during periods of construction recession and (ii) explore opportunities for sustainable development of the construction industry. Target interviewees include senior staff from various construction-related organisations including academics, government, quasi-government, private developers, professional institutions, consultants, contractors and suppliers.

I Strategies for Overcoming Construction Recessions

1. When was the most recent construction recession in your country? What were the consequences following the recession and how did various industry stakeholders react and adjust?
2. Is there any kind of “safe haven” for construction stakeholders (or what should they do) at times of decline in capital work? How did your government attempt to assist the industry and the construction workers during the recession?
3. Did the industry put forward any initiatives and strategies to re-engineer/diversify their organisation and business both geographically and horizontally/vertically (in the construction supply chain)? How effective were these initiatives?
4. What other measures/strategies should have been implemented or implemented more properly to revive the local construction industry?
5. As far as you are aware, how did other advanced countries (e.g. Australia, Japan, Singapore, UK, USA) react and adjust during the market downturn and transformation in their construction industry?

II Sustainable Development of the Industry

6. How active are the construction stakeholders (developers/consultants/contractors/suppliers) in your country in moving their businesses across geographical boundaries? Are there financial aids, high level support/ guarantees and/or incentives provided by your government?
7. What type of offshore work would construction stakeholders target on, and what should they be aware of when investing and working abroad?
8. How do you assess the opportunities and barriers for overseas organisations to enter the construction market of your country and other developed/developing countries?
9. What are the key competitive edges of construction stakeholders (consultants, contractors and suppliers) in your country to work abroad at the present time (e.g. technical, financial and managerial capabilities)?
10. Is a more globalised market a threat or an opportunity for local industry players and why?
11. How can the government and the industry itself assist the construction industry to develop in a sustainable manner?
12. Please share your visions for the construction industry in the Asia-Pacific region in the 21st century, compared with the industry today.



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Appendix VIII – Interview Reports (overseas tour)

Australia - 1

CITB (Construction Industry Training Board) was established in 1993. The downturn of the construction industry in Australia started in 1998 when there was a major financial institution collapsed and the housing boom started in Victoria. The cyclical downturn continued until 1999. As a consequence of the downturn, the GST was introduced in Australia, in which the building materials have the most expensive tax charged among all materials.

CITB provides training to maintain the skills of workers, as the skill level of the workforce may have deteriorated due to cost cutting during recession. The government provides some funds to ensure the quality of workers are maintained. CITB has an affiliated structure, which composes of representatives from government, industry, employers and unions.

There are two main problems in Australia. First being the uncertainty of work volume while there are a huge number of independent contractors in the industry, and the second problem is the aging population. CITB needs to provide training opportunities to up-skill the workers. There is an accreditation system to enhance the quality training, which is run in close connection with industry association such as Master Builders Association, Housing Association and unions such as Construction Industry Union, Mining Energy Union.

The Sydney Olympic helped regenerate the construction industry. Furthermore, the Queensland government has invested AUD 80 billions to renew the infrastructure for the next 20 years, as a result of the population growth and aging infrastructure. This leads to an increase in employment. The government has also introduced 10% of loan grant to premises and has a strategic planning for the next 30 years. There is a constitution to link up the states government and national government to ensure effective communication.

The demand for infrastructure works in the Western Australia and Queensland is mainly driven by the population growth, while the demand for infrastructure works in the Southern Australia is mainly due to the aging infrastructure (100 years or above). Government has provided fund to support various economic activities, such as uranium extraction and underground mining, and construction are needed to develop these activities. Australia has an agricultural dependence economy, in which a stable water supply is very important. The land supply in Australia is limited by the deserts and agricultural land.

The workforce in Australia is relatively mobile because of the big country and the different working practice comparing with the Hong Kong workforce. Australian have adapted to working at other states while their family staying behind for a short period of time. They usually work in the other states with a short time period contract, e.g. 2 weeks shift duty – 2 weeks work and 2 weeks off, hence it is relatively easy to work elsewhere within the country. Besides internal migration, Australian workers are usually multi-skilled. They can move between sectors, e.g. faming in Australia is equipment intensive, so farmers can change to mining industry with their skills of operating major capital equipments. Renewal of existing residential and commercial buildings is another way to sustain the construction industry in Australia.

There is a Foreign Affairs Department in Australia to promote the country to overseas countries. However, it does not offer any commercial subsidies to the exporting companies. When bidding huge capital projects overseas, several big companies would join together and form a team of experts. There is also a publicly and privately funded organisation in the construction industry. Company can join the organisation by membership subscription. The organisation is a portal for the companies to come together and express their views and interests, then after negotiation they can sign a Memorandum of Understanding (MOU)/agreement to form alliance. The alliance concept is usually technology focus and sells the services and skill. Its success mainly depends on the relationship among parties as well as their understanding and willingness for reaching agreement.

Some companies went bankrupt when the building sector in Victoria collapsed in 1990. Meanwhile, there is consumer protection law to protect the consumer's interest. Most companies restructured and merged with other companies after bankrupt.

The major recession in the Southern Australia was in 1992, when both the private and public sector collapsed. The state government went bankrupt, therefore having no money and no capital work projects during that period. The establishment of CITB in 1993 came from the industry's request. The objectives of CITB are to underpin the future levels of work, to keep a good safety standard and to maintain the worker's quality. This national training framework arose during the recession because many workers went to manufacturing sector during the bad times in the construction industry, which resulted in nearly 10% of total workforce leaving the industry during that period.



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Australia - 2

Australia is a large country which has a stable economy. The construction industry is largely diversified into civil engineering works, mining works and commercial works. Since the country is large, there has been no apparent recession in Australia, as the weak performance of certain sector is usually balanced by other stronger sectors. For example, a decrease in construction volume in Sydney will not seriously affect the local general economy because new works are generated in Newcastle during the same period, therefore the builders can move to another area to ease the impact of the decrease in work volume.

In general, the Australian construction industry is strong, e.g. the mining sector works due to the growth of by-product in China. Housing construction has had cyclical ups and downs in the past years, which is generally the same across different areas in Australia. Meanwhile, the commercial sector has been strong and constant.

The economies of Hong Kong and Australia are different as the structures of the two economies are different. If to identify the recession period in Australia, it was from late 80's to mid 90's as a result of high interest rate. The economy activities were slowed down and the mining sector performed weak.

To response to the recession, the government must recognise the importance of the construction industry. The Australia Government stimulated the economy by increasing the private sector projects during the recession. In Singapore, the government considered the construction industry important to the economy. Therefore it opened the market to international foreign participation provided that the local capability and capacity was enough. The government also closely monitored the manpower, technical planning, capability and capitalisation. There are 3-4 ministries concerning the construction industry in Singapore. These government departments would join together to form a taskforce to study the strategic directions and policies during recession. For instance, there have been policies like restricting foreign workers from working in local projects during the downturn and requiring employers to register better bringing any foreign workers into Singapore.

The Australia government has been monitoring the supply and demand in the construction market. Due to diversification, the recession did not significantly affect the residential and commercial construction. As a result of the extreme fragmentation of the industry, 93% of the contractors have less than 5 people in a company. Service units are plenty in number, but they have difficulties in adapting to the economic condition and adjust. The Australian organisations need to be able to sustain themselves during recession. For example, if the company has diversified its business into different sectors, such as development, construction, facility management, they are more capable to sustain the company by shifting to other areas or to work overseas.

The building contractors in Australia with financial capability can create jobs in the residential sectors by acquiring a piece of land, then develop and build on the land as well as managing the built facilities. It is relatively less dependent on the general economy than waiting for works. Smaller subcontractors usually buy and renovate old houses, then selling the houses.

During the recession, the government increased the infrastructure work, depends on government funding. On top of that, there was growth in PPP models in roads, schools &

hospitals projects. PPP is quite developed in the UK and Australia. The common areas of these two countries are the sizes of government and the political situation. Both countries are uncertain in policies which have direct impact on tax revenue. Citizens would like to know how the government uses her tax income. PPP projects are mainly driven and affected by political, economical and social issue. It is not the core work of the government, unless the government needs to protect the public interest.

In the past 10 years, the Australia companies, in a certain extent, reduced their risks by internationalising and globalising their operation instead of shrinking the company. Multiplex, as an example, is a very successful local construction firm which got the Sydney Olympic project and demonstrate its ability to export.

Government provides indirect support to the industry through trading policies, while the outcome really depends on the company itself. Whether using direct Australian employees in overseas projects is just a minor issue as the construction industry in Australia is fragmented and relying on the sub-contracting system. Contractors would not have many direct labours unless they diversified its business. The companies usually rely on indirect supply chain when they do not have expertise in that particular area.

Singapore government is relatively active in helping the companies to export services to overseas markets. However, the outcome depends on the relationships of contractors. If they have a strong relationships with construction parties from different levels, such as subcontractors, suppliers and clients, the integration would certainly help them to export the service in a stronger way.

There are some informal networks in Australia such as ACA (Australian Contractors/Constructors Association), which is formed by 10 biggest contractors. They are powerful in influencing the government policy. Several similar associations would join together to have a stronger voice to the government. There is no such association for smaller contractors. The subcontractors have potential to form such associations, but they have no such power to voice out in the industry, hence they are not powerful in reality. Parties who have political affiliation such as the trade union and labour party would be more powerful. However, it eventually depends on the issue concerned and who is talked to on the government side. The trade union in Australia is old fashioned, which is a weakness as they do not update themselves to the progressing economy.

Ministry of Manpower in Singapore does many projections in order to intervene and set up policy to counter the cycle in the construction industry. Since international firms provided a large part of the jobs in Australia 15 years ago, the government replacing international contractors with local ones would cause fluctuation in the market. Hence, the government increased the public projects not only to sustain the construction volume, but also to preserve the local contractors.

On the horizontal level, Australia competitors will come together to bid for construction projects as they have the common goal of hoping to get the job. While for the vertical dimension, alliance can be done by strengthening the relations through the supply chain, with looser or tighter alliances. One successful example is DG in Australia, which was a modest residential builder in the past and mainly held by James Parker for the development of an international project in Dubai. The capitalisation helps DG to grow as a large and successful contractor in Gold Coast. To be successful, it was suggested that there would be at least 3 models: 1) organic growth, in which the business is cleverly planned for growth; 2) acquisition, buy additional capacity and then integrate; 3) relationships. In terms of international successful of local firms, forming alliance and consortia is popular, it is quite similar to PPP experience

that contractors are common to be the first organisation in the consortia and run the business through financing.

To protect the workers, government and employers have to take responsibility for implementing relevant strategies. Singapore government is multi-dimensional, they will protect the local labours by implementing the up-skill strategies, which move up the skills of local workers and replace the vacuum by foreign workers. For employers, they have to take the responsibility to change the mindset and find ways to create works to support its own organisation. The company is better to restructure its business so that it has more mobility for change.



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Australia - 3

The most recent construction recession was in early 1990s. In the late 1980s, a number of Australian firms tried to recruit Hong Kong professionals to work in Australia but they had been laid off after several years because of insufficient works. Australia was not affected much during the Asian currency crisis.

The 2000 Sydney Olympic Game was important for recovery of construction industry in Australia after early 1990s. The industry probably needs to have some kind of downturn to demonstrate the reality to the people. However it would be difficult to happen because of the backlog of infrastructure projects. Even if construction of the freeway lanes were stopped Melbourne would still have 8 of 10 years infrastructure in road. This is because Melbourne needs tunnel to link distant freeway with the marine freeway by going underneath the top of the city to the Northern Sydney. Many rail works are also needed and possibly more development as well. The infrastructure development has been keeping the construction industry growing in this decade.

In Canada, the General Practice Surveyor and Quantity Surveyor carried out a study in 1974, trying to see the overseas impact in construction industry. Interestingly, being against the Canadian constitution, a lot of refurbishment in Montreal happened during the recession.

There has been significant move of the larger companies like Leighton into large maintaining operation, partly due to the government out-sourcing the public works. They brought in the management skills they acquired from past larger construction projects, which helped them enter the market quickly.

Leighton, Multiplex, Baulderstone, Bilfinger Berger and Abigroup are the big contracting companies which have successfully exported their services abroad. Leighton Contractors, Thiess and John Holland are all under the Leighton Holdings but they compete against each other and enjoy huge profit each year.

Most of the corporation knew that they need to have balance portfolio after the economic crisis so they intent to expand to overseas market despite having many jobs opportunities locally. The companies only got limited assistance from the Government.

Hoka Clocker is a successful example in transforming from a state-based company to an international company because of their good management. They operate in US, Caribbean and China. They follow their client and get information from the top managements from the clients of what they are doing. Their strategy is to provide the superior services to the key clients whom they have identified to be very important to their group. They were building high technology facilities in Australia, later expanded to the Caribbean Islands, which is very close to the US. They participated in large projects to establish a reputation of being good facilities builder. Following that the company would build connections to the local clients. This is a really interesting example on how they export the extremely high quality of service abroad.

The company with the managing director, Keith Fletcher, uses IT technology as it is seen as the technology that would be likely to expand substantially across the Mainland China. The workforce he brings along with is well-trained skill people. The workforce does not only consist of the supervisory staff, but also the technicians with multiple skills. The workforce is paid 10 times more of the ordinary salary because it takes a long time and huge money input to transfer the intangible skills to local workforce.

Some companies would form joint ventures so that they could have financial strength when bidding for the larger projects. Many of these large-scale projects need huge financial resources input, therefore only limited number of companies would go for them.

The strategy of Hansen Yengken is to achieve excellent in technology, work, innovation and green construction. The company work in the tricky project. If these demanding projects could be completed, the company would invite tendering with one of the other. But the company do not form alliance with other companies. Alliance usually happen between consultants and contractors.

The competitive advantages of Australia companies to work overseas are having skilled workforce, global players and the capability in working efficiently with people of different nationalities. In addition, good financial and procurement skills, being able to work with larger companies despite different capacities and skills as well as computerised knowledge add to their competitive edges.

To ensure sustainable development of the industry, the organisations cannot keep implementing only cost-cutting strategies. The labour would suffer when the industry collapses. Therefore organisations should try to get back up in work volume and to keep labour trained, just like the Singapore experience. From the Total Quality Management (TQM), it is important to keep on pushing up the standard of services and delivery because they help companies in differentiation and focusing on its competitive advantages.



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Australia - 4

The recent construction recession occurred in early 90s. From 1992 to 1994 was the period when the biggest recession happened. During the period, the actual cost of building was greater than purchasing the building. There was no incentive when the market collapsed, as the building was cheaper than the cost of production.

This recession was caused by international downturn, being built up in 1987 from the stock market crash. Then there was migration of investment into the property market and created bubbles, which wasn't supported by the general income and value in the market. During 1992–1994 there was the adjustment on property value down to the level of what the building and the investment actually worth, which was a very painful period. Many of organisations and firms were bankrupted. But the recession makes people realise the risks behind surging asset costs, although the construction industry wasn't the cause of it. The construction industry was actually one of the major industries which suffered as a result of the excessive over-value of the assets.

As the industry itself cannot general demand, it responses by supplying works according to the demand. Therefore, it is very important that the industry have to consolidate and kept its key people, so many contracts were not much making profit but pure done for survival during the recession. The organisation tried to keep its key people and tried to keep the business going until recovery comes. They created efficiency and went back to improve the basic operation. Although they did not assumed the clients were not going to pay for the projects during the hard times, they still tried to make sure that all their processes were well documented such that they could get variation claims recovered from the clients later. They also tried to make sure that their clients were able to survive through the recession period.

In Australia, both the labour government and the Liberal conservative party subscribe to the market economy. The market economy's principal was that all the parties are the same and the market should treat everyone fair. Therefore the Australian government would not give subsidies, grants or favour any sector at the time of recession. There could be some encouragement schemes but not any substantial intervene, subsidies or grants from the government to help the industry through the recession. Because it is a hand off market, the government would think that the industry could work through by market adjusting. Therefore, the government didn't expand its house programmes or build more hospitals and schools. It was just continuing its steady programme of work. The industry may have seen slightly increase in government projects, which were not housing works but projects in infrastructure. The government would not only favour the big civil engineering companies. Therefore, the industry adjusted itself to become more efficient and got back to the basic. There was a change in economy as well, as a lot of states governments started to absorb and decentralise many of their activities. The involvement of government in the industry reduced at the same time which made possibly adverse effects and there was reduction in workload as a whole. In the mid 90s, there was up to 50% government work in the total construction volume. In the late 90s, it has decreased by around 10% and the private sector became dominated. Repair and Maintenance work in Australia is between 20- 25% of the total work volume. In the end, it made the industry survive and became much more efficient by 1995–1996.

Some people thought the industry would lose some good people during recession. The lost workforce may be relocated to another part of industry and even overseas to set up their station

in Hong Kong, Singapore and Europe, where they can acquire the local skills and expertise. Therefore, It would not harm the local industry because most of the time they do come back and bring the experience they got from other countries and give back to Australia.

The Victoria state is the leader on PPP projects in Australia. The new Victoria government decided PPP projects as a major policy for diversifying itself with its resources in major investment programmes, hence it promoted PPP projects in the private sector in 1991–1992. It made the focus of industry shifted to private sector instead of relying on the government by mobilising PPP projects. Although the government generated PPP, it was actually the private sector that put the package together rather than imposing huge costs to franchiser. The purpose of the government is to gain the expertise from the private sector, cross-structure and discipline the private sector but no direct responsibility on day-to-day operation. The government has just to pay a franchise for the organisations and that has confident to build into your cost and budget until the end of PPP period and take back the ownership. It provided higher efficiency and effectiveness to deliver the projects.

The Victoria government particularly applied PPP on major road systems, bridges, tunnels and some of the government buildings around the city. The private sectors successfully completed the projects on time and within budget. It was probably the best example of PPP throughout the Southern Australia. And it was very profitably and successful when compared with Sydney's experience. The elements of success include a lot of the government encouragement and the right timing of having the programmes during the downturn. It had the benefit from local capital cost which fared to the operational cost structure. The Victoria government did not stop to run other PPP projects, such as the magistrate's court which is another example of using PPP to help establish the court system in Victoria.

The construction recession made companies to think how they should operate in the future, and made them less relying on the government while paying more attention to the market. The new procurement method shifted more responsibility back to the contactors, as the contractors are the passive receiver of the instructions from the design team and the client. They became more proactive and could deliver design and build projects. Initiating the PPP schemes and listing on the stock exchange give them new opportunity for raising capital. Once the builders stepped into the share market, they could have capital to expand their operation. The expansion was not in the building construction process, but rather in the organising and management process of the procurement procedures. This capability can get the finance team on board and put the financial packages with the ABN and the banks and the other private equity organisation which is spreading everywhere. So they became national players which move to UK, Europe and America. They would send the financial packages directly to client instead of waiting for the tendering process. They tended to put the whole things together and operate as developers. But they would have higher level of risk when they move to this type of work than receive the government work.

Some contractors got enough contracts to keep them going in the recessions. They also got the incentive of improving qualification which determine for growth especially for the SME. Through partnering among SMEs or merging with other organisations, the contractors can enhance their qualification.

Around 67% of firms to the industry in Australia are less than 5 people in size. Many organisations are husband-and-wife companies, which are very efficient because they both specialise in what they do. In the downturn, they can be underemployed and not earning much money but still manage to survive. Repair and Maintenance sector is another area where they can find works in. This is because people still need repair and maintenance on existing buildings and faculties even in the downturn.

Every people adapt and adjust to the downturn. Many people went back to education, which created demand for education. Many larger organisations send their people for training, while some people went to university for diploma courses. Some small firms also use their resources on training in management and other skills. The trained staff built up different skills so that they can help expanding the organisation.



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Australia - 5

The last recessions in Australia were in early 1980s and early 1990s, but neither of them was severe. Since the early 1990, Australia has been performing reasonably strong in terms of economy, as the annual Gross Domestic Product (GDP) growth was around 5-6% and the employment rate was high. All indicators show that the construction industry is performing quite well at the moment. The size of the market and strength of the economy in Australia kept the industry in a reasonably good condition. With reference of the percentage (4%-7%) in GDP in last 20 years, the construction industry was stable in Australia. The current population in Australia is around 20 million with grow rate at 1-2%.

We have a very strong mining sector which is driving the economy to grow in particular. But the government does not implement many measures to revive the construction industry. The construction market did not fluctuate significantly but rather enjoyed steady growth due to the strong general economy most of the time. The preparation work of Olympic Game started in mid 1990s, when the industry has already recovered from the recession. During that time, the industry was facing shortage of workforce and resources to build and manage the facilities.

There were a lot of changes in construction companies during the recessions. Some small organisations were suspected to disappear. There are around 6-8 international players among Australian construction firms, but the majority of them are domestic (local state) and they would be divided among the residential, commercial and industrial sectors. During recession, large firms were more interested in internationalisation and expanded outside of Australia.

There is incentive scheme for exporting the construction industry's services. There are monetary and fiscal policies as well as mechanism from the government to drive the industry. If a company has invested into technology or research, it can claim back on the tax for that investment by 150%. Some bigger firms would try to take advantage of this incentive. There are investment incentive schemes for residential contractors by means of low interest loan and cash back. A policy of the government providing AUD 40,000 for first time buyers has been issued throughout the country since 1990. As a result, the construction industry became quite overheated, and the government has to retreat some of the tax incentive schemes.

There were 2 major industry reviews done by the Royal Commission. The first one was about collusion, while the second one was about international activities and the production process. In the second one, comparison of various countries was carried out and a set of recommendations for improvement was clearly stated in the report. Amongst those hundred of recommendations from the commission, most of them have been accepted and being implemented, while some of them are still in progress.

During the recession, some of the big companies diversified to overseas markets. The smaller companies, which compose the majority of the construction industry, had to adapt the new situation by diversifying their services and finding new options in built environment, like facilities management, maintenance, refurbishment and other services. Some big companies involved in other types of project, particularly the lifestyle project, they sell and manage the whole 'community' for a long period of time. Small firms became

part of the supply chain which is hired by the big companies to deliver their projects.

The definition of sustainable construction industry development in Australia is different from Hong Kong, as in Australia it is more focused on making the existing buildings to performance better and become more friendly to people and the environment. Sustainable construction means less new construction. The coming new buildings would be constructed in a more sensitive manner to the environment with higher environmental standard. Australia spends around 5% of AUD 1,700 billion each year in new construction. Therefore the industry should be focusing on the 95% of buildings already being constructed rather than the 5% new construction. Redevelopment on buildings especially on the unsafe building, new ventilation system and designing environmental friendly buildings would become a general trend. Therefore, venturing out the international boundaries in these aspects would be a good way to win more work opportunities.

During the industry downturn, the industry stakeholders should study on how to make the industry become more efficient by re-evaluating the industry performance and take the opportunity to improve or to introduce mechanisms to force the industry to improve by political leaders.

The Australian building contactors were reasonably successful in expanding to overseas market for building stadium and environmental friendly buildings. They were involved in various types of projects, especially the multiplex projects and building stadium. They are capable in solving technical problems and have technical competitive edge to be sold to overseas countries in building infrastructure. Some of the projects are extremely complex activities. Leighton is one the active international players in construction. However, there is limited number of such kind of companies in the international market because of the relatively small domestic market in Australia.

The industry should focus on how the industry can adapt to the requirements. Sustainable development in green building is more important rather than only continuous growth. The industry should also focus on what it has already done and improve performance in those areas.



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Japan - 1

The construction sector in Japan is similar to that of Hong Kong in the following ways: the volume of construction work has been diminishing and is not expected to rebound in the future. Hence the recession is structural. Japan has almost all buildings and facilities that the country needs built, so not only the government but also the people do not want to build as much as in the past. There are some 600,000 contractors (including sub-contractors) and altogether 5.8 million people are employed in the construction industry.

Due to the diminishing amount of works, it is likely that many of the smaller contractors will “disappear”. Indeed many of them have gone into other non-construction industries, leaving the bigger ones behind.

The strategies of the bigger ones are either forming joint venture among themselves or exploring their niche areas. And they need the financial assistance from the government to explore the overseas markets. The assistance they need is in the form of guarantee of loans and coverage of risks (including non-availability of tax refund for overseas contractors). The exact details are to be further explored. This is necessary as there is a growing trend of PPP projects in especially developing countries. Only when they get government guarantees would they be able to obtain enough money to invest in PPP projects. Apart from PPP, many developing countries (e.g., India) now require investments rather than loans into their construction projects. Japanese contractors also think that their government is in a better position to influence on fair trading practices of overseas clients. The most promising countries appear to be Middle East and India.

Even if they have government guarantees, Japanese contractors do not have what they call “localisation” skills when working overseas. The best contractors are the UK contractors in such countries as the Middle East and India. UK contractors have done localisation very well, for example, by employing local people to be their senior managers. On the other hand, Chinese contractors are not that good in localisation. Chinese culture is comparable with the Japanese one, thus accounting for the lack of performance in localisation. However, Japanese contractors do consider their excellence in the areas of technology, quality and completion on time. To enhance their localisation, Japanese contractors also want market information, with the help from their government. American contractors in Japan are often briefed by their embassies on the local opportunities available.

Back home, Japanese contractors are facing more stringent requirements, such as the New Building Standards Law, which entail long term warranties of their residential construction. Insurances are not available to the smaller contractors in this regard.



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Japan - 2

The downturn of the construction sector in Japan appears to be structural. The public work volume is not going to increase again, though there could be more works from the private sector. Many politicians would like to see that Japan government decreasing the public work investment, and there had been close relationship between the politicians and contractors though this link is becoming less pronounced than before. The practice of “Tango” is still an issue with public work procurement. Despite more retrofitting works, smaller contractors do not find these works really helpful.

With the diminishing amount of public works (especially civil works), it is likely that the market share of the big 5 construction companies will increase, whilst some smaller contractors will “disappear” or diversify into other non-construction industries, such as agriculture. Bigger contractors other than the Big 5 will have to think of some viable strategies to survive. For example, Mitsui and Sumitomo have merged to form one contractor (ranked as 6th). The Big 5 contractors, because of their financial strength, will also be more able than their smaller counterparts to bid for PPP/PFI projects. Financial resource appears to be a major barrier to entry even for the bigger firms (especially those large contractors who are not the “Big 5”). Yet, more countries overseas as well as Japan herself would launch more PFI projects in the future. It therefore seems that the big companies will get even bigger, thus polarising the big and small companies in the construction industry. There is a PFI association in Japan to help contractors in gearing up themselves for such projects. There still remains some reservation in the industry concerning the performance of PFI projects, since the PFI being is still at its infancy in Japan. Therefore, there should not be a rush to promote many PFI projects at the same time.

It is claimed that although the Japanese government has provided loans to other governments overseas, there is no tie-in sales of Japanese construction services. It used to be the “monopoly” of the Japanese contractors in the past in those cases, but not now, probably due to the World Trade Organisation’s requirement that governments have to adopt open tendering irrespective of the sources of finances. Because of this, Japanese contractors do not seem to have advantages over others in international construction, even though their government may be providing loans (e.g., Official Development Assistance) to the host countries.

American contractors are regarded as strong competitors of Japanese contractors in overseas markets. Senior management is still limited to Japanese when Japanese contractors undertake works overseas. There seems to be a lesser extent of “localisation” in the case of Japanese contractors.



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Japan - 3

Public sector spending is expected to drop by 3% per annum. Bankruptcies of construction firms accounted for 30% of all industries and amounted to 10% of all outstanding debts.

It is a new government agenda to help contractors exploring overseas market, since previous ventures were not so successful. It is also a policy to let the market to determine the number of contracting firms remaining. However, it is the intention of the government to “kick out” the bad contractors, including those “gangsters” contractors and paper companies (who would simply sub-contract everything out).

The Japanese government is planning initiatives to provide more information to contractors seeking overseas opportunities (Comprehensive Policy for International Business Development of Japanese Construction Industry). It aims to provide market intelligence. There will not be direct financial aids, due to fiscal constraints.

Other policies to help the industry include:

1. Lowering the threshold from 7.2 million yen to 2.0 million yen when open tendering must be adopted in contract procurement. Tender malpractice such as “Dango” is more strictly dealt with. Not long ago, 3 prefecture governors were arrested on this charge.
2. Acceptance of tenders includes consideration of both price and other factors including attention to environmental issues. Some cases will have a 50:50 split but cases vary. The minimum price thresholds only apply to regional or municipal projects but not the central government ones.
3. Dividing the works into small parcels as long as it does not become economically efficient.
4. For dam construction worth 100 million yen or more, contractors will be asked to form Joint Ventures (JV) with smaller contractors. There used to be the requirement of JV with smaller contractors in the past, but not now. However, prefecture and local governments may still require JV with smaller contractors so that they have the opportunities to do works.
5. Local contractors are preferred in some prefecture projects.
6. Helping contractors to diversify into such areas as agriculture, environmental works, welfare and health-care sectors.
7. Tied-in yen loans and grants would require recipient countries to buy 100% of its construction services (especially those of superior technology) from Japanese contractors, and spend at least 30% of materials expenditures on Japanese imports.

However, a balance must be stricken between caring for the construction industry and for the public at large.

The Japanese government implements no discriminatory policy to foreign participation in the local market.

More PFI projects are expected. At present, about 1% of all public and private projects are PFI ones. Within 7 years, 245 projects had gone through the PFI route, amounting to 1.7 million Yen of works.



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Japan - 4

Recession after the bubble economy burst affected contractors as well as consultants. The interviewee's company had to expand overseas, with 5% of their current workload coming from overseas countries, including China, Vietnam, the Middle-East and Hong Kong. In Hong Kong, they had joined with the Hong Kong Construction Co. Ltd on a design and build project (the Sha Tin Government Office). They also bid for the Tamar Government HQ project in the first round in association with Rocco Design, but not for the second round.

Consultants do not obtain any support from the Japanese government when they venture abroad and they don't feel the need to. What they need is market intelligence and local partners. For example, in China, they have been working with several design institutes. When working overseas, they have to compete with foreign design firms and their success usually depends on whether the client likes the Japanese design taste.

To succeed in China, an important element is the conceptual design, in which the Japanese companies try to add the Chinese favour by employing Chinese architects in their Japanese headquarters to participate in the design. There are 3 alternative approaches when clients select design consultants: firstly just to buy their concepts; secondly, to appoint good co-ordination architects (very much depending on the architect in charge); and thirdly, both.

The work commissioned by the Chinese government is usually small. In the Chinese private sector, some clients either delayed their fees or not paid at all. Their sense of commitment to contracts is sometimes weak, as the Japanese companies had been given Renminbi instead of the agreed US dollar as fees, which created difficulties for them. Relationship features quite strongly in design competition, which they hesitate to participate if they have the market intelligence. There is also room for negotiation over building regulations in China.

As for sources of work locally, the interviewee's company sometimes takes on remodelling projects (e.g., US investors buy office towers and refurbish them before selling further). As for PFI, it is good for the government since the outlay can be spread evenly rather than in one lump sum. As part of the consortia forming with the special purpose companies, they would not be worrying about the risks, which can be long term and may not be foreseen. For normal design works, their design liability is covered by a global insurance blanket policy (except those works in North America, which charge expensive premium). Normally, they only join force in overseas design and build projects, whereas locally they prefer to hire independent designers.



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Japan - 5

There is a structural recession going on in the construction sector in Japan, after the Koizumi cabinet managed to reduce construction investment. With this scenario, the number of contractors will decrease. Many will disappear, whilst others may survive by downsizing, and diversifying into such industry as agriculture. Many construction workers had been farmers, and thus they returned to what they had been doing before taking up construction works. Other companies also diversified into the business of health-care for aging people. However, it was stressed that opportunities are very limited and construction skills are not really that transferable into other industries.

The medium-sized companies, companies who are not the “big 5”, are the hardest hit. The biggest firms may diversify to international construction, but again, opportunities are limited. They have increasing works from the Middle East, and they have been following Japanese manufacturers to countries such as China, India and Thailand. This is something that Hong Kong cannot emulate. Hong Kong does not have too many global firms which diversify into overseas countries, and bring with them Hong Kong contractors to build factories and offices for them in those countries.

Official Development Assistance (ODA) funded projects do not seem to have given Japanese contractors priorities, but Japanese tied-in Yen loans and grants do (However, from another interviewee later that even such loans do not automatically give Japanese contractors the priority). Further works need be done as regards this issue. Perhaps, it suffices to say that strong economies like Japan could help their contractors when making tied-in loans by asking their recipients to buy things Japanese, unless there are rules and regulations preventing them from doing so. This is, again, something that Hong Kong can learn but cannot emulate.

Yet, Japanese contractors secure projects from such open economies like Singapore and Hong Kong without having resorted to tied-in loans or ODA.

The Japanese government does not provide guarantees. Thus, tied-in loans appear the only form of financial aids to Japanese contractors.

As regards PPP projects, JBIC (Japan Bank International Corporation), a national bank, could provide financial assistance by granting loans to contractors, making tied-in Yen loans and investing directly in overseas private projects (such as power stations) that are to be constructed by Japanese contractors. Korea is contemplating the formation of a similar company to provide infrastructure funds to overseas countries thus providing opportunities for Japanese contractors.

Otherwise, Japanese contractors are not willing of working on PPP/BOT projects because of high risks involved but the moderate returns. PPP is still at its infancy in Japan and more considerations need to be made.

The strengths of Japanese contractors are quality, timely completion and technology. The major weakness is the rather expensive services. Thus, the advice given to Hong Kong contractors when competing especially in China is the offer of low tender price and the exploitation of networking. Other international contractors are also strong in claims management, but Japanese contractors try to avoid claims if possible. Probably because of their inherited culture, they are not willing to release too much power to local people.

In the future, the big 5 contractors will get bigger, and capture a larger market share. The practice of having to form joint ventures of large, medium and small contractors to bid for projects will be gone for national level projects. There will not be political pressure to share the cakes equally among contractors of different sizes at the national level. With this “one-bid” practice, the winner takes all. Naturally, the not so big companies will face a hard time surviving.

Yet, at the local level, some mayors would still like to call for bids with JVs between big and small contractors so as to foster a bigger political rapport. In the private sector, JVs, if any, will mostly be formed between contractors of similar sizes for economical efficiency as risks can be shared more equally.



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Japan - 6

The interviewee thought that recession was over but many companies had downsized. He has not heard of many bankruptcies, but observed that many smaller contractors has merged, or diversified into other lines. He noted that Japanese contractors were not good at construction management previously, but now they are more concerned about this. As an example, he has just attended a forum on construction management the day before.

When asked whether Japanese people accept the trend of privatisation, such as that in the Postal Service, he opined that the feeling is mixed. On one hand, he agreed that the government cannot and should not increase spending, but on the other hand, he is aware that local people dislike the trend. He quoted the example that in any small town, there used to be 3 obviously noticed elements, including schools, post offices (which act as saving banks and provide insurances) and a town hall. These were erected using public funds. With privatisation, these may not be provided if those are not profitable from the investors' point of view. Hence, convenience is lost for the local people.

Public works are divided into those funded at the national level, the metropolitan level (such as Tokyo Metropolitan Government) and the city level. He is well aware of talks on PPP and PFI and thought those might generate more works, especially for the private sector.

He also cited several examples of privatisation in Japan to-date, including Japan Rail, highways, the supply of salts and tobacco.



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Japan - 7

The roles of the Japanese Post Office used to be twofold: (1) as a major client of construction services: their value is approximately 1% of all Japanese construction. They build post offices for the public, and hospitals and housing for their employees. (2) They are *de facto* the largest savings bank in Japan. They used to put all the Japanese people's deposits to buy government bonds. The government then channels the money to the highway corporations, which together with other funds from the private sector, undertake infrastructure projects. The regulation stipulates that the Post Office should not spend more than 10% on construction. It is maintained at 5%. However, it seems that through the channelling of money to the highways corporations, the money investing on construction projects must be much more than this figures. It was the aim of the Koisumi cabinet to cut the close link between the construction sector and the politicians.

Now, with their privatisation, their funds will not necessarily go to government and then the highway corporations (which are also privatised), thus providing money for construction projects. They have to make money through investment so as to maintain the post office services they are required to continue providing. Although it was admitted that the privatised Post Office would take a more business view of postal service provision, they would still build post offices in smaller towns, but to a smaller scale.

There is a lowering of quality standard due:

1. Because there is less work, competition is more intense. Contractors have to cut costs and corners to maintain low bidding.
2. There used to be total quality system. However, the ISO9000 has focused too much on paper work. Things look good on paper, but quality of works on site has become bad.
3. The labour force is aging. When experienced people retire and leave the industry, quality suffers.

Because of the worsening quality, many clients employ consultants now.

Dango bidding, which is illegal, still exists in public works sector.

The Post Office does not have plans for PPP/PFI yet. They are cash-rich and do not need investment from contractors, for example.

The "big 5" contractors have about 20% of the total market share. There is a discernible gap between these 5 contractors and the second tier contractors in terms of quality, technology and

employee calibre. They would suffer the most in the downturn. The big 5 will become bigger and the others would find a hard time surviving: this appears to be a consensus among people we have interviewed. The smaller contractors can't compete with the largest contractors on quality, and they don't enjoy being in a family of big and small contractors as they used to when politicians let everyone shares the same cake. From now on, winner takes all.



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Japan - 8

Previous recessions were due to external factors such as oil crises and they did not last very long before revivals came. During those recessions, Japanese people needed social infrastructure, so government's increased spending in public works were not questioned. Thus construction firms did not have to go through reform.

In the recent recession, out of 540,000 contractors, only 270,000 had registered turnover, comprising 80,000 in the private sector and 190,000 in the public sector. People used to support government making construction investment but not any more, and, because of fiscal constraints and aging population, the recession is going to be structural. However, there is some picking up in the private sector as Japan is getting out of recession.

A study is due to be completed in the coming summer by the Construction Industry Policy Study Group, comprising ministries and the private sector. It will give recommendations to help contractors to face the recession. Some policies under planning stage include:

1. Helping contractors diversify into such areas as agriculture, welfare, environmental protection. This is called the "safety net" that is to be provided to the smaller contractors.
2. Revamp the low price bidding practice so that acceptance of tenders will be made also on factors other than price.
3. More renovation and maintenance works, as the social capital stocks are increasing.
4. Facilitating larger contractors to go overseas.
5. Post Office money would still largely go to highways construction, although the PO is not obliged to do as it used to if other investments would provide better returns.

Japanese contractors are able to exploit overseas markets because:

1. They go where Japanese manufacturers go to build their plants and factories.
2. Some are facilitated by ODA and yen loans.

Now, many consider that they must explore overseas markets due to shrinkage of domestic works. However, many others will not make it and would disappear. Indeed, it was once mentioned again that some contractors will be "kicked out". Our respondents even mentioned that there is no law in Japan to require any contractors to liquidate. It will be up to the market force to determine who will stay and who will go. Their comments seemed to have suggested that should there be laws that could be applied to liquidate some "bad" contractors, such laws would be used by the authorities. (Our own notes: It seems that the construction industry will follow what happened to the manufacturing industry. Within the domestic markets, the

government would simply let the fittest to survive. When a few strong contractors remain, then the government would facilitate these “winners” to exploit overseas markets. Seems that the Japanese history is repeating itself. It was mentioned by our respondents that many contractors who had gone overseas made losses, so it is natural that taxpayers’ money should be reserved to the strongest contractors who are less likely to make losses.)

The number of contractors is expected to reduce somewhat gradually over the next, say, 10 to 15 years until the new equilibrium is reached. Meanwhile, transparency has been increased within the Japanese domestic market. Japanese construction is of high quality but also charging premium prices, probably a “weakness”. Their expertise on environmental protection is also considered strength. The other strengths of Japanese contractors, such as skills in building high-rise buildings and anti-seismic skills, would not be useful in countries not having these features. A more globalised market can be challenging but probably it is a chance to turn threat into opportunities.

As regards interest rates, contractors are sensitive to it as they borrow heavily. Now that the central bank has ended the zero interest rate policy, contractors are concerned about possible interest hikes. But so far, interest rate is still considered to be low. Except for PFI projects, contractors do not require as much capital as manufacturers because they have cash flows coming from the clients.

As for retrofitting works, there were some increases, but not substantial. No mandatory upgrading of building stocks is enforced, but a small subsidy exists for owners to investigate the conditions of their properties.



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Japan - 9

There has been 40% reduction in work volume since the peak in 1992, shortly after the economic bubble burst. Banks bankrupted, followed by contractors such as Aoki and Sato Kogyo (although they are now re-organised). Those hit hard were engaged in property development.

The construction industry used to occupy 10% of GDP in Japan and employed 10% of all the work force. After the public spending reduction, many small contractors changed their establishments, sometimes to agriculture. The no. of workers has reduced despite some increases in the no. of firms, meaning that many of these firms are now very small and some workers have changed lines.

There has been an oversupply of housing and competition has become intense. The government is now paying more attention to quality of works and takes the opportunity to get rid of contractors who submitted dumping prices. Although lowest price is still important, assessment criteria now include management and life cycle cost issues.

There is no special law stipulating the mandatory up-keep of existing buildings. Instead, the private sector took the initiatives to redevelop old districts into urban areas under government promotion. Conversion projects are more common, such as changing the use of schools which are closed down into housing.

PFI was an opportunity, which was started 5 years ago, but only bigger contractors could benefit and the local governments are not so familiar with these projects.

Other works could stem from disaster prevention, energy conservation as well as security. Independent consultants are getting more common, some of which resemble the CM at Risk type as practiced in the US.

Government should review the procurement system, avoiding situations such as Dango, which arises due to selective tendering. Recently, political patronage from contractors has reduced and Diet members try to distant themselves from the construction industry, which can be exemplified by the recent Tokyo city council election.

As for overseas works, JICA and ODA loans (especially the tied loans) have reduced. Whilst the government provides no guarantee, there should be more information to help the industry.

Sometimes, trading companies get market intelligence, which benefits the contractors joining force with them. Japanese contractors emphasise on relationship, which means that it would be difficult for foreign contractors to maintain their local partners.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Construction Industry Institute
HONG KONG

Korea - 1

1. There are two construction recessions in Korea Construction Industry, the first one happened in 1997 due to the International Monetary Fund (IMF) crisis. Many companies, especially for S&M companies went bankrupt. Some companies were restructured and went overseas. However, due to high interest rate and limited experience, not many contractors successfully operated in foreign countries at that time. Many construction workers lost their jobs during the recession. Some of them tried to get more education. The local government only provided incentives to the private sector focused on the local market. To support the transportation projects, Build-Operate-Transfer (BOT) and Build-To-Lease (BTL) were used which composed around 15% of the total construction projects after the IMF crisis. The second recession happened in 2004 as many contractors went to overseas like Middle East and North Africa to start their business as a result of the maturity of the Korea construction market. To react with recession, many companies down-sized and stopped hiring new employers. Recently, middle size contractors attempted to be integrated as developers, engineering contractors and consultants in building and civil projects. Government puts lots of efforts in regulation the property market as the real estate price is abnormally high.
2. There is no safe haven for the construction stakeholders during recession. Government provided some incentives to boost the local economy by developing new towns. The situation is quite different from Hong Kong as the construction industry in Korea contributes significantly to the economy. There is a drive for the government to reinvent the construction. Government helped in developing lots of continual education programmes during that period.
3. In 1980, many contractors tried to become engineering contractors. These company sizes were big, and they spent 10 years to restructure the company since 1997. Some traditional contractors did successfully change as engineering contractors.
4. More research and development should be done at the time, also training and education. As government encourages high technology construction, the research fund has increased by 10 times. Economy Research Institute of Korea (CERIK) is a research centre which tries to help government and contractors on soft side research (i.e. management and economics) where Korea Institute of Construction Technology (KICT) focuses on the hard part research (i.e. technology). In practice, research outputs and

strategies on power plant, construction market shares, prospective of market shares will be given to relevant parties.

5. The advanced countries mainly focused in cost, time, the need to develop objective & mission, incentive systems, technology, financial and production system during construction recession.
6. Korea contractors have been working well in South East Asia, Middle East and Central Asia. Big manufacturing companies tried to invest in America. There were indirect incentives provided by the government, however, the Korea export-import asset bank guaranteed the bond and performance of Korea construction companies. Politically, government also went outside to meet with other countries such as China, Vietnam.
7. Korea's senior staff will go to overseas and hire local labour force. However, there are barriers to work in overseas, such as language barriers, not enough local eyes in the foreign markets, cultural difference of local economy and difference in procedures and systems.
8. Korea firms are technology experienced, but project management is not particularly superior, when compared with US firms. The attitude of Korea businessman is relatively preservative in taking risk. In fact, Korean firms did get some reputations by developing projects and residential development in overseas countries.
9. International contractors can bid projects in Korea, but some of them have not been very successful. There is also multi-layer of subcontracting system in Korea, but the subcontractors are not the subsidies of contractors. They still need to get the job by competition.
10. Government and the industry should work together. Research and development fund should be increased to achieve advanced technological edge. Korean firms can increase the market share by using brand names. There are too many regulations in Korea that need to release and pay more incentives to private sector.
11. The future market should be positive with well education and experience in Korea. Repair and Maintenance sector might be the safe haven for small and medium-size companies, as this is a new market. Many buildings are required to be renovated, demolished and rebuilt due to demographic change. Another new market is housing by the result of aging population. More facilities should be provided to single family and retired family. Big guys may capture more than 50% of refurbishment jobs. Infrastructure will still keep going up from 25% to 40% comparing with the current workload.

It was suggested the Hong Kong and Korea construction firms could form consortia to go overseas markets as the Hong Kong construction companies are good in language and project management skill. With the technology of Korean firms, the consortia would be able to work in the Mainland market.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Construction Industry Institute
HONG KONG

Korea - 2

1. In 1960s, the domestic construction market in Korea accounted for less than 10% of the country's GDP. In 1980s, this figure was about 15% and kept going up until 1997 at over 20% owing to industrialisation and globalisation. At present, this figure has declined back to 7-8%, mainly due to the economic crisis in 1997 and subsequently a sharp decrease in housing construction demand, but at the same time revealing a natural trend of the economic development.

As a result of construction recession in Korea, many construction companies (approximately 15%) including big companies like Hyundai went bankrupt in consequence. Most small- and medium-size construction companies also faced severe situation and bankrupted. Many construction workers shifted to alternative sectors because of the shrinking construction volume. Weaker parties were thereby kicked out from the industry, and the survived companies were restructured to meet the market. Although the 'quantity' shrank, the 'quality' (i.e. project management skill, technology) may have been improved as individual companies would strive to sharpen their competitiveness.

The problem at that time was how these bankrupt companies to sustain their business for long term. In particular, the credit rate in Korean country was low at that time. Overseas major construction clients are unwilling to purchase bonds from commercial banks. Consequently, Korean Government provided guarantee to commercial banks to issue bonds for overseas projects.

2. Government sector provided support to small and medium size company both directly and indirectly, such as prohibiting sizeable construction companies to participate in small-sized construction projects by means of regulations. Another major approach was to encourage joint venture between large companies and SMEs. Korean Government attempted to introduce more BTL and BOT, PPP projects since economic crisis as more budgets was allocated in the financial sector but less investment in the construction sector.

Korean government did not actively support real estate development sector. But Korea financial institutions began to provide real estate loan to boom the housing market. Providing loan is not crucial to boost the housing business cycle, but the expectation of the homebuyers on the future market was the critical reason of increasing demand of housing.

Korean has advanced technology in term of international standard. Korean government did not provide direct support to construction technology development before and after the economic crises. However, technology development in the construction sector was encouraged by Government construction procurement system and bidding system. Since a few years ago, Research and Development (R&D) fund is available for the construction sector, public and private research institutes as well as universities. Three hundred billion Won was invested in the R&D fund in 2005.

3. Before the economic crisis, big construction companies have been playing the roles of both developer and constructor. However, these companies have abandoned the role of developing and focused on the providing contracting services after the financial crisis. Many companies went through the process of corporate restructure in order to improve efficiency and competitive advantages. Some big companies went overseas in Middle East and Asia countries to build power plant; SMEs also went overseas as homebuilders China, Vietnam, Russia and Pakistan. Risk is high for overseas projects owing to the presence of uncertainty and different practice. However, overseas markets have provided good opportunities for various Korean construction stakeholders especially for the big companies.
4. The local housing market should have been regulated but it is indeed difficult to implement effective strategies to boost the local construction market especially in the rural areas. Government should have helped the workers to shift and adapt in other economic sectors.
5. Japan increased loan for citizen buy their houses in order to boom the construction demand.
6. Consultants and suppliers in Korean might not have been competitive edge in the overseas markets. Big companies did not bring capital nor labour for offshore works. The critical success factor for overseas project is to adapt the overseas practice i.e. localisation, as construction business is heavily based on the local system, regulations, customs human relation and networking. For SMEs, since they are mostly subcontractors, they might not have the motivation, ability or resources to merge or form a consortium to go overseas.
7. In 1970s, Korean construction companies have competitiveness edge in civil engineering work. After 1980s until today, they gradually lost this edge but only enjoying the competitive advantage in plant construction (e.g. power plant, gas plant; oil refinery plant). Hence, Ministry of Construction and Transportation of the Korea government formed a plant-team to support the overseas works especially in Middle

East countries. However, language is the major problem for Korean companies. Other weaknesses include designing, engineering and procurement management.

8. Key competitive edges of construction stakeholders (consultants, contractors and suppliers) in Korea include:
 - Construction technology in power plant
 - High-rise building construction
 - Long-span bridge and tunnel
9. In 1996, WTO agreement allowed the construction industry tradable. However, construction labour and equipment are difficult to be traded. The globalised construction market will create opportunities for Korean companies but subject to certain limitations.
10. The construction stakeholders can survive by getting certain amount of projects. It is important to level the volume of work in the industry in the long-run so as to balance the resources of the company. Hence, government and various stakeholders should have a long-term investment plan.

Technology is very important in construction (as it is a kind of ‘assembly industry’), and therefore it should also be improved in order to sustain the industry’s competitiveness in the future global market. There is much room to advance the technology level in the construction industry.

11. The interviewee proposed a concept of future city/nation: high-technology, energy saving, mass transportation, and sustainable, the realisation of this concept which relies heavily on the construction technology development. The stages of economic growth vary in different countries (e.g. Vietnam, China, Hong Kong, Korea and Japan). China will be one of the major markets in construction in the near future, but the competition is keen in the Chinese market. More open markets are also available in the Middle-East countries and the South-East Asian region.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Construction Industry Institute
HONG KONG

Korea - 3

1. There are two construction recessions in Korea Construction Industry, the first one happened in 1997 as the result of the IMF crisis. Many construction companies were restructured and some even have gone bankrupt. Some big companies started the business in overseas subsequent to the recession. The second recession is happening now because of the speculation in housing sector. Industry is now facing a structural problem, most of the construction companies are trimming down unless those have overseas business like the Middle East. Effective and flexible corporate strategies are important during industry downturn. Government would like to increase the property investment to regulate the housing market; however she should regulate the market appropriately. Lessons could be learnt from Japanese government, where they tried to increase the property investment in Japan sometimes ago, but the effort failed and it was given up at last after the bubbles burst.
2. In order to assist the industry during the recession in 1997, the local government increased public investment and relaxed the regulation, resulting in housing boom. Government attempted to get a regional balanced in the construction industry by regulating the local projects and helped develop the country. Property market is the area that government invested as it is not sensitive to economy cycle.
3. Contractors invested in international markets during recession. However, they usually are big companies only. Government tried to support small and medium size contractors to go overseas, but not much could have been done and this caused polarisation in the industry. Because of polarisation of construction companies, government tried to facilitate the cooperation of small and big companies. Build, Transfer and Lease (BTL) is also getting more popular. Government revisited the law and let private companies to tender for public jobs using BTL. PPP is not so common in Korea, mainly because both government and private companies are not motivated, as waiting for 20-30 years to get return is not so attractive for the construction industry in Korea.
4. Firstly, the government should increase the public investment and relax the regulations. Government should expand the house renting programme for low income families. Secondly, the construction market should be restructured in order to keep the qualified companies and eliminate the poor ones. Government should increase the regional balanced projects and limited the loans from banks. Government can also adjust the debt ratio as lowest interest rate could increase the speculation.

5. Innovative and creative is the major issue during the market down turn. Government should create demand in developing other areas such as Information Technology (I.T.), where high technology combines infrastructure. To survive, the society should also adjust to suit people's needs by increasing the construction work in family houses, tourism and sports.
6. Korea contractors work well in overseas market such as the Middle East, South East Asia and Mainland China because of the competitive edge in technology. Government gives support in financing and information to suppliers and contractors. Although the risk is higher in overseas, some contractors still success in overseas market but not doing well in local market due to excessive claims. Project management is not so strong in Korea as construction industry is regarded as dirty and lower class management.
7. Power plant, infrastructure and urban development recently.
8. Korea construction companies may have language barrier working overseas. It is an opportunity to enter the overseas market, however, it may be high risk in finance and some contractors cannot get paid in the overseas market. In addition, there are not enough human resources of technical expertise in Korea as the young generation does not want to work in construction industry.
9. Korea firms are experienced in plant project and infrastructure project.
10. Globalised market is an opportunity for local industry, but containing certain risk in the market, it is however necessary to open the market for a healthy economy.
11. The overall construction demand in the future is limited. Government can control the total construction volume for the coming 10 years. However, she must not distort the market and should encourage the innovative projects in the future.
12. The future market should be bright with high technology and innovation. The construction industry should change the image and culture in order to attract more talented people.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Construction Industry Institute
HONG KONG

Korea - 4

1. The most recent construction recession in Korea occurred in the end of 1997 primarily due to the IMF crisis. The construction industry was severely hit because of the significant decline of construction work, many construction companies closed down and many staff (even experienced and senior staff) were fired. Graduates from university faced difficulty in finding a job in the industry. The confidence in Korean construction companies in the international markets also dropped as many of them have gone bankrupt, together with the weak competitiveness 10 years ago, the local market became the focus of business.

Background information: some big contractors in Korea have developing business i.e. real estate.

2. Government initiatives included: (i) re-vitalisation (soft-landing of construction trend) i.e. more public projects such as infrastructure procured by BOT/BTL arrangement; (ii) reform of construction regulations; (iii) enhance the efficiency of public construction project; and (iv) re-structuring the construction industry. The implementation of these policies assisted the industry from the crisis and subsequently the demand of housing was strong, resulting in housing boom after 2001.
3. The big companies needed to sell their land because of the poor financial status during the recession, consequently their major business changed to contracting services. This may be attributed to government's requests on the construction companies to reduce their debt ratio¹⁴ to less than 200%. Largely due to the shortage of land stock for these companies, and the significant decline in the private investment, they attempted to bid for public construction projects. Some have started shifting their business to the maintenance sector and explored overseas markets.
4. The big construction companies are actively operating in overseas countries such as Dubai and Singapore since the 1980s due to the recession caused by oil shock. Representatives of the Ministry of Construction and Transportation did go to targeted overseas countries to promote the Korea construction industry. The government also guarantees the Korea construction companies in terms of finance.
5. Building projects, road projects and targeting on plant projects recently. Language and culture difference are the difficulties for Korea companies to operate abroad. Culture

¹⁴ Debt ratio = total dept / total capital of a company

difference and lack of experience for some big companies caused loss. Managing subcontractors may be a problem to Korea companies, but it is a general case for foreign companies.

6. The Korea construction market is open to all worldwide companies, as the global standard is that boundary can not be set to protect the local construction companies from foreign competition as a member of the Organisation for Economic Co-operation and Development (OECD).
7. In general, big Korean construction companies have strong competitiveness in the international market recently, especially construction technology and management. Financial capability is also an important factor to win the tenders in overseas business. In addition, Korean construction personnel are diligent in doing business.
8. There is opportunity for Korean construction companies to cooperate together to explore overseas markets in the future. Korean companies could also work with Hong Kong companies to explore the China market.
9. Locally, it is anticipated that the construction volume in Korea will go steady in the foreseeable future and the maintenance proportion will increase.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Singapore - 1

1. Construction volume in Singapore peaked in 1997 to SGD 24 billions; in 2003-04 the volume fell to SGD 10 billions, and while it increased again to SGD 11.3 billions and SGD 16 billions in 2005 and 2006 respectively. For 2007 the volume is expected to reach SGD 17-19 billions. Bankruptcies have been experienced by both big & small companies due to the lack of work. The 1984-88 recession was more localised (unlike 1997, which was regional). Contractors would like to have sustainable demand for works, e.g. public sector to build less when private sector builds more and vice versa. Many experts left after 1997 financial crisis, leaving vacant units. There has been over-building in public housing, as demand was high and sometimes 100,000 applicants were in queue as booking commitment was too low. Now the 'build to order' mechanism is implemented to ease the situation. Major 'over-hang'. The planned release of land by government has been resumed. Only high-end property market has picked up. There have been individuals leaving industry. Companies went overseas. 30% of workers at supervisory level now in Singaporean construction companies are from overseas.
2. The government does not consciously help the industry in lean times. But if prices drop, more projects may be brought in. The central business district road network is under re-design, which would bring more works to the industry. The government's policy is to encourage public transport, instead of providing more roads for cars. To achieve a sustainable industry, core people and medium sized companies with niche markets are needed. Other than the China Construction, there are only local companies targeting middle level building. Overseas firms would do the larger projects.
3. Consultants go overseas for works like town planning and architectural design. It is too early to comment on potential of PPP as it is new. The Singaporean companies are not experienced in PPP. The Construction 21 Report carried out a mid-term review in 2004. In the report several new issues are addressed: (1) security of Payments, (2) safety after Nicoll's Highway collapse), and (3) sustainability (Green Mark etc.). The Building and Construction Authority's (BCA) role is not to generate construction demand.
4. From the early 1990's (and even now) BCA has helped companies with export promotion. The Trade Development Board, International Enterprise and BCA goes with firms to Middle-East and India, etc. to help promote the industry.
5. Japanese companies like Shimizu now target on the 'life cycle approach', which focuses on asset management.

6. There is no export guarantees provided to Singaporean construction companies. There is assistance on marketing costs and the 'exposure' programmes, which are part of the general approaches to all exporting industries (i.e. not specific to the construction industry). The government has its own business arm: the Temasek . Also, CPG was sold to Downer, and SembCorp to Indian co. + Surbana corporatised by HDB does overseas works.
7. Planning and engineering design could be better targets.
8. There is no barrier for foreign construction companies to work in Singapore. But getting the bank support may not be easy for overseas companies, so not cheaper except the China Construction.
9. Quality, Reliability and 'Deliverability' are the brand names of Singapore firms.
10. Singapore has always been a globalised market.
11. Volume of work requirement for maintaining registration of construction companies was relaxed during lean time. The number of registered construction companies did not drop over the years. Hence, there was over-competition, e.g. 40-50 firms tendering for one job. Consequently, the clients raised their criteria for capital and number of qualified engineers needed.
12. The visions & missions of the Singaporean construction industry are: Safety, High Quality, Sustainability; 'Friendly' (barrier-free) access and End-User focused. The government was not too concerned in helping local construction companies to survive, but in increasing their abilities and capacities. e.g., our CITIs are self-financing. Foreign workers have to attend one day trade-test at centres established overseas before they come to Singapore.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Singapore - 2

1. The recent construction recession was from 1997 to 2006. The consequences include pay cuts and manpower re-shuffling. Some professionals switched line to other professions. Companies wound up or downsized.

Recently, after the announcement of the construction of 2 integrated resorts, there has been an upswing, with more projects in the pipeline. Those who have survived through the recession are finding bountiful amount of works. Material prices and overall construction prices are increasing.

2. Literally there is no safe haven. Construction is linked to the general economy. During the recession, many Multinational Cooperation (MNC) pulled out from Singapore. Just like the UK, construction industry in Singapore is used as a barometer and gives signals of a falling economy. Retrofitting works were not increased substantially, including those upgrading works by HDB. But some infrastructure works were launched, such as the Mass Rapid Transit (MRT), the Changi Hospital and the Changi Prison.
3. Many firms went overseas, including India, Vietnam and recently, Russia. Initiatives such as the International Enterprise (IE) helped small and medium enterprises to venture abroad, such as in Korea. Some companies set up shops or offices in these countries. Developers went along with Real Estate Developers' Association of Singapore (REDAS) to explore these markets.
4. During time of recession, subsidies for training would be useful, in that when the economy picks up again there would be a pool of people to serve the industry. During recession, the number of students received by universities and polytechnics were much lower, not only in Singapore, but also in the UK, which may lead to a dwindling pool of construction students beyond 2017 or thereabout. R&D (e.g., on green construction, which is the 'new wave', following the 'buildability' and 'sustainability' waves) and horizontal expansion to other industries are also useful. Also, firms other than SME also need assistance.
5. Japan is still recovering from recession, but their construction industry has evolved to repair and maintenance. They are also looking into change of building use. Australia's construction industry is doing well. The UK and the US looked into consolidation and diversification during downturn. Advanced industrial countries are renewing infrastructure. Also, UK, for example, developed alternative procurement approaches

and passed the Housing Grant and Regeneration Act to resolve payment problems. Similarly, Malaysia is looking into Security of Payment issues.

6. Singapore firms are active in developing business in countries such as India, Vietnam, Korea and even Russia. IE Singapore and BCA help to promote the Singaporean companies in those markets.
Consultants and contractors can get a fair share of profit since they send open invitations.
7. Target on anything from residential and/or commercial projects, or things that clients want to build overseas. Once a company goes into foreign land, it must know how to do business there, including local law, especially on tax. Withholding tax is something to watch out for. It is advised for exporting companies to find a local partner or joint venture.
8. Singapore has to look at the bigger picture when opening up the local market. Some control measures are there to prevent the downside of foreign imports, such as gambling. Yet, the employment opportunities created are beneficial and there is need to maintain competitiveness of the country compared with regional markets.
9. Singapore is financially stable and in terms of management capabilities, we can be equal to foreign firms. Most importantly, the legal system is good and the government is clean and free of corruption. Our skill set, such as that of planning and building good airports, is equal to advanced countries like UK and US. The currency factor also comes in, in that we are paid less than those paid in US dollars and British pounds. Also, we understand construction management and processes very well. That is why in Saudi Arabia, Singaporean firms are in good demand. Another reason is the government support, which helps to build up the brand name.
10. Singaporean construction firms can work overseas as their core management system works. However, it is important that their home and local headquarter office is well looked after. Local brand name should not go down (i.e., Singapore), when the companies are expanding in India or Vietnam. Vietnam and Laos have low overhead cost, whereas Malaysia also has a low cost base but the quality is good, which makes them a good competitor.
11. Singapore is moving the right way whereby most of the statutory boards are being corporatised and some are even sold off to private sector or private companies. It would have been good if they are kept by Singaporeans. We bid with them on a one-to-one basis. There used to be a moratorium of 5 yrs. for these corporatised companies,

but once that is finished there is a fair chance that everyone bids for the same pie.

Another instance is that government can look into coming up with a local industry newsletter for informing, promoting and educating construction industry people, very much like the UK through their Building Magazine and Architects Journal, Building Cost Information Service etc. Singapore should invest in innovations, cost models, new technology, etc. so that there is technology transfer from the government to the private sector.

Currently, there are some Key Performance Indicators for the industry, such as the Construction Quality Assessment System, Buildability Score, Green Mark, etc., which are good for measuring the performance of the industry.

12. The construction industry in the future will be a seamless one, due to the use of internet, Free Trade Agreement, more convenient travel and communication, etc. Construction professionals will be mobile, IT-equipped and knowledgeable, not only in construction process, but also in finance and law. They have to be well versed with the laws and practices of other countries and the pace will be much faster. Green issues are getting more important, with totality in mind. It is preferred that government do the initial push, and actions to be led by the industry.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Singapore - 3

1. Singapore has around 850,000 dwelling units, of which 800,000 are managed by the HDB.
 2. The overseeing Ministry of National Development made it a mission for HDB to provide affordable homes, rejuvenating existing estates and build community ties.
 3. R&D was used to upgrade value chain.
 4. Feedback can be through town councils, etc.
 5. Design for maintainability
 6. “G8” representatives of HDB officers over the whole island oversee 4 term contractors.
 7. Co-sharing of maintenance responsibilities such as Goodwill Repair Assistance (GRA) Scheme.
 8. The Prefabricated Technology Centre (PTC) was completed in 1994 with a total investment of SGD 38.5 million with a total floor area of 21,000m².
 9. 12 laboratories for design development and live testing
 10. Up to 75% of HDB structural components were precasted
 11. Examples of innovations: spiral connectors, ferro-cement hollow partition, Shelter 390 at entrance/exits; precast burial system for Muslims at cemeteries, Catch21T for windows; FRP for bricks, etc.
- A. During recession, HDB sustained the building programme to match public housing demand and acted as a good pay-master. Upgrading programmes including Main Upgrading Programme (MUP) and Lift Upgrading Programme (LUP) were not reduced. The co-sharing helped residents to afford the upgrading programme.
- B. In line with the incentive for precasting induced by the mandatory Buildability Scores, land was made available for precasting operation as well as volume assurance. The 30,000 production units in 1997 have only been scaled down to 5000 units recently, matching public housing demand.
- C. The prefabrication experience and know-how developed by HDB can be exported. However, local building regulations and different heights of buildings, which have a bearing on the scale of prefabrication and component repetitions, can be potential barriers.

- D. Successful HDB contractors are mostly local companies, except where special technology is involved, but there is no barrier and overseas companies can participate in tenders.
- E. General construction contract award criteria weightings: Quality 20%; Price 80%

HDB also experienced down-sizing, as in 2003 out-sourcing commenced. The HDB consultancy arm “Surbana” is now competing for jobs in the Middle-East and China, after an initial period of assured projects.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Construction Industry Institute
HONG KONG

Singapore - 4

There have been 2 recessions experienced in Singapore, the earlier one in 1983-87 and the more recent one starting in 1997. The 1983 recession was cyclical, in that the small of population (2.8 million) did not generate sufficient demand. There had been a previous recession that ended in 1978, so the 1983 recession came earlier than expected. After 1987, there was a period of wealth generation from manufacturing and stock market, which stimulated demand. Construction became the consumer of wealth and new jobs came in fast. Then there came the Asian financial crisis in 1997, the Sept 11th (2001) and the SARS (2003), which caused and continued the recent recession. Tourism, which is the main support of the economy apart from Singapore being a finance centre, was affected. Our neighbours (such as Malaysia and Thailand) had built up much tourism and shopping facilities by then, and attracted a lot of tourists. There were thus voices to revamp the situation. HDB slowed new building activities from about 2000 and now 'build to order'. 80-90% of Singaporeans stayed in HDB flats before, but now the figure has gone down to about 70%.

From about 2005, Singapore was targeted as an international city of choice, like London and New York, for the quality of life. Our manufacturing industry cannot be attractive because we are not that cheap in labour cost. Therefore the country is targeting on 'high end' activities. High technology factories came in for finishing parts of their product, after their front-end production elsewhere. Singapore must compete on other areas, such as education, medical, recreational, gaming, theme parks and convention facilities.

Recently, the government is revamping the image to tourists by building the integrated resorts with recreational, convention and gambling facilities. New infrastructure is also built to support these and revitalise the economy.

The hyped-up effects have resulted in sudden rise of property prices, especially the high-end market, which attracts a lot of overseas investors (up to 40%) from India and China. Yet, we must be cautious not to create a speculative bubble, as local demand may not be sustainable.

Population is planned to be increased from 4 millions to 6 millions, hence accelerated construction of infrastructure, including schools and MRT is needed. Currently, about 1 million of the population is foreign workers or immigrants, the majority of whom are lowly workers but expatriates are increasing. The country is also embarking on a new immigration programme. This will help to sustain demand. The new generation is beginning to take over from senior management, who is more risk averse. Singapore has been criticised for being

slow in responding to changes, but this will soon change as lessons have been learnt by the government.

Two lessons from the first recession: (1) do not deploy wealth unnecessarily; and (2) even if in a boom, vigorously question any request for new staff, and persuade existing staff to do more (e.g. with overtime) for greater rewards.

Overseas ventures draw on a lot of elite staff, creating tight human resources situation at home. Asian booming cities (such as India and China) are the niche markets, whereas the Middle-East has been more British and American dominated. Russia is opening, with rising property prices there. Back home, Singapore construction market is wide open, with a lot of large overseas firms (e.g., Japanese). By contrast, less than 5 local contractors are really able to take on large projects. Consultants are fine. When contractors become large, they will become developers. The profit margin of construction works in Singapore is too thin. Japanese and Korean contractors do not come for profit, but for earning foreign currencies, whereas some overseas contractors (e.g., the Chinese ones) are undercutting prices due to their low labour cost.

Looking ahead, Singapore developers need to build up brand names, and so do contractors and consultants, who are even less advanced in this activity. Developers are doing slightly better because they bring their money. Singaporean developers are developing in 'cheaper' places like Vietnam, but not Middle East, etc. Sometimes, they take Singaporean consultants and contractors along. Yet, countries like India have their own brilliant architects and engineers. In the long run, investment in low cost countries would help, e.g., in India, which has been an export market for Singapore in the last 5 years. Also looking ahead, the way things are done is changing fast, e.g. less use of Bills of Quantities etc.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Singapore - 5

1. There has been two recessions in Singapore: (a) the recent 1998 recession, when output almost halved to SGD 11 billions in 2005. The disputes on payments led to SOP (Security of Payments) legislation. Pay-when-Paid clause was more or less struck out. There have been expanded overseas ventures and outputs. Contracts won overseas vary from SGD 1.6 billions in 1995 peak to SGD 280 millions in 1998/9 to SGD 2.5 billions in 2004. (b) The previous recession, which occurred in 1984 - 1987 when the SGD 8.4 billions construction output dropped to SGD 3.5 billions. Even the big companies also failed in business. The property slumped. How important are property prices? Has industry learnt lessons from recessions? Not all. Activity levels cannot be stable. So companies need to be flexible. 90% of work is sub-contracted, and to several levels. HDB upgrading programmes e.g. LUP for lifts may possibly help during recessions. Consultant DP Associates is a good example that did well as they learnt a lot from foreign architectural firm with whom they formed JV – under calls and ‘preferential margin’ incentives for JVs.
2. Encouraged to look overseas. There has been new thinking like the PPP and PFI initiatives.
3. Industry also looked overseas. Some went into property development. Integrated consortia were formed for exporting services. Government helps smaller companies. BCA promotes value chain consortia e.g. 14 companies including the planners, landscape architects, contractors – can fly flag. There are works from the Land Transport Authority (LTA) subsidiary, Airports organisation or those from abroad. The government ‘International Enterprise’ helps companies too.
4. More forward planning on behalf of all developers is needed. The industry also needs more information from the government. More research and forecasting of the industry dynamics are needed as well. BCA has constructed model to predict demand. Comprehensive study is needed.
5. See 1952 book by Colean and Newcombe entitled ‘Stabilising Construction’. 1st economist to be employed by a contractor – Pat Hillebrandt by Laing. Japan – Govt. helps industry ... pork barrelling ...
6. The BCA web-site has information. Also, International Enterprise Singapore is a government agency set up to promote the export of services by Singaporean companies. It also helps in developing value chain consortia, trade missions and incentive schemes.

Also, if companies want to merge they can get advice from the Standards, Productivity and Innovation Board (SPRING).

7. The Singapore brand name sells well in India and China.
8. There is no barrier for foreign companies to enter Singapore construction market. For example, the Shimizu did well, and cited largest overseas market in Singapore. But some may not do so well.
9. Brand Name is very important.
10. DP Architects credits success to working with foreign JV partner.
11. Collective Championing. The Construction Industry Joint Committee, which includes professional institutes and trade associations, can be useful when it becomes effective. However, evaluation of the outcomes is needed.
12. There has been greater showing (presence) of companies from India & China. India also has great potential. For instance, the engineering and construction arm of the Indian conglomerate Larsen and Toubro is very strong in Middle East. It can be expected that there will be many international companies & multinationals with more globalisation and mergers. It is also expected that are more convergence in terms of technology and practice. Recessions shakes out inefficiencies and helps improve performance. Image of the Industry is important. There is a lack of information on the industry. We need to stop thinking our industry is special. Land price volatility could be affecting construction industries in Singapore and Hong Kong.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Singapore - 6

1. The recessions in Singapore are: (a) 1985-87, which was driven by economic restructuring due to labour shortage following reversal of labour intensive thrusts to create employment after Singapore was established in 1965 (b) 1991-1992 when property prices dropped due to Kuwait war; and (c) 1997 following Asian financial crisis.

One should beware of assuming construction industry recovery links directly to hyped-up rises in high-end property prices only. Construction industry lags economy, which can be found in Turin's works at Bartlett School UCL, UK in the 1970's. The responses to last recession include: BCA thinks that it is better to have less number of good firms; the Architects Act being amended to enable design & build; pushes to export services, as the industry has went outside Singapore in the 80's and after 1997 with a better track record.

2. Refurbishment and upgrading are not deliberately increased in recessions, because according to claims by opposition parties, this seems to be politically driven before or soon after elections. It is possible that HDB upgrading programmes may also be delayed by reluctance for individual contributions in bad times. But government may hold back some projects until construction activities slow down, like the network of underground roads being planned by LTA for the central business district. And also the start of MRT construction in the late-1980s helped to pump-prime the economy.
3. Some contractors ventured into property development, others into securities (stocks & shares) or materials production (while some went bust, even big firms like Neo Corp.)
4. The government and BCA started a few schemes in earlier recessions. They also helped export of services, like the Attachment of Public Sector Professionals for the Export of Construction Services (APPECS, in which the public sector experts were seconded to boost private sector teams). In the recent recession, there are also various schemes like the Trade Development Board (now 'International Enterprise') initiatives which include arranging Trade Missions as well as the Productivity & Standards Board (now SPRING) which helps the SMEs.
5. Malaysia adopts open door policy, but local organisations are protected for projects less than 20 millions Ringgit. The Malaysian local firms developed expertise locally, like the YTL Corporation's expertise in hospital projects.

6. The government has provided tax incentives, which are mostly generic and not construction industry-specific. Level up locally first, then export. Developers would go out and establish brand name, like the Millennium Copthorne. However the developers do not seem to take local consultants & contractors with them.
7. The Singaporean construction stakeholders should focus on the building sector, rather than the oil & gas sector (except Keppel & Sembcorp). It is worth checking if 'oil & gas' can be included (even in part) in Construction sector.
8. There is no barrier for foreign organisations to enter Singapore construction market. Earlier (in the 1980's – 1990's) JV preferential scheme does not appear to be useful. Technology transfer did not seem to take place well, except generic stuff. Professional Engineers Board assesses foreign professionals, but they can work in less critical jobs. The Singapore Contractors Association Limited (SCAL) did ask the government to reserve smaller jobs for local contractors, but the government did not think it was appropriate.
9. The Singapore brand includes being secured, safe and efficient. Township development and airport development are the strengths of the industry. The government encouraged the exporting companies to focus on those areas within 7 hour 'flying time zone' from Singapore, e.g. up to Middle East. The government also visits the second tier Mainland China cities like Nanjing to promote the Singaporean construction industry.
10. A more globalised market would be both threats and opportunities for local industry players.
11. Government can phase out projects in hand. But firms should help themselves. For instance, Hytech Builders is a group of 5 firms joint together to export services overseas. But the company seems to end up more in local market, and competing with its constituent firms locally.
12. The construction industry needs to protect mankind from nature threats like the tsunamis. The industry would also shift its focus to 'energy efficient'. The construction industry should not be isolated and considered by itself; instead it should be placed in the context of the economic development, with international marketing as a key activity.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Construction Industry Institute
HONG KONG

Singapore - 7

1. The recessions in Singapore happened from 1997/98 to the mid 2006. 2003 was lowest point in 'contractor's volume', declining to about SGD 10-11 billions. The peak before was SGD 23 billions. Construction firms had smaller turnover, hence needed to implement strategies like pay reductions, retrenching and downsizing of offices, while some even went for insolvencies. Bigger companies went down as well, due to cash flow and other difficulties. Some companies went down because of other companies with causes like developer's late payments, submission of dumping price bids and being forced to take on more risks.

Sub-contractors have been financing many jobs, including bottom-up financing in the supply chain under the contractors' back-to-back arrangements. The Security of Payment legislation applies throughout the supply chain to address the problem such that the sub-contractors can use the legislation against the contractors while the contractors and consultants can use it against the developers.

Adjudication can ease cash flow, limits exposure to 2 months. When coming out of recession, clients will be careful to make sure standards in the industry are maintained. Are we getting better companies after recession? Yes. Lessons are learned, but cannot be certain that the companies are always better.

Government believed that it is too risky to give all projects to one contractor. Hence she used the price quality assessment method to put cap on number of projects a company can win. The strategy also helps to spread the works to more parties.

2. There weren't much retrofitting and upgrading works during Singapore recessions. There weren't even hotel alteration and addition works, which could have been considered at lower prices. Public sector projects also reduced as the government did not adopt pump priming.
3. Contractors are considered risk takers. Hence some already have had other interests like development, agencies for sanitary ware, restaurants/ pubs and I.T. business. However the Singaporean contractors are mostly family businesses, and they diversify not because of recession. PPP projects are mainly promoted by the financial people, so contractors are not that proactive in adopting the model.

4. Contractors raised issue of ‘predatory pricing’ by foreign contractors (with financial backing from their home countries). Foreign Contractors can be Associate Members of SCAL. Trade contractors belong to the “Trade” category of membership.
5. In UK, the bigger contractors are acquired by foreign firms. The local UK contractors focus on house-building. One of the entry hurdles in the UK, Japan and the US is licensing. Construction 21 recommendations are 70% implemented in the industry. Workers’ Skills – registration. – foreign workers should be 100%. Passing trade tests. Nos. in SCAL: 120 Registered Contractors , 1,500 S/Cs , Traditional labour sources – Malaysia; whereas NTS (non-traditional sources include China, etc.-
6. Exporting of services in Singapore has increased a lot, by 4 to 5 times (SGD 0.5 billion to 2 billions out of the SGD 12 billions total workload is export) to countries like the Middle East, India, China. The government provides no Export Guarantees, but there is the ‘International Market Assistance Programme’ which provides financial support for 6 to 7 local constructors to bond together. However the financial support from the programme is not much, hence sometimes being considered ‘not enough to die for’. Factoring has been one financing option, but it is not favoured by contractors as it would involve surrendering cash flow element. The International Enterprise (IE) in Singapore helps with ‘Market sounding’ overseas (through their overseas offices etc.).
7. The biggest hurdle for construction stakeholders in exporting their services is the target market’s regulatory requirements, which can either be too many and complex or too little (sometimes even none). The biggest problem these stakeholders have to face is the learning curve. The exporting companies must be selective on target country because of their limited resources. The Singapore construction companies can offer to overseas market their management and sometimes the supervisors.
8. There is no barrier for foreign constructors to enter the Singapore market. However some companies came in and left because there is too much competition. Some companies stay to use Singapore as a listening post and to establish their track record. Practitioners including the Czechs, Chileans, Russians, Polish, Turks have all made enquiries through the interviewee’s organisation.
9. The Singaporean constructors have strong track records in public housing, Airport and MRT projects. Singaporean constructors can also deliver projects with high quality as there are performance indicators like the Construction Quality Assessment System (CONQUAS) scores to benchmark the industry. Despite ‘revolving door’ of construction workers, the projects can still be delivered as required.

10. A more globalised market is an opportunity for the Singaporean construction industry to become more competitive by sharpening the skills. However Singapore must maintain certain levels of competency and core construction companies, maybe through strategic requirements such as ‘total defence’ to preserve the local companies. At the same time, the requirements should not be biased towards or against the local contractors. GLCs and TLCs need level playing field.
11. Government activities are based on general economic growth. The government should spend at least to meet what she has targeted for, e.g. SGD 15 billions for both private and public projects, as a steady flow is needed for not losing competencies. PPPs – can have a wish list. The government needs to spend forward on infrastructure to develop the cityscape for future.
12. Interesting Region, Big Market. The issue is how to meet overseas regulatory requirements. The developing countries can also help developed countries. Construction industry is one area where we can have problem shared both ways. Cross-border mobility of resources is not easy. Do developers going overseas take along with them the local contractors? Some do. Contractors may go overseas (a) when invited by clients (b) for own development (c) Asian Development Bank (ADB) jobs etc. (d) offer their expertise
CIJC – Construction Industry Joint Committee – 8 Assns. Involved. 43 recommendations being tracked.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Construction Industry Institute
HONG KONG

Singapore - 8

1. The recent recession in the construction industry started in 1997 and lasted until the second quarter of 2006. Upswing commenced in Sept 2006 largely due to the announcement of the integrated resorts at Marina and Sentosa, which give upbeat confidence to people. Recent residential sales, e.g., the Sky@21, came with fast sales. It is one of the first revival signs since 1996, when the government had to cool the overheated economy by introducing capital gain tax. Previous recovery was difficult. Although there was a slow turn-around at end 1999 and early 2000, bank interest rates slowed development in early the 2000's.

Recently, the Indonesia's ban on supplying sand to Singapore may push construction cost up slightly amidst rising demand. Apart from releasing sand stock piles, the government encourages the industry to switch over to steel construction. But steel construction will be more expensive and fire protection is an issue to be worked out by the authorities, especially for the low-rise development.

As for the consequences of the last recession (added to it by Sept 11th event and SARS) to the profession, many architectural practices were down-sized or lost their key staff to insurers, developers and interior designers. Some found work in China, but with less scope, as foreign firms are only expected to produce conceptual plans. Large contractors such as Hock Chuan Ann and Neo Corporation went down. So did some smaller consultants.

2. During recession, public spending was not increased much, nor were the private fitting-out works. Terminal 3 and MRT Circle Line were the few examples. HDB upgrading works were only brought forward but spending was not increased. Other projects such as underground service tunnel at Marina were also planned.
3. Some contractors tried to diversify into prefabrication plant and granite quarry at Bintan. However due to the low volume, such ventures were not very successful. The interviewee knows a consortium of 4 architect firms (ADDP) joining force to bid for large projects and they still stay together. In general, project-based consortia are more successful than the permanent consortia.
4. Perhaps when the government departments corporatised their design arms, work opportunities could have been less restricted by the moratoria, and distributed more evenly to include existing private sector firms, to help the industry riding over the recession

period.

5. Australian firms seem to have higher mobility when their local market is down, compared with Singapore, which only has a small market. The UK market is booming too.
6. Singapore firms are actively seeking market opportunities in China, Vietnam, and to a smaller extent, in Myanmar. Singapore investors prefer to take along Singapore consultants and contractors when they need to build in these overseas countries.

Our government does provide some incentives, such as to subsidise marketing and promotion expenses overseas, but the results are not overwhelming. Malaysian architectural firms have been moving overseas long before their Singaporean counterparts.

7. Airport and hospital planning are the niche areas of Singapore in overseas countries. The industrial development experience of Jurong Town Corporation is quite well received in India, as well as the HDB experience in Chinese cities such as Chang Du. Singapore firms can also sell abroad their commercial and township development experience. In addition, high efficiency and law-abiding characters are selling points of Singapore firms, especially in India.
8. Singapore is a free market for overseas firms. Having said that, professional bodies such as the Board of Architects (BOA) does perform assessments on overseas qualifications but the standards are the same for local and overseas applicants. Singapore will need 4,000-5,000 professionals for the current construction boom.
9. Same as Question 7.
10. A globalised market should have balanced import and export across boundaries. For architects, some overseas consultants provide concept designs, whereas for contractors, those from China are very competitive in pricing (15-20% advantage) and obtained 60 per cent of the local residential construction market.
11. It is difficult to develop a sustainable construction industry in Singapore. As the industry is susceptible to ups and downs in our external economy (usually in 7 year cycles), some stabilising means should be implemented to ensure sustainability. PPP can be a direction but they are more dominated by the finance package and could change the landscape as far as the roles of architects are concerned.
12. Barring unforeseen political changes, there is going to be regional recovery. World

factories could be set up in countries with low labour cost, e.g., Vietnam, which may boost their construction industries.

13. Also, while buildability is a good concept, it can add constraints to smaller projects.
14. The Singapore Institute of Architects (SIA) is currently revising its Standard Conditions of Contract (8th Edition replaces 7th Edition of about 2 years before) to fine-tune the Security of Payments (SOP) provisions in the 7th Edition, etc. SOP was initiated by the government after some contractors collapsed due to payment issues. In practice it may be used as a last resort, so as not to upset clients.



CII-HK Research Project

Reinventing Hong Kong Construction Industry for its Sustainable Development



UK - 1

III Strategies for overcoming Construction Recessions

14. *When was the most recent construction recession in your country? What were the consequences following the recession and how did various industry stakeholders react and adjust? Through what key measures did the industry recover?*

The UK construction industry experienced a recession in late 80s from around 1989 to 1991. The housing market crashed from 1987 onwards as the price flatted out and didn't go up until 8 years later. From 1975 to 1985, the housing price has actually gone up by factors of ten. The recession caused almost half a million people in the construction industry losing their jobs. However the recession experienced construction industry didn't get as much attention as other industries like the mining business, as the industry itself is too fragmented that people wasn't aware of the wide unemployment problem. Some of the big contractors survived through the recession. One of the consequences following the recession that the industry is still suffering from now is the shortage of skilled labours. To deal with that, various proposals including factory solution (e.g. pre-fabrication) are adopted. For example, the Heathrow Airport project has used pre-constructed units of toilet facilities. The mass majority of UK construction labour now is coming from mainly the Eastern Europe, which leads to shortage of labour in the Eastern Europe region as well. The recession hit almost all construction companies regardless of their sizes, according to the interviewee's opinions, to an extend proportional to the work force of the companies. The companies that reacted the quickest and reinvented themselves are those most likely to survive through the recession period. Some companies tried to diversify their business scope into areas like mining.

During the recession, the UK government did not help the construction industry a lot in supporting the companies' survival, according to the interviewees. Government also cut down on its public spending program. Therefore the demand for construction works declined in both private and public sectors. Even in the recent years, the UK government hardly manages to reach its spending plan put forward each year.

15. *Have you observed any change in business practice during the past ten years? Is there any specific strategic direction that you consider a major alternation of current practice in respond to the changing market?*

The house builder today knows that the market demand is currently about 30% higher than the units built and therefore is trying to maintain that level of construction activity such that the house prices can remain at a profitable level despite continuous inflation. This has become a disincentive for house builders to build more houses. Despite trying to provide incentive for private house builders, there isn't much direct interference the government can do to the private owned businesses to increase the house building volume. On top of that, the private builders still remember how oversupply in the last recession caused them huge losses.

16. *What other measures/strategies should have been implemented or implemented more properly to revive the local construction industry?*

During recession, the government can try to relax on the regulations to stimulate new constructions. At the same time long term issues like sustainability need to be considered in that

process as well.

IV Sustainable Development of the Industry

17. *How active are the construction stakeholders (developers/consultants/contractors/suppliers) in your country in moving their businesses across geographical boundaries? Are there financial aids, high level support/ guarantees and/or incentives provided by your Government?*

UK construction professionals are fairly prepared to travel around the country or switch into other fields according to the interviewees. However lots of times these professionals just fall out of the industry and not coming back.

The UK government is taking a rather neutral in supporting the construction industry to export its services. Hence it hardly would bring together several major construction firms and help them to export their services as a joint body.

18. *How can the Government and the industry itself assist the construction industry to develop in a sustainable manner? Does the local Government have an industry-specific long-term vision and forward planning strategy?*

Construction Products Association (CPA) publishes figures on the predicted work volume for the coming six months. Longer term forecast, like 3 years ahead, is difficult to get due to possible changes in government policy and general economy. Therefore one of CPA's arguments is that the government should uphold its promises in public spending so that the long-term prospect of construction industry can be better guaranteed.

The UK government has also put forward PFI projects to replace the public spending. However, it is not clear whether the PFI projects can fully replace the otherwise public investment that would have been put into the market. Another issue about PFI projects is the huge costs involved in preparing the contract documents for tenders.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



UK - 2

I Strategies for overcoming Construction Recessions

1. *When was the most recent construction recession in your country? What were the consequences following the recession and how did various industry stakeholders react and adjust? Through what key measures did the industry recover?*

The UK construction industry generally has moderate growth for the past 13 years. Having such a long period of stable growth has enabled the industry to do more in terms of training and investment that was previously unable to do. The last big recession started in late 80s and ended in mid 90s. One of the major reasons leading to the recession was the coincident end of several big projects like the Channel Tunnel. There were lots of workers left with no more job opportunities. Therefore the government nowadays is trying to smooth out its works.

CIC actually grew very fast when it started during the recession period. The industry recognised the strong need for a lobbying body like CIC to help surviving through the recession. The construction industry lost about half a million workers during the recession period, as some of them retired and some switched to other business. And that creates the huge capacity problem when the work came back as the construction industry cannot attract people to join, since during the recession lots of workers like electricians and plumbers suffered from non-payment.

The umbrella body should be set up with two steps. First it should gain authority within the wider industry that people would take notice of and contribute to. The second step is to work in partnership with the government. It should try to integrate clients into the work as well, particularly the professional clients like property or airport managements. They now have their in-house expertise and have been building from one project to the next in improving status. The interviewee considers that most of the innovations now are coming from these professional clients, which is a major change.

2. *Did the industry put forward any initiatives and strategies to re-engineer/diversify their organisation and business both geographically and horizontally/vertically (in the construction supply chain)? How effective were these initiatives?*

The UK construction industry has gone thru several reform movements over the years, from the Latham report to the Egan report, and now there is a movement called “the 22 construction commitment”. These reforms come every 6 or 7 years, as the Latham report being put forward around 93/94, followed by the Egan report at around 98/01. And now in 07 there is the 22 construction commitment, which is predominately concerning the London Olympic Game but has a much wider application across the industry. In the Latham it was proposed that an organisation coordinating the strategic development of the industry to be set up.

However, the industry is a bit two-edged on the issue. On one hand they do not want to be involved in such a strategic coordinating body mainly because they, especially the contractors, felt that they have a lot of power as an individual group. Having to work with other bodies in such a major group can mean a diminishing power of the group. The Government on the other hand want to get a control over the whole industry. The

Government then set up a strategic forum that was run by government officials, which was not able to fulfil its function to liaise with the government. The CIC later took over and runs the strategic forum in turn with Construction Products Association and the Construction Federation.

The strategic forum has two main targets: to achieve the targets set out in Egan's report and to. The Egan's report proposes an acceleration of change in the construction industry, which sets six targets for the industry to meet by 2007. These targets include a more integrated project team, providing the industry with workforces with right quality and quantity and improved design quality of buildings. The targets are in terms of the amount of project done by integrated project teams, the number of people being recruited into the industry. These numbers are worked out through research, particularly done by sector skill agencies. Construction skill agency is mainly run by CITB, which maintains a lot of market data about number of people entering the industry. The CITB has established as well direct relationships with contractors through the statutory levy grant process for training people in contractors, which allow they can talk to the contractors directly and obtain the capacity need of the contractors. Therefore the Egan's report has proposed a skill-need based model rather than an economic model.

The strategic forum monitors how the industry has been meeting these targets. There is a report reviewing the industries' performance every three months. The workforce and design quality targets have been exceeded already.

The industry is still facing some key issues nowadays including climate change, sustainable construction, health and safety on site and integration of the industry. The strategic forum has not managed to change the way the whole industry operates, hence not being able to meet the integration target set by Egan. The forum has only changed the operation practice of the top 10% in the industry. So there are still problems of a fragmented industry including individual contracts being let, individual project teams being put together, different tendering exercises, sub-contractors working for contractors whom they have never worked with and working with materials that they are not comfortable working with. When a great project team that delivers an innovative and high quality project completes the project, the team would break up and next time a new project team would be put together. At the top level of the industry, the major big contractors tend not to bid for one-off project. Instead they look for a long term framework relation with the client. Therefore, for projects like the Olympic Game, it is difficult to find the contractors to bid for it due to the high risks involved and being a one-off project only. Despite having a highly experienced consortium that completed the Emirates Stadium project to bid for the project, the client is exposed to risks under the tight cost and time budget with only one bidding party to negotiate with. This has become a problem for clients in UK with only single flagship projects, as it would become a bad publicity if anything goes wrong with the project. On the other hand, big contractors are rather willing to establish long term arrangements with major repeat customers like big supermarkets.

3. *Have you observed any change in business practice during the past ten years? Is there any specific strategic direction that you consider a major alternation of current practice in respond to the changing market?*

Construction industry in UK is very fragmented. The biggest construction company is only about 1.1% worth of the whole market. This leads to problems like not enough innovation and training in the industry. Not having big enough company also means cannot attract much attention from the public and the government to correctly value the industries' contribution to the economy.

For the housing market, it has been a long time having demand much higher than the supply. The house builders are trying to retain the land stock they have in hand until the price has gone up, in a way that is more like developer's business strategy. The UK should be building around 200,000 new homes per year for the last ten to twenty years. However, for this year, only 161,000 new homes are built. The problem exacerbates as the housing price, particularly in the southeast region, is growing to a very high level. There are debates going on now about whether new houses should be built on floodplains and greenbelts.

The consultancies including architects and surveyors nowadays are moving towards the role as an advisor, as they may give opinions like making improvement to the processes or renovating the old building instead even when the clients approach them for a new building project. It helps to build a long-term relationship with the clients.

The UK government can now only help to control the supply in housing market by taxation and regulations to create incentive for house builders. The era of the government being a house builder is gone. What the government can do now is to encourage private house builders to build more houses by making it more difficult for them to hang on to the land, which is probably achieved through taxation measures. The government may also relax the planning regulations, despite some controversial matters involved. Government should also try to provide affordable house to people in key jobs like schoolteachers and nurses. Most UK housing associations now have schemes for shared equity. For example, a nurse who cannot afford to buy a house in London may go through the housing association to buy 10% of a house while the rest is owned by the housing association. The government also give grants through an agency that they have set up. Another measure is that developers get their planning permissions on the basis that a certain portion of the completed development are affordable houses or educational support. However there are some developers trying to get around the regulations.

II Sustainable Development of the Industry

4. *How active are the construction stakeholders (developers/consultants/contractors/suppliers) in your country in moving their businesses across geographical boundaries? Are there financial aids, high level support/ guarantees and/or incentives provided by your Government?*

Most of the top consultancies in UK are very active overseas, and overseas companies now own some of these top consultancies already. This pattern is happening pretty quickly. Arup, for example, is registered in UK for its highest company while having business in America, Asia and Australia as much as in UK. Hence it is rather a global company than a UK company going overseas. At the same time, companies like Arup are actually bringing back to UK a lot of invisible earnings through brainpower as opposed to exporting visible products. However, the UK government is underestimating this revenue because they cannot see and measure it. It is estimated that about 1% of the UK GDP is coming from overseas export of professional services.

5. *How can the Government and the industry itself assist the construction industry to develop in a sustainable manner? Does the local Government have an industry-specific long-term vision and forward planning strategy?*

The UK government's projects represent about 40% of the total construction works. To smooth out the construction demand, each individual department would put forward its future work plan. The model formed by these data would be used to generate "What if" questions, like what if they start their projects at different times to match with projects from

other departments. The Office of Government Commerce (OGC) is doing the coordination of this model.

PFI projects have not been totally successful in UK's experience. There are stories of companies spending millions of pounds in tendering PFI works and PFI projects taken years before getting started because of the complexity of the project. Despite that, PFI projects help at least to provide more job opportunities to the industry. A more successful PFI project has been the "Building Schools for the Future" program that involves renewing and upgrading of all secondary schools. The program has now been extended to primary schools as well. In contrary to hospital PFI projects that often tend to involve high complexity in design and construction as well as being one-off, the school-upgrading project can be tendered out in packages of 30, 40 or 50 schools, which is a much longer-term work guarantee. On top of that, it would be much easier for the bidding companies to factor in the facility management costs with such working packages. Therefore this program has been a much more successful story in PFI projects.

The way that the UK government is structured means that there isn't much effort devoted to coordinate the overall market supply and demand. There are various government departments in charge of different aspects concerning construction but extra effort is needed to bring them together to form an integrated team.

The CIC is trying to advocate for a more sustainable and integrated approach of the government towards construction projects mainly through lobbying and involving politically influential people into the organisation. However, it is difficult to have the government changes its way of operation, despite the fact that on the surface there seems to be a lot of coordination effort across department. The lower level civil servants are still reluctant to give up some of their power in order to form an integrated team with other departments. The OGC has come up with the tool to smooth out the government's demand through managing the overall procurement requests of various departments. However, OGC is an advisory body only. Government departments are not really abided by the procuring suggestions made by OGC after its coordination effort.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



UK - 3

I Strategies for overcoming Construction Recessions

1. *When was the most recent construction recession in your country? What were the consequences following the recession and how did various industry stakeholders react and adjust? Through what key measures did the industry recover?*

The last recession was during the early 1990s. The construction industry has been growing since the end of the last recession during the mid 1990s. During the recession years, companies laid off workers to cut down on the cost side. Under the shortage of labour, companies had to look for possibilities in technologies including I.T and construction techniques. For example, CAD became popular among the industry during that time. The recession was actually a period when there were most innovations in the construction industry. Both small and large companies were hit by the recession. Lots of single person businesses went bankrupt and liquidated.

2. *Did the industry put forward any initiatives and strategies to re-engineer/diversify their organisation and business both geographically and horizontally/vertically (in the construction supply chain)? How effective were these initiatives?*

The industry did try to discuss the difficulties it was facing with the government. However, to the interviewee's opinion, there wasn't a very unified effort in UK for the companies to join together and talk to the government. There is no clear construction responsibility distinguished in a government department that the UK construction industry doesn't really know who to talk to in times they want to seek help. Despite having various bodies representing different construction parties like manufacturers and consultants, these bodies are rather fragmented and hence can't form a collaborative effort while talking to the government.

3. *What other measures/strategies should have been implemented or implemented more properly to revive the local construction industry?*

The market looks after the fluctuation of construction work volume by itself. It becomes a self-regulatory market limited to the capacity of the construction industry. During the recession time, government would deal with the root causes of recession in the general economy rather than specifically looking after the construction market.

The interviewee believes that having an insight into the future market work would be helpful to the construction industry. The interviewee thinks that government should try to create a genuine need for construction works instead of only artificially create works and job openings. He also thinks that having good statistical data covering historical times as well as predictions into the future would help construction companies to understand more of the market and achieve success.

On the industry level, the industry should try to review and maintain the training it gives to both people on site and in the office. It should maximise its skills and knowledge. It should also give supports to people working outside of the country, in areas like language, health and safety. It should train on the construction techniques.

To help to build a more sustainable construction industry, the government and the industry should set standards on skill level, techniques, etc. The trend should also be monitored, such that information on when there is likely to be a change can be given to the industry. As lots of buildings in the UK were built in the old times, repair and maintenance has become an issue that a company should have looked at and planned for.

4. *As far as you are aware, how did other advanced countries (e.g. Australia, Japan, Singapore, UK, USA) react and adjust during the market downturn and transformation in their construction industry?*

Singapore has a government department called Building and Construction Authority (BCA), which is a core division of the Ministry of Development and looks after the construction industry. However, the focus of economy in Singapore has shifted to knowledge-based economy nowadays. The government tries to provide slots where the construction industry can fit into in the national economy by adjusting the market at a more fundamental level. The United States, as opposed to the general impression of the most capitalised economy in the world, has actually a more coordinated effort at the government level than in the UK. The General Services Administration (GSA), the largest non-military client in the world apart from the Chinese government, has actually developed a set of specifications concerning how the works should be carried out and what are the problem areas. If a construction firm wants to work with GSA, the firm has to follow the set of specifications. This arrangement is difficult to be implemented in UK because the set of specifications drafted can only be voluntary rather than compulsory.

II Sustainable Development of the Industry

5. *What are the key competitive edges of construction stakeholders (consultants, contractors and suppliers) in your country and other advanced countries to work abroad at the present time (e.g. technical, financial and managerial capabilities)?*

While working overseas, a company should first decide the types of projects that it is going to work on according to its skills and capability. The company would also need marketing skills. On top of these, the company should try to focus on the client and address the client's needs. The interviewee's company has won its success by focusing on its specialty and keep pushing on its particular edge. The interviewee's company usually team up with a local company when they work overseas. In some situations this is of statutory requirement, and in some other times it is for technology transfer. In such arrangement, the local company is usually entitled to the leading role, while the interviewee's company would have contract with the local company that is strongly protective.

6. *How can the Government and the industry itself assist the construction industry to develop in a sustainable manner? Does the local Government have an industry-specific long-term vision and forward planning strategy?*

The UK government provides valuable statistics to help companies exploring overseas markets. The business assistance serviced provided would give information about the market ranging from practices to culture. The information includes economy data and statistics, which are all translated. On top of a general economic picture, the government would also try to provide users with detailed level information.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



UK - 4

I Strategies for overcoming Construction Recessions

1. *When was the most recent construction recession in your country? What were the consequences following the recession and how did various industry stakeholders react and adjust? Through what key measures did the industry recover?*

The last major recession experienced by UK construction industry was around the early 90s, from about 1990 to 1992. There were a lot of factors leading to the recession, including high interest rate, collapse of housing market, collapse in investor confidence and collapse of commercial office market. Interestingly, there was quite a large amount of public investment around that time. A few companies managed to survive through switching into the public work sector and found work source there.

The interviewee's company had to structure out some redundancies and consolidate several offices into a single location in an attempt to reduce the cost. The company also tried to broaden its client base by working more in the public sector.

The interviewee's company has developed work sources overseas, particularly in Europe and the United States. The company has lots of clients who work internationally. It has also been reasonably successful in winning some key commissions in Europe. One of the advantages of the company is that it has connection with some of the very high profile architects, who tend to be a bit recession proof as they are very desirable all the time. These architects maybe working on less volume of work during recession, but they are still involved in the more high profile projects, which tend to carry on regardless of whether there is recession or not.

During the recession period, there was quite a bit of consolidation of companies going on in the professional services industry. The larger companies managed to further expand, while there are still lots of small companies around because part of the nature of the professional practice is having numerous single person businesses. The middle-sized companies were being squeezed and fewer of them are left. Some larger companies have acquired the middle-sized ones, maybe as a strategy of diversification to prepare for the recession period.

Since the last recession in early 90s, two major initiatives have been put forward: the Latham and the Egan reports. The Latham initiatives were proposed around 1994 while the Egan initiatives being put forward in 1998. The initiatives tend to coincide with the time of recessions, because the industry would usually lobby the government for revival strategies while the government would usually put together a reviewing body to propose these initiatives. These reviews also coincide with government's concern of what it is getting from the construction industry as a client. This conjunction of interests tends to happen around the recession. Latham report raise questions on the business practice of construction industry at the time and call for a more collaborative effort. The report is mainly concerned with business culture that is seldom explicitly discussed. The Egan report put forward a much more aspiration view towards the industry. Frankly, construction industry has only moved on a little since the Egan report in 1998. The industry is still fragmented and there is not much integration along the supply chain.

During the last recession, the interviewee's company trimmed down on staff redundancies, and these positions were not replaced. The company reduced the recruitment as well. Furthermore, it diversified, in geographical term more than service-wise, as the company tried to focus on what it did well and promote that to other markets instead of trying to get into fields that it couldn't do very well. Having said that, the company still has diversification to a certain extent. It has built cost and project management team, management consulting group, tax group, specification group, legal advising group and a number of specialist functions. The legal department, for example, has lots of cases it can handle during recession when contractors are trying harder to claim for money out of disputes. As recession does not hit every field in construction equal, having some kind of diversification helps to ease the impact on the organisation. The company tried to move across the markets that it felt less impacted by the recession, including those not going through recession at the same time as the UK as well as the UK public sector projects. Seeing the recession coming, the company started to work a bit more with the central government on the infrastructure projects where it hardly worked before because it can see a number of large infrastructure projects coming out. It also focused on some larger international clients who the company knew would be building through the recession.

2. *Have you observed any change in business practice during the past ten years? Is there any specific strategic direction that you consider a major alternation of current practice in respond to the changing market?*

Some years ago, the UK government tried to use construction industry as an economic regulator. But that is not the case in the last ten years. Construction is very important to government policy and the public sector accounts for about 40-45% of the total construction works in UK currently. Before the introduction of PFI and PPP concepts, it was quite easy to determine what is public and what is private. The figure of 40-45% public works among total construction has included the PFI and PPP projects. If these projects were taken out, the figure would have been significantly less as most of the major capital procurement in UK now is done by either PFI or PPP arrangement.

Productivity in UK has improved in the last 10 years. Productivity in professional services has improved quite significantly due to the implementation of I.T. technology as well as recognition of clients' satisfaction towards shorter and more efficient processes. For example, in London, the interviewee's company does not produce Bills of Quantity anymore. Part of the reason is that the BoQs are not produced in lower cost places like Manila, while a large part of the reason is that BoQs is not used anymore in the companies' business practice. Simpler pricing information is used for procurement, like work package information with more simplified quantity procurement document. The clients now, particularly the professional developer clients, want to compress that design stage. Therefore there is only little design information when going for tender, and the tender is forced to be in simple pricing documents only. The role of cost manager has become more about managing the risk of uncertainties than measuring the accurate procurement quantities. Cost managers are managing more of the design development to ensure that the cost ties as closely as possible to the initial estimates.

About 20 years ago, a full quantitative surveying service paid on fee scale would charge around 2.5% of the total contract value. Nowadays a full service is charging for about 1.5% of the contract value. The drop in fee indicates an improvement in efficiency. Some companies in other areas may even work for fee of less than 1% of the total contract sum.

Productivity has increased on the contractor side. The large contractors in UK now are mostly management type of contractors who don't have a large labour force. The

contractors subcontract the work to labour-only subcontractors and specialists. So there are many tiers of subcontracting in a typical contract, which is not necessarily very efficient but is potentially very flexible. The direct employment in the industry has fallen dramatically during the last recession. Due to the high mobility of labour across Europe, lots of workers simply went abroad during the recession. The UK construction market is in blooming condition now and there are lots of European labours coming in for the works, particularly from some of the former Eastern European countries like Poland.

The UK government has moved away from centralisation and there is now a lot of local autonomy. Local authorities can decide to build structures and facilities as they see needed. Some of the public bodies also have ability now to raise money from the private sector; hence they are less relying on central funding to proceed with construction projects. That is the difficulty in trying to manage UK government investment into construction market as a whole.

If the government can get a control the flow of construction work, it would help the construction industry to develop capacity not only in volume terms but also skills and expertise. But the UK government is seeing itself in another way of being the regulator and facilitator of business as it has great faith in the market to solve all kinds of issues. However, the market is solving the problems in quite a brutal way. There are also views in the government that the construction industry is having lots of problems like it doesn't innovate well, it doesn't invest, it doesn't do research, training is very poor, the safety standard is unsatisfactory, quality of work produced is not up to standard and it's too expensive, etc. that it shouldn't be made a special case. And they are trying to address those by stimulating the industry to take corrective actions rather than placing some stronger regulating effort. However the corrective actions as well as the various initiatives put forward seems to be only scratching on the surface so far.

3. *What other measures/strategies should have been implemented or implemented more properly to revive the local construction industry?*

During recession, the government can try to help by releasing the valve and investing more money into public construction. However, the government seems to be more interested in holding back investment when it sees signs of overheating in the construction market.

II Sustainable Development of the Industry

4. *How active are the construction stakeholders (developers/consultants/contractors/suppliers) in your country in moving their businesses across geographical boundaries? Are there financial aids, high level support/ guarantees and/or incentives provided by your Government?*

Despite going overseas would be a great strategy in looking for alternative work sources during recession, the interviewee considers UK construction industry practitioners are less willing to go to overseas market and work there, partly due to cultural heritage. As quantitative surveying and project management are lots of time integrated, the cost managers are actually quite portable, as they have knowledge of various procurement arrangements that can be applied across the world. The interviewee's company has set up offices in different parts of the world. For the more successful experiences, there usually is a strong local presence and involvement. In terms of labour force, contractors would mostly use cheaper local workers.

Despite materials production supply has been largely globalise, there isn't yet a global market for contracting. 90% of the contractors in UK are local ones, while at the top end of larger or specialist projects there are lots of foreign contractors. Interestingly in certain

sectors like the PFI projects, they have attracted lots of concession type contractors from Europe who wouldn't be working in UK 10 or 15 years ago. Increasingly the major projects would attract the major cooperation, but by enlarge they would come in with fairly lean expert management function and expect to procure local services.

5. *How can the Government and the industry itself assist the construction industry to develop in a sustainable manner? Does the local Government have an industry-specific long-term vision and forward planning strategy?*

There are a number of private organisations and consultancies, including the interviewee's company, doing forecasting on tender price and output. The forecast figures are sold to users as a business. From time to time government would need the information. The Office of Government Commerce (OGC), for example, is interested in when and where to place the PPP and PFI projects in particular. If the OGC sees signs of overheating in some region, it may postpone the initiation of a PFI project in that region because PFI projects are typically of very large scale and only several major construction companies would be capable to handle the projects. The interviewee's company helps the OGC to build the database of PFI projects that can be used to populate the distribution of such projects across various regions and therefore giving the OGC an indication of output matching capacity in the regions. CITB tries to predict labour force requirement in the construction market and therefore the need for training of such labour force. The interviewee's company also helps CITB to forecast for the labour demand, which involves the analysis of construction output forecast data broken down into sectors. Other considerations include inward labour migration, existing skill level and maturity in skill level as time goes on, etc. CITB has set up an Observatory, which is basically a kind of an expert panel to review the model forecast.



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UK - 5

I Strategies for overcoming Construction Recessions

1. *When was the most recent construction recession in your country? What were the consequences following the recession and how did various industry stakeholders react and adjust? Through what key measures did the industry recover?*
2. *Is there any kind of “safe haven” for construction stakeholders (or what should they do) at times of decline in capital work? How did your Government attempt to assist the industry and the construction workers during the recession?*

Office of Government Commerce (OGC) has only limited ability to intervene the construction industry. It started in 1999, after the Treasury studied the way government delivers its construction. A Professor from the Bath University, who is actually in the automobile industry and brought the experience into the construction industry, carried out the study. It was found in this study that only a quarter of projects were delivered within time and cost budget. It was also found that the construction market procurement practice was rather stop-and-go, with lots of projects this quarter but only a few in the next quarter. On top of that, government used to use construction as an economy regulator. When it saw signs of overheating in general economy, it would turn construction off and try to cool the market down. In recession time, it would try to put more construction works into the market to reactivate the economy. Another study looked at several other aspects for improvements. Firstly it looked at government client in the physical entity. About 99-00, there was no real professional sponsorship of work. It was suggested to involve people who really understand the business of the department to articulate their needs to the supplier. Then it proposed for a more integrated approach to construction.

Traditionally, architects, project manager and engineers first design the building for the clients and the building is put onto the market to bring on board contractors. The contractors would then bring in more subcontractors and suppliers. There are lots of interfaces that need to be managed in this kind of practice, which may lead to failed experiences. Therefore the OGC is suggesting bringing suppliers on board early so that they can help to define the need and involving the contractors early as well so that they can contribute to design and constructability. It is a more collaborative approach, such that problems can be solved at early stages with effort from all parties. In general, OGC is looking at value management, risk management, sustainability, health and safety, better design, etc. OGC has been measuring how well projects have been delivered every 6 months. The information used to be collected through rather manual means like emails. Now the OGC is implementing an electronic database to store and analyse the data so that performances of projects can actually be benchmarked. The database also stores all project procurements of each government department is planning to put forward in the future years. The OGC can then smooth out the procurement pattern each year to avoid a sharp increase in price due to high demand for construction works. Other stakeholders like suppliers and contractors can also access the database with different level of security, such that they can find out the distribution of future works and adjust their market strategy accordingly.

Since 2000, OGC has been pushing for improvement of tender which aligns with the

industries' interest. OGC has been pushing for the initiatives "Achieve for Excellence Construction" for the past seven years. The initiatives are a set of programs for improvement, underpinned by a set of guidance materials OGC produced and some training as well. The initiatives are to change the traditional way of doing business, which is very fragmented and price oriented. The OGC is mainly trying to change the government client and improve the government client in the way that the government client interacts with the industry while the task of remodelling the industry is left to the industry itself. More recently OGC is also trying to re-shape the industry.

The OGC carried out a study in 2005, called "2005-2012 Construction Industry Capacity Study". The study is primarily looking into the capacity of the industry in delivering work volume matching the demand from now to 2015. The study doesn't include the Olympics-related construction works, as these works would be about 7-8 billion maximum, while the UK constructing industry can deliver up to about 160 billion a year. The study concluded that the UK construction industry is very flexible, that it is capable of meeting all kinds of demands. In terms of labour force, as long as the immigration framework continues to allow European states workers to work in UK without hindrance, it should be able to match the work demand. The study pointed out that the capacity problem has more to do with professional issues, as it is not as easy as importing workers as importing project managers and designers.

The OGC has developed econometric model to study capacity of the industry. The model provides users with options to alternate various parameters and test for possible scenarios in order to attain the best practice. However, the model does not serve as prediction tool for impacts from change in general economy. Therefore the model needs to be updated every six months when the base case has changed. It is developed with two versions. The complete model is used for government departments to plan for procurement practice while the smaller model is available for interested bodies to take away and perform their own enquiries. Repair and maintenance works are treated as more or less constant in the model, as these works are usually inevitable in practical situations.

The OGC is also hiring an expert team made up of private sector professionals and economists that produces forecasts for construction work supply to the market. The forecasts are generated by considering planning permission applications made and demand in market for certain construction works. These forecasts are entered into the econometric model mentioned above.

The government's priority placed on public services including schools and hospitals supports the buoyant construction market for the past years such that the construction industry has been on a stable growth. The public sector construction works to support these services has formed a large portion of the total construction demand. The construction industry has changed from an economic regulator ten years ago to a service deliverer today. Using construction industry as an economic regulator brings lots of negative impact to the healthy growth of the industry to the interviewee's opinion.

OGC can do more at the early planning stage in which the aggregate demand of the coming ten years can be formulated on a strategic level. During the project construction stage, there isn't much the OGC or the government can do to help engineer a smooth demand pattern for the industry.

3. *Have you observed any change in business practice during the past ten years? Is there any specific strategic direction that you consider a major alternation of current practice in respond to the changing market?*

For the past ten years the UK construction volume has been on an upward trend. To the interviewee's opinion, the trend may now slow down to a decline pattern. Public sector works will decline, although certain sub-sectors may continue, like infrastructure. The study mentioned above has been looking at the overall picture of construction output and demand, from a more strategic level.

II Sustainable Development of the Industry

4. *How active are the construction stakeholders (developers/consultants/contractors/suppliers) in your country in moving their businesses across geographical boundaries? Are there financial aids, high level support/ guarantees and/or incentives provided by your Government?*

There are companies in retail business that do research into market demand before they decide whether to build new stores in certain areas.

The BERR (Business Enterprise and Regulatory Reform) would provide information on overseas markets for construction companies interested in entering overseas markets.

5. *How can the Government and the industry itself assist the construction industry to develop in a sustainable manner? Does the local Government have an industry-specific long-term vision and forward planning strategy?*

To the interviewees' opinion, Hong Kong construction industry practitioners should look for long-term partnership with suppliers and other parties in order to enhance sustainability of the industry as well as to ensure a more steady work volume. The UK highway department for example involves the supply team in the projects at very early stages in road building programs and achieves significant saving in construction costs. The highway department also divides the country into 6 or 7 regions where a prime contractor is hired for designing, building and maintaining traffic facilities in each of these regions for 5 years. The health department has arrangements with about 8 prime contractors who maintain the hospital facilities. These contractors are guaranteed for a certain amount of work and at the same time their performances in delivering the works are recorded and published. Such a long-term arrangement can incentivise construction partners because their longer-term profit is somehow guaranteed. In UK, there are even some guaranteed profit margin arrangements with contractors. Saving in projects can also be turned into shared profits such that collaborative efforts can be encouraged.

Looking ahead for the future construction demand of UK, the interviewee believes that repair and maintenance works will remain rather constant at about half of the total works. New investments will be supported by demands for public services including schools and hospitals. The interviewee believes that the construction industry can survive by itself and government should not intervene too much. The UK construction industry is quite mobile as well.



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UK - 6

I Strategies for overcoming Construction Recessions

1. *When was the most recent construction recession in your country? What were the consequences following the recession and how did various industry stakeholders react and adjust? Through what key measures did the industry recover?*

The last recession in UK construction industry was more than 10 years ago and lasted for two or three years. For the past ten years, the construction industry has been on a steady growing trend. One of the consequences of the recession is that lots of people left the construction industry and didn't come back. The lost of labour force during that period has put pressure on the labour market now. Lots of the labour working on construction sites nowadays is from Poland and Eastern Europe countries. This migrant workforce does not always have the needed skill level or even has language barrier as well. Bankruptcies went up during the recession period, and big conglomerates closed down some of their sub-companies. The UK government does not intervene the free market. Therefore the government didn't do much at the time of recession to help construction companies to survive. The government does not have direct control over the market, as the Bank of England is responsible for setting the interest rate. The government can only assist the people who lose their jobs. It won't help the companies to survive through the recession, while the recession could be seen as an opportunity for companies to cut down on their costs and become more efficient.

Another thing that the construction industry did during the recession to survive was that they put all the risks on the sub-contractors. It forced the sub-contractors to reduce their price, while some smaller sub-contractors closed down due to the lack of management skills in managing the risks being transferred to them. For the consultants, the level of fee competition increased. At the same time, there were some mergers of consultants into larger consultants.

2. *Have you observed any change in business practice during the past ten years? Is there any specific strategic direction that you consider a major alternation of current practice in respond to the changing market?*

The UK construction industry is rather self regulating in terms of how much land they would use to build houses on each year and how much houses they would build to put onto the market. Right now, there is an argument saying that the industry is keeping too much land back and hence pushing the house price to a high level.

Despite being a fragmented industry, the UK construction industry is now seeing more partnership formed in which the fragmentation is accepted and trying to develop relationship with clients having portfolio projects over time. Partnership maybe formed with clients and a pool of contractors and lasts for five or six years such that the clients do not have to go out to market and find new construction team every time. After five or six years the clients would just re-tender the partnership agreement. An example would be a 3 hundred million US dollar worth of construction made up of about 20 projects now being handled by the interviewee. The partnership contract formed for the package involves about

6 architects and 6 contractors. The client would always ask for tenders from this pool of architects and contractors. Although the sub-contractors underneath remain quite fragmented, the client can at least build relationships with the primary design team. Despite not going out for general tender, the client can still get some price competition among the pool of architects and contractors.

One method of better managing the supply chain and relationship with clients is to keep the number of clients certain number. For example, there is a construction company to the interviewee's knowledge that only deals with 30 clients at one time. The company would only bid for contracts put up by these 30 clients. Hence it becomes easier for the company to manage its supply chain as well as to establish a long-term good relationship with its clients.

II Sustainable Development of the Industry

3. *How active are the construction stakeholders (developers/consultants/contractors/suppliers) in your country in moving their businesses across geographical boundaries? Are there financial aids, high level support/ guarantees and/or incentives provided by your Government?*

In general, there is only little financial aid given by the government in supporting construction companies exploring opportunities in other countries. However, for larger scale projects like dam construction, government would support the companies to reduce their risks by providing "export service guarantee". However, there are also arguments that not receiving any help from the government would force the most cost effective companies to survive in the industry.

4. *What are the key competitive edges of construction stakeholders (consultants, contractors and suppliers) in your country and other advanced countries to work abroad at the present time (e.g. technical, financial and managerial capabilities)?*

While working overseas, the UK construction firms have edges in good management capacity that they can plan and deliver projects within time and budget constraints. They are also good in certain kind of technology, including road building and electrical services. The important advantage is still management, as after winning the contract the construction firms would usually use local labour and bring in the management team. The UK construction firms can also bring good financial packages to work overseas in which they will get support from the banks.



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Appendix IX - List of Interview Questions (Dubai study tour)

List of Interview Questions

Purpose: The aim of the interview is to explore available opportunities in the Middle East countries for Hong Kong construction stakeholders. Target interviewees include senior staff from various construction-related organisations including academics, government, developers, professional institutions, consultants, contractors and suppliers.

1. Please describe briefly the current situation of the construction industry/market in UAE and other Middle East countries in terms of construction demand (e.g. in building/civil/repair and maintenance; residential/commercial/industrial sectors), employment, productivity, etc.
2. What are the feasible opportunities in response to the UAE's prevailing market condition and regional development trends for:
 - a) Developers
 - b) Consultants (Architecture, Engineering, Surveying, Town Planning)
 - c) Contractors
 - d) Suppliers
3. How active are the construction stakeholders (developers/consultants/contractors/suppliers) from foreign countries in UAE and other Middle East countries? What type of work would they target on?
4. What are the key competitive edges of foreign construction stakeholders to work in UAE and other Middle East countries (e.g. technical, financial and managerial capabilities)?
5. Would the support from indigenous Government (e.g. export credit guarantee) be an advantage to facilitate tendering for projects in UAE and other Middle East countries?
6. What should overseas organisations be aware of when investing and working in UAE and Middle East countries? What are the critical success factors for overseas construction business?
7. How do you assess the barriers and risks for overseas organisations to enter the construction market of UAE and other Middle East countries?

8. Has your Government put forward any initiatives and strategies to assist the development of the local construction industry and facilitate the import of construction services? How effective were these initiatives?

9. Would the formation of consortium be an effective way in exploring services to the UAE and Middle East construction markets in both short-term and long-term?

10. Please share your visions of the business opportunities of the construction industry in UAE Middle East in the next five to ten years.



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Appendix X - Interview Reports (Dubai study tour)

Dubai - 1

Getting a right partner is important when investing in the Middle East. The construction company is better to be set up in free zone at the beginning and explore the market in a designated time intervals. As the market is moving, the company is better to give time for exploration. At the same time, the company can select a right partner in the bidding projects (on project base or company level) so that they can monitor each others.

Big projects here are always required to be tendered, and getting the right connection is very important for working in the Middle East. To start up a connection in Middle East, it is suggested to set up a company in free zone and stay in the Middle East so that they have more time to discuss and sustain a good relationship with the locals.

Big company in Hong Kong would like to explore the Middle East market because of getting the market shares, while subcontractors are more difficulties to get into this market. Hong Kong contractors can establish their companies here and bring along with their own subcontractors to the Middle East. The UAE government will not interfere in this circumstance. However, good connection is still a key issue to become successful.

Staff who is good at marketing and communication is one of the key personnel for working the Middle East as he can give support to the team. Hong Kong practitioners felt that Arabian clients are strict and would like to transfer the risk to contractors. However, the interviewee thought that the clients are fair, if the contractors/consultants can talk to the clients in a logical way as the clients usually welcome any suggestion. Hence, good relationship is very important. Mainland Chinese, Japanese and Korean are better than the Hong Kong Chinese practitioners, as they can get the contracts here by the good relationship. Hong Kong Chinese practitioners never do the follow up communication. They usually get the money and leave. If the contractors get the good relationship, it is possible for them to keep a constant workload in the Middle East.

Reputation, quality of service and good communication are essential criteria when local clients choose a contractor/consultant. The contractors also need to prove themselves even after the first contract is awarded, so networking is very important, while price is not the major factor.

Competition in the Middle East is very keen. Major contractors have a better chance to succeed in getting a contract. Subcontractors may not have much chance in the Middle East. Subcontractors alliancing with large contractors is a good idea to enter this market. The wage of labour is 150USD for Indian. It is rare to have labours from Hong Kong as the wages for Hong Kong labours is not competitive enough. Hong Kong middle management mainly get involved in big projects, while the labours in the Middle East are mainly Indians and Mainland Chinese. However, the salary for Mainland Chinese is lower than Indians because of communication problem.

Companies which require information regarding the market situation in Dubai and UAE countries, they can approach TDC in Dubai for assistance.



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Dubai - 2

The construction industry in Dubai is enjoying a buoyant market now but has been wondering when the bubble will burst. However there are still new constructions works to support the market, and there seems to be more works there for the contractors. The Dubai government now is trying to update a lot of the infrastructures. Apart from the metro system, the government is looking into PPP arrangements when upgrading the infrastructures. The Dubai government is quite cautious when investing into infrastructures. The local small contractors are a bit less experienced so foreign contractors can find opportunities here. There seems to be not much synergy among suppliers and contractors. Suppliers don't come into the project until the later stages.

The interviewee has met Chinese developers in Dubai before. They have opportunities in small projects like apartments. The interviewee believes that as long as a foreign construction firm can establish its portfolio and develops its social network, it wouldn't be too difficult to work in Dubai. For foreign construction companies to enter the Dubai market, they can either team up with local Dubai construction firms or simply register their own company in Dubai. There are lots of specialised foreign construction companies in Dubai as they see opportunities in the area. The interviewee has seen Chinese contractors bringing in Chinese construction labour to work in Dubai while the Japanese contractors bringing only Project managers and hire the contractors here. The interviewee thinks that Qatar has work volumes even higher than the UAE nowadays. Qatar is building lots of infrastructures. The Asian Game held last year in Qatar also boosted the demand for construction works. Bahrain is also trying to push up the construction work volume in the area.

The interviewee thinks that one of reasons that there are not many Hong Kong construction companies working in the Mid-East is the language as well as the cultural barrier.

Investors from Dubai not only start projects in Dubai but also elsewhere in the world like Morocco. However, the Dubai government does not give any incentive or support like tax allowances for local companies to work overseas.

Due to the unstable political situation in the Mid-East, professionals in Dubai cannot project too far into the future but only to 5 years ahead. The interviewee believes that there should be government department producing forecasts of construction demand but the forecast figures are not published to the general public. To learn about the future market trend, the construction industry can only gather information from the press as well as individual developers on their own. Other than these, the industry can only learn about coming work volumes when developers announce the projects.

The interviewee believes that the UAE governors have already formed vision for the country. The focus would be placed on tourism, and economy is expected to be on growing curve for the coming 5 years. Therefore there will be demand derived from tourists-related faculties. The interviewee believes that the next continent where constructors can find sources of works would be Africa, especially areas with natural oil resources.



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Dubai - 3

The interviewee's company has started to work for Mainland China's jobs since the mid 80's and the company has been involved in Macau Projects for the last 3 years. More attention has to be given to the China projects as the interviewee's company is an international firm but it does not charge international fees in China. The company have to carefully project the cost estimation for the future in order to sustain its business. Keeping international expertise in the company is very important. To be competitive in the industry, the professionals need to improve themselves, especially in presentation skills and architectural standard.

The construction activities in the Middle East are closely related to the oil price. There is hibernation and the market in the Middle East is relatively fluctuating. If the oil price increases, people would be happy to build, especially in building oil plant and steel plant. Dubai aims to be developed as a tourism centre, which includes office building, accommodation, retail centres and entertainment. While for the Saudi Arabia, it would be a new city for army, as Saudi needs defence facilities for the wars. Water and electricity supply would be critical in Saudi. Prefabrication technology in Saudi is still young. The interviewee's company works in the Middle East by bringing the upper management staff to Dubai and using the local workforce. Repair and maintenance is not strong in the Middle East, there are more R&M jobs in the PRC and Spain. It is difficult to estimate for the sustainability of the Middle East market. If the oil and gas supply is continued in the Middle East, there would be a long way to go. UAE is quite different from Saudi in terms of the culture. Also Saudi is a man power countries, it is naturally strong in human resources.

For consultants from Hong Kong, they can export their services to Dubai. For contractors, they can also develop in Dubai, as there is a shortage of contractors in Dubai. As an example, the China State has jobs in Dubai now. It is not necessary for the companies to export expertise to there; it depends on the scale of the project. Hong Kong senior management and middle management working in Dubai usually provide two kinds of services: managing of the contract or offering construction services. Hong Kong contractors usually run the project there by subcontracting some work packages out to the local labours. For developers, they can get the land from locals for development. However, the cultural in the Middle East is different from Hong Kong. Hong Kong developers may have difficulties to have development in Dubai.

There may be some foreign developers behind the local developers in Dubai and inject fund into these Dubai developers. However, it is not visible. Not many local people in Dubai work to be the consultant. The consultation fee is reasonable in Dubai, and is cheaper than that in Hong Kong. The demand in Dubai for construction works is still higher than the supply.

Entering the Dubai market is easy. However, the company needs to have good track record. The international firms working in Dubai usually requires technology transfer and relies on local firms as Dubai Government favours the locals by measures like tax reduction. Since the local population is small, it is not really needed to form joint venture in Dubai.

The competitive edge for firms to be landed in Dubai is to provide an international level of service and high quality product. Dubai people want architecture and international level of services. Qatar is another new market, but whether to enter this market is uncertain. The key point is to work in a more western way, try to identify the problem and find a solution, however, this working style is not common in HK firms.

There is no assistance from the local government. The interviewee's company started its business in Dubai by joining the trips to visit the racecourse in Saudi. TDC subsidized trips to consultants over the world. To be frank, the government should knock the embassies' door in order to keep a good relationship and build up the trust with the Middle East government. The taxes in Hong Kong are cheap. Government should stable the currency, provide easy travel and easy transfer of money. These are the fundamentals for helping firms to go overseas.

It is a real challenge to work in the Middle East as there are many small countries. Saudi is more risky because of the 3 years civil wars. However, the general political environment is well and there is an increasing population in 14 years time. The short term problem is the high inflation rate (20-30% growth) in the Middle East because lots of money is coming in and people are increasing their consumption. Government would need to keep the stability of currency. Although the Middle East may be over developed, the Middle East market is still strong fundamentally for the next 10 years.

In order to manage the risk to enter the Middle East market, the companies need to read before entering to the market, so that they can manage to survive in the downturn of the economy.

An interactive character is needed for the university graduates. Clients would like the consultants to provide an international level of service such as problem solving and to be prepared for unpredictable incidents.



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Dubai - 4

The Middle East market is depending on cheap and skilful labour, especially for subcontractors. Their pay is low in all aspects. Although there are lots of imported workers, there is still a shortage of labours in emerging markets especially in Abu Dhabi, Qatar, Saudi Arabs where the worker demand is high.

Working in the Middle East is not easy because the living cost is high, even for the civil engineers. They need to up-skill in order to adapt the language and culture difference in Dubai. More challenges come because of the significant increase in the cost of materials such as steel and cement. Capacity is not a major problem in Dubai. To ease the pressure on the demand for resources, prefabrication is popular in Dubai as it relies on less number of workers and the waste is reduced by using prefabrication.

Clients in Dubai have interest in sustainable and environmental friendly projects. For example, when designing for the power supply of the building, having a stable electricity supply is very important in Dubai. Package of product such as turnkey projects and PPP which demonstrate sustainability can also attract the client's attention. PPP is attractive in Dubai as there are a few advantages: 1) speed up the development; 2) minimise the operating cost; 3) reduce the waste in the project; 4) get the private sector's expertise.

Connection and proven track record is important when working in Dubai. Research exercise is important, especially in the first stage of providing a good service solution. For instance, it helps organising a conference to the government in Dubai/UAE about the opportunities in Dubai.

Traffic jam is a serious problem in Dubai. Extension of network such as highways and already being built but metro project still has a great demand in Dubai. Power plant and E&M works are also in great demand in Dubai. Prefabrication is widely adopted to minimise the problems of the shortage in labour supply.

As mentioned before, the demand on resources is high in Dubai, especially human resources. It would be competitive if some contractors/consultants can provide a solution that can reduce the demand in human resources, materials resources and wastes, e.g. prefabrication. There are some foreign contractors whose foreman can communicate with the local workers and at the same time, capable to work with the project managers who usually come from Asia and Europe. Due to cultural differences, project manager may have difficulties in communicating with the local workers; hence a competent foreman is very important in running a successful project. Forming alliance of contractors/consultants from Hong Kong to sell the service to Dubai seems to be a viable way of exporting services. However, the major issue is to train the workforce and keep the workforce happy to work in the Middle East. There are some rules in Dubai to make sure the contractors will look after the workforce, such as accommodation, travelling arrangement, facilities provided etc.

Consultants are more flexible and easy to get contracts in Dubai provided that they are capable to deliver quality service and have trained personnel. The major difficulty is the mobility in workforce. It is not very clear for the exact number of overseas firms working in Dubai now.

There is no special support from the UAE government. However, the tax rate is low in UAE; there is no export tax and company tax. The details of the tax policy can be found from the Chamber of Commerce of the UAE. There is no barrier for overseas firms to work in Dubai, but the key issue is to get prepared and predict what the big clients want.

Apart from providing the package and innovative ideas for contractors and consultants, the critical success factor for overseas firms is to adapt the culture. Overseas companies can try the small scale projects at the beginning to understand the market situation. They can also go to exhibitions to get to know other peoples and present themselves with a smart image. Clients are always impressed for those who are well prepared and well organised and provide innovative solutions.

Whether export credit guarantee is an advantage or not depends on the kind and initiative of the product. The UAE government always keeps the doors open, she accepts any idea that is beneficial to her country.



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Dubai - 5

The greatest challenges to work in Dubai are adaptation of local working culture, management and communication problems to the labours with different nationalities, such as Arabian and Mainland Chinese.

The interviewee's organisation has direct labours of about 800 people from Mainland China, and about 200 – 600 local labours including Indian, Pakistani and Nepalese working on site. Part of their jobs are out-sourced to Chinese companies but is controlled by the company except some simple works. They seek for suitable sub-contractors from the market rather than relying on TDC at the early stage of project bidding.

The price of local sub-contractors is slightly higher than the Chinese sub-contractors, and some of the local companies might not be as trustworthy as Hong Kong companies. This is the same for the local developers which may further bargain on price even after they signed the agreement if there is any changes happened to their companies or market. They may fail to fulfil the terms of their obligation.

There are 2 ways for importing sub-contractors to Dubai. They can register in Dubai directly or form a joint venture to get working permits for them. Labours of sub-contractors from Mainland China have higher productivity and techniques but they also require higher wages than local labours. However, in terms of quality of works, the local labours perform better.

As the Arabian may not follow the working procedures and agreement properly, therefore maintaining a good relationship with the local clients is important to facilitate the business and have better success on project.

Construction professionals such as draftsmen and planning engineers are highly demanded. They get offers from local markets easily hence they are very mobile workforce. The whole wages package of a local planning engineer is around 10,000 UAE Driham whereas 20,000 – 30,000 UAE Driham excluding allowance. Housing is needed for employing such professionals from Hong Kong. Hence Hong Kong professionals are less attractive to local companies. The criteria for developers to select contractors are short project completion time and lower price.

Comparing Hong Kong with other Asian countries, such as Japan, local construction companies believe Hong Kong contractors have competitive advantages in good management skills and sufficient human resources. In the long term, Hong Kong construction professionals and construction companies have much opportunity to develop their business in Dubai. However, very few Hong Kong companies actually explore the Dubai market due to the huge investments in human resources, equipment and capitals.

The local construction companies would consider and compare the labour productivity among the local, Mainland China and Hong Kong prior to importing overseas labours. Other than maintaining the production process, they would control the labour quantity to avoid problems arisen from exceeded labour force. A construction site in Dubai involves several thousands of labours which would lower the productivity and create problems in hygiene, site facilities, transport and labours claims. Because of the relatively higher productivity of Mainland Chinese labours, many local construction companies are now employing them to maintain low labour

level at the site. Hong Kong construction companies and labours should enhance their productivity in order to export their services to Dubai.

To facilitate exporting Hong Kong construction companies, professionals and labours to Dubai, the Hong Kong Government should provide more support on local market information, the guidelines for applying and getting projects in Dubai. In additions, the Government should give them more financial support or subsidy on exporting services and promoting high productivity of Hong Kong construction companies and workers to Dubai.

The contractors will be easier to start the business and survive in Dubai as they have higher mobility and involve less staff and investment. They can get the advanced payment and keep the business running after getting the project in Dubai. The construction companies may bear higher risk than the contractors. This is because they involve more staff for setting up a company and different departments to bid a project prior to getting the advance payment from clients.

The Hong Kong sub-contractors would be the first comer to Dubai rather than main-contractors. Once they found there are sufficient business opportunities in Dubai, they will pass the message back to Hong Kong. As a result, this will attract more Hong Kong sub-contractors to group as joint venture and start to work in Dubai. Many of them worked as joint venture with local companies at the beginning stage. After that they may register and set up their own companies for further development in Dubai.



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Dubai - 6

Hong Kong sub-contractors which come to Dubai and start their business would need to joint venture with the local sponsor which already has the professional license. However, company could have 100% ownership by registering in the free zone. Once they have successfully completed a project, they will seek for joint venture. If their sponsor is a local company which already has license, then it can entitle the company name with Dubai.

The company set-up regulations and process for engaging sub-contractor are similar to setting up any company in Dubai. How the main contractor brings it into Dubai may depend on the terms and conditions in the contract of the job. The contractor will still have official tendering process unless it has already included in the job and then it can be further sourced out.

Labour Department in Dubai provide import labour quota to main contractors for importing specified labours to Dubai on project basis if they cannot team up with local sub-contractors. There are only two ways in importing sub-contractors into Dubai. The first one is for the main contractor to arrange working permits for its sub-contractor as the labour of its company. Another one is to have the sub-contractor establishing a company in Dubai directly and team up with local sponsor to form a Limited Liability Company (LLC). Then import its workforce from Hong Kong directly. However, it may bear the risk of jobs availability in Dubai and depends on labour contract of main contractors that can only import the labour if they need such Hong Kong professional to handle that job.

There are not many Hong Kong sub-contractors working in Dubai because of their low competitiveness in price and talents. Local companies tend to work with China sub-contractors. In Dubai, major imported sub-contractors come from China as they are more competitive in price and talents. While Hong Kong companies would set up company in Dubai directly as they have sufficient financial power.

For the consultancies, they tend to establish representative office with few staff seeking for business in Dubai. They will expand the company and start to employ the local workforce once they can maintain enough jobs quantity for survival. Otherwise, they may send the job back to Hong Kong for completion after getting the job. Some of the architects will be employed as freelance workers.

As Dubai is still a developing country, some regulations and guidelines may not be so clear and well developed. It may be more likely to depend on further discussion and clarification on details by both parties. Therefore, it would take longer time for arrangement as compared to Hong Kong.

English is the first language in UAE local senior executive; hence there is no problem in communication with external parties. The most important criteria for success in Dubai are following the Government formal regulations and process and get a right person or agent to sort out the problems in establishing and operating company.

Dubai branch office of TDC is a regional office in the Middle East that covered 13 countries and performs as a facilitator and advisor. They provide relevant information from our existing database regarding to the request of Hong Kong Company. As TDC office was established in

Dubai for about 20 years and focused in trading and buying business. Therefore, the database in those aspects would be more comprehensive. They also have connection with local major developers and construction companies to enhance the database for Hong Kong contractors and subcontractors. They have tele-marketing team to update those company contacts daily. However, limited by the laissez-faire policy, we can only provide company contacts to those information seekers. TDC neither receive any commission nor involve in their business or ask for disclosing their scale and nature of business. The latest services provided by TDC is pre-appointment matching and premier connect services. TDC would make a telephone call to reach some potential buyers. If they are found, then TDC will line up with seller and the potential buyers for further business meeting. TDC would charge the administration cost for it. These services can be extended for Hong Kong construction stakeholders. On the other hand, TDC tends to invite some local key players of construction and service industries to Hong Kong for forming a line up meeting with Hong Kong industries professionals to explore business opportunity.

High quality of product and ability to bid the tender are the essential elements for getting jobs. In addition, seeking for right local partner who has good network in Dubai is the most important for starting business. After that, the company should know the key contact person in client organisation who is much familiarised with the parties and departments involved in the whole process of your job, such as contact and payment approval status. Be able to speak Arabic will further facilitate the business.

Hong Kong professionals in infrastructure related, accounting, financing and laws have already been working in Dubai. High flexibility and adaptability to local life style and culture are the advantages of Hong Kong people. Nowadays, those whose age is between 20 – 50 has the highest opportunity to work in Dubai. Some of them will bring their family to here. The education for their children is good in Dubai.

Local companies designate their construction projects under the criteria of quality and project management skills rather than price only. They have sufficient financial power and eager for good quality of work. They tend to invite for next job and further cooperation if the pervious work is satisfied. They prefer companies with good performance history and working relationship as well as outstanding project management skills. Besides, cost is also part of criteria for competition for jobs.

The disputes between developer and contractor do happen in Dubai due to different expectation on contract obligation in risk taking. To avoid this, there should be a clear understanding between both parties regarding the contractual terms and conditions. Working with some large and public listed companies would also reduce the chance of dispute. This is because most of the executives in those companies would be more experienced, knowledgeable and logically in handling projects.



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Appendix XI - Details of Expert Forum

Date	: 1 June 2007 (Fri)
Time	: 3:00p.m. – 6:00p.m.
Venue	: Room AG710, The Hong Kong Polytechnic University
Target participants	: Clients, publicly listed contractors, consultants and suppliers (20-30 senior management staff)
Facilitators	: Dr. S.T. Thomas Ng (HKU) Prof. Albert P.C. Chan (HKPU) Prof. Roger Flanagan (University of Reading, U.K.)
Invited scholars	: Prof. George Ofori (National University of Singapore, Singapore) Prof. Goran Runeson (University of Technology Sydney, Australia)
Aims	: (i) To ascertain the applicability of the identified measures from advanced countries to the peculiar situation of Hong Kong; (ii) To explore feasible opportunities in response to the prevailing market conditions and regional development trends for the sustainable development of the Hong Kong construction industry.

Tentative Programme

Time	Agenda	Action by
3:00 – 3:05pm	Welcome Address & Introduction of the RICH Project	Dr. Thomas Ng
3:05 – 3:15pm	Review of the Hong Kong Construction Industry	Dr. Y.H. Chiang
3:15 – 4:00pm	Strategies for Reinventing Construction Industry in Advanced Countries	Prof. George Ofori Prof. Roger Flanagan Prof. Goran Runeson
4:00 – 4:45pm	Panel Discussion (session 1)	All Participants
4:45 – 5:00pm	Tea Break	
5:00 – 5:45pm	Panel Discussion (session 2)	Prof. Albert Chan
5:45 – 5:55pm	Questionnaire Survey	
5:55 – 6:00pm	Closing Remark	

Activities for invited scholars:

1. Pre-workshop discussion with research team (10am – 12nn, 1 June 2007)
 - Give a presentation and share experience with research team
 - Discuss the preliminary findings of the research
 - Formulate strategies for the Expert Forum
2. Expert Forum (4pm – 7pm, 1 June 2007)
 - Give a presentation on the strategies for reinventing construction industry in Singapore/U.K/Australia.
 - Facilitate the panel discussion to explore feasible opportunities for the sustainable developing of the HK construction industry
3. Post-workshop discussion with research team and Task Force members (10am – 12nn, 2 June 2007)
 - Review the findings raised from the workshop
 - Prioritise the available opportunities to achieve a sustainable growth of the industry



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Appendix XII - Questionnaire Survey (second-round)

A list of strategies has been identified in the first stage of the research to reinvent the HK construction industry. The aim of this survey is to verify and prioritise the identified strategies to achieve a sustainable development for the industry. *All collected data will be kept strictly confidential and used for research purpose only.*

A. About the Respondent

- Position in your company: _____
- Years of professional working experience in the construction industry:
 < 5 years 5-10 years 11-15 years 16-20 years > 20 years
- Type of organisation in which you are working:
 Client organisation Main contractor Consultant
 Subcontractor (M&E) Subcontractor (builders work) Supplier / Manufacturer
 Other: _____
- Size of your organisation: 20 staff or below 21-100 staff Above 100 staff

B. Strategies for Sustainable Development of the HK Construction Industry

Please rate the applicability of the following strategies at (i) government; (ii) industry; and (iii) corporate levels for the sustainable development of the Hong Kong construction industry

	Extremely Inapplicable	Inapplicable	Applicable	Extremely Applicable	Don't know	
Government	1. Increase public work investment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Initiate cross border infrastructure projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Promote PPP/ PFI projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Market intervention (e.g. reduce mortgage rates, relaxation on housing loan requirements, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Provide capital fund to support construction SMEs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Provide export credit guarantees to industry stakeholders for exploring overseas markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. Assistance with bid bonds, performance bonds for industry stakeholders exploring and contracting in overseas markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. Provide market intelligence on overseas markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	9. Export promotion for construction and consultancy services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	10. Launch mandatory building inspection scheme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	11. Provide financial support to research & development to increase competitiveness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	12. Speed up urban regeneration and renovation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	13. Resume periodic land sale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	14. Promote modern and innovative building design by updating Ordinance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	15. Develop industry-specific long-term vision and forward planning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	16. Inject funding to preserve historic buildings and improve sustainability/ environmental standard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	17. Steer, coordinate and provide strategic planning and directions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Others: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Industry	1. Improve "image" of the industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Plan and provide support for training /retraining at worker level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Establish brand name for the industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Develop a culture of "to lead by examples"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Adapt to the new demand (e.g. repair, maintenance, alteration and addition works)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Lobby/negotiate with Government	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. Self-regulation (e.g. eliminating inferior firms)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. Industry alliancing to enhance collaborative environment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Others: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

B. Strategies for Sustainable Development of the HK Construction Industry (cont'd)

Please rate the applicability of the following strategies at (i) government; (ii) industry; and (iii) corporate levels *for the sustainable development of the Hong Kong construction industry*

	Extremely Inapplicable	Inapplicable	Applicable	Extremely Applicable	Don't know	
Corporate	9. Corporate restructure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	10. Explore overseas markets (Mainland China, Macau, Middle East, India, others: _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	11. Shift to local alternative markets (e.g. environmental technology, R&M / renewal market, property development, others: _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	12. Improve the network (e.g. government; quasi-government organisations; major developers) to expand business.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	13. Improve financial competitiveness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	14. Improve technological competitiveness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	15. Improve managerial competitiveness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	16. Joint venture / partnership / merger / consortia to enhance competitiveness.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Invest in research and development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Others: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

C. Open-ended questions

1. What strategies would you recommend for your type of organisation for the next five years?

2. Please share your visions for the construction industry in Hong Kong and the international construction market in the 21st century, compared with the industry today.

End of the questionnaire
Thank you for your valuable contribution

Personal Information (Optional)

Name:	Organisation:
Address:	
Telephone number:	Fax number:
Email:	

Please kindly return the completed questionnaire by your preferred choice: (a) by post to Ms Joanne Ng, Research Assistant, Department of Building and Real Estate, The Hong Kong Polytechnic University, Hung Hom, Kowloon; (b) by fax to 2764-5131; or (c) via email at bswsng@inet.polyu.edu.hk, **on or before 30 June 2007 (Sat)**.



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Construction Industry Institute
HONG KONG

Appendix XIII - List of Questions for Validation Interviews

Aim: A list of strategies has been identified in the first stage of the research to reinvent the Hong Kong construction industry. The aim of the interview is to verify and explore the implementation plan for these strategies to achieve a sustainable development for the industry.

1. How do you evaluate the applicability of the identified strategies at the government level and the industry level for the sustainable development of the Hong Kong construction industry (see the table at p.2)?

Government Level

2. What should be the vision of the Hong Kong construction industry? What long-term forward planning could be conducted for the industry's sustainable development? Would regular forecasts of the construction volume be useful to the industry?
3. Should the HKSAR Government increase public investment to facilitate the development of the local economy? What are the obstacles of implementing the planned public work? How to streamline the approval process/mechanism for public work projects?
4. How should the HKSAR Government to expedite the infrastructure development and urban regeneration projects? How to stimulate the private investment in construction?
5. Would international construction market help sustain the HK construction industry? In what way should more efforts be directed to explore the Mainland and overseas markets by the Government (e.g. export promotion, export credit guarantee, market intelligence)?

Industry Level

6. How should the industry develop niche expertise? Which particular competitiveness aspect (i.e. financial, technological, managerial) should the HK construction industry enhance? and how? Should the research and development be strengthened in Hong Kong?
7. Which are the new local markets subsequent to the significant drop of new construction works in Hong Kong for consultants and contractors? How should the industry prepare and grasp the opportunities in local alternative markets?
8. Which are the emerging international construction markets? What are the critical success factors for international construction?
9. Are Hong Kong construction companies successful in the China market? If not, why? How to explore the market? What are the actual merits brought about by CEPA to the local construction industry?
10. Would the formation of consortium be an effective way in enhancing competitiveness and exploring overseas markets in both short-term and long-term? What are the obstacles in forming consortium in the industry?

Strategic Directions		Proposed Measures
Government	1. Develop industry-specific long-term vision and forward planning	<ul style="list-style-type: none"> iii. Provide vision and forward planning for the industry development iv. Set up a proper framework to create better environment for improving performance in quality, safety, time, and skill level of the industry v. Establish robust forecasting models to predict future levels of demand in the construction industry of Hong Kong
	2. Sustain investment in public work	<ul style="list-style-type: none"> ii. Motivate and maintain the construction output at a sustainable level through a robust plan iii. Expedite the essential infrastructure development and urban regeneration projects iv. Implement strong policies to push forward maintenance and renovation work v. Streamline the legal procedures and consultation process for implementing public capital work
	3. Provide support for exploring overseas markets	<ul style="list-style-type: none"> v. Strengthen liaison with relevant ministries in the Mainland to enhance the platform for cooperation with the counterparts in Mainland vi. Assist in seizing the opportunities in exploring overseas markets (e.g. establish networks, launch different forms of exchange between Hong Kong and the host countries) vii. Reinforce export promotion services regarding the achievements and capacity of the Hong Kong construction industry viii. Extend the coverage of market intelligence on policies, opportunities and developments in emerging markets
Industry	1. Develop niche expertise	<ul style="list-style-type: none"> i. Sharpen competitive edges and stay ahead of competitors worldwide ii. Maintain professionalism and quality of service at individual, professional body and industry levels. iii. Multi-directional alliancing in form of joint venture / partnership / merger / consortia throughout the whole supply chain iv. Strengthen research and development for construction
	2. Adapt to alternative market demand	<ul style="list-style-type: none"> i. Shift from capital works to repair and maintenance works / urban renewal (diversification and business adjustment) ii. Lobby proactively to relevant organisations to sustain market share
	3. Explore overseas markets	<ul style="list-style-type: none"> x. Utilise the existing infrastructure for gathering updated information on overseas market opportunities xi. Develop specialties and the high-end product/ services xii. Remove institutional market barriers, upgrading professional skills and promoting services xiii. Target the urban construction and development projects in second- and third-tier cities in Mainland



CII-HK Research Project Reinventing the Hong Kong Construction Industry for its Sustainable Development



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Appendix XIV –Interview Reports (validation)

Validation Interview 1

1. *How do you evaluate the applicability of the identified strategies at the government level and the industry level for the sustainable development of the Hong Kong construction industry?*

Applicability – Government

Our industry follows a cyclical pattern. At one time, it is too plenty of jobs around, and the other times may have insufficient jobs. There are different categories of government projects. The government should help sustain the development.

The difficulty now is that the procedure is not too smooth. Usually, the government may think that it is not necessary to carry out or prioritise certain projects, despite the society's requests.

On the other hand, when the government wants to carry out certain projects, and put forwards the proposal for consultation, but it encountered large difficulties. The South East Kowloon project is a typical example. It has been lingered for 10 years. There is only a pier built up to now. It is so regrettable.

If the government is decisive enough to start the works, most of the infrastructures and buildings in the South East Kowloon should have been completed.

In reality, the government should start its works based on the society's need.

A few years ago, the government considered to have 2 new towns in the New Territories. When it was being designed, it took into consideration of the increasing population projection to about 7-8 millions. But according to the recent statistics, despite that there are 150 immigrants per day from the Mainland, the population increase in Hong Kong is at the lowest in the world, about 0.92% per couple. Less population would demand for less residential apartment, transportation, medical services and education. The government should have some plans and visions. It is impossible to have no planning at all.

The problem is how the planning can be translated into business opportunities for the industry.

The government carries out works is demand-driven. It is only the market demands which make the government to carry out works.

Applicability – Private Sector

For the private sector of the industry, it is shrinking. The construction volume in HK would keep constant. For private sector, the population growth is not significant.

The housing price in the peak was as much as \$20,000 to \$30,000 per feet. But for the large housing estates with good quality, e.g. Tai Koo Shing, the prices were stable. The increases were about 2-3%. As the Home Ownership Scheme has been ended, stable housing price showed that the supply of public housing somehow matched the demands. The market is not short of products to cause an increase in prices. To a certain extent, the market has reached the

equilibrium.

For Western Kowloon or South East Kowloon, it may increase construction volume for a certain period of time. But the government would sell the lands piece by piece. The land would not be sold as a whole. It would affect the market. Land is a very important resource.

Government Level

2. *What should be the vision of the Hong Kong construction industry? What long-term forward planning could be conducted for the industry's sustainable development? Would regular forecasts of the construction volume be useful to the industry?*

Vision

The HK government does not have any special visions for any industries.

Forecasting models

Regarding item 1(iii) "Establish robust forecasting models to predict future levels of demand in the construction industry of Hong Kong", it is difficult to come up with a long term vision. If the projects are under Category A or B, the project data, e.g. the project commencement data, its scale and its investment, can be inputted into the model. But before it starts, it is still vague. We are guessing.

There should be inherent conditions for establishing a robust forecast model.

Environmental conservation

For environmental conservation, the Chinese government is concerned about the energy consumption. In its 11th 5-year plan, there are 2 directives. The first one is to reduce energy consumption by 10%. The second is about the energy intensity of new building designs which should be reduced by 50%. For each square metre, the energy intensity should be reduced by half. These are high level directives. The industry can achieve it by different means, e.g. through natural lighting, insulation, using special materials, boilers or air-conditioning efficiency. HK does not have such measures. We have energy codes but they are voluntary.

For energy efficiency, the HK government has not done much to reduce electricity, carbon dioxide and global warming, climate changes, which are the hot concerns across the world.

HK developers just meet the regulation requirements and maximise the floor area.

Some companies, e.g. Swire Properties, have done a good job on energy efficiency. Swire Properties has good reputation. They can sell their products with higher prices. But for other companies, such as the few Chinese companies in HK, they observe one another. If we do not have the mechanism, no one will take the initiative to lift up the standards. They will lose profits if their products are sold with higher prices.

The legislative councillor, Raymond Ho who is the engineering representative, expressed much about environment protection in construction industry. But the government has its own agenda.

The government thought that EIA Ordinance is quite successful. Some thought the Ordinance affects development progress. In fact, the EIA Ordinance does not give authority for approval of the means of completing projects. It is about the requirement for carrying out environment impact assessment for certain types and scales of projects.

The interviewee has served in ACE for around 8 to 10 years and read lots of EIA reports, involving more than 100 projects. There were only 2 projects we did not give approvals. One is

Sha Lo Tung in Tai Po. There were springs and dragonflies. Another is Ngong Ping. For the rest of the projects, the ACE just advised the proponents on what aspects they could improve in their projects according to the Ordinance. E.g. providing sewage treatment facilities if there is sewage or providing rid bed or planting for conservation. We would give suggestions instead of refusing them to do any.

Environmental Impact Assessment (EIA)

For EIA Ordinance, the major green organisations, including the Friend of the World, WWF, Green Power, and Conservation Association, are consulted.

After a project passed the EIA and ACE, the chance that the green organisations oppose is not large.

When you look at the Ordinance, there are several establishments including electrical stations, sewage treatment plant, and waste treatment plant. EIA is only applicable for certain construction projects with specified scales. Most small projects do not required to comply with EIA.

We should look at the Central reclamation as it should comply with the Ordinance. We also have Harbour Protection Ordinance. It states that reclamation can only be carried out if there is overriding need. But there are different interpretations on “overriding need”. There are arguments.

- 3. Should the HKSAR Government increase public investment to facilitate the development of the local economy? What are the obstacles of implementing the planned public work? How to streamline the approval process/mechanism for public work projects?*

Obstacles

For the overall town planning, consultation with the society should be undertaken with an effective mechanism. E.g. for the South East Kowloon project, the consultation is carried out at one go, without repetitions.

Now such consultation mechanism would result in loss-loss situation. It is usual that when the government wants to carry out some proposals, some voices are raised against the proposal. As a result, the government cannot go on due to insufficient determinations or political bravery.

Sometimes the government may not want to start the works because of economic downturn. The voices from a minority thus become an excuse to postpone the decisions. Nowadays, people are more concerned about conservation.

If there is a good conservation policy and planning for developing the New Territories, it could help find new jobs and start more projects for the industry.

Noted in today’s newspaper, Mrs Carrie Lam Cheng Yuet-ngor (Secretary for Development) said the historic problems can be solved by land exchange. Another potential for development is the small houses. You may notice the urban areas in HK are less than 20% in area. Country parks occupies about 40-50%. If you can release the lands by land exchange in the New Territories for small house right, there would be a lot of development potentials.

The CIC council has nothing to do with quantity but quality including safety, training for skills, costs of materials, and contract conditions. It is concerned with commercial and technical aspects.

It should be good whenever there are communications and collaborations between different bureaux and government departments. It would not lead to the best results if each department or bureau works on its own only.

CEDB is to find out the needs of Hong Kong. The Bureau is an executive bureau. It sets up action plans according to different society needs.

Streamline the approval process/mechanism

Conventionally, the government conducts public consultation in an open manner by appointing a consultant to justify its proposal, e.g. the South East Kowloon project.

Our president in the Sustainable Council for sustainable development has formulated a 5-stage public engagement procedure. This procedure is different from that used in the traditional government consultation. E.g. for the South East Kowloon project, the government appoints planners and consultants to work out a proposal. Under this 5-stage public engagement, what we are now doing is, say for sustainable development, asking them what they are most concerned for sustainable development. In the workshop, different stakeholders expressed their views. Having expressing views, we extracted those mostly mentioned and are considered as the most important. The agenda is set by the committee, instead of the government.

Now the government has changed its strategy. E.g. for the South East Kowloon project, it should avoid appointing a consultant to work out the proposal. It should arrange an extensive consultation and ask what they want, say theatre, schools, and hospital. There would be a list. Here is the land. How do you want to allocate for different uses? Considering the transportation network, e.g. MTRC, air quality, lighting, and greening, with the public, the society's wide acceptance would be larger. The government knows this now.

Therefore, a design competition was held for the Central Reclamation. The designs were exhibited in the No. 8 Pier. The government has changed its mind. The public is giving their ideas.

The 5-stage public engagement procedure has been publicised. Some media organisations showed their supports to this procedure. The government has not yet adopted. We are the test point.

4. How should the HKSAR Government to expedite the infrastructure development and urban regeneration projects? How to stimulate the private investment in construction?

Sustain investment

I agree all the 4 points under "Sustain investment in public work". Regarding item 2.1, the government can do something to certain extent. For examples, for Categories A-D, 5 year plan can be made. If we want the industry to be developed stably, the government can control the timing of starting works. This item can be achievable.

Urban regeneration

Urban regeneration has large potentials. Buildings Department should not work within the box. Sometimes, works could not be carried out if the government follows strictly on legal requirements.

Today, the Bauhinia Foundation Research Centre released a report which also talks about urban regeneration. The focus is that there are a lot of opportunities for old buildings. We can change their uses, increase employment and enhance innovation. Not to mention the commercial buildings in urban area in HK, there are many industrial buildings which could offer job

opportunities. Some of them are semi-dilapidated buildings. They may not have to be demolished or with multi-ownership.

Stimulating the private investment

Buildings Department can do something in, say Buildings Ordinance and building codes, to make them more flexible.

Amendments of laws or institutional framework do not mean intervening the market. It just provides convenience for development.

The government should not implement strong policies to push forward works in the industry. It is not logical that we construct just for construction itself. The economy effectiveness and transportation etc. should be considered as the government is using tax-payers money.

I am neutral in this aspect.

The government should not start more works for increasing the number of projects. It would become construction-industry centred. Eventually, other sectors may demand more resources from the government. It may not be sustained by the whole society.

Government works should be carried out according to the set schedule, avoiding such situation like putting forward 20 projects this year but nil in next year. More even distribution of releasing projects is achievable.

5. *Would international construction market help sustain the HK construction industry? In what way should more efforts be directed to explore the Mainland and overseas markets by the Government (e.g. export promotion, export credit guarantee, market intelligence)?*

Exploring overseas market

For item 3: “explore overseas market”, we are working on it. In particular the Chinese companies or HK companies with associations with Chinese companies performs better. It is usual that they use management and designs from HK, and use labours from the Mainland.

Import of labours

There are also political reasons, e.g. Singapore prohibits Mainland labours entering to the country. Singapore prefers hiring workers from Malaysia or Indonesia. The initiative does not lie on ours, but the Singapore government.

Macau is more open. A company which wants to invest in Macau can get a quota from the government for import of labours. Our company has projects in Macau. We know there are 3,000 or 5,000 import labours. Based on the workload, the client could be asked for importing labours.

The Middle East also allows import of labours.

But even if the country we are working allows import of labours, we have to talk with the Mainland organisation. We will select the labours in the Mainland and produce a list. Our clients helped out to apply for work permit from their government.

Export of services

Exporting of consultant services is as hard as contracting services. With the technologies, the staying time for a consultant would not be too much. In Middle East, there is a time difference of 4 hours. There is a residence office there. When a task is sent from HK to Middle East in the

afternoon, it arrives at the Middle East in morning. Any amendments made can be brought to HK. The same drawings can be prepared in the 2 places.

Restrictions

For market explorations for the industry, there are 2 restrictions. One is language. It is hard for HK to explore opportunities in those non-English countries, e.g. the South America where people speak Portuguese or Spanish. Traditionally, HK has relationships with South East Asian countries. There should be opportunities in South East Asia. But the interviewee was not sure about India.

When you work in Dubai or other Middle East countries, they are most likely large companies rather than middle or small-scaled entrepreneurs.

We have to team up with other big companies like Chinese companies which could be semi-state-owned. They have experience on building and construction. We play supporting role. We have much collaboration with a few big civil engineering and construction companies in HK. We have experience to build a sewage treatment plant with a Chinese company in joint venture. But in Middle East, we are more passive due to some political reasons. The Chinese companies' reputation in Middle East is not bad. They have no Imperialism as US. We support Albanian.

Experience in Macau

In our Macau projects, we employed few Macau people for say 2-3 secretaries and drivers. Most of the technical persons are from HK. They are not incapable, but they do not have such expertises.

There are also insufficient tradesmen for installations and site labours in Macau. We did not find any problems. We feel that the projects were run smoother than in HK.

The imported Mainland labours gained remunerations better than they gained in the Mainland. We also provided them with holidays, e.g. allowing one home visit per 3 months, as they all stationed in Macau. We provide dormitories to them. We find their quality and disciplines are good. We are satisfied with our imported Mainland workers.

Market intelligence

For market intelligence, you can refer to the TDC's website. You will find what it emphasises, which are jewellery, clocks and watches, fashion, and other traditional consumer items. I was in its Construction Industry Advisory Committee under the TDC for 1 to 2 years. It sometimes organised exhibitions in the Mainland. We went to there for exchange, had a meal and came back. Some superficial information was gained. But in fact, it did not help too much.

The current role of TDC is to provide market intelligence by organising fairs and exhibitions. Besides that, there is not much the TDC could do.

TDC has its offices in different places over the world. But its experience and competence have not reached the level for helping our construction industry.

Macau

Macau market is small. It would be saturated soon. To find another emerging market for more job opportunities is difficult.

We undertake environmental mechanical engineering. Our Macau business accounts for about 40% of our total turnover. We did not receive more projects because if all of our resources are put to there, we will lose our connection in HK. After a few years, if we come back to HK, our

business partners may grumble about us. They may say we approached them only when there were no jobs in Macau, whilst we disregarded them when we had jobs in Macau.

Many companies adopt the same approach. They do not put all the resources into the Macau projects and keep the businesses in HK.

If the Macau market is saturated, construction or M&E field would be very difficult.

In the past years, in the M&E field, merge and acquisition have been carried out to certain extent. In Macau, from 1998 to 2002 or 2003, the field was shrinking. My company has 1,400 – 1,500 employees in HK now. In 1999, I laid off 50 persons. We did not have business. Small companies even stopped their businesses.

There was a shrinking period from 1998 to 2002 in the M&E field. There was some consolidation, like my company which underwent a big consolidation involving laying off 50 persons. Because of the Macau market, the situation has improved recently. Now, we have 20 vacancies but we can't find suitable persons.

The most prudent way is to view HK as a cake whereas the overseas is the cream. When the overseas markets changed or we can't enter their markets, we can still return and eat the cake.

Without Macau, I think the HK construction volume would not be sufficient to keep the existing companies and manpower.

Dubai, Middle East

There is a world tallest building being built in Dubai, Middle East. It will complete soon. There was no participation from the HK companies. I can't think of any alternatives for market exploration for our construction industry.

Mainland

CEPA is beneficial to the Mainland. It is no use for the overseas. It can help HK companies. E.g. I have a company in Shanghai. It was set up through the CEPA mechanism. We have employed people from HK to work there. We have to get the professional qualification in the Mainland. The qualification examination is not related to technical aspect. They think the HK professionals' qualifications are good enough. The examination focuses on safety and supervision. All of our directors went to Mainland to take the examination.

The M&E is strong in the Mainland. When compared with 5 or 10 years ago, we find the Mainland companies catching up with us very fast.

Now, almost all of our big HK developers have businesses in Mainland. Our company is always in their tender lists. Ten years ago, when we bid for the Chinese projects, they favoured HK companies. But our prices were higher. Now, in Beijing and Shanghai, other costal cities or second tier cities, where cover millions of square metres of floor space, they should have gained a lot of experience in the past 20 years.

Now many clients accept the Mainland companies to compete with HK companies. The competition is solely based on prices offered. We are difficult.

We hope that the Mainland economy would not undergo hard-landing or recession in the coming 2 or 3 years. The construction volume is large in Mainland. They have to outwit others in the Mainland.

Industry Level

6. *How should the industry develop niche expertise? Which particular competitiveness aspect (i.e. financial, technological, managerial) should the HK construction industry enhance? and how? Should the research and development be strengthened in Hong Kong?*

Niche expertise

Regarding “develop niche expertise”, for items 1.2 and 1.3, HK performed not too bad. Items 1.1. and 1.4 can be put together and discussed. HK building ordinances and building codes are too rigid. They are too old for new designs and modelling, or new materials. I went to a steel factory for a visit in Wuhan last month. They said they have special steels with better strength than the traditional steels. The steels were used to construct the stadium, i.e. the Egg, in Beijing. They are more durable against fire for high-rise buildings. They were developed after the incident of 911. The Chinese government was very concerned about this. They found a few big companies to do research on steel capable of withstanding high temperatures. They were invented in Wuhan.

Owing to the rigidity of our building codes, no one will consider innovative designs. We lag behind regarding item 1.1 and 1.4.

There should be pull and push forces. The “push” means law enforcement whereas “pull” is concerned with research and development. Whilst research is being carried out, law is enforced. As a result, these items can be improved.

7. *Which are the emerging international construction markets? What are the critical success factors for international construction?*

For the overseas market, the government can do very little. In any countries, governments can support the industrial financially and by foreign policy for entering other foreign markets.

We have no such measures in HK. The HK government just carries out superficial exchanges with other countries to get market information, without deeper market research.

We have an Export Credit Insurance Corporation (ECIC) in HK. It is solely for selling products. They offer products to services industries, not construction industry. It provides insurance for exporting products. It focuses on consumer items. Thus, the government can either use this agency or set up another new agency to offer tender bond or provide insurance for defaulted payments. That would be very helpful.

I think as far as the government is prepared to provide bond, and export credits or insurance to the construction industry, our industry would be more lively and flexible. The size of a company does not matter. The most important thing for doing business is to get paid.

8. *Are Hong Kong construction companies successful in the China market? If not, why? How to explore the market? What are the actual merits brought about by CEPA to the local construction industry?*

I do not think of the problems about the future prospect of the middle and small sized companies in HK. It would not be a problem for consultants. They can work in HK but send a small team to the overseas. We use specialist sub-contractor in Macau. They work for a small

portion of our project. They provide salaries and so on. We subcontract some of the works to them. You can say it works with supply chain concept.

9. *Would the formation of consortium be an effective way in enhancing competitiveness and exploring overseas markets in both short-term and long-term? What are the obstacles in forming consortium in the industry?*

Public Private Partnership (PPP)

PPP has been talked about for a long time. There is an efficiency unit in government. Our government is clever that if there is anything it does not want to go for, a consultant will be appointed. Another consultant can be employed if the consultant report is not preferable. Ten consultants can even be appointed if the government still does not like the report. PPP underwent the same situation.

For the water filtration plant in Shatin, it is apparent that it would not be carried out. The government knew the project was very critical. If it is given to private company and there is any problem, the government would not have any alternatives. It would affect the citizens' living there much. It had to divide into 2 phases. But if it is the case, how can it be done through PPP? The government officers are clever to make it impossible to undertake using PPP.

Another case is about the community centre. It has been kept at the stage of being discussed. The government does not have the passion to use PPP. PPP is also not welcomed by HK construction companies of smaller sizes. Only the big contracting companies, e.g. Dragages or Gammon, would be interested. They have sufficient finance and resources to get the project. They can borrow money from banks with preferable rate or use government loans.

Funding clause is the most important for running PPP. As a private company, we borrow money from bank with prime rate plus 1%. We cannot compete with these international companies. From our perspective, we would not prefer to use PPP.

I think the policy address would talk about population growth this year. We had a council consultation on population investigation. The government, i.e. the Bauhinia Foundation Research Centre, carried out a review and policy on population.

High construction costs

The CIRC report said that the construction costs are high in HK. I mentioned in some occasions that we can just forget there is a Buildings Department. Suppose we are going to build 2 buildings, with the same floor areas and user requirements. One of which is required to comply with all the statutory requirements. Another can use the newest materials and technologies. We can compare the costs. This can drive for more innovations.

This can be applied to the housing blocks, e.g. the Harmony blocks, of Housing Authority. We can use 2 blocks for experiment. Both are constructed with the same number of units. You can use the best methods to achieve the requirements.

The HK government cannot help our construction industry. For M&E, the government would not be the first to use novel facilities in government buildings. Instead, it first asks if the facilities are used in overseas. Second, it asks if the facilities are used in private properties. Then that is the case, it would consider use them. But does it mean innovation?

In overseas, the government has the responsibilities to lift the local industry standards. What can we go wrong for only one building?

Consortium

Teaming up with the Mainland companies is a good idea. As China is welcomed and respected in Middle East. China has plenty of money to a certain extent. It is good that HK can go with Chinese companies to work there. First, we can provide M&E expertises on British Standards, which are used in Middle East. Any of our professional is familiar with British Standards. But professionals from China may not be familiar with British Standards. They used to use National Standards.

Second is language. We are fluent in English than the Mainland counterparts. We have several strengths, such as management and technology. Workers can be provided by the Mainland, in addition to their political relationship and financial ability. It should be a winning team.

Secondment of staff to overseas, even to Macau, is difficult, especially for new marriage couple or staff with new born baby. E.g. if they leave HK for Macau on Monday and return on Friday, they have to stay there for 4 nights. There are resistance from them. But we have to tell them that they are important for the company. They are subsidised with higher salary. But the increase in salaries is worthwhile for the company.

There is less companies from Europe and US in Macau. There are mainly HK companies. We have the same cost basis. We have to send people to there. Our competitors have to stay 4 nights as us. Perhaps they may live in better hotels.

There is lack of competent companies in Macau. It is a special market. Many foreign companies do not prefer working in Macau because they are not familiar with the legal requirements there. Second, they only see for 5 years. They think it is not a long term market. We think it is a big business, while they don't think so.



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Validation Interview 2

■ *What is the role of Urban Renewal Authority (URA)?*

There was a bureau on urban renewal which issued a report on urban development strategy in 2001. It says the URA would handle 225 projects in 20 years, in which 25 was carried forward from the LDC. These 25 projects are in progress, leaving the projects of Nga Tsin Wai Road and Kwun Tong. For those old buildings within our 9 actions areas, they can join the URA's scheme.

In the past, buildings were classified as "old" if they were built 30 or 40 years ago. People did not carry out maintenance works until they were deteriorated and eventually demolished. But now we have the rehabilitation scheme. Meanwhile, we also have Housing Society (HS) who has similar scheme to encourage building owners to carry out maintenance works to their buildings. As a result, the building design lives can be kept.

Later, the government has mandatory building inspection scheme for buildings over than 7 years old. It would help maintain building design life. Because of this timeframe, i.e. to carry out 225 projects, the numbers of old buildings are expected to reduce. Urban renewal does not mean demolition of buildings. It does not necessarily involve redevelopment.

■ *What are the similarity and differences of the services provided by URA and HS?*

They are very similar. URA has 9 action areas only. Whenever building owners approach HS for building maintenance, HS will refer the cases to us. To be eligible for our helps, the subject buildings should have Ownership Corporation (OC).

If a building, which is within one of our 9 action areas, does not have any OC, URA will ask HS to help form OC. After the OC is formed, URA will help for their renovation works.

In the past, redevelopment was large scale project, usually involving a whole street or even forming a micro-community. Then, if under the rehabilitation scheme one building needs renovations whilst another does not have the need, it would be different to acquire the building and implement the scheme.

URA does not always acquire the ownerships of the whole district. There are large as well as small sites under the URA. We did not think in details about the situation of one deteriorated building standing besides another which is not deteriorated.

If a group of buildings within our action areas is identified, they can join our scheme for building rehabilitation. We hope other residents would join the scheme on their own initiatives. In the end, buildings are not easily getting dilapidated.

E.g. in Wanchai, many buildings were undergone renovation, like those opposite to the Wanchai market. They are colourful. They form a group of buildings and would encourage renovation works for old buildings. Under the scheme, URA will provide paints for external walls. This would make the whole district with good looking.

Another example is the buildings which joined our scheme at Hennessy Road. The scheme would make the building appearances more consistent. The buildings in Tai Kok Tsui also joined our colour scheme.

We have 2 schemes: Building Rehabilitation Loan Scheme and Building Rehabilitation Material Incentive Scheme. For the Loan Scheme, it provides loan to the owners. In joining the Material Incentive Scheme, the URA will provide paints to the owners.

- *From a macro-view, consultants and contractors would like to know the long-term maintenance strategy and the scales of the projects. Do you think the government and URA can make it more transparent, e.g. through the 5-year plans?*

The 5-year plans are not open. They are highly confidential as it involves a lot of interests for different parties.

For renovation progress, it is out of URA's control. All our schemes are voluntary. When building owners receive orders from the Buildings Department, they would carry out renovation. Thus they will join the Material Incentive Scheme.

It is difficult for URA to prepare projections, though it makes assumptions for most of the projects to be completed within 24 months. But there are many factors affecting the progress. For instance, it takes URA 3 years to acquire all the ownership of Lee Tung Street in Wanchai. It has delayed quite a lot. There are many factors out of our expectations.

The construction sites of urban redevelopment are small. The number of flats released by the URA is also few. The number of flats provided by a single private residential site has already exceeded the total amount of flats by URA in one year. The release of such plan is therefore not necessarily helpful.

It is good to have planning, like the 10 superstructures. But from planning to implementation, there is great hindrance. One should not be sure whether the works can be carried out eventually.

URA has business planning every year. We would check the tender invitations issued by the Housing Department and Architectural Services Department.

It is difficult for us to have a long-term plan. We do not have any ideas about when we can acquire all the ownership, when we can resolve all the problems in the plans and how much URA can help. URA does not have any controls on them. The projects released by URA are limited.

URA has also corporate plans, but they are confidential. Each year, we have a 5-year plan for the coming 5 years. The plan is submitted for the Financial Secretary's approval.

According to the URA Ordinance, one 5-year plan and one 1-year plan are prepared each year.

- *If there are not many capital works, should contractors and consultants transfer their business to renovations? What is the prospect for renovation works?*

From our experience in implementing the rehabilitation scheme, we know contractors can be divided into 2 groups. The first group work for large projects only, e.g. Tai Koo Shing and Mei Foo.

There are some small and medium contractors who specialise in renovation works, depending on their experience. The fee for AP's services is very low for old building renovations: for a \$10million project, the fee is \$15,000-\$30,000. Consultants may have many such kinds to job for their survival.

Therefore, there are no contractors, like Gammon, seeking job opportunities in renovation. They are in different areas with different operation models.

It costs the owners \$20,000 - \$30,000 for renovation of a flat. The owners of old buildings would not agree if they are asked to pay for over \$30,000. \$30,000 is a small amount which is even less than the preliminary of one of Gammon's projects. For instance, Shui On is specialising in housing projects. The contract sum for a project is \$100million whilst it is about several million to 10 million dollars for a renovation project. They have to check if they are in that field, and if they can handle the OC properly.

- *URA subsidises owners to carry out renovation. In the long term, would it award term contracts?*

It is the building owners who have the responsibility to carry out renovations. URA is a facilitator. Under the Material Incentive Scheme, URA would provide pipes and paints for external walls to the owners.

URA also provides technical supports. URA does not carry out any supervision works. E.g. in painting the external walls, URA will ask the suppliers to give advice. The suppliers will visit the site when paints are being applied.

URA has its term suppliers but does not carry out renovation works directly. Building owners appoint their contractors and consultants. URA provides helps only.

The chance for having term contracts is less. It is not reasonable for URA to take up the role of building owners. URA is using the tax-payer money.

- *What is the prospect of urban redevelopment or renovation work?*

In 2001, the Buildings Department predicted that there were 100,000 building blocks reaching the age of 20 years or 40 years. After 5 years, it should have increased.

New buildings will become older gradually. In theory, urban decay problem will be getting serious. The question is how much URA can do. They cannot all be handled by URA. That's why we have 4Rs. Later, the government also have mandatory building inspection scheme. It would force building owners to renovate.

It takes a long time to complete one of our projects. Acquiring ownership takes long time too. Although we want to complete a project within 24 month, including clearance and demolition. Of course, it is a typical timeframe. Some may take longer or shorter.

When more building owners want to renovate their buildings, there would be more companies entering the market. Perhaps big companies would take the jobs. But the turnover is small. It is some million to 10 million business.

- *There are increasing voices for environmental conservation. Do they make URA's works or progress difficult?*

We should consider how to overcome the difficulties. URA listens to public opinions. We hope we can reach compromises. For the Yue Man Square project, URA just submitted a Development Scheme Plan. Before the submission, we carried out community engagement exercise for a long time.

We also asked architects to draw a layout plan. We visited Hip Wo Street to hear opinions. In addition, we engaged the CK Law's team in Hong Kong University to listen to the views of the residents, businessmen, stakeholders and people from outside Kwun Tong. We tried to understand what they would like Kwun Tong to become.

Government carries out consultation too. It is the way to carry out consultation that matters. You should facilitate expressing views and opinions in the consultations. In our case, URA approaches the community proactively for their views and opinions, e.g. visiting schools and organising seminars.

- *Does the Fa Yuen Street (well known as "Sport shoes street") project face the same problems, including the environmental conservators?*

URA has done a lot. In 2006, we engaged the CK Law's team in Hong Kong University to undertake an opinion survey about keeping the buildings in the street. After the survey, in March 2007, we conducted a workshop about how the street characters should be preserved. According to the survey, in the long run, the buildings would need renovation. Meanwhile, the buildings were thought as without historical values.

We visited the district councillor meeting. In Dec 2006, they passed the resolution for redeveloping the street. But the special features of the street will be preserved. The design is based on a sport centre concept.

- *If the industry practitioners, including contractors and consultants, want to work abroad, what are their competitive edges, e.g. specialising in redevelopment works and renovations?*

Hong Kong contractors are experienced in large-scale projects. They have relevant technologies. In the Mainland China, in constructing high-rise building, they are at the beginning stage. Our experience in technology and management would be helpful for them. But working in Mainland required licences or other qualifications.

I know many contractors have experience in management. Some have collaborations with companies in China. Some contractors go to Macau and Middle East to seek jobs too. But they can't help the labour and tradesmen.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Construction Industry Institute
HONG KONG

Validation Interview 3

Hong Kong is different from some other countries that the government adopts the positive non-interventionism. Hence the government can only influence the construction market by its public work spending programme. The Hong Kong SAR government has promised for a public investment of HKD 25 billions per year, which has been fulfilled in several years when there was demand for major infrastructures. The public spending data can be found in the financial secretary's budget report every year. The injections of such amount of investment into the construction market by the government have been acts to boost the market and bring job opportunities to workers during recessions. In the recent years of 2005 and 2006, the public spending has not been able to reach the HKD 25 billions target due to the complex public consultation and legal procedures involved before several major proposed development project can be started.

The government has tried to streamline the process in examining and approving public development projects. In 2000 it took 6 years for the government to start a medium size civil engineering project after all the approval procedures has been completed. In 2001 the whole approval process was shortened to 4 years after implementation of some administrative tools. Recently the government would try to further shorten the process from 45 months to 40 months.

In the 2007-2008 Policy Address, it was proposed by the Chief Executive of the Hong Kong SAR that there will be ten major infrastructure projects in the coming future, which will create huge value added to the GDP as well as numerous job openings (the 250 thousand new job openings estimated by the government also include the labour needed in running facilities of these ten projects when they are completed). However, among these ten projects, only the Kai Tak Re-development and the West Kowloon Development projects are having common consensus and therefore some concrete progress. The rest of the projects are still subject to more public engagement and debates before the final development plan can be reached. In order to make sure that at the start of the detailed design stage these major development projects have been accepted by the public, the government will try to push for more public consultation during the conceptual design stage in which the development plan has more room for improvement and alternation subject to public opinions.

During the peak year of 1997, there were about 5000 bar benders and fixers in the construction industry. The number has decreased to only around 2000 in the recent years. The ten major infrastructure projects put forward by the government could be helpful to boost the construction market directly as well as by the "side effects" they could bring along to stimulate the market. It is also worried that the lost of such skilled labour to other industries or other areas (e.g. the Mainland China) may not be short term only, as the workers left the local industry may not want to come back again when there start to be a need for such workforce in the recovery process.

The model that that Hong Kong SAR government is using now to estimate capacity of the industry is developed in 2003/03, having the capacity estimated from the cost and duration of projects. However, the model has its disadvantage in estimating the capacity of the private sector, as information from the private sector is less comprehensive compare to the public projects. Hence it is difficult to use the model to monitor capacity of the entire construction industry in Hong Kong. On the other hand, it was pointed out that since the

implementation of the Construction Workers Registration system, the government can collect more information on the workers of each construction site, thus improving the data collection process for the capacity model. It is agreed that the model is in need of improvement and updating.

The Mandatory Building Inspection Scheme is helpful to bring repair and maintenance job to the construction industry. It helps to solve the problem of buildings not having their own owners' corporation to carry out the inspection. However it is difficult for the government to initiate maintenance schemes for buildings as the government could be suspected to have collusion with the inspecting contractors.

The CIC is now trying to promote the recommendations made in the CIRC report. However, CIC itself has a much wider scope that it can look over and lobby for the construction industry as long as there is a common consensus in the industry that such an organisation is needed. Hence a concrete request from the industry on what do the stakeholders expect CIC to assist them could be turned into real action of the CIC.

In the Hong Kong 2030 Planning Vision and Strategy the overall economic performance of Hong Kong has been addressed. In the report, vision for the infrastructure development was stated. In the latest policy address, the ten major infrastructure projects give a clearer picture to the construction industry. Concerning the vision on labour capacity, a lot of the related areas have been addressed in the CIRC study recommendations. At the same time, although there is no explicit statement of providing such vision for the Hong Kong construction industry, the CIC has been working on various aspects of the construction industry which constitute the future plot of the Hong Kong construction industry. In general, there should be infrastructures which can enhance competitiveness of Hong Kong as well as create job opportunities. Furthermore, quality standard of the construction industry should be closely monitored and improved.

The CIC has had teams visiting countries including Vietnam, the Philippines, the Mainland China and Dubai.

The Hong Kong SAR government is trying to raise the quality standard of its public works, hence helping the construction industry to establish a brand name.

Since the CIC is a statutory body, it actually has strong financial resources which could be used to help promoting the Hong Kong construction industry other than the government.

The government has been putting out smaller size projects ranging from HKD 100,000 to 15 million each and summing to about HKD 6 to 7 billion a year. These works would help the SMEs in the construction industry, mainly the Grade A contractors, to survive in the market.

In terms of forming a centralised coordinating body in which the industry can negotiate every aspect of the issues in construction industry with, the interviewee thinks that the CIC is now having a bigger role in the industry and may move towards this direction.

The movie industry in Hong Kong, for example, has received assistance from the government for its sustainable development which seems to be stronger than the assistance the construction industry is receiving. The interviewees suggested that it is because of the more united and stronger voice from the movie industry to the government that they need such kind of assistance. Hence the CIC or the construction industry should gather such a voice to lobby for government's further action and support to the industry.



CII-HK Research Project Reinventing Hong Kong Construction Industry for its Sustainable Development



Construction Industry Institute
HONG KONG

Validation Interview 4

The Hong Kong construction industry

The development of construction industry literally follows the growth of its economy. However, once the country has developed, the construction volume will decline significantly. Facing economic downturn and high land price policy over the past few years, the Hong Kong construction industry, especially the building sector, was growing in an unhealthy and imbalance manner. The consequences of the imbalance development of the industry are discussed below:

■ *Weak competitiveness*

At the peak of construction development cycle in 1997, plenty of the resources were imported from overseas. However, the overseas companies left the HK market once they completed the mega-size projects. Therefore there are very limited local companies capable to carry out mega-size infrastructure projects. Many indigenous contractors also did not operate in the international market.

The interviewee found it difficult to state the strengths of the Hong Kong construction industry. The primary question is how to define the HK construction industry. Does China State or Maunsell, for example, belong to the HK construction industry?

HK was famous in constructing super high-rise buildings in the past. However, this advantage has faded away as plenty of super high-rises are being built in China. In addition, the Chinese labour force is much cheaper than ours, thus it is difficult for construction labour from the Hong Kong to work overseas.

When comparing with the construction firms in the international market or Mainland China, the size of the Hong Kong construction firms is much smaller, in terms of both market capacity and financial capability. For the construction industry in small countries, such as Singapore and Macau, it is difficult to develop its own strengths. Even in Malaysia, they don't have strong contractors.

■ *Lack of support from research & development and "backup industry"*

The research & development in construction is relatively weak in Hong Kong due to the size and thereby available resources of the industry stakeholders. The previous research & development mainly focuses on contractual and management instead of technology-based research.

It might not be easy to copy models from other counties to the local industry. For instance, in Japan, although it is not a large country, its construction industry is quite outstanding because of the tremendous investment in research & development. Japan has its strong manufacturing sectors to facilitate the development of the construction industry. The Japanese government also has strong policies to expand the industry and export its services.

Some foreign countries are easier to explore the overseas market as they enjoy export credit through exporting construction materials and services. This varies 3% to 5% of the total construction cost. For example, Chinese construction companies acquire export credit by

bringing along their indigenous plant and material with zero interest rate offered by their local export-import banks. However, this 'back-up' manufacturing industry in Hong Kong is absent. Hence, the Hong Kong construction industry is disadvantaged comparing with those competitors.

▪ *Lack of long-term strategy for manpower training*

Training for workers was insufficient to keep up with the pace at the booming period. When the construction volume was expanding significantly, the HK Government did not adjust her policy on labour importation. Instead, to match the demand of the industry, high salary was paid to employ workers from other sectors. Following a very short training period, they then worked as a construction worker and it resulted in severe surplus of labour once the construction boom ended.

It is feasible to export services at the technician level. When foreign companies invest in HK, they also brought their own team and technicians to carry out the construction work. As a developer, the interviewee also intends to send a team of technicians to undertake the projects in the Mainland, however, HK lacks sufficient and capable technicians.

▪ *Bias on the building sector*

Our construction industry can be divided into two main sectors: civil engineering and building. However, resources usually focus on the building sector. For example, training courses provided by the CITA are largely concerned with building and most of the research projects conducted by CII are also related to the building sector only. Civil engineering sector is being neglected even though there is a heavy workload of it. Meanwhile, it is difficult to nurture professionals in the civil engineering sector as it may not be possible to sustain infrastructure works in Hong Kong.

Facing these obstacles, we had to borrow and even buy intelligence, expertise and technology from overseas. Consequently, construction firms took part in the mega-size civil engineering works were from overseas and the local industry practitioners did not acquire the technology and intelligence from these projects.

■ *Problem of over-capacity*

Currently there is a problem of over-capacity at the worker level subsequent to the end of construction boom since 2003. However, there are not enough technicians in the industry. In the past, the Hong Kong Polytechnic and Hong Kong Baptist University nurtured many good technicians. But the prevailing tertiary educational programmes mainly focus on nurturing professional resources. The most important problem for the construction industry is therefore short of the 'middle-layer' of the manpower resources. When local graduates obtain a degree, perhaps not unexpectedly, they are not willing to be a technician but an engineer / professional.

For professional grades such as Architect, although there was over-capacity a few years ago, the problem seems to have disappeared as they are quite mobile and many of them are currently operating in China. There are also surplus of small and medium-size contractors in Hong Kong. Even for large-scaled contractors, they are also facing the over-capacity problem. Nowadays, thousand of workers engage in the Macau construction industry. Once the construction boom in Macau ends, they shall come back and may cause grave labour surplus problem.

Sustainable development of the industry

The interviewee doubted that if sustainable development of the industry is needed. The fundamental question is: should we keep expanding the industry or help the industry stakeholders adapt into other fields? Another question is who should be subsidised or assisted by the local government?

■ *Role of government*

The government, complying with her non-intervention policy, currently allows the construction industry to be self-regulated (i.e. eliminate weak players, consolidation, etc.). The government should only implement the projects which bring positive impacts to the society, economic growth as well as the public community. However, it is not reasonable to push forward more works aiming solely at sustaining the construction industry. Indeed the government has provided various courses to help unemployed workers diversify and social assistance.

■ *Nature elimination*

During construction boom, the industry and the government only sought for immediate solution, resulted in creating a number of weak construction firms, poor quality workers and under-qualified professionals in the industry. It is just not right to use public funding to offer help for small contractors. Instead, the industry should be prepared to scale down because of the prevailing market condition rather than keep expanding if the problem of over-capacity still exists. In Japan, thousands of small contractors were eliminated due to the changing economy over the past 5-6 years. Just like factories manufacturing plastic flowers, some diversified geographically to the Mainland and others simply migrated to another field. However, whether small contractors can shift into alternative markets depends on the capability of individual companies. For small contractors in HK, the interviewee believed the rationale: “only the fittest survive”. Construction companies should have a wider view to position themselves in the international arena in various aspects such as quality, management skill, multi-skilling, cost competitiveness, etc.

In the past, properties were deemed to be an important investment instrument. There were not too many people who invested in the stock market (esp. the overseas market). Nevertheless, real property is primarily used for living nowadays as we have plenty of other investment instruments, such as warrants, futures and overseas equities. Therefore, fixed asset is no more the primary tool for investment. Under this circumstance, the private real estate development may thus be reduced.

■ *Merging and Acquisition*

Workload is important for the sustainable development of the industry. However, Hong Kong is a free market where the government shall not invest only for the construction industry. Construction sector should grasp opportunities by themselves. The first step is to strengthen the competitiveness of a company and to expand to a reasonable size in the market.

The size of the construction companies in Hong Kong is relatively small. In order to become regional companies, they shall consolidate their strengths through merging and acquisition (M&A). The merged party is then capable of retaining technology and capital advantages. Once it becomes a regional company, it could stay in Hong Kong or choose to work internationally.

Market capacity is important to show the competency of a construction company. Consolidation or synergy is essential to expand its market capacity. For example, media companies in foreign countries are purchased with an aim to expand the market capacity and acquire the economy of scale.

Regarding the success of M&A, a main contractor (Company A) provided a good case of proof. It started investing in Singapore since the year of 1951. Company A had acquired an Australian multi-discipline engineering company (Company B), which provided the largest multi-engineering service in Australia. The company then expanded from \$0.2 billion to \$9 billion. The strategy adopted was purely on merging and acquisition.

Company then acquired a Singaporean government organisation (Company C) similar to the ArchSD in HK, with 1500 professionals. Once Company C was privatised, it started participating in the private market of Singapore and operated in the regional market with its capability, as the Singaporean government has set its strategy to take up all public design work for over 10 years. All hospitals, airport, police stations and security-related amenities were designed by the Company C. They captured a significant market share on these works in Singapore as well as SE Asia. However, the ArchSD in HK may have missed this opportunity. As they only do typical and tradition designs, but outsourced the more prestigious works to consultants. Therefore, they did not acquire superior track record and hence is lack of market capitalisation. Their size has become small comparing with competitors. This needs a long term strategy as developed by Japanese companies and government, which is lacking in the construction industry of Hong Kong.

Can M&A improve the competitiveness of the HK construction industry in the coming years? The interviewee believed so based on his experience and past successful stories, and would push this strategy if he still works for a contractor. The M&A should not be limited to local companies, but foreign companies as well as the Chinese companies, to acquire technology or market capacity, depending on corporate strategy. The M&A could also extend to other fields such as energy, mining, etc. to capture those potential markets. When Company A acquired Company B, Australian market is in a very low point but subsequently the market boomed dramatically. When all people tended to invest in the Northern part, only Company A invested in Australia because of her prudent strategy.

What are the pulling factors for the Hong Kong construction companies to merge with others? Firstly, the company should have good track record and turnover. Company B was merged from two companies. One was the second large railway manufacturing company in Australia, producing 60% of the local trains. It merged with another company in order to expand from railway into multi-discipline engineering services. The shareholders from both sides agreed to merge and invest in multi-business company. Additional business market and assets could then be obtained. The valuation of the company on stock market was also enhanced which brought benefits to the shareholders. Every enterprise shall therefore develop their own specialities to attract others for M&A. Gammon is another success M&A story.

■ Enhance technical competitiveness

If there is a construction market boom in the future and we still use traditional method and multi-layer contracting, although contractors might find work naturally, the overall performance of the industry could not be improved. Instead, we should enhance the industry's technical competitiveness by adapting international approaches to develop our own R&D and to sustain the core workforce. Hence, we cannot on one hand advocate modernisation, but on the other hand, create more opportunities for workers by using traditional construction methods.

Company A has successfully built a number of high-rise buildings in HK, and therefore was invited for a large development in Dubai. It then joint ventured with another main contractor to submit a tender for that project 5 years ago. However, our strengths have gradually been eliminated. The industry should seek for reasons why clients in foreign countries invite you for tender, which may include experience, track record and capacity. For instance, the China State has employed as many as 2000 professionals which equip them as a strong competitor in the international market.

Overseas markets

▪ *Macau*

Hong Kong construction stakeholders can find plenty of jobs in Macau recently as there have not been sufficient local construction companies, the workload increased quickly and we are just “standing next door”. The turnover for those developments is huge. Therefore, clients prefer to employ HK construction team, which is more reliable than those from Mainland China.

■ *Mainland China*

Although there are numerous construction projects available in the Mainland serving as an important market, it is difficult for HK companies to enter the Mainland market because of their disadvantages in size, weak competitiveness, resources and the lack of close network with local construction firms. Some claimed that the Hong Kong construction industry has advantages in producing quality products, project management and efficient in constructing high-rise building. However, in view of client, he may not find that the Chinese contractors are weak. Merging and acquisition are thus a must so as to compete in the global market. Many consultants are undergoing this stage but many contractors are reluctant to undergo the merging and acquisition process because many of them are family business.

Is it possible for the construction sector to provide one stop services, including design, finance, construction and management? The interviewee thought it might not be feasible. For the case of Xintiandi in Shanghai developed by Shui On Group, Shui On Group acted as a developer, but not a contractor. The Group employed local contractors instead. Unless the developer has close connection with the contractors, they would not bring Hong Kong contractor to work there as very limited advantages can be obtained since the performance of China’s contractors is not bad.

■ *Export credit insurance*

Export credit insurance is a protection for the contractor. If a contractor cannot receive payment from client accordingly, he can get compensation from this insurance package. The advantage is to reduce contractor’s financial risk.

It is also quite difficult for the government to provide this insurance to the whole construction industry of Hong Kong. Firstly, the government does not have sufficient budget for it. The cost of a construction project is high, which the insurance might not be able to cover. One project could already exhaust the fund made available for the whole year. Secondly, the government and the economy obtain very limited advantages through offering the insurance. Thirdly, although export credit insurance can help eliminate the risk factor for bidding, it only has little improvement on the competitiveness of the contractors. Lastly, it is difficult to define which parties belong to the Hong Kong construction industry. For example, Gammon, China State and Maunsell, they were established in Hong Kong for a long time from foreign countries.

■ *Export Credit*

Regarding the export credit policy, the whole construction industry can get benefits. The bidding sum can be indirectly reduced by 3-5% of the contract sum. The government does not provide direct financial support to the construction industry, but export credit indeed helps improve the financial competitiveness of the company through supporting the manufacturing industry.

For SMEs, they might not have much chance operating in overseas. Most of the HK construction companies worked in foreign countries do not bring sub-contractors but employ local labour force. In Middle-East, labour force is imported from Pakistan and Mainland China. The competition of the international market is very keen.



Validation Interview 5

1. *How do you evaluate the applicability of the identified strategies at the government level and the industry level for the sustainable development of the Hong Kong construction industry?*

Right now the whole industry is very distorted. Everybody is doing his/her own way slightly differently and ultimately it gets to the government who also have their way of maintaining their expertise records. There is no consistence. Buildings Department, Lands and Highways, now with their new directors, and they are trying to work together as speedier as they want. There is a possibility for electronic building submission using 3-dimensional software.

But what is lacking is an accurate set of information of the development. Assuming that the whole development is completed, there are electronic and 3-dimensional forms, except building plans, mechanical building services plans and finishing plans, etc. All are electronic forms, all coordinated. That mean with the CDs, virtual digital model of any project can be made available.

Imagine a possible scenario, the government says starting in one year or two year or whatever timeframe as it is realistic. If building submissions are required to the Buildings Department, electronic media can be given. It can be uploaded. Right now BD, Fire, Highways, a lot of so-called working disciplines, how do they review the drawings? The plans are submitted to the departments and everybody reviews them.

The same could happen. By giving the virtual model to each of them, the plans are reviewed. They are marked and returned back. They can be updated correct based on what the comments. The time and cost are saved for developers. Developers know exactly what he is getting. Government knows what the developer is supposed to build if there is an electronic copy.

To go further, imagine in Hong Kong, every single building with all internal schematic is kept the records by the government or BD. So one day, on fire, immediately the Fire Dept could call up the image and put out the fire. Firemen without any map can call up the schematics to rescue in the 44 floors.

By stimulating the use of technology or software, government can establish a long term plan for how to improve the whole industry both from the management standpoint and the growth standpoint.

The use of IT can speed up the approval process and reduce it from 3 months to 1 month. The project team of the interviewee's company has a daily coordination meeting. They do not need to be in the same room. They can just use the internet. That may be change of culture or mindset in the whole industry. But it has already happened in the rest of the world. The government can't say no to the trend. They are setting the benchmarks for efficiency.

They can also enhance the whole industry competitiveness. Now 3-D drawings were sent to China to any factories. China is more open-minded than the HK government.

Government Level

2. *What should be the vision of the Hong Kong construction industry? What long-term forward planning could be conducted for the industry's sustainable development? Would regular forecasts of the construction volume be useful to the industry?*

It is a pretty difficult question as there are so many aspects that need to be considered. It is always dangerous to forecast construction in Hong Kong. For example, the government for some reasons was criticised for taking many roles. All it does is basically taking up more of Hong Kong lands, encouraging users compete equally, and encouraging less pollution, etc. Creating construction jobs should not be just for the sake of keeping the works. What has happened in Hong Kong is that the city has already been mature in term of development, not with the integration of Hong Kong and the Mainland.

Hong Kong needs to stop increasing the living density. More strategically in terms of how it can integrate better, specifically in Pearl River Delta, should be taken. Having said that the development pace of Hong Kong would have to slow down unless there is development of importance, i.e. the new Cultural Centre, and the government headquarter.

There are already no more land reclamations. No more lands are needed. If the reversion happens, some lands should be given back to green parks, etc. For sure, Hong Kong is too densely populated city.

To strive to enrich Hong Kong in the future, the amount of developments should be reduced, and spaces should be freed up by demolishing old buildings which are too old to be refurbished. The refurbishment would improve the whole character in standard living for the population. So for that specific point in term of what the government can do, the government has to take a lead in term of formulating clearer and, more important, a long term vision of city planning. It is not 5 years, but 10, 20 and 30 years where they can try and project how they want Hong Kong to achieve over the next 20 to 30 years.

They are also talking 30-year plan. But for them, the 30-year plan is an idea for 30 years to be placed. It is lucrative it is so uncompetitive. Beijing and Shanghai has done so well in 5 years. It is amazing.

The government needs to take a very long term view and be very strategic and enforceable in terms of what they can do and what they cannot do. When the construction works are not enough, the government should strategically generate jobs by, not building tunnels, doing something to stimulate works in sustainable size. Whenever the economy goes down, there are some created infrastructure projects, such as MTR or subway lines. They use it to stimulate and create works which is what the government should do.

But on the counter side, it is free market economy. The government cannot intervene too much. If the government has the long term plan, developers and contractors can plan for how they should invest in Hong Kong for their future works. Talking any major developers, they are not investing only in Hong Kong. It is about 10 to 15 billion dollars.

For simple reasons, land price in Hong Kong is too high. Some cannot afford the prices.

Planning for construction volume and forecast model

To establish percentage for the sake percentage, it is not really very practical. It needs to be supported by some very specific groups, i.e. the government vision. For the private sector, there are more opportunities. They only do it if there are opportunities or there are commercial reasons to do so. It would not be practical by assuming a figure.

The only caveat there is that part of it could be more renovation or refurbishment, which is a growing trend right now, partly because of the shortage of new developments around. Lots of contractors with their developers are looking at which is more good for sustainable environment.

It is important to forecast. Robust forecast model can be used when micro-segments of development are identified.

Long term planning by the government

For public developers it is not a black box because the government owns most of the lands in Hong Kong. They know exactly who has what, what is expected for that piece of land, either for a school or demolition, or new buildings, etc. Some kinds of projections can be done.

There is no long term planning by the government.

The government has reputation. They have to spend based on the budget. Whatever the money they have in the budget, they will spend as it needs for more roads or for more reclamation in the harbour, or container port.

Government, on their planning, in their budget considers wants to expand the container facilities of Hong Kong. Looking around, where is all shipping going to now? They are going directly to China bypassing Hong Kong because China's infrastructure in the last 5 years has been improved ten folds or hundred folds. Looking at the airport at Beijing, next year, it will grow from very average airport to the world largest airport which is able to handle 30 million passengers a year. It will be official for sure, because it is government land.

The government with their 30-year vision, would probably go ahead to spend billions on container port. But time is finished, Shenzhen, Guangzhou, all with super container facilities. So everybody can direct there rather than choose Hong Kong.

The industry can convey their ideas to the government through public consultation. But the public does not know how much of them have been passed to the key decision makers.

Which government departments or bureau should take the job best

It has to be the Chief Executive because he is the conductor. He can delegate his colleagues for strategic planning or town planning, strategic planning for the government and for the city.

The CEDB focus on how they maintain Hong Kong economy, keep it profitable, like land, tax, stamp duty, nothing new.

CIC can serve as a connection channel between the industry and the government. That is it was established to be. But it currently, unfortunately, picks up all the structures of bureaucracy that exists in government.

So when there is bureaucratic organisation, it is very hard for it to be deliberately in focus. There are too many to please. For example, the Tamar, it is a very cutting edge building. In the bid document, it requires to use the latest technology, such as prefabrication and modulation. The union said no as it would cut too much jobs in Hong Kong. It would not create jobs but lose jobs. It is the fact because prefabrication and modulation construction reduce workers on site because works are done in factories for better quality and designs, and less wastages.

So as far as this strategy, it may be necessary to do retrain a lot of working level. Building works cannot be available all the time. Some may have to be retrained to become nutritionists or refurbishment contractor or tourist guide.

3. *Should the HKSAR Government increase public investment to facilitate the development of the local economy? What are the obstacles of implementing the planned public work? How to streamline the approval process/mechanism for public work projects?*

Approval process or mechanism for public work projects should possibly be streamlined. It is a supply and demand issue. As for what the government should do to improve the construction technology in Hong Kong, it is thought that when it was put forward for financial approval, the government should be innovative for controversial and put it for more technology. Prefabrication would have created a major upload with the industry, such as the contractor strike, etc.

It is safer by giving up innovation. Looking strategically, it is a foregone conclusion that Hong Kong construction will force to outside. In the last 3 years, Macau has made a lot of our workers would stay employed. But that would not last forever. It starts to throw out.

The private sector was criticised for not active enough in using technology. One of the arguments is because of the rigid legal requirements and no drive from the government for investing new technology. The government cannot encourage but sometimes it is quite hard to say legislation to force changes unless it can be clearly articulated to the public.

The interviewee's company uses technology because they are able to convince our shareholders that there is a value in term of cost saving and risk reduction. It should mean the project more efficient, either with the cost or long term operation. But the laymen always see innovation would cost more money. It would cost more money upfront. But for the lifecycle cost of development, it becomes nothing. So combination of encouragement by the government, but also the probably help spread the good works, acknowledge of good works to the general public so that everybody understands what is happening, and hopefully some of the good things to work of.

The government was said not providing enough opportunities to the developers. That is why many developers go outside. Actually, our economy is strong enough. There is no way the government should be processed try to keep everything at home. It would be very short-sighted. Because part of maturity is globalisation.

4. *How should the HKSAR Government to expedite the infrastructure development and urban regeneration projects? How to stimulate the private investment in construction?*

To help create opportunities overseas for Hong Kong companies, it is also a mean of stimulating the economy. Because a lot of these companies basically generate profits overseas. Maybe bringing back to Hong Kong and spend it again in other form, like the stock market.

If they develop residential buildings or hotels, a profit can be brought back to Hong Kong tax free. That would give incentives and flexibility. The companies have the flexibility how they want to use the profits.

Globalisation is the world trend. Hopefully, the trend will continue in the next 5 to 10 years because Hong Kong is really an international city. Globalisation is the natural by-product of maturity.

Regarding which sector of construction industry would be benefited from the globalisation, developers should have a slight edge, mainly because the margin is better. Contractor is a people business. Unless they are able to acquire higher trained and developed national within their country, they are slightly handicapped.

It is possible to put forward more R&M projects in Hong Kong, by grouping a number of residential projects for big contractors to involve, so that economy of scale can be enjoyed. They are stipulated by regulations that for these buildings to do major refurbishments say for 20 or 25 years.

The major negative for construction is noise, demolition or construction displacement and pollutions. There are more developers and the government said they have to give their house because some are coming to build a more when they are living. The contractor makes a lot of noise during construction or cause damage to the buildings.

5. *Would international construction market help sustain the HK construction industry? In what way should more efforts be directed to explore the Mainland and overseas markets by the Government (e.g. export promotion, export credit guarantee, market intelligence)?*

It is possible that the government help small companies to explore job opportunities overseas or test the water in overseas, like export credit, insurance and guarantee. But why should taxpayers' money be used to seek money or for experiment? It will be a bit hard to rationalise it. If a company wants to invest overseas, they should do on their own merits. The government can help by giving a lending hand, e.g. in security, but nothing more than that. The export credit is just like a subsidy.

The interviewee's company looks for information, e.g. the market conditions themselves to explore some other countries feasibility or possibility to invest, without the helps from the government. The government can help book some visits to the countries, nothing more than that.

Ultimately, the clients have to make the final decision.

TDC has done quite a lot on market intelligence for those emerging markets, but to explore and successfully operate in the overseas market has to the company itself.

Individual companies should do their own works before they make the investment decision. It might not be good for the government or anybody else to provide the advice to smaller companies to explore overseas markets.

The companies, not the government, got to reassure that what they are doing make senses, or otherwise don't do it.

There is an example from Singapore that they provide so called one-stop services or supply chain provided to go overseas like from consultant designs to construction services, and also to maintenance and operation. They have one-stop services provided to go outside and provide a more comprehensive services to those new market. This is one example from various countries actually do. They invite the Architects, Engineers, Landscape Architects, Designers, Structural Engineers. And then they stay together like a road show and then drive them to get more roles. That has been and can be done. It also happened to developers, depends on the nature of the investment.

Main contractors would be more qualified to do it. Main contractors usually have more managers of various sub-contractors to make it happens. For export credit, in the China market, Hong Kong contractors are competing with the China contractors, China contractors may have the advantages over the Hong Kong contractors as China contractors have export credit from their motherland. There may be an export / import bank supported by the China government. So when the contractors use specific services, like E&M services or some machines, China contractors may have a benefit that those machines would be free of interests for China contractors. They are the supports from the government. So that is why the HK contractors may

have the disadvantages comparing with the China contractors. Hong Kong does not have backup or supporting manufacturing industries to support contractors to go outside. It lacks of this kind of services compared with other advanced countries. It is interesting.

That would be worth looking at. That would be serious considerations because Hong Kong is encouraging the export of local expertise. That could be weak when Hong Kong construction banking rolls the contractors being employed by the interviewee's company the set up for doing works. It is actually a good idea.

Industry Level

6. *How should the industry develop niche expertise? Which particular competitiveness aspect (i.e. financial, technological, managerial) should the HK construction industry enhance? and how? Should the research and development be strengthened in Hong Kong?*

If developers and contractors go abroad to sell their business, from the developer's perspective, their strengths would be their own expertise, say build so much shopping malls. It is not to push developers to work in other part of the world.

For contractors, they are generally the expertise, such as doing tunnel works and civil works, their abilities to build complicated towers and doing simulation.

Expertise learn in the countries can also be exported to do something similar in other countries.

These types of competitive advantages are gradually losing out, especially in China, there are lots of new developments, high-rises and prestigious works. Contractors and developers in Hong Kong might lose our competitive edges to say China contractors in the near future. It is possible. If the Chinese contractor can do the same efficiently with less money, that would be a serious for Hong Kong.

Right now their cost and quality are still not as good as that of Hong Kong companies. The quality is not there. That is the leading edge for Hong Kong contractors. But for cost, Hong Kong contractors always cost more because their overhead is higher. As China has so much resources, the ability to learn, replicate and improve on whatever to do, so it is only matter of time. The Mainland contractors would develop as good position as Hong Kong contractors.

It is possible but unlikely that major developers are catching up HK contractors because the majority of developments in Hong Kong are basically done by less than 10 major companies. It is almost impossible for even a very good foreign company, whether from China, England or America, to come in to the city and be able to compete with the big developers. In term of Mainland developers coming into Hong Kong, it is going to be very unlikely. They may do one or two small one, but nothing more than that. There is so much for them to lay in China.

The Hong Kong developers have a stronger international reputation than other developers, because of proven establishments. That is our core advantages. This is how the company can help in its buildings and managing our regional works. It has nobody in Shanghai, but a good relationship with the banks and tenants.

That is a good value or brand value that is very strong.

The interviewee's company does not manage only. Generally that is all open and start the discussion. They are more interested in buying up. Sometimes it happened. Developer is happy because it takes away all the risks of construction and leasing.

The interviewee's company brings some of their partners like consultants or even contractors together to the overseas market.

Shui On, for instance, has their own investment in Shanghai, China. But they don't even use their contractors. It is an option. It may choose to do it. It may not choose to do it. It may still tender and this is what is happening with Shui On. Shui On construction and China State or whatever companies may think that China labour is cheaper and a lot bigger. There is no guarantee.

The workman level in Hong Kong can be exported if they really want to adapt to the overseas market. But the problem is that the cost is much expensive compared with that in Hong Kong. Therefore only some of the key advisors are employed in Hong Kong.

7. *Which are the new local markets subsequent to the significant drop of new construction works in Hong Kong for consultants and contractors? How should the industry prepare and grasp the opportunities in local alternative markets?*

In term of the industry power to lobby to the government, in the past, there was no conduit. CIC is not perfect but it is probably the best opportunities or medium for the industry to communicate with the government.

Hong Kong lacks of technology in the industry such that huge projects e.g. we hired overseas contractors for constructing Tsing Ma Bridge project. It is a bit late that the government can do something or inject more funding to R&D or the developers can invest more in R&D. But generally it is the good decision that it should be done by the companies. The government can help stimulate by soft subsidises, e.g. tax deduction for expenses or something like that. And also encourage individual and more firm directions, e.g. reduce the light bulbs in Hong Kong within 3 years for energy saving, and focuses everybody to do. That is the long term vision, e.g. aiming for seeing a clear blue sky and mountains.

There are some measures that could help the companies or the industry to recover. When the construction industry fell in the last 3 to 5 years, the property lost tremendous amount of expertise either went back to England, America or Macau. Nothing the government can do to stop the change because we got reasonably competent and reasonably paid for construction managers or tradesmen. So they go with opportunities, rather than staying back in HK.

8. *Which are the emerging international construction markets? What are the critical success factors for international construction?*

One of the major strategic directions for the industry to keep them alive in the construction industry to sharpen their competitive edges in Hong Kong. The industry could do to sharpen competitive edges compared with international competitors, e.g. producing high-end products. It should go strive for better quality, most of the sophistication. It is the way of marketing the company advantages. Professional management certainly there is another niche expertise. Professional expertise could be bought easily.

That certainly niche expertise. How developer building is designed is another niche expertise. The interviewee's company saves a lot of money and waste after construction or during construction. It uses 4-D model. Literally all buildings are so much accurate and the number of false of coordination reduced.

R&D is really important. It gives us a lot of visualisation. Hong Kong companies would not like to put their money into R&D. The interviewee's company builds as an investment. A lot of developers focus on purely residential. Build a flat as cheap the costs as possible. The height is as high as possible until the buyers is worrying about quality and finishing.

Sustainability or durability is part of the equation and that is the government's encouragement. It is not only restricted to the designs, it is extended to construction methods and materials.

9. *Are Hong Kong construction companies successful in the China market? If not, why? How to explore the market? What are the actual merits brought about by CEPA to the local construction industry?*

In term of government role to enhance support for contractors or consultants to go overseas, the government has done CEPA and TTC to provide support. Yet, CEPA was done to help the economy post-SARS. Beijing was helping Hong Kong. In term of actually stimulating works for HK contractors and consultants, they didn't do too much.

Hong Kong consultants got works because of their own merits, not because of CEPA. There is no news about the success of CEPA. There is no feedback that there is a big success. Small industries have benefited.

10. *Would the formation of consortium be an effective way in enhancing competitiveness and exploring overseas markets in both short-term and long-term? What are the obstacles in forming consortium in the industry?*

To go overseas, contractors should have a big capacity or big sized company. Merge or acquisition would definitely be a way for success. That is the only way because it is combination of resources for both companies. And also the knowledge because everybody trained or worked in Hong Kong only knows Hong Kong. They do not know Middle East, England or America. A good example for merger is Gammon Construction, which is basically a Hong Kong company with some English affiliations got international expertise in their groups helping them in Hong Kong. On flipside, they introduced Gammon to more classy projects.

The only constraint is legal. Most of the Hong Kong developers and companies are wealth enough without any to bring in a joint venture.

Appendix XV – List of Planned / Committed Infrastructure Projects

id	Project Title	Current Project Progress	Estimated Project Cost	Brief Description of Project Scope
1	Development at Anderson Road	Detailed design is in progress.	\$2 Billion	Construction of site formation, roads, drains and upgrading of existing infrastructure to provide usable land of about 20 hectares for housing and associated government, institution or community uses at the site between existing Anderson Road Quarry and Sau Mau Ping Road in Kwun Tong District.
2	Formation, Roads and Drains in Tuen Mun Area 54 – Phase 2	Detailed design is in progress.	\$1010M	Formation of about 18.8 hectares of land and provision of associated roads and drains
3	Disposal of Contaminated Mud - Management and Capping of Pit IV	Disposal of contaminated mud at pit IVc and placement of the capping layer at pits IVa and IVb are in progress	\$524.8M	a. bund construction; b. on-site control of mud disposal activities; c. capping works; and d. environmental monitoring during mud disposal operations and for a period of two years following completion of the disposal programme.
4	Infrastructure for Penny's Bay Development, Package 3 and Penny's Bay Reclamation Stage 2	The infrastructure works for Phase I Penny's Bay Development were completed. The Penny's Bay Reclamation Stage 2 is in progress	\$ 2.4Billion	The Project mainly includes the following major works elements: (a) Site formation, construction of roads, decommissioning of the former Cheoy Lee Shipyard, waterworks (including water pipes for irrigation), drainage and sewage works, slope stabilisation, slope vegetation, landscaping works and provision of an arboretum; (b) reclamation works for the formation of about 60 ha of land at Penny's Bay including 1.6 km of permanent sloping seawall and associated works;
5	Central reclamation phase III - engineering works	a) Construction of Contract No. HK12/02 : Central Reclamation Phase III - Engineering Works commenced on 28.2.2003 and is envisaged to be completed in mid 2009; and b) construction of Contract No. HK16/03 : Central Reclamation Phase III - Hinterland Drainage Improvement Works commenced on 17.12.2003 and is envisaged to be completed in March 2008.	\$3561.5M (MOD)	a) Reclamation of about 18 hectares of the seabed in front of the Star Ferry Pier from Central reclamation phase I to Lung King Street including construction of seawalls; (b) construction of roads, public transport interchanges and associated services, stormwater culverts, drains and sewers; (c) construction of pumping station structures for the cooling water pumping systems of future developments; (d) reprovisioning of the existing cooling water pumping systems; (e) reprovisioning of piers and public landing steps; (f) reprovisioning of the Government heliport and associated works; (g) hinterland drainage improvement works; (h) landscaping works at roadside amenity areas; and (i) implementation of an environmental monitoring and audit (EM&A) programme for works mentioned in paragraphs (a) to (h) above.
6	Wan Chai development phase II, engineering works	The project is being reviewed.	\$4638M (2006 prices)	The main objective of Wan Chai Development Phase II (WDII) is to make provision for completing the missing strategic road network along the north shore of Hong Kong Island (the Central-Wan Chai Bypass and the Island Eastern Corridor Link) to alleviate traffic congestion. The land formed will provide the opportunity for enhancing the harbourfront for the enjoyment of the public.
7	West Kowloon Reclamation - roads and drains, Phase 1	The overall project was about 90% completed. The remaining works for Road D1A and noise enclosures are yet to be commenced. Detailed design is in progress.	\$526.5 million (MOD)	Construction of about 8.9km of roads, a subway and a sewerage system, reprovisioning of a public open space and noise mitigation measures.
8	Kai Tak Development - waterfront facilities and Kai Tak nullah/Kwun Tong typhoon shelter reclamation	The project is under review in the light of the Judgment of the Court of Final Appeal on harbour reclamations. The project scope and cost are thus subject to changes.	\$4658.67 M (Sept 2006 prices)	Treatment of the contaminated sediments; reclamation and construction of seawalls; construction of roads and drainage works; reprovisioning of affected waterfront marine facilities.

9	Kai Tak Development - infrastructure at north apron area of Kai Tak Airport	Consultancy Agreement No. CE 42/2000 (CE) commenced in January 2002. The project is under review in the light of the Judgment of the Court of Final Appeal on harbour reclamations. Detailed design for site preparation and drainage works at the north apron area of Kai Tak Airport was completed and Contract No. KL 39/03 (under Project 708CL) commenced on 30 April 2004 and all major civil works have been substantially completed. Implementation of the other infrastructures is being withheld.	\$3792 M (September 2006 Price)	(a) Construction of various infrastructures, including roads, vehicular bridges, footbridges, subways, drainage, sewerage, sewage pumping stations, water mains; (b) Development of open space and implementation of landscaping works; (c) Provision of necessary environmental mitigation measures and implementation of environmental monitoring and audit programme.
10	Kai Tak development – advance infrastructure works for developments at the southern part of the former runway	Consultancy for detailed design commenced on 30 January 2007. Advance study and site investigation are in progress	\$1272.75M (Sept 2006 prices)	Construction of approximately 2km of a dual 2-lane district distributor including associated pedestrian deck Provision of sewage pumping station(s) and rising mains Improvements to related existing bridge, roads and junctions; Construction of associated local roads, transport facilities, drainage, sewerage, watermains and landscaping works; and Relocation and reprovisioning of existing facilities including the Marine Vessel Traffic Services radar and fireboat berthing facilities
11	Development near Choi Wan Road and Jordan Valley	The project works are being executed under two main packages viz. site formation and associated infrastructure package and remaining infrastructure package. The site formation and associated infrastructure package (Contract No. CV/2000/06) started in Nov 2001 and was substantially completed in Dec 2006. The remaining infrastructure package comprises two phases. Phase 1 (Contract No. KL/2005/01) works commenced in Dec 2005 and Phase 2 (Contract No. KL/2006/01) works commenced in Jan 2007.	\$2009 M (MOD)	The project comprises formation of platforms near Choi Wan Road and Jordan Valley and provision of the necessary infrastructure works such as roads, flyovers and footbridges, sewers and drains, associated landscaping works and improvement of existing road junctions.
12	Sha Tin Heights Tunnel and Approaches	96% complete	\$1380M	This project consists of about 1 km of road tunnel and the Sha Tin toll plaza formation together with connecting roads to Road T3 and slip roads to Che Kung Miu Road.
13	Sha Tin New Town Stage II Remaining engineering works	In progress	\$488M	Roads, drainage and sewerage works in Sha Tin Areas 34, 52 and 56A
14	Tseung Kwan O Development, phase 3- remaining reclamation in the town centre extension, stage 2 and associated main drainage works	Substantially complete	\$455M	The project mainly comprises: (a) Reclamation of 20 hectares of seabed; (b) Construction of a 90-metre sloping seawall; (c) Construction of a 430-metre single cell box culvert, a 400-metre 7-cell box culvert and a 140-metre 8-cell box culvert; and (d) Construction of a desilting compound.
15	Sha Tin New Town Stage II Construction of Road T3	Works are in progress. Stage I of the Road T3 southbound viaduct was opened on 24 Nov 2005. Stage 1 of the northbound carriageway was opened on 6.10.2006. Bridge deck segment installation substantially completed in March 2007. Works for noise	\$1881M	Construction of about 2 km of dual 2-lane elevated roadway connecting the existing Tai Po Road (Sha Tin Heights section) and Route 8 (Cheung Sha Wan to Sha Tin) to the existing Tai Po Road (Sha Tin section).

		barriers installation, T3 underpass, slope improvement works at Tai Po Road (Sha Tin Heights), reconstruction of Tai Po Road (Tai Wai Section) west bound and ground level road works continue.		
16	Sha Tin New Town stage 2 – Trunk Road T4	Detailed design is in progress.	\$1100M	Construction of an approximately 0.6-kilometre long dual two-lane elevated carriageway along the existing Lion Rock Tunnel Road and approximately 1.7-kilometre long single-lane or two-lane slip roads connecting the proposed elevated carriageway and Road T3, Shing Mun Tunnel Road at Tung Lo Wan and Sha Tin Road at Shan Ha Wai (Tsang Tai Uk); installation of about 3.7km of noise barriers/enclosures and construction of ancillary works including civil, geotechnical, landscaping, and drainage works, utility trough for water-main, retaining walls, debris fences and slope stabilisation works.
17	Tseung Kwan O further development - infrastructure works at Town Centre South and Tiu Keng Leng, Tseung Kwan O	Detailed design is in progress	\$ 427.32 M	Construction of roads, removal of preloading material, realignment of box culvert, raising of existing seawall level and ancillary works including footpaths, cycle tracks, drainage works, water works and landscaping works etc
18	Grade Separated Interchange T1/P1/P2, Tseung Kwan O	Substantially complete	\$435.5M	Improvement works at the junction of Roads T1/P1/P2 including construction of vehicular bridges, widening of existing vehicular bridge, construction and widening of roads, construction of noise barriers and enclosure, subways, extension of existing subways and ancillary works including retaining walls, footpaths, cycle tracks, drainage works, water works and landscaping works etc.
19	Trunk Road T7 Ma On Shan	Minor landscaping softwork is in progress	\$1531M	Construction of 3.2km dual-2 carriageways and associated bridge structures, slope, drainage, noise mitigation measures and landscaping works
20	Yuen Long south extension - road works in Areas 13 and 14	Main works are substantially complete	\$362.84M (in money of the day prices)	Construction of roads and associated drainage works in Yuen Long Areas 13 and 14.
21	Route 9 (ex- Route 5) - Section between Shek Wai Kok and Chai Wan Kok	Mid-2007	\$800M (in money of the day prices)	Construction of a dual 2-lane carriageway from Cheung Pei Shan Road at Shek Wai Kok to Castle Peak Road at Tsuen King Circuit; widening and upgrading of the existing section of Castle Peak Road between Tsuen King Circuit and Chai Wan Kok to dual 4-lane carriageway together with a flyover to connect Castle Peak Road with Tuen Mun Road at Chai Wan Kok Interchange
22	Remaining Engineering Infrastructure Works for Pak Shek Kok Development - Stage 1	Reclamation works at Ma Liu Shui (Contract No.CV/2001/04) and the roads and drainage works at Pak Shek Kok (Contract No. TP 35/02) have been substantially completed. As regards the roads and drainage works at Ma Liu Shui (Contract No. TP 37/03), the contract commenced in end June 2004. About 89% of the works have been completed. The proposed public transport interchange at Pak Shek Kok (Contract No. TP/2006/01) commenced in end November 2006. About 21% of the works have been completed.	\$537M	Construction of 600m southern access phase 2, subway crossings & vehicular bridge; construction of 2-km district distributor road and a public transport interchange; associated drainage & sewerage (including 2 box culverts and 2 sewage pumping stations); construction of 600m seawall & reclamation of about 3.5ha land; and landscaping works.
23	Tsuen Wan Bypass, widening of Tsuen Wan Road between Tsuen Tsing Interchange and Kwai Tsing Interchange and	Commence in 2001 and complete in 2015	\$2200M (Sept 2006 prices)	The proposed scope of the project consists of : <ul style="list-style-type: none"> ▪ construction of two one-lane viaducts parallel to the existing TWR between Tuen Mun Road and Hoi Kok Street; ▪ construction of two 2-lane viaducts parallel to the

	associated junction improvement works			<p>existing TWR between Hoi Kok Street and Tsuen Tsing Interchange;</p> <ul style="list-style-type: none"> ▪ widening of the existing at grade section of TWR from dual 3-lane to dual 5-lane between Tsuen Tsing Interchange and Kwai Tsing Interchange; and ▪ provision of noise mitigation measures.
24	Engineering infrastructure works for Pak Shek Kok development, stage 2D - Road L3 and Road L7	Detailed design in progress	\$299M (Sept 2006 prices)	Construction of Road L3, Road L7 to cross over Tolo Highway and KCRC tracks, and the associated footpath, cycle track, drainage/sewerage works and landscape works
1	Central Kowloon Route	2016	-	The proposed Central Kowloon Route (CKR) is to relieve traffic congestion on the existing east-west roads across Central Kowloon.
2	Central - Wanchai Bypass and Island Eastern Corridor Link	Early 2017	\$20,500M	The proposed Central - Wan Chai Bypass and Island Eastern Corridor Link forms part of an east-west strategic route along the north shore of Hong Kong Island, which is required to alleviate the traffic congestion along the existing Gloucester Road - Harcourt Road - Connaught Road Central corridor.
3	Hong Kong – Zhuhai Macao Bridge (HZMB)	Under review	Under review	The entire HZMB is a 35km dual 3-lane carriageway in the form of bridge-cum-tunnel structure comprising the 29km Zhujiang Section from the landing point at Gongbei of Zhuhai and A Pérola of Macao to the boundary of the HKSAR, and the 6km Hong Kong Section (HKS) from the boundary of HKSAR to the landing point at San Shek Wan of Lantau Island.
4	Hong Kong – Zhuhai – Macao Bridge North Lantau Highway Connection (NLHC)	Project period is currently under reviewed. The possible alignment options of the NLHC and assessing the impacts of the project in various aspects are being evaluated, including transport and the environment. Upon confirmation of the preferred alignment of the NLHC, we will go through the relevant statutory procedures and commence the construction of NLHC to tie in with the programme of the HZMB.	Under review	<ul style="list-style-type: none"> a. an expressway between the landing point of the proposed HZMB at the Northwest Lantau and the NLH; and b. associated civil, structural, electrical and mechanical, marine, geotechnical, water mains, fire hydrants, environmental mitigation measures, street lighting, traffic aids, directional signs, traffic control surveillance system, landscaping and drainage works.
5	Improvement to Tung Chung Road between Lung Tseng Tau and Cheung Sha	Early 2008	\$832M	<ul style="list-style-type: none"> a. widening and realignment of a 3.6 km section of Tung Chung Road (TCR) between Lung Tseng Tau and Pak Kung Au from a single-lane road for two-way traffic to a single two-lane road for two-way traffic with a footpath having a minimum width of 1.6 m, and construction of a 2.6 km long single two-lane road between Pak Kung Au and Cheung Sha, including elevated highway structures of a total length of 750 m, with a footpath of a minimum width of 1.6 m; b. provision of 21 passing bays/bus-bays along the road and a roundabout at Cheung Sha; and c. associated works including road rehabilitation, drainage, utility, environmental mitigation measures, landscaping, slope stabilisation, traffic aids, road safety enhancement measures and traffic control and surveillance system, lighting, and electrical and mechanical (E&M) works.
6	Reconstruction and Improvement of Tuen Mun Road	2013	\$4037M	<ul style="list-style-type: none"> a. widen traffic lanes from the existing 3.3m – 3.5m to the current standard of 3.65m; b. construct 3.65m wide standard hard shoulders in both directions over the 15.5km length of the road wherever possible; c. improve horizontal curvature; d. improve sightlines; e. improve road superelevation (cross fall); f. replace parapets and roadside barriers as appropriate.

				<p>Continuous roadside barriers will be installed to separate the carriageway and roadside features such as slopes, retaining walls, buttresses and trees;</p> <p>g. lengthen the merging and diverging lanes at the interchanges at Sham Tseng and Siu Lam; and</p> <p>h. retrofit noise barriers on Tuen Mun Road.</p>
7	Traffic improvement to Tuen Mun Road Town Centre section	End 2010	\$691M	<p>a. Widening of about 1.5 km of TMRTCS from Yan Oi Town Square to Wong Chu Road from dual 2-lane to dual 3-lane, including-</p> <p>i. Wong Chu Road Section :</p> <p>Kowloon bound - to provide a new flyover extending from Tuen Hing Road, running along Tsing Hoi Circuit and merging with TMR Kowloon bound carriageway near Sam Shing Hui;</p> <p>Yuen Long bound - to widen the carriageway from 2-lane to 3-lane; and</p> <p>ii. Tuen Mun Town Plaza Section :</p> <p>to create an additional traffic lane in each direction by reducing the width of existing central median;</p> <p>b. Reprovisioning of four footbridges across the section of TMRTCS mentioned in a. above; and</p> <p>c. Provision of associated environmental mitigation measures to be identified by the Environmental Impact Assessment.</p>
8	Route 8* between Cheung Sha Wan and Sha Tin	End 2007	\$6759.7M	<p>Route 8* is a trunk road linking Lantau and Sha Tin. The North Lantau Highway and Lantau Link completed in 1997 form part of this route. The remaining two sections are that between Tsing Yi and Cheung Sha Wan and that between Cheung Sha Wan and Sha Tin (formerly known as Route 16).</p>
9	Route 8* between Tsing Yi and Cheung Sha Wan	Mid 2009	\$11118M	<p>Route 8* is a trunk road linking Lantau and Sha Tin. The North Lantau Highway and Lantau Link completed in 1997 form part of this route. The remaining two sections are that between Tsing Yi and Cheung Sha Wan (R8-TYCSW) and that between Cheung Sha Wan and Sha Tin (formerly known as Route 16). The section of R8-TYCSW will provide an alternative route to Route 3 Tsing Yi and Kwai Chung Sections (Cheung Tsing Highway , Cheung Tsing Tunnel and Tsing Kwai Highway). It will be connected to the west with Tsing Ma Bridge and Ting Kau Bridge . To the east, it will be connected with West Kowloon Highway and the section of Route 8* between Cheung Sha Wan and Sha Tin. There will also be direct connections between this section of Route 8* and the road networks near Container Terminals 8 and 9 (CT8 and CT9).</p>
10	Widening of Gascoigne Road Flyover	2016	-	<p>The project includes :-</p> <p>a. widening of the GRF to dual 2-lane carriageway;</p> <p>b. access ramps;</p> <p>c. ground level road modification works; and</p> <p>d. associated works including environmental mitigation measures, landscape, traffic aids, lighting and drainage works.</p>
11	Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling	Under review	\$3300M	<p>a. widening of a section of Tolo Highway of 3.9 km long and a section of Fanling Highway of 2.8 km long between Island House Interchange and Wo Hop Shek Interchange from the existing dual 3-lane to dual 4-lane;</p> <p>b. widening of the interchange sections at Island House Interchange, Tai Po North Interchange and Lam Kam Road Interchange from dual 2-lane to dual 3-lane, and the southbound carriageway at Tai Po North Interchange from 2-lane to 4-lane, including realigning various slip roads;</p> <p>c. widening of the southbound slip road at Wo Hop Shek Interchange;</p> <p>d. realignment of Tai Wo Service Road West from Wai Tau to Nam Wa Po;</p> <p>e. realignment of Tai Wo Service Road East from Kiu</p>

				<p>Tau to Tong Hang Tung;</p> <p>f. modification and reconstruction of the vehicular bridges, at-grade carriageways, subway and footbridges intersecting the highways;</p> <p>g. construction of vehicular bridges, access tracks, footpaths and cycle tracks;</p> <p>h. ancillary works including drainage, geotechnical, landscaping works, construction of watermains and installation of fire hydrants associated with the road widening works, and the construction of noise barriers and retaining walls and installation of traffic control and surveillance system.</p>
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Reference:

DEVB (2007) Web-site of the Works Branch, Development Bureau of Hong Kong:

http://www.devb-wb.gov.hk/links/Public_Works_Project_Information

/index.aspx?langno=1&nodeid=1251