

AsiaConstruct20

Country Report - Hong Kong

prepared by
AsiaConstruct Team
Research Centre for Construction and Real Estate Economics
The Hong Kong Polytechnic University
(www.bre.polyu.edu.hk)
for
The 20th AsiaConstruct Conference
13 – 14 November 2014
Hong Kong SAR

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About the Research Centre for Construction and Real Estate Economics (RCCREE):

The RCCREE is the Hong Kong Polytechnic University Centre for solution oriented research and consultancy in construction and real estate economics. It undertakes internationally relevant multi-disciplinary research that supports the advancement of the construction and real estate industries in the following areas: Economic Policy and Institutional Analysis, Real Estate Economics, Construction Economics, Housing, Human Behaviour in Economic Decision Making, and Value Management and Facilities Performance. For further information, please contact Professor Francis K.W. Wong, Director of RCCREE (bskwwong@polyu.edu.hk) or Professor Eddie C.M. Hui, Deputy Director (bscmhui@polyu.edu.hk).

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1. EXECUTIVE SUMMARY

The second quarter of 2014 saw the Hong Kong economy further slowing down, which only grew 1.8% in real terms over that of 2013, and it stood at the historically lowest point since the third quarter of 2012. The GDP by construction activity rose to a notably high at around 12.8% year-on-year growth in real terms, as there has been a remarkable increase in the expenditure on large-scale public infrastructure works and a moderate revival in private construction sector. Meanwhile, overall building and construction expenditure edged down by 1.3% in real terms in the second quarter.

The labour market remained generally stable, reflecting the firm labour demand. The unemployment rate rose slightly from the first quarter's 3.1% to the second quarter's 3.2%. There was somewhat a year-on-year increase in the rate of total employment at 0.4% in the second quarter of 2014, achieving total employment up to 3,744,700. Wages and earnings show a sustained rise in the second quarter largely reflecting the generally tight manpower resource balance for lower-paid jobs (*Half Yearly Economic Report 2014*).

2. MACROECONOMIC REVIEW & OUTLOOK

2.1 Overview of the National Economy

In the second quarter of 2014, the economic growth of Hong Kong further slowed down with a slightly year-on-year growth rate of 1.8% in the real term, in contrast with 2.6% in the first quarter. Net output of the services sector continued to pick up. The growth reached 2.2% in real terms, merely slower than the 2.8% increase in the fourth quarter of 2013. Among the major services sectors, import and export trade fell modestly while other service sectors such as professional and business, retail, etc. expanded further. However, the growth rates of these sectors were slackened reflecting the uncertain external economic environment and less rapid expansion in inbound tourism. Information and communications continued in its stable rise, whereas accommodation and food services and transportation, storage, postal and courier services grew at steady rates.

The sector of real estate services, particularly the activities of private sector developers and property agency, edged up 0.2% in the first quarter. However it was still below the long-term historical average record. On the other hand, manufacturing output showed a mild growth by

2.1%. In addition, construction output increased remarkably by 12.8%, due to the notable pick-up in the expenditure on large-scale public infrastructure works and the moderate revival in private construction activity.

In the second quarter of 2013, the labour market still stayed stable. The total employment increased further to 3,744,700, close to the historically highest record. The unemployment rate went up to 1.5%, compared with 1.3% in the first quarter. Nominal wages and earnings experienced further increases (*Half Yearly Economic Report 2014*).

2.2 Main economic indicators

Table 1: Main Socio-Economic Indicators

SOCIAL-ECONOMIC INDICATORS					
	2010	2011	2012	2013	2014Q2
GDP & Components					
GDP in chained (2012) dollars (HK\$ million)	1,914,375	2,005,999	2,037,064	2,096,796	507,465
GDP at Current Market Price (HK\$ million)	1,776,332	1,934,433	2,037,064	2,125,353	517,403
GDP Growth (%)	7.1	8.9	5.3	4.3	5.4
GDP Growth (%) for agriculture, fishing, mining and quarrying sector	3.9	0.8	-3.2	1.3	-5.8*
GDP Growth (%) for Manufacturing Sector	3.3	0.7	-0.8	0.1	2.1*
GDP Growth (%) for electricity, gas and water supply, and waste management sector	-0.2	0.6	1.4	-0.7	1.9*
GDP Growth (%) for Services Sector	6.9	5.2	1.8	2.9	2.2*
GDP Growth (%) for Construction Sector	15.6	18.3	8.3	1.1	12.8*
Demographic and Inflation Indicators					
Population Number	7,052,100	7,112,400	7,177,900	7,221,800	7,234,800
Population Growth Rate (%)	0.8	0.9	0.9	0.6	0.7
Labor Force(number)	3,631,300	3,703,100	3,785,200	3,858,800	3,872,300
Labor Force Growth rate (%)	-0.8	2.0	2.2	1.9	0.2
Unemployment Rate	4.3	3.4	3.3	3.4	3.3
Inflation Rate	2.4	5.3	4.1	4.3	3.6
Financial Indicators					
Interbank interest rate per annum at year end	0.80	0.75	0.95	N/A	N/A
Short term interest rate* (%)	0.28	0.22	0.05	0.11	0.04
Long term interest rate** (%)	2.86	1.47	0.6	2.31	2.01
Average Exchange Rate against USD\$	7.78	7.77	7.75	7.75	7.75

N/A : data not available

* GDP Growth rate for agriculture, fishing, mining and quarrying sector, manufacturing sector, electricity, gas and water supply, and waste management sectors, service sector and construction sector is of 2014 Q1

** yield of 91-day Exchange Fund Bills (mid-year)

***yield of 10-year Exchange Fund Notes (mid-year)

Sources:

GDP, Demographic and Financial Indicators:

Government of the HKSAR web-page at http://www.censtatd.gov.hk/hkstat/quicklink/index_tc.jsp

Short and long term interest rates: *Monthly Statistical Bulletin*, Hong Kong Monetary Authority, various issues.

3. OVERVIEW OF THE CONSTRUCTION INDUSTRY

3.1 Gross Value of Construction Contracts/ Expenditure

As shown in the table below, construction works can generally be divided into two categories, “buildings” and “structures & facilities”. The overall contract value of construction activities carried out by main contractors in Hong Kong has been rising from 2010 to 2012 while slightly retracting in 2013. The public construction sector saw a continually strong growth, the overall construction sector produced HK\$112 billion value of work in 2013, with a steady increase of about 7.4% over the previous year.

Table 2: Gross Value of Construction Contracts/ Expenditure

Type of Contract / Expenditure (HK\$ million)	2010	2011	2012	2013	2014 Q1
Buildings	40,839	47,097	60,954	59,400	16,411
Residential	22,588	26,083	37,501	38,186	10,970
Commercial	7,979	7,648	7,564	7,659	1,645
Industrial and Storage	993	1,552	2,054	3,127	1,014
Services	9,279	11,815	13,835	10,428	2,782
Structures & facilities	20,683	30,254	43,067	52,367	14,729
Transport	10,852	19,551	30,465	41,540	12,190
Other utilities & plant	2,658	2,511	4,181	3,397	737
Environment	5,758	7,198	7,892	7,030	1,691
Sports & recreation	1,415	994	528	400	110
Overall total	61,522	77,351	104,021	111,767	31,139

Source: *Report on the Quarterly Survey of Construction Output*, The Census and Statistics Department, Hong Kong Special Administrative Region, various issues

3.2 Construction Demand forecast for 2014-2015

Table 3: Forecast of Public Construction Works

Respective Departments	Title of Contract	Scheduled Project Start	Scheduled Project Completion	Estimate of Cost (HKD)
Architectural Services Department (ASD)	Liantang/Heung Yuen Wai Boundary Control Point and associated works – Boundary Control Point buildings and the associated facilities	2014-15	2017-18	>=\$500M
	Government Complex in Area 14 (Siu Lun), Tuen Mun	2014-15	2018-19	>=\$500M
	Cross District Community Cultural Centre in Lower Ngau Tau Kok Estate, Kwun Tong	2015-16	2018-19	>=\$500M
	Construction of rank and file quarters for Customs and Excise Department at Yau Yue Wan Village Road, Tseung Kwan O	2014-15	2017-18	\$400M - \$500M
	Redevelopment of Lok Fu Staff quarters at 20 Heng Lam Street, Kowloon	2015-16	2017-18	\$200M - \$300M
	Expansion and Renovation of Hong Kong Museum of Art	2014-15	2017-18	>=\$500M
	Redevelopment of Kwun Tong Staff Quarters at 4 Tseung Kwan O Road, Kowloon	2015-16	2019-20	>=\$500M
	West Kowloon Government Offices	2015-16	2018-19	>=\$500M
	Redevelopment of Kwai Chung Hospital (Phase 1)	2015-16	2017-18	>=\$500M
	A school for social development for girls at Choi Hing Road, Kwun Tong, Kowloon	2014-15	2016-2017	\$300M - \$400M
	Two special schools at site 5C-5, Kai Tak development, Kowloon	2014-15	2016-17	\$400M - \$500M
	Relocation of New Territories West Regional Office and Water Resources Education Centre of Water Supplies Department to Tin Shui Wai	2015-16	2017-18	>=\$500M
	Community hall at Sau Ming Road, Kwun Tong	2014-15	2018-19	\$100M - \$200M
	Reprovisioning of Pak Tin community hall and special child care centre-cum-early education and training centre in Pak Tin Estate redevelopment site, and footbridge link at Nam Cheong Street, Sham Shui Po	2014-15	2017-18	\$200M - \$300M
	Kowloon East Regional Headquarters and Operational Base-cum-Ngau Tau Kok Divisional Police Station	2014-15	2017-18	>=\$500M
	Sports centre in Area 24D, Sha Tin	2014-15	2017-18	>=\$500M

Respective Departments	Title of Contract	Scheduled Project Start	Scheduled Project Completion	Estimate of Cost (HKD)
	A 36-classroom primary school in Area 36, Fanling	2014-15	2016-17	\$300M - \$400M
	Lei Yue Mun Waterfront Enhancement Project - development of a waterfront promenade and related improvement works	2015-16	2018-19	\$50M - \$100M
	Construction of a secondary boundary fence and new sections of primary boundary fence and boundary patrol road - phase 2	2011-12	2015-16	\$200M - \$300M
	Conversion of aqua privies into flushing toilets - phase 7	2010-11	2014-15	\$200M - \$300M
	Reprovisioning of Cape Collinson Crematorium	2010-11	2015-16	>=\$500M
	West Kowloon Law Courts Building	2012-13	2015-16	>=\$500M
	Construction of an ambulance depot at Choi Shun Street, Sheung Shui	2012-13	2014-15	\$100M - \$200M
	Public Library and Indoor Recreation Centre in Area 3, Yuen Long	2010-11	2015-16	>=\$500M
	District Open Space, Sports Centre and Library in Area 74, Tseung Kwan O	2011-12	2014-15	>=\$500M
	Redevelopment of Kwun Tong Swimming Pool Complex and Kwun Tong Recreation Ground	2009-10	2014-15	>=\$500M
	Sports centre, community hall and district library in Area 14B, Sha Tin	2012-13	2015-16	>=\$500M
	Redevelopment of disciplined services quarters in Fu Tei, Tuen Mun	2012-13	2014-15	\$300M - \$400M
	Relocation of the printing workshop of Government Logistics Department	2013-14	2015-16	\$300M - \$400M
	Reprovisioning of Yaumatei Specialist Clinic at Queen Elizabeth Hospital	2013-14	2016-17	>=\$500M
	Tin Shui Wai Hospital	2012-13	2016-17	>=\$500M
	Redevelopment of Tai Lam Centre for Women	2012-13	2016-17	>=\$500M
	Establishment of the Centre of Excellence in Paediatrics	2013-14	2017-18	>=\$500M
	Construction of Trade and Industry Tower in Kai Tak Development Area	2011-12	2015-16	>=\$500M
	Relocation of the Court of Final Appeal to No. 8 Jackson Road	2013-14	2014-15	\$400M - \$500M
	Relocation of Part of the Offices of the Department of Justice to the Main and East Wings of the Former Central Government Offices	2013-14	2014-15	>=\$500M

Respective Departments	Title of Contract	Scheduled Project Start	Scheduled Project Completion	Estimate of Cost (HKD)
	Redevelopment of Fire Services Training School	2012-13	2015-16	>=\$500M
	Redevelopment of Victoria Park Swimming Pool Complex	2009-10	2015-16	>=\$500M
	Sports centre in Area 4, Tsing Yi	2013-14	2016-17	>=\$500M
	Reprovisioning of Yau Ma Tei Police Station	2013-14	2015-16	>=\$500M
	A 30-classroom primary school at Site 1A-3, Kai Tak Development, Kowloon	2013-14	2015-16	\$300M - \$400M
	Fitting-out works for government facilities associated with midfield expansion project at Hong Kong International Airport	2012-13	2015-16	\$200M - \$300M
	Open space in Area 117, Tin Shui Wai	2012-13	2014-15	\$200M - \$300M
	District open space adjoining Lower Ngau Tau Kok public housing redevelopment	2012-13	2015-16	\$100M - \$200M
	Kwun Tong promenade (stage 2)	2012-13	2014-15	\$200M - \$300M
Civil Engineering and Development Department (CEDD)	Wan Chai development phase II, engineering works	December 2009	2017	\$4.643 billion
	Kai Tak development – Stage 3A & Stage 4 infrastructure works at north apron area of Kai Tak Airport	September 2013	Mid 2017	\$2.255 billion
	Development at Anderson Road	31 January 2008	end 2015	\$3.3 billion
	Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel	30 August 2013	N/A	\$488 million
	Infrastructure works for housing sites adjacent to Lung Ping Road at Tai Wo Ping, Shek Kip Mei	31 July 2013	end 2016	\$781 million
	Kai Tak development - remaining infrastructure works for developments at the former runway	N/A	N/A	N/A
	West Kowloon Reclamation - main works (remainder)	N/A	N/A	\$493 million
	Kai Tak development - Kai Tak approach channel and Kwun Tong typhoon shelter improvement works	The second half of 2011	N/A	\$3.775 billion
	Kai Tak Development - infrastructure at north apron area of Kai Tak Airport	N/A	N/A	\$3.379 billion
	Kai Tak development – advance infrastructure works for developments at the southern part of the former runway	N/A	N/A	\$3.043 billion

Respective Departments	Title of Contract	Scheduled Project Start	Scheduled Project Completion	Estimate of Cost (HKD)
	GIC Facilities in Kwun Tong Town Centre Redevelopment - Provision of Grade-separated Pedestrian Linkages to the KTTC Redevelopment	N/A	N/A	\$135.2 million
	Kai Tak development – stage 2 infrastructure at north apron area of Kai Tak Airport	14 July 2011	Q4 2015	\$355.8 million
	Kai Tak development - Kai Tak approach channel and Kwun Tong typhoon shelter improvement works (Phase 1)	14 July 2011	Q3 2014	\$717.7 million
	Improvement Works at Mui Wo	July 2014	N/A	\$578.1 million
	Dredging, Management and Capping of Contaminated Sediment Disposal Facility to the South of The Brothers	20 September 2012	1 February 2017	\$617.7 million
	Yung Shue Wan Development, Engineering Works, Phase 2	N/A	N/A	\$60 million
	Development of a Bathing Beach at Lung Mei, Tai Po	18 June 2013	June 2015	\$208.2 million
	Liantang/Heung Yuen Wai Boundary Control Point and Associated Works	11 April 2013	Mid 2018	\$24.4 billion
	Disposal of Contaminated Sediment- dredging , management and capping of sediment disposal facility at Sha Chau	29 March 2010	1 February 2017	\$779 million
	Formation, Roads and Drains in Area 54, Tuen Mun – Phase 2	N/A	N/A	\$1.184 billion
	Formation, roads and drains in Area 54, Tuen Mun – phase 2 stage 2 works	26 October 2012	Early 2016	\$179 million
	Cross Bay Link, Tseung Kwan O	1 August 2014	N/A	N/A
	Sha Tin New Town Stage II Construction of Road T3	8 June 2014	N/A	\$2.12 billion
	Hung Shui Kiu Development, Stage 2 – widening of Tin Ha Road and Tan Kwai Tsuen Road	23 August 2012	Q3 2014	\$106.0 million
	Engineering Infrastructure Works for Pak Shek Kok Development -- Stage 2B -- Improvement of Yau King Lane	N/A	N/A	\$42.87 million
	Tsuen Wan Bypass, widening of Tsuen Wan Road between Tsuen Tsing Interchange and Kwai Tsing Interchange and associated junction improvement works	N/A	2021	\$4.74 billion

Respective Departments	Title of Contract	Scheduled Project Start	Scheduled Project Completion	Estimate of Cost (HKD)
	Cycle Tracks Connecting North West New Territories with North East New Territories – Tuen Mun to Sheung Shui section (Stage 1)	29 November 2013	2016	\$295.4 million
	Cycle Tracks Connecting North West New Territories with North East New Territories – Tuen Mun to Sheung Shui section (Remaining)	N/A	N/A	\$536 million
	Cycle Tracks Connecting North West New Territories with North East New Territories - extension	N/A	N/A	\$1.0994 billion
	Cycle Track between Tsuen Wan and Tuen Mun	N/A	N/A	\$2.5 billion
	Cycle Tracks Connecting North West New Territories with North East New Territories – Sheung Shui to Ma On Shan section	25 May 2010	N/A	\$230 million
Drainage Services Department (DSD)	Drainage Improvement in Northern New Territories-package B (Remaining Works)	Jul 2015	Early 2018	\$45 million
	Reconstruction and Rehabilitation of Kai Tak Nullah from Tung Kwong Road to Prince Edward Road East - main works	30 December 2013	End 2017	\$1,200 million
	Sewerage in Nam Wa Po and Wai Tau Tsuen	31 July 2013	September 2017	\$319.1 million
	Tolo Harbour Sewerage of Unsewered Areas, Stage 2 Phase 1	31 July 2013	September 2017	\$364.7 million
	Demolition of Wan Chai West Preliminary Treatment Works	31 May 2013	Mid 2014	\$12 million
	Sewerage at Clear Water Bay Road, Pik Shui Sun Tsuen and West of Sai Kung Town	Jan 2013	Jan 2017	\$359 million
	Sewers at Kam Tin, Tan Kwai Tsuen and Tong Yan San Tsuen, Storm Drains at Fanling and Covers to Tanks at Siu Ho Wan Sewage Treatment Works	28 December 2012	December 2015	\$66 million
	Lam Tsuen Valley Sewerage, Stage 2	31 October 2012	End 2016	\$590 million
	Yuen Long and Kam Tin Sewerage Stage 3 Package 2	6 September 2012	2016	\$213 million
	Condition Survey for Underground Sewers and Drains – Investigation	25 July 2012	End 2017	N/A
	Upgrading of Mui Wo Sewage Treatment Works and Sewerage at Mui Wo Town Centre and Wang Tong	31 July 2012	Sep 2017	\$767 million
	North District Sewerage, Stage 2 Part 2A - Pak Hok Lam Trunk Sewer and Sha Tau Kok Village Sewerage	28 June 2012	Mid 2017	\$272M

Respective Departments	Title of Contract	Scheduled Project Start	Scheduled Project Completion	Estimate of Cost (HKD)
	Village Sewerage in Kau Lung Hang San Wai, Kau Lung Hang Lo Wai and Tai Hang, and Southern Trunk Sewer Between Wai Tau Tsuen and Nam Wa Po	26 June 2012	Mid 2016	\$317 million
	Feasibility Study on Relocation of Sha Tin Sewage Treatment Works to Caverns	30 May 2012	May 2014	\$57.9 million
	Sewerage Upgrading Works in Tai Lam Centre for Women and Other DSD Facilities and Village Sewerage in Sha Tau Kok	7 May 2012	2014	\$28 million
	Liantang/Heung Yuen Wai Boundary Control Point and Associated Works – Re-provisioning of Boundary Patrol Road and Primary Boundary Fence	30 March 2012	February 2015	\$393.5 million
	Sewerage in Ping Kong, Fu Tei Pai and Tai Wo	21 November 2011	End 2014	\$226 million
	Lam Tsuen Valley Sewerage, Stage 1	31 October 2011	End 2015	\$270 million
	Reconstruction and Rehabilitation of Kai Tak Nullah from Po Kong Village Road to Tung Kwong Road - Remaining Works	31 October 2011	Mid 2017	\$1,600 million
	Trunk Sewerage at Lau Fau Shan	14 October 2011	End 2015	\$196 million
	Tuen Mun Sewerage, Stage 1 - Village Sewerage in Tsing Chuen Wai and Tuen Tsz Wai	15 September 2011	Mid 2014	\$22 million
	Happy Valley Underground Stormwater Storage Scheme	September 2011	February 2018	\$1,065.8 million
	Upgrading of Central and East Kowloon Sewerage - Phase 2	30 June 2011	End 2015	\$503 million
	Rehabilitation and Construction of Trunk Sewers Underneath Shing Mun River Channel (SMRC)	15 February 2011	End 2015	\$140 million
	Provision of Interception Facilities at Jordan Valley Box Culvert	22 December 2010	Mid 2014	\$588 million
	Harbour Area Treatment Scheme Stage 2A – Upgrading of Stonecutters Island Sewage Treatment Works and Preliminary Treatment Works	August 2010	2014/15	\$7,913 million
	Upgrading of Pillar Point Sewage Treatment Works	28 July 2010	Early 2014	\$1,902.5 million
	Construction of Intercepting Drains at Shun Tat Street, Tuen Mun and Remaining Works at Sha Po Tsuen, Yuen Long	26 May 2010	August 2013	\$18.9 million

Respective Departments	Title of Contract	Scheduled Project Start	Scheduled Project Completion	Estimate of Cost (HKD)
	Drainage improvement works in Shuen Wan, Tai Po	26 February 2010	2014	\$252.7 million
	Tai Po Sewage Treatment Works, Stage 5 Phase 2B	29 January 2010	June 2014	\$660 million
	Sewerage in Western Tuen Mun	15 December 2009	End 2015	\$1,300 million
	Yuen Long South Sewerage and Expansion of Ha Tsuen Sewage Pumping Station	24 September 2009	January 2014	\$550 million
	Harbour Area Treatment Scheme Stage 2A – Construction of Sewage Conveyance System and Advance Works for Upgrading of Stonecutters Island Sewage Treatment Works	July 2009	End 2014	\$9,286.5 million
	Tolo Harbour Sewerage of Unsewered Areas Stage I Phase 2C	9 February 2009	End 2014	\$380 million
	Drainage improvement in Northern Hong Kong Island – western lower catchment works	8 July 2008	31 March 2014	\$370 million
	North District and Tolo Harbour Sewerage, Sewage Treatment and Disposal – Regional Sewerage Works, Part 1 – Sewerage Upgrade	31 Jan 2008	End 2014	\$730 million
	Outlying Islands Sewerage Stage 1 Phase 2: Sok Kwu Wan Sewage Collection, Treatment and Disposal Facilities	31 January 2008	End 2014	\$353.7 million
	Outlying Islands Sewerage Stage 1 Phase 1 Part 2: Yung Shue Wan Sewerage, Sewage Treatment Works and Outfall	31 January 2008	End 2014	\$347.5 million
	Northeast New Territories village sewerage, phase 2	14 January 2003	Mid 2014	\$151 million
	Provision of Sewerage for the Unsewered Area in Pokfulam	End 2016	End 2020	N/A
	Outlying Islands Sewerage Stage 2 – Lamma Village Sewerage Phase 2 Package 1	End 2013	Mid 2018	\$340 million
	Expansion of Sha Tau Kok Sewage Treatment Works, Phase 1	2016	2020	N/A
	Rehabilitation of Trunk Sewers in Tuen Mun	Early 2015	Mid 2019	N/A
	Shek Wu Hui Sewage Treatment Works - Further Expansion Phase 1A	2016	2022	N/A
	Sewerage to Chuen Lung Village, Kau Wa Keng Old Village and Lo Wai	Mid-2015	Mid-2018	\$100 million

Respective Departments	Title of Contract	Scheduled Project Start	Scheduled Project Completion	Estimate of Cost (HKD)
	Outlying Islands Sewerage Stage 2 – Lamma Village Sewerage Phase 2	End 2015	Mid 2020	\$303 million
	Upgrading of Cheung Chau and Tai O Sewage Collection, Treatment and Disposal Facilities	Mid 2015	End 2020	\$3,605 million
	Outlying Islands Sewerage, Stage 2 – Extension of Sewerage System to Other Unsewered Villages in Mui Wo	Mid 2014	Mid 2018	\$206 million
	Upgrading of Tuen Mun Sewerage, Phase 1	End 2014	End 2018	\$597.9 million
	North District Sewerage, Stage 2 Part 2A	Mid-2015	Mid-2020	\$300 million
	Upgrading of Central and East Kowloon Sewerage	Mid 2015	End 2020	\$460 million
	Outlying Islands Sewerage Stage 2 - Peng Chau village sewerage phase 2	2015	2018	\$91 million
	North District Sewerage, Stage 1 Phase 2C and Stage 2 Phase 1	Mid 2015	End 2020	\$400 million
	Yuen Long and Kam Tin Sewerage Stage 3	Mid 2012	Early 2018	\$270 million
	Sai Kung Sewage Treatment Works Phase II Upgrading	2018	2022	N/A
	Yuen Long and Kam Tin Sewerage Treatment Upgrade - Upgrading of San Wai Sewage Treatment Works	Early 2015	Late 2024	\$2,200 million
	North District Sewerage, Stage 2 Part 2B	Mid 2016	Mid 2020	\$450 million
	Drainage Improvement Works at Ngong Ping	Mid 2015	Late 2017	N/A
	Tuen Mun Sewerage, Stage 1	End 2014	End 2018	\$346.7 million
	Yuen Long and Kam Tin Sewerage Stage 2	Mid 2013	Mid 2018	\$95 million
	Drainage Improvement in Southern Hong Kong Island	Late 2014	Late 2017	N/A
	Tolo Harbour Sewerage of Unsewered Areas Stage 2	End 2014	End 2020	\$1,000 million
	Drainage improvement in Northern New Territories - package C (remaining works)	Early 2017	Early 2020	\$492 million

Note: N/A information not available; information include projects under planning and under construction which scheduled to complete on or after 2014 however exclude project under review, proposed ArchSD projects 2014-15 for refurbishment of government buildings, special/interesting maintenance projects and minor projects; projects information of Electrical and Mechanical Service, Highways Department and Water Supplies Department are also not included.

Sources: web-sites of Public Works Project Information in Development Bureau available, Retrieved from http://sc1.devb.gov.hk/TuniS/www.devb.gov.hk/tc/links/public_works_project_information/index.html

3.3 Construction Companies

Table 4: Number of contractors and the breakdown by size

	No. of registered contractors (2014)			
Buildings Department (Registered General Building Contractors)	700			
Development Bureau (List of Approved Contractors for Public Works)	Group A	Group B	Group C	Total
	99	133	112	344
Housing Authority (Counterparty Lists)	NW1		NW2	Total
	19		30	49

Notes

'A' denotes Group A for contracts of value up to \$30 million

'B' denotes Group B for contracts of value up to \$75 million

'C' denotes Group C for contracts of any values exceeding \$75 million

Group NW1 - Contractors are eligible to tender for new works contracts with a value of up to \$270M.

Group NW2 - Contractors are eligible to tender for new works contracts of unlimited value.

Sources:

List of Registered General Building Contractors of Buildings Department available at

http://www.bd.gov.hk/english/inform/e_gbc_1.html

List of Approved Contractors for Public Works available at

<http://www.devb.gov.hk/Contractor.aspx?section=80&lang=1>

Housing Authority Counterparty List available at

http://comis.housingauthority.gov.hk/ha/eng/ctp_list.jsp?LIST_CD=BLG

3.4 Construction Manpower

Table 5: Number of workers employed in principal jobs of construction, building and civil engineering and related disciplines

Job Levels	April / July 2013
Professional/Technologist	21,942
Technician	34,853
Skilled & Semi-Skilled worker	69,868
General Worker	32,479
Total	159,142

Source: *Manpower Survey Reports on the Building and Civil Engineering Industry*, Building and Civil Engineering Industry Training Board, Vocational Training Council, bi-annual issue of 2013.

Table 6: Number of persons directly engaged in the building and civil engineering establishments

Main industry group	2009	2010	2011	2012
Construction of buildings	13,309	18,529	20,307	24,025
Civil engineering	24,117	24,420	27,293	20,732
Demolition and site preparation	5,259	6,233	6,887	7,673
Building services installation and maintenance activities	47,839	52,664	72,434	73,828
Building finishing and other specialized construction activities	44,731	45,112	43,423	58,305
All construction activities	135,254	146,958	170,345	184,563

Source: *Report on Annual Survey of Building, Construction and Real Estate Sectors*, The Census and Statistics Department, Hong Kong Special Administrative Region, various issues.

3.5 Productivity

Table 7: Value added per employee

Year	Value added per employee (HK\$million)
2009	0.188
2010	0.216
2011	0.245
2012	0.025

Source:

Value added by Construction activity:

Chain volume measures of Gross Domestic Product (GDP) by economic activity - in chained (2012) dollars, The Census and Statistics Department, Hong Kong Special Administrative Region
Employed Persons by Industry (Construction):

Hong Kong Annual Digest of Statistics 2013, The Census and Statistics Department, Hong Kong Special Administrative Region.

Table 8: Physical Measurement of Construction Production

End use of building (Unit: 000sq.m.*)	2008	2009	2010	2011	2012
Private residential premises+	5,265 (-10.2%)	3,894 (-26.0%)	3,665 (-5.9%)	5,839 (59.3%)	5282 (-9.3%)
Office buildings	77.4 (-24.9%)	262 (-66.1%)	389 (48.5%)	172 (-55.7%)	471 (173.3%)
Hotels and boarding houses	292 (6.6%)	301 (3.1%)	162 (-46.2%)	401 (147%)	322 (-19.7%)
Multi-purpose commercial premises	1,633 (41.3%)	1,442 (-11.7%)	987 (-31.6%)	455 (53.9%)	494 (8.6%)
Flatted factory blocks and warehouses	246 (17.1%)	131 (-46.7%)	125 (-4.6%)	362 (189.3%)	486 (34.4%)
Total	8,210 (-3.7%)	6,030 (-26.6%)	5,328 (-11.6%)	7,229 (35.7%)	7,055 (-2.4%)

* Area (sq. m) refers to gross floor area of buildings when completed.

+ Includes buildings purely for residential purpose and combined residential and non-residential buildings.

Source: *Key Statistics on Business Performance and Operating Characteristics of the Building, Construction and Real Estate Sectors in 2012*, The Census and Statistics Department, Hong Kong Special Administrative Region

3.6 Construction Cost

Table 9: Building Works Tender Price Index (BWTPI)

Year	Building Works Tender Price Index (BWTPI)			
	Qtr 1	Qtr 2	Qtr 3	Qtr 4
2014	1621			
2013	1516	1532	1559	1590
2012	1414	1438	1467	1496
2011	1273	1320	1369	1408
2010	1134	1161	1249	1266
2009	1074	983	1111	1107
2008	1118	1305	1401	1262

Source: Building Works Tender Price Index (BWTPI) compiled by the Architectural Services Department available at <http://www.archsd.gov.hk/en/reports/building-works-tender-price-index.aspx>

Table 10: Major construction material average prices (in HK\$)

		2010	2011	2012	2013	2014
Aggregates (per tonne)		50	63	59	60	62
Bitumen (per tonne)		7,570	8,483	9,230	8,803	8,433
Concrete blocks, 100mm thick (per square metre)		62	68	70	72	77
Diesel fuel	For industrial use (light) (per 200-litre drum)	2,440	1,971	1,970	2,082	2,141
	For road use (per 100 litre)	1,029	988	957	916	1,082
Glass - Clear sheet glass, 5mm thick (per square metre)		136	144	149	151	151
Glazed ceramic wall tiles	White tiles, 108mm*108mm (per 100 pieces)	155	202	204	110	233
	Colour tiles, 200mm*200mm (per 100 pieces)	270	334	374	270	398
Hardwood	Sawn hardwood, 50*75 mm column (per cubic metre)	3,992	5,470	5,511	3,731	5,529
Homogeneous floor tiles	Non-slip tile, 200mm*200mm (per square metre)	146	150	154	145	161

		2010	2011	2012	2013	2014
Galvanised mild steel	Steel plates (per tonne)	8,303	9,180	9,033	7,580	9,511
	Steel angles (per tonne)	12,099	12,234	11,980	11,118	11,967
	Steel flats (per tonne)	9,714	10,023	10,214	8,947	10,141
Metal formwork	Steel plate, 4mm thick (per tonne)	5,857	6,542	6,322	5,280	5,614
Mosaic tiles	Unglazed tiles, 18mm*18mm (per square metre)	70	81	91	53	114
	Glass tiles, 25mm*25mm (per square metre)	31	35	42	31	50
	Glazed tiles, 45mm*45mm (per square metre)	89	109	114	85	130
Paint	Emulsion paint (per litre)	39	45	48	37	52
	Acrylic paint (per litre)	41	48	48	38	49
Portland cement (ordinary) (per tonne)		621	677	684	700	714
Sand (per tonne)		72	101	117	122	120
Steel reinforcement	Mild steel round bars, 6mm to 20mm (per tonne)	6,408	6,747	6,443	5,687	5,750
	High tensile steel bars, 10mm to 40mm (per tonne)	6,003	6,288	5,865	4,581	4,929
Timber formwork	Plywood, formwork, 19mm thick (per square metre)	66	71	71	63	74
	Sawn hardwood, 25mm thick plank (per cubic metre)	3,072	3,355	3,572	3,068	3,814
uPVC pipes	32mm diameter pipes, 4m long (per number)	47	51	56	45	55

Note: Prices are based on June data from 2009 to 2013 and May 2014 and in Hong Kong dollars.

Source: *Average Wholesale Prices of Selected Building Materials*, Census and Statistics Department, Hong Kong Special Administrative Region, various issues.

Table 11: Construction Industry Salaries and Wages –Unskilled Workers

	Unskilled Workers Daily Wage (HK\$)
2009 Dec	576
2010 Dec	599
2011 Dec	616
2012 Dec	679
2013 Dec	743
2014 June	787

Sources: Average Daily Wages of Workers Engaged in Public Sector Construction Projects, Census and Statistics Department, Hong Kong Special Administrative Region, various issues.

Table 12: Construction Industry Salaries and Wages – Construction Professionals

Professionals in Building and construction and related trades (Unit: Median monthly salary in HK\$)	2009 June	2010 June	2011 June	2012 June	2013 June
Accountant	32,800	34,400	32,900	35,000	34,900
Administrative Officer / Executive Officer	16,900	18,400	NA	NA	NA
Architect	52,700	50,900	55,800	58,700	NA
Building Services Engineer	31,700	29,400	31,200	32,500	35,600
Mechanical Engineer	28,700	31,500	28,100	28,100	29,900
Personnel Manager/ Human Resources Manager/ Staff Relations Manager	35,200	32,000	37,800	41,200	45,200
Project Manager	41,800	55,100	55,200	60,400	64,100
Safety Officer	29,300	30,700	33,200	34,300	38,200
Structural Engineer	27,700	33,400	34,100	35,000	39,600

NA: data not available

Source: Report of Salaries and Employee Benefits Statistics, Managerial and Professional Employees (Excluding Top Management), Wages and Labour Costs Statistics Section, Census and Statistics Department, Hong Kong Special Administrative Region.

Professionals in most of the disciplines had a substantial increase in their wages, such as building services engineer, human resources managers, project manager and safety officers. However, the wages of accountants decreased slightly.

Table 13: Construction Industry Salaries and Wages –Skilled Workers (in HK\$)

The table below summarizes the wages of 32 categories of skilled workers. In general, the average daily salaries and wages of skilled workers continued to increase from 2009 to June 2014. It is expected that the demand for workers and their wages will further increase following the commencements and completions of more construction projects.

	2010 Dec	2011 Dec	2012 Dec	2013 Dec	2014 June
Concretor	926	1,073	1,252	1,439	1,699
Bricklayer	861	853	936	931	979
Drainlayer	876	970	1,125	1,171	1,273
Mason	818	853	1,113	1,205	1,090
Bar bender and fixer	1,167	1,249	1,401	1,599	1,718
Metal worker	829	835	900	955	1,015
General welder	843	894	1,013	1,227	1,296
Structural steel erector	1,017	1,181	1,062	1,416	1,400
Structural steel welder	952	1,005	1,116	1,328	1,430
Rigger/metal formwork erector	831	949	1,032	1,383	1,495
Carpenter (formwork)	997	1,091	1,345	1,547	1,719
Joiner	916	899	942	920	997
Plumber	886	894	953	941	1,019
Construction plant mechanic	797	899	978	1,193	1,116
Plant & equipment operator (load shifting)	746	802	860	932	969
Truck driver	611	654	708	752	763
Rock-breaking driller	784	840	1,065	1,317	1,483
Asphalter (road construction)	705	747	772	813	820
Bamboo scaffolder	1,072	1,129	1,243	1,395	1,454
Diver	1,766	1,761	1,959	2,148	2,238
Plasterer	891	940	1,029	1,044	1,097
Glazier	908	897	929	1,040	1,067
Painter and decorator	813	781	846	858	903
Leveller	762	839	991	1,136	1,231
Marble worker	779	898	1,042	963	1,100
Electrical fitter (incl. electrician)	697	723	781	860	883
Mechanical fitter	623	622	705	772	775
Refrigeration/AC/ventilation mechanic	660	610	686	677	681
Fire services mechanic	755	667	757	853	955
Lift and escalator mechanic	696	645	606	648	693
Building services maintenance mechanic	628	655	718	744	715
Power cable jointer	751	853	1,230	1,600	1,010

Source: *Average Daily Wages of Workers Engaged in Public Sector Construction Projects*, Census and Statistics Department, Hong Kong Special Administrative Region, various issues.

3.7 Import & Export of Construction Work and Consultancy Services

Table 14: Import and Export of Construction and Consultancy Services (in HK\$million)

Year	2008	2009	2010	2011	2012
Imports					
Value of Construction services by foreign contractors	1,283	923	413	609	2,500
Value of consultancy services by foreign consultants	800	1,382	1,971	2,483	2,544
Exports					
Value of construction services by local contractors in foreign country	1,580	1079	1,123	1,111	2,564
Value of consultancy services by local consultants in foreign country	3,193	3,595	3,745	3,731	3,946

Sources: *Report on Hong Kong Trade in Services Statistics* 2010, 2011 & 2012, the Census and Statistics Department, Hong Kong Special Administrative Region.

Notes:

"Construction services" include:

General construction work (including new work, additions and alterations, repair and maintenance) and installation work at sites, buildings and structures that usually lasts for less than one year.

"Consultancy services - Architectural, engineering and other technical services" include:

Advisory architectural services; architectural design services; contract administration services; advisory and consultative engineering services; engineering design services for construction projects or industrial processes; and urban planning and landscape architectural services.

There is a decreasing trend of both import and export of construction services during 2008 and 2011. The value of import decreased from HK\$1,283 million to HK\$609 million in 2011. However 2012 saw a dramatic rise up to 2,500 million, while the value of export increased from HK\$1,580 million to HK\$2,564 million. The net export value of construction services decreased from HK\$297 million in 2008 to HK\$64 million in 2012 (refer to Table 14 & 15). The export of architectural, engineering and other technical services have increased since 2008. There is more overseas demand for local professionals than construction services. Major demands have come from China Mainland, Dubai, India and other South East Asian countries.

Table 15: Annual Import/Export of Construction and Consultancy Services

Major service group/Region	Year	Export of services	Import of services	Net export of services
		HK\$million	HK\$million	HK\$million
<i>Construction services</i>	2008	1,580	1,283	297
	2009	1,079	923	156
	2010	1,123	413	710
	2011	1,111	609	502
	2012	2,564	2,500	64
Asia	2008	1,496	1,212	284
	2009	1,040	751	289
	2010	1,120	357	763
	2011	1,066	609	457
	2012	2,564	2,500	64
Australasia and Oceania	2008	<0.5	**	**
	2009	**	142	**
	2010	<0.5	49	-49
	2011	<0.5	<0.5	<0.5
	2012	<0.5	<0.5	<0.5
Central and South America	2008	<0.5	<0.5	<0.5
	2009	<0.5	<0.5	<0.5
	2010	<0.5	<0.5	<0.5
	2011	<0.5	<0.5	<0.5
	2012	<0.5	<0.5	<0.5
North America	2008	**	<0.5	**
	2009	<0.5	<0.5	<0.5
	2010	<0.5	<0.5	<0.5
	2011	45	<0.5	45
	2012	<0.5	<0.5	<0.5
Western Europe	2008	**	**	**
	2009	<0.5	30	-30
	2010	<0.5	7	-7
	2011	<0.5	<0.5	<0.5
	2012	<0.5	<0.5	<0.5
<i>Architectural, engineering and other technical services</i>	2008	3,193	800	2,393
	2009	2,134	440	1,694
	2010	2,233	517	1,716
	2011#	3,731	2,483	1,248
	2012#	3,946	2,544	1,402
Asia	2008	2,364	548	1,816
	2009	1,619	302	1,317
	2010	1,772	425	1,347
	2011	NA	NA	NA
	2012	NA	NA	NA
Australasia and Oceania	2008	45	28	17
	2009	21	13	8
	2010	38	20	18
	2011	NA	NA	NA
	2012	NA	NA	NA
Central and South America	2008	**	<0.5	**
	2009	<0.5	<0.5	<0.5
	2010	**	**	**

Major service group/Region	Year	Export of services	Import of services	Net export of services
		HK\$million	HK\$million	HK\$million
North America	2011	NA	NA	NA
	2012	NA	NA	NA
	2008	205	15	190
	2009	198	69	129
	2010	166	16	150
Western Europe	2011	NA	NA	NA
	2012	NA	NA	NA
	2008	297	189	108
	2009	181	44	137
	2010	187	**	**
	2011	NA	NA	NA
	2012	NA	NA	NA

** Data suppressed for confidentiality reason

Architectural, engineering, scientific and other technical services

Sources: *Report on Hong Kong Trade in Services Statistics for 2010, 2011 and 2012* The Census and Statistics Department, Hong Kong Special Administrative Region.

The majority of the export and import of both construction and consultancy services are carried out within the Asian region. The Chinese Mainland market has taken the highest proportion. The export of major consultancy services includes engineering consulting, contracting and project management. In 2010, consultants have also generated HK\$391million from countries outside Asia, including Australasia and Oceania, North America and Western Europe. On the contrary, the export of construction services to regions outside Asia has been negligible in the last few years.

Meeting Construction Industry Resources Requirements in Hong Kong

The construction industry has transformed Hong Kong from a small fishing village into a bustling cosmopolitan city that offers a world class living environment. The landscape is populated by high-rise buildings and many other infrastructure developments. As one of the vital industries in Hong Kong, the construction industry has experienced a spurt in activity over the last few years, with contribution of 175.9 billion Hong Kong dollars to the Hong Kong economy in 2013, accounting for about 8.3% of its Gross Domestic Product (Census and Statistics Department, 2014).

The Hong Kong government has been increasing its infrastructure investment and real estate development over the past years in parallel with the rapid urbanization taking place in China, greatly enhancing the potential growth prospects of the construction industry in Hong Kong. These prospects are somewhat constrained, however, by shortages of LAND and LABOUR resources. In addition, construction MATERIALS have become undesirably expensive, due to escalating import prices. It is a fact that most of the materials used by the industry in Hong Kong are imported.

The construction industry's progress is affected by these difficulties and measures to mitigate the problems are necessary.

We analyze the problems below, discuss their causal roots and those measures being taken and proposed on how to meet the resource requirements to enable the sustainable development of the construction industry in Hong Kong.

Land

Problem: Severe supply-demand imbalance of the property market in Hong Kong

The increase in the number of households has generated new housing demand (Legislative Council, 2013). According to the Census and Statistics Department, the actual net increase in the number of households in Hong Kong was approximately 315,000 from mid-2001 to mid-2011. It is projected that the net increase in Hong Kong households will continue to grow with an estimated net increase of 294,000 households annually in the coming ten years since 2013. This projection has taken into account the characteristics of Hong Kong demography such as the aging of the population, smaller household sizes, the increasing number of one-person households, the lower fertility rate, and longer life expectancy. There are also numerous factors influencing the movement of Hong Kong residents including Hong Kongers living and working in the Mainland and babies born to parents who are not Hong Kong permanent residents, One-way Permit Holders settling in Hong Kong, expatriates and the entry of professionals under various plans have been captured in the projection ((Long Term Housing Strategy Consultation Document (LTHS Consultation), 2013).

In view of this robust housing demand, the supply of land and housing is not proving adequate. Sales records of the Lands Department of Hong Kong from 2009 to 2013 show that only around 1,138,000 square meters of land area were sold, accounting for only 0.1% of the total land area of Hong Kong. Table 1 shows the annual land sale records during the last five years.

Table 1: Annual Land Sales Records of Hong Kong from 2009 to 2013

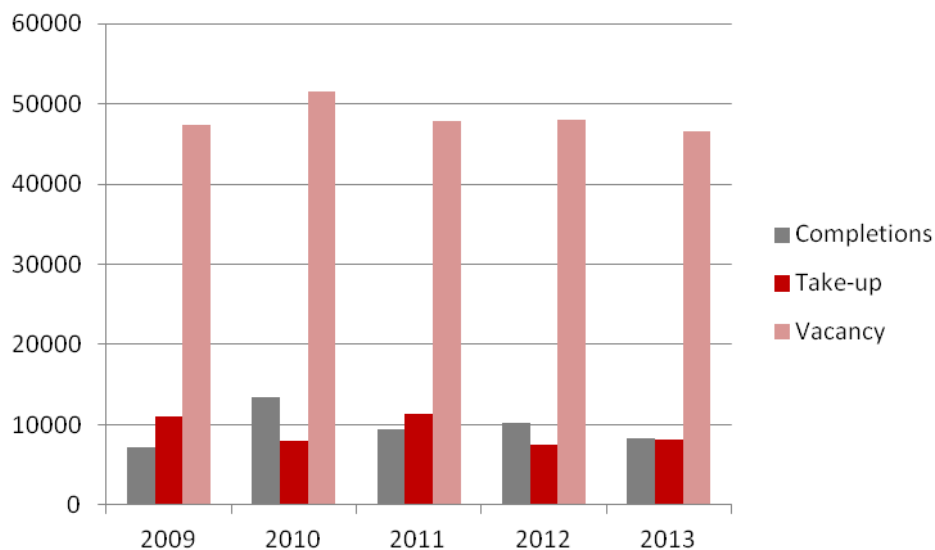
Land Sale Record	2009	2010	2011	2012	2013
Annual Land Sale (sqm)	46,356	152,445	258,984	296,621	384,065
% of total Land Area of HK	0.004%	0.014%	0.023%	0.027%	0.035%

Note: All data from Land Sale Records 2009-2013, Lands Department of Hong Kong. Retrieved from <http://www.landsd.gov.hk/en/landsale/records.htm>

The limited land supply is the major reason why there is an insufficient supply of properties. Where there is strong demand for housing, infrastructure and commercial property there emerges a severe supply-demand imbalance..

The imbalance is shown distinctly in the overall private domestic housing market. According to the 2014 Hong Kong Property Market Report, private domestic housing stock in 2013 amounted to about 1,127,400 units, of which only 46,570 units, or 4.1% of the total stock, were vacant. Among these 46,570 units, about 1,410 units were vacant because they were not yet issued with Certificates of Compliance or Consent to assign after the occupation permits had been obtained. It means that the actual vacancy rate is even lower than 4%. Figure 1 and Table 2 show the completions, take-up, vacant units and vacancy rate of the private domestic housing sector in the last five years.

Figure 1: Completion, Take up and Vacant Units of Private Housing



Note: Statistics from 2014 Hong Kong Property Market Report, Rating and Valuation Department of Hong Kong. Retrieved from <http://www.rvd.gov.hk/en/publications/hkpr.html>

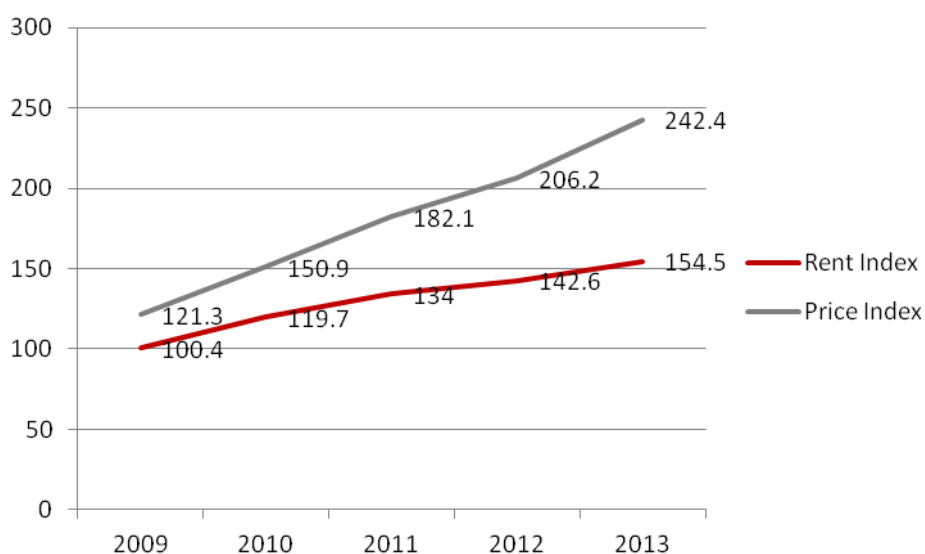
Table 2: Completion, Take-up, Vacant Units and Vacancy Rate of Private Housing

	2009	2010	2011	2012	2013
Completion	7,160	13,410	9,450	10,150	8,250
Take-up	11,090	8,030	11,400	7,550	8,060
Vacancy	47,350	51,530	47,920	48,000	46,570
%*	4.3	4.7	4.3	4.3	4.1

Note: *Vacancy rate is expressed as a percentage of total stock at the end of the year; Statistics from 2014 Hong Kong Property Market Report, Rating and Valuation Department of Hong Kong. Retrieved from <http://www.rvd.gov.hk/en/publications/hkpr.html>

The imbalance of supply and demand in the private domestic market has led to a marked increase in price and rent. The private domestic property price index and the private domestic rental index at 2013 stood at highs of 242.4 and 154.5 respectively. The rise in these indices has been very considerable in the four years since 2009, after modest increases in the 10 years since 1999.

Figure 2: Rent and Price Index of Private Domestic Housing Market

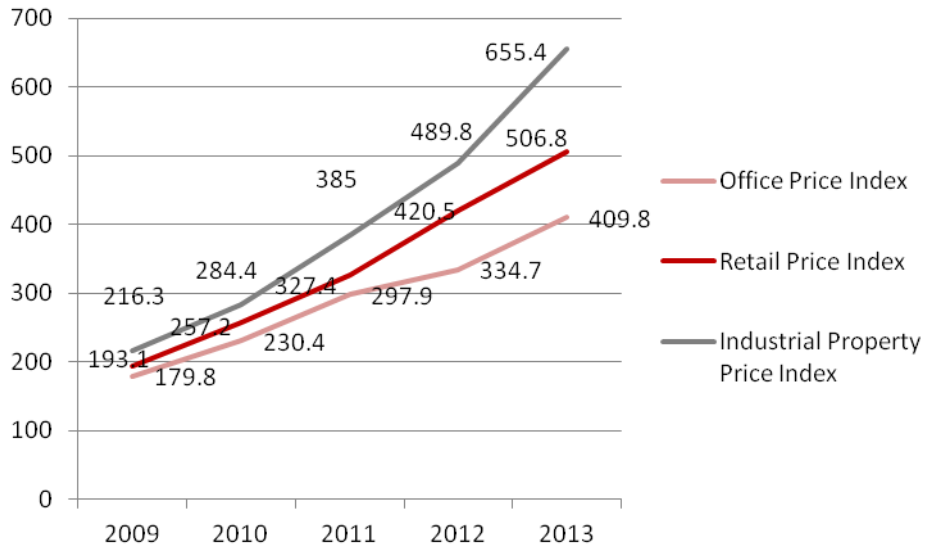


Note: Base Index of 1999 is 100; statistics from Hong Kong Property Market Statistics, Rating and Valuation Department of Hong Kong. Retrieved from http://www.rvd.gov.hk/sc/property_market_statistics/index.html

The short supply and robust demand can also be tracked in other private property markets, such as the commercial (including office and retail) as well as the industrial properties markets. This trend as reflected in the sharp rise of price and rent in other property markets is shown in the two figures below. The private office, retail and industrial properties price and rent indices as at 2013 stood at historical highs. The price indices show that the compound average growth rate (CAGR) of the industrial property market from 2009 to 2013 reached 25%, followed by the CAGR of 21% and 18% for the retail and office markets respectively. Meanwhile the CAGR of

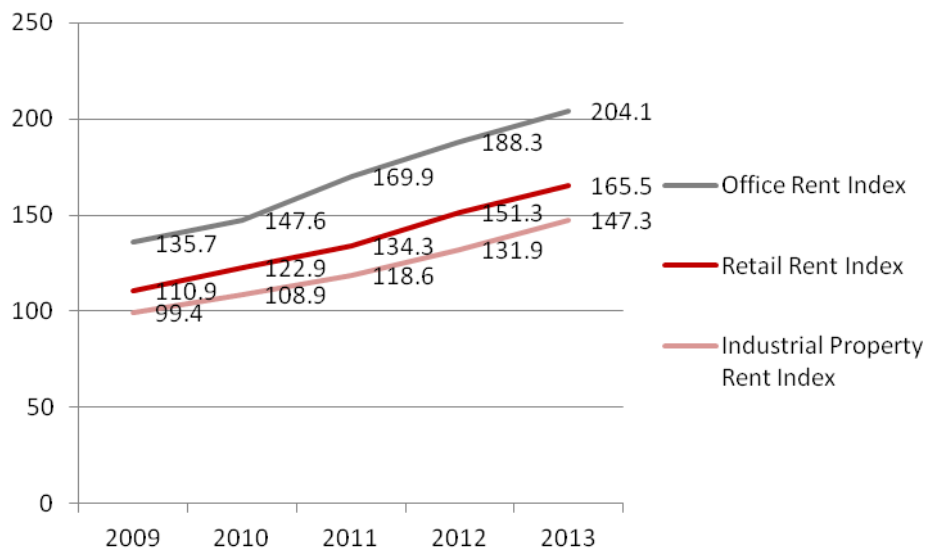
the rent indices of the office, retail and industrial property market in the last five years was 9%, 8% and 8% respectively. Since the increase in household income has not been commensurate with the surge in property prices, affordability for residents has deteriorated. This has adverse impacts on the social stability of the community, and has consequently constrained the development of other industries, particularly the construction industry.

Figure 3: Price Indices of Private Commercial and Industrial Property Markets



Note: Base Index of 1999 is 100; data from Hong Kong Property Market Statistics, Rating and Valuation Department of Hong Kong. Retrieved from http://www.rvd.gov.hk/sc/property_market_statistics/index.html

Figure 4: Rent Index of Private Commercial and Industrial Property Markets



Note: Base Index of 1999 is 100; data from Hong Kong Property Market Statistics, Rating and Valuation Department. Retrieved from http://www.rvd.gov.hk/sc/property_market_statistics/index.html

Root of the Problem: Limited land resource with poor conditions for development

It is well known that the continuously rising high prices of Hong Kong property is attributed to the limited land supply. The government believes that the limited land resources allied with poor development conditions is the primary cause (Legislative Council, 2013).

Hong Kong is located on land where hills and mountains are found over almost the whole of the area. About 84% of the total area consists of sloping ground and is unfavorable for urban and agricultural development. Only the remaining 16% of the total area consists of flat land. (Wu et al., 1990). According to the press release “Land Supply” issued by the Legislative Council in October 2013 in the government website (<http://www.info.gov.hk/gia/general/201310/16/P201310160338.htm>), up until January 2013, of the total land area of Hong Kong of 1,108 square kilometers, the built-up land area is estimated to be about 265 square kilometers. This accounts for only approximately 24% of the total land area. The non built-up land area comprises 68 square kilometers of agricultural land, 738 square kilometers of woodland/shrub and grassland/wetland, seven square kilometers of barren land and 30 square kilometers of water bodies. These four categories of land area represent 6.1%, 66.6%, 0.6% and 2.7% of the total land area of Hong Kong respectively. The estimated areas of the various types of built-up and non built-up land, and their estimated percentages in the total area of built-up land are set out in Table 3 and 4:

Table 3: Area of Various Types of Built-up Land and Proportion in the Total Built-up Land

Type of Built-up Land	Total Area (sq.km)	Proportion in the Total Built-up Land
Public and Private Residential (including private residential, public residential village house and temporary structures)	76	28.7%
Commercial (including retail and office)	4	1.5%
Industrial (including industrial estates, warehouse and open storage)	26	9.8%
Other supporting facilities (such as transportation system, public facilities)	159	60%
Total	265	100%

Source: Legislative Council of Hong Kong (2013). Retrieved from <http://www.info.gov.hk/gia/general/201310/16/P201310160338.htm>

Table 4: Areas of Various Types of Non Built-up Land and Proportion in the Total Land Area

Type of non Built-up Land	Total Area (sq.km)	Proportion in the Total Land Area of Hong Kong
Agriculture (including agriculture land, fishing ponds)	68	6.1%
Woodland/Shrubland/Grassland/Wetland (including woodland, shrubland, grassland, mangrove and swamp)	738	66.6%
Barren Land (including badland, quarries and rocky shore)	7	0.6%
Water Bodies (including reservoirs, streams and nullahs)	30	2.7%
Total	843	76%

Source: Legislative Council of Hong Kong (2013). Retrieved from <http://www.info.gov.hk/gia/general/201310/16/P201310160338.htm>

Ever since the seventies, the government has delimited 24 country parks and 22 special use districts to preserve the natural environment for the well-being of the Hong Kong people. Altogether, this land covers 442 sq. kilometers, accounting for about 40% of the total land area and this includes 70 square kilometers of land zoned as a conservation area, a coastal protection area or a site of scientific Interest on the statutory plans. The areas are counted as part of the non-built-up land. Based on the same press release of the Legislative Council, the government has no intention of converting the zoned conservation areas, coastal protection areas, sites of scientific Interest, and country parks into housing use. Whilst this is good for environmental reasons, it does not help in relieving the land shortage problem.

In addition, the remaining non-built-up land is scattered across all parts of the Hong Kong territory, including a number of distant islands and steeply sloping areas. Comprehensive planning and engineering studies to appraise the feasibility of any construction project on such sites with poor development conditions generally take a long time, and would require the completion of complex infrastructure and ancillary facilities prior to development. Besides, most parcels of non-built-up land are located in rural areas and are privately owned normally involving different usages between such as private agricultural land, squatters, village housing, other structures as well as open storage facilities. The dispersed ownerships, complex clearance, removal and compensation issues as well as a lack of basic infrastructure present major obstacles in developing such types of land.

Proposed Measures: increasing land supply and improving land use

Taking into account the roots of the land and housing problems as discussed, a long term housing supply led strategy (LTHS) has been proposed by a Steering Committee of the Legislative Council.. There are several measures to increase land supply and improve land use of Hong Kong. The major six measures include reclamation outside Victoria Harbour, rock cavern development, redevelopment of former quarries, rezoning land use, redevelopment and land resumption.

One of the conventional means of increasing land supply is reclamation. The reclamation of land in Hong Kong can be traced back to 1842. According to incomplete records of more than 100 years, the reclaimed areas of Hong Kong had reached nearly 67 square kilometers in 2013 (Hong Kong Place, 2013). Actually, part of the built-up land area of Hong Kong is also reclaimed (Development Bureau, 2012). According to “Enhancing Land Supply strategy: Reclamation Outside Victoria Harbor and Rock Cavern Development”, in 2012, the government has earmarked six potential sites, including Lung Kwu Tan (200-300 hectares), Siu Ho Wan (100-150 hectares), Sunny Bay (60-100 hectares), Tsing Yi Southwest (80-120 hectares), Ma Liu Shui (30-60 hectares) and artificial islands in central waters (1,400-2,400 hectares). The Civil Engineering and Development Department and the Planning Department have conducted a first and a second round of public consultations.

There are many advantages to this measure. For example, a relatively large area is suitable for land reserve, and can facilitate comprehensive planning; provide decanting sites and handle surplus fill materials and contaminated mud. However, several conservation areas, for treasured creatures such as the Chinese white dolphin and the village Tai O surround the earmarked sites triggering public concern on environment protection issues.

Rock cavern development is a creative measure to increase land supply. The hilly terrain and geology of Hong Kong provide ideal conditions for rock cavern development and about two-thirds of the territory of Hong Kong is suitable for rock cavern development. Based on the assumption that 5% of this area could be adopted for development, it would provide approximately 3,500 ha of land supply (Civil Engineering and Development Department, 2014). Such space is mainly developed for public infrastructure. Examples in Hong Kong include MTR stations, Stanley Sewage Treatment Works, Island West Transfer Station, Kau Shat Wan Government Explosives Depot and West Salt Water Service Reservoirs. Possible benefits include the creation of above ground space, protection of the environment, allowing a flexible plan for layout and expansion, removing incompatible land uses and providing a source of rock products. One drawback is that the land reclaimed from rock cavern development cannot be directly adopted for commercial or residential property development. Further, there are concerns on the requirement for advanced construction technologies and the consequently high costs.

The redevelopment of the former Lamma Quarry area is an excellent example of the reuse of ex-quarry sites. Such reuse is considered as the third measure of increasing land supply. Located at the northern coast of Sok Kwu Wan, the site is a former -quarry established in 1978 for rock extraction. After the cessation of quarrying, rehabilitation works were completed in 2002. The site comprises 20 hectares of platform area, one kilometer of shoreline and a five-hectare man-made lake. The redevelopment plans also include the surrounding areas, including the adjacent Comprehensive Development Area (CDA) site of about 2 hectares currently occupied by a cement storage silo and natural slopes accounting for a total area of about 59.9 hectares. There are two redevelopment plans for this area. Option one focuses on housing development, aiming to build a green community. Option two focuses on tourism and housing development,

aiming to enhance the tourism opportunities and vibrancy of the area through the provision of a wide range of tourist activities, accompanied by housing developments of compatible scale and character (Civil Engineering and Development Department, 2014).

The conversion (redevelopment) or renovation of vacant or under-utilized buildings e.g. industrial buildings, old commercial buildings, sites zoned as “Government, Institution or Community” or “Green Belt” for other more gainful uses represent two other sustainable ways to reduce waste and increase land supply in urban areas. With the expansion of the city, the value of the earlier suburban sites where the old buildings are located goes up. In addition, as a result of Hong Kong's economic restructuring and the relocation of traditional manufacturing activities to the Mainland, many private buildings are now vacant or under-utilized. Rezoning, redevelopment or renovating the buildings for other usages are measures in line with city development and also maximize the value of the land. A review of plot ratios and building height restrictions may be conducted. Examples worth mentioning include a former factory building in Ap Lei Chau: The entire building was converted to commercial use after obtaining the necessary approvals from Planning, Lands and Buildings Departments. The second example is the Jockey Club's Creative Arts Centre in Shek Kei Mei (JCCAC), which was converted from a decommissioned flatted factory building and now accommodates over 150 artists and art groups.

Last but not least, the government may acquire private land by resumption for the implementation of public projects such as road schemes, public housing developments, urban renewal projects, open space provision, drainage improvement projects, new markets, schools or any item in the public works program. As for redevelopment or rezoning, land resumption is the result of urbanization and development of the city plan as well as one of the efficient ways of increasing land supply. Land resumption is a major measure used in developing the northeastern areas of the New Territories. Through this measure, the government is able to re-profile specific districts, develop and extend new towns such as Yuen Long, Tung Chung, Lantau Island, etc for the long term benefit of Hong Kong residents.

To sum up, the implementation of these measures would create a number of job opportunities for the construction industry, in particular reclamation, rock carven development. Other measures would also drive construction innovation and quality improvement, developing human design resources, construction skills and other related aspects.

Materials

Problem: prices of imported materials keep rising

It is observed that in the last ten years, most construction materials prices have increased by over 90%. Table 5 shows the price indices of construction materials as recorded in May 2014.

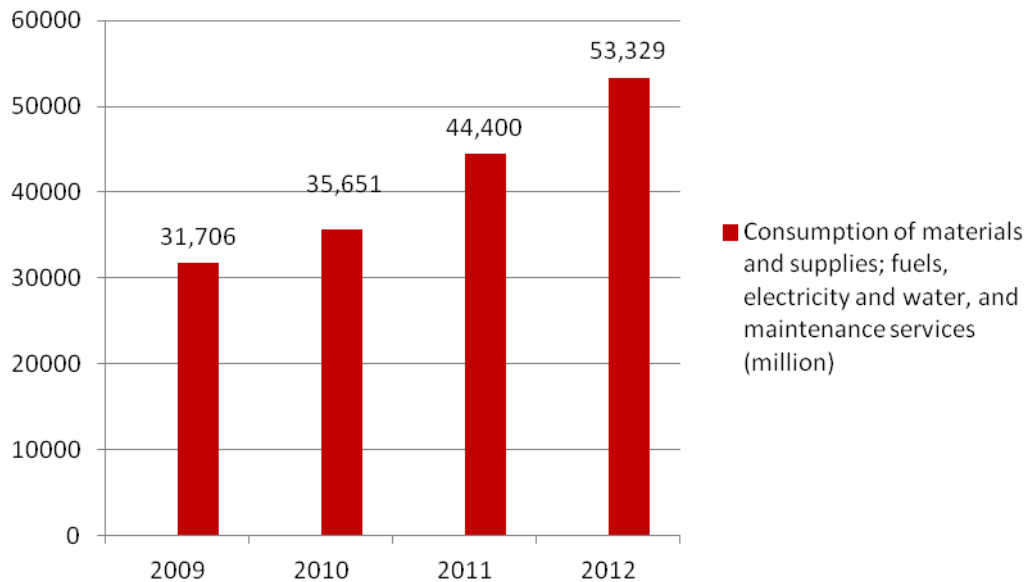
Table 5: Cost of Materials Indices as in May 2014

Aggregates	161.2	Mosaic tiles	201.2
Bitumen	216.2	Paint	148.4
Concrete blocks	187.4	Portland cement (ordinary)	142.0
Diesel fuel	238.5	Sand	383.7
Glass	161.6	Steel reinforcement	178.6
Glazed ceramic wall tiles	188.7	Teak	200.3
Hardwood	215.9	Timber formwork	183.5
Homogeneous floor tiles	157.6	uPVC pipes	157.7
Galvanised mild steel	264.2	GMS pipes	182.6
Metal formwork	188.1	Copper pipes*	100.2

*Note: Base Index of April 2003 is 100, * indicates index of Sep 2008 is 100. Statistics are from Overview of Building, Construction and Real Estate Sectors, Census and Statistics Department of Hong Kong. Retrieved from <http://www.censtatd.gov.hk/hkstat/sub/so330.jsp>*

According to the latest statistics released by the Census and Statistics Department, the expenses on consumption of materials and supplies, fuels, electricity and water, and maintenance services soared at a compound average growth rate of 15% from \$ 31,706 million in 2008 to \$ 53,329 million in 2012. The increases in fact are mainly due to increased import prices.

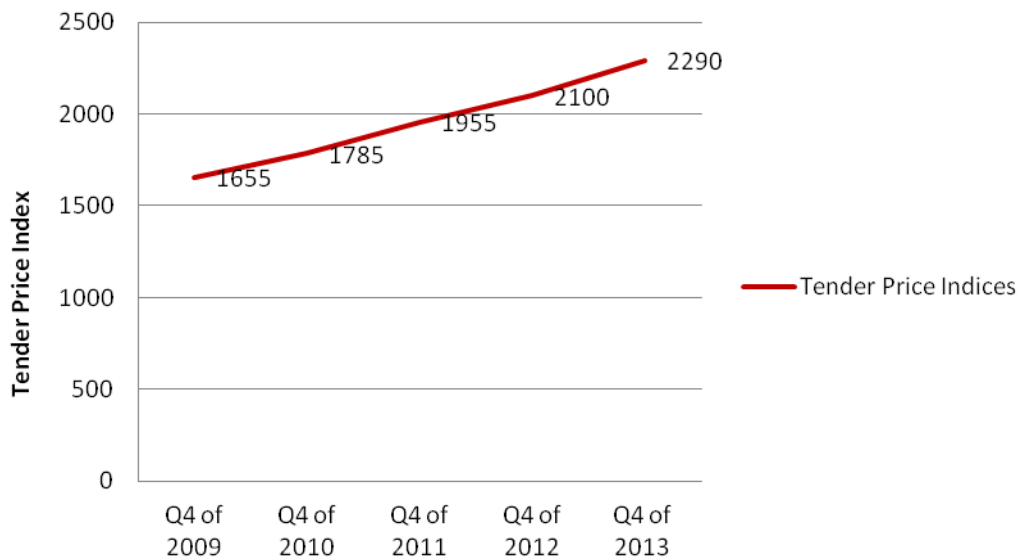
Figure 5: Consumption of Materials and Supplies, Fuels, Electricity and Water, and Maintenance Services from 2009 to 2012



Note: Statistics from Overview of Building, Construction and Real Estate Sectors. Census and Statistics Department of Hong Kong. Retrieved from <http://www.censtatd.gov.hk/hkstat/sub/so330.jsp>

RLB indices prepared by private cost consultant Rider Levett Bucknall indicate that from 2009 to 2013, the tender price index of the Hong Kong construction industry went up from 1,655 to 2,290. In one year alone, the index was up by 9% in the fourth quarter of 2012 when compared to the fourth quarter of 2011. In the first quarter of 2014, the index stood at the historically highest record of 2360.

Figure 6: Tender Price Index of Hong Kong Construction Industry 2009 to 2013



Note: data from Quarterly Construction Cost Update Hong Kong Report (June 2014). RLBI Rider Levett Bucknall. Retrieved from <http://rlb.com/publications/rlb-hong-kong-cost-report-june-2014/?region=32>

Root of the Problem: Fluctuations of exchange rates and inflation rates

Hong Kong has adopted linked exchange rate system, which requires both the stock and the flow of the monetary base to be fully backed by foreign reserves. Based on the Hong Kong Monetary system, the link between the Hong Kong Dollar and the US dollar is set at the fix rate of \$ 7.8 to the US\$. Due to the depreciation of the weak US dollar, the value of Hong Kong Dollar has markedly dropped against other strong currencies, particularly the Renminbi. Hong Kong's construction industry depends almost entirely on imported materials, and the Chinese mainland is the major exporter to Hong Kong. Therefore the depreciated Hong Kong Dollar has directly resulted in higher prices of imported construction materials.

In addition, the inflation rate of Hong Kong grew dramatically. Based on data released by the Census and Statistics Department, in 2013 when the inflation rate stabilized at 4.4%, the compound average growth of inflation in Hong Kong over the previous five years reached 48%. The depreciation of the exchange rates and other inflation factor rates together have brought about the high prices of construction materials. The surge in construction material prices is considered an even more severe challenge for the industry r than the rising cost of labour (Yao, 2014).

Proposed Measure: Monitor the changes of internal and external economic environment

Exploring new sources of imports is considered one of the measures necessary to cope with the high prices of materials. However, the quality and quantity issues need further consideration. Some materials are difficult to obtain from other countries whose currencies may not have appreciated as much as the Renminbi, for example. To come up with an effective set of policies and measures to control the cost of materials is hard since Hong Kong is deprived of the monopoly of setting monetary policies due to the implementation of the US dollar linked

exchange rate system. Further, there would be wide reverberations should the current economic and fiscal policies be changed. In view of the current situation, it can also be easily understood that the prices of construction materials will be continuously subject to external factors, which may mean continuing price increases in the foreseeable future. Accordingly, construction costs may not reduce, and consequently nor will the price of properties.

Labour

Problem 1: labour shortage

The integration with mainland China is considered a potential development opportunity for the Hong Kong construction industry. However, the rapid urbanization that has been on-going in China has also driven up the costs of materials there, which Hong Kong has imported. According to Global Construction 2015, the volume of global construction output will grow by 70% from \$ 8.7 trillion in 2012, to \$ 15 trillion by 2025, representing a growth of \$ 6.3 trillion. Almost 60% of all global growth in construction will occur in just the three countries of China, India and the United States. China overtook the US as the world's largest construction market in 2010, and accounted for 18% of the total global construction in 2012. It is projected that China will represent over a quarter of all construction output globally by 2025. Although it is expected that economic and population growths will slow down in China, the economy is expected to become increasingly consumption than investment driven. The rising incomes and hence the increasingly affluent consumers will demand more and better housing, and extra infrastructure and non-residential facilities. The ramification of the continual growth in the property and construction sectors in the mainland will continue to exert demand for construction resources including labour and materials. China, therefore, is not going to be a cheap source of either materials or labour for Hong Kong. Furthermore, many construction workers are travelling to China to work on larger projects that pay higher wages. The small number of construction workers that remain in Hong Kong are holding out for jobs with the highest bid" (Ho, 2014). The problems of labour shortage and escalating material prices are acute and would likely continue for the next ten years, especially as the new local infrastructure and railway projects are getting into full-swing, and because the government is finding more land to address the housing shortage problem.

According to the "Report on Manpower Projection to 2018" (Government of Hong Kong SAR, 2012), along with the rolling out of several major infrastructure projects including the Hong Kong-Zhuhai-Macao Bridge, the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link, the Kai Tak Development Plan and the Shatin to Central Link project, it is estimated that the manpower requirements will increase at an average annual rate of 1.9% from 271,100 in 2010 to 315,200 in 2018. When the seven major projects are about to be completed, another seven new railway projects costing about \$ 110 billion will commence. The Government announced on the 17th September, 2013, that seven new railway projects were proposed in the Railway Development Strategy 2014. Altogether, the projects "will lengthen Hong Kong's railway network from 270km in 2021 to over 300km by 2031", and the "number of stations will increase from 99 to 114" (Information Services Department, 2014, and Transport and Housing Bureau, 2014). However, after a steady climb in the demand for manpower resources, a sharp decline will start from 2018, and manpower resources in Hong Kong will reduce from 3.55 million in 2018 to 3.37 million in 2035. During the same period, the number of workers who are employed or actively seeking work will shrink from the 58.8% of the total population in 2012, to 47.6 % in 2041. The aging population is accelerating the labour shortage, rendering a long term threat to the future economic development of Hong Kong including the construction industry.

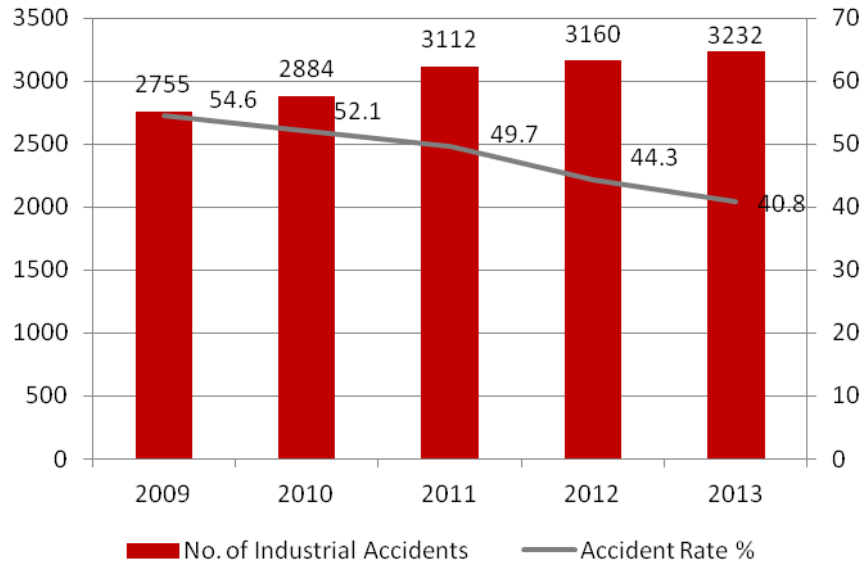
Other than the shortage in general, there are acute labour shortages in particular work trades where specific skills are required. The Hong Kong Construction Industry Employees General Union (HKCIEGU) stated that although 6,000 new employees participate in training for the industry annually, new graduates need time and guidance to develop the necessary skills. It takes at least one or two years for them to become skilled workers, hence the gap between supply and demand for skilled workers is still hard to bridge (Hong Kong Economic Times, (HKET), 2014).

Problem 2: high risk industry with high accident and fatalities rate

According to Donaghy (2009), in British, construction fatalities represent one-third of all such incidents, and workers are six times more likely to be killed at work than workers in any other sector. For the case of Hong Kong, the construction industry still recorded the highest number of fatalities and accident rate among all industry sectors (Labor Department, 2013). Site safety, or the lack of it, has been perceived to be a main concern of youngsters considering joining the industry, contributing further to in the labour shortage.

The number of industrial accidents in all industries stood at 11,820 in 2013, 5.8% less than in 2012, whereas the accident rate per 1,000 employees decreased 7.8% from 21.3 down to 19.6. In 2013, there were 3,232 industrial accidents in the construction industry, higher than in 2012 by 2.3% and higher than the average of the past five years by 6.7%. The accident rate per 1,000 workers in the construction industry in 2013 was 40.8 which is a historically low level.

Figure 7: Number of Industrial Accidents and Accident Rate per 1000 Workers in the Construction Industry 2009-2013



Note: Data from Occupational Safety and Health Statistics Bulletin, Issue No. 14, by Occupational Safety and Health Branch, Labor Department of Hong Kong. Retrieved from <http://www.labour.gov.hk/eng/osh/pdf/Bulletin2013.pdf>

In 2013, the number of fatalities in the construction industry was 22. Though that was already lower than 2012, it was still higher than the average for the past five years by 13.4%. The construction industry fatality rate per 1,000 workers in 2013 was 0.277, lower than the average for the past five years of 0.304. However this number nevertheless accounted for 82.8% of the total number of fatalities across all industries.

Figure 8: Number of Industrial Fatalities and Fatality Rate per 1000 Workers in the Construction Industry 2009-2013

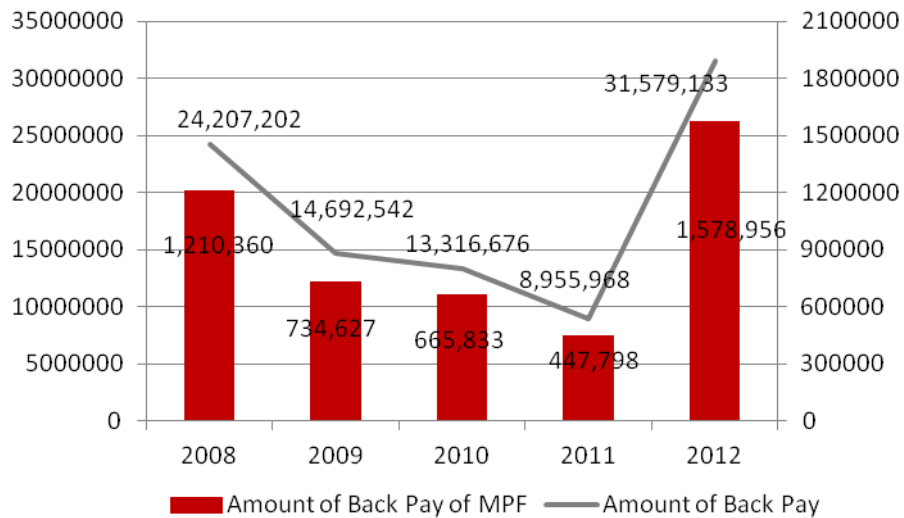


Note: Data from Occupational Safety and Health Statistics Bulletin, Issue No.14, by Occupational Safety and Health Branch, Labor Department of Hong Kong. Retrieved from <http://www.labour.gov.hk/eng/osh/pdf/Bulletin2013.pdf>

Problem 3: Diminished labour rights

According to a press release of HKCIEGU (the Union) published in Feb 2013(<http://www.hkciegu.org.hk/message.php?msgid=108&qid=1&cid=8>), the Union has helped approximately 13,981 workers to receive \$ 0.3 billion of back-pay over the past decade. In 2012 alone, the union successfully helped over 1,400 workers to recover more than \$ 30 million back-pay in around 130 cases. Further, the Union stated that they had received more than 190 complaint letters concerning back-pay, which is the highest record in terms of the amount of back-pay representing both wages and Mandatory Provident Fund (MPF) provision from 2009 to 2012. Among the cases, over 20 prosecution cases realized more than one million. The actual accrued back pay problem is much more serious than the figures known to the Union. Figure 9 shows the amount of back-pay of wages and back-pay of MPF from 2008 to 2012.

Figure 9: Amount of Back-Pay and Back-Pay of MPF 2008-2012



Note: Statistics from Back-Pay over 30 million, Who Will Join the Industry, HKCIEGU (2013) Retrieved from <http://www.hkciegu.org.hk/message.php?msgid=108&gid=1&cid=8>

There are also many other problems as reflected in the letters of complaint received by the Union, explaining why casual rather than direct labour employment is the norm. Firstly, employers usually have no capability of supporting employee MPF payments or other labour rights such as paid annual leave, statutory holidays, long service payment, compensation for illness etc. Secondly, claiming e back-pay always costs much effort and time. The court would usually ask both parties to compromise anyway. Hence, the money actually awarded is always less than the original back-pay claim, and paid late if at all. The workers are always left with the financial pressure. Thirdly, in some cases, even when the actual back-pay is awarded, the court is still not able to enforce the judgment as it is often the case that employers make no formal contracts with the workers.

The roots of the problems

Whilst there is no lack of study of human resources management at corporate levels, there is not enough research related to construction operatives on site. This is attributed to the fragmented and competitive nature of the construction industry where there are excessive layers of sub-contractors to deal with the fluctuating workloads. Much of a contractor's effort is spent on dealing with supply chain management issues rather than company management, let alone the task of nurturing site operatives for the longer term. The competitive environment of the construction sector and the factors giving rise to it as well as the problems arising from it are very well described in Ness and Green (2012). They maintain that HRM issues could only be understood from the perspective of the contracting system, which is characterized by long chains of sub-contracting and the contractors not doing construction themselves but only managing the process.

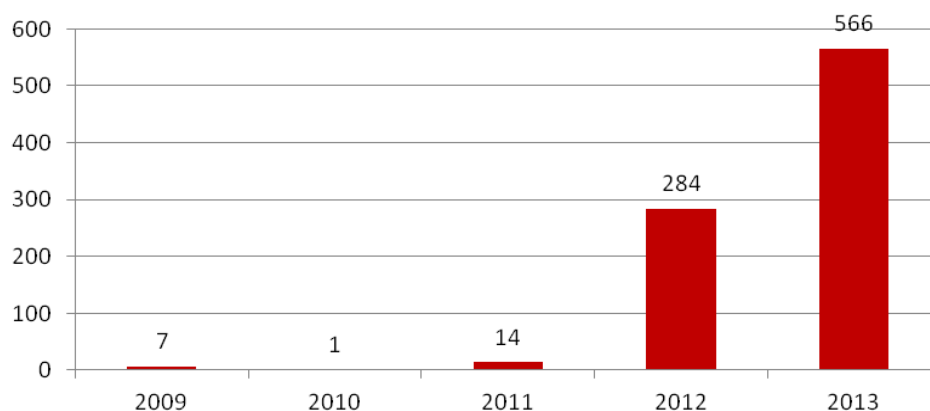
The structure and characteristics of the construction labour market in Hong Kong has its origins in the UK. Hong Kong has adopted occupational divisions and craft-based apprenticeships and

training schemes which are very similar to those of the UK. The CITA (Construction Industry Training Authority), now re-organized under the CIC (Construction Industry Council) had similar functions to the CITB (Construction Industry Training Board) set up under the Industrial Training (Construction Board) Order 1964 in the UK (Legislation.gov.hk, 2014). Perhaps this is not unexpected, given that Hong Kong was a British colony for more than 150 years, and hence has adopted British institutions and customs for many industrial practices. The construction industry is no exception. In light of local developments, some of these practices need close examination to find ways of improvement.

Proposed measure 1: Importing construction personnel

In the coming couple of years, with a number of large scale infrastructure projects including transport, medical services, water supply, etc. commencing in Hong Kong, there will be a keen demand for construction workers. The government has considered importing professionals from outside Hong Kong, which would be an effective way of coping with one aspect of the manpower shortage. Referring to the CIC's construction workers registration record the government has adopted the "Special Labour Importation Scheme" (SLIS) to import over 800 workers. Figure 10 shows the number of imported workers from 2009 to 2013.

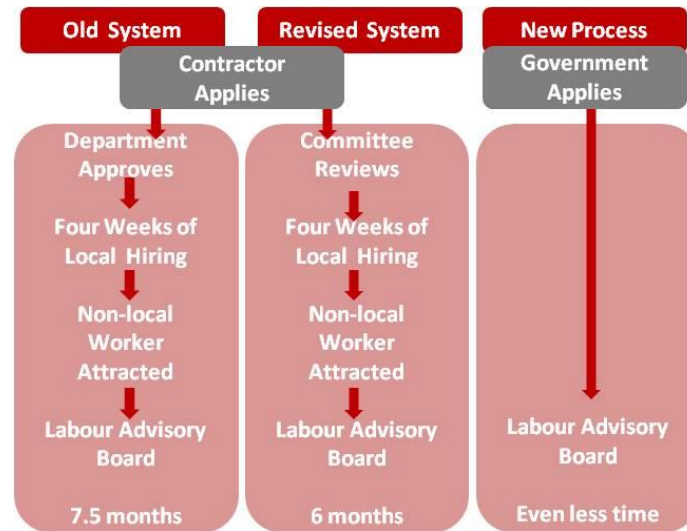
Figure 10: Number of Imported Workers 2009-2013



Note: Data from Press release: Importation of Construction Workers (2014), Legislation.gov.hk. Retrieved from <http://www.info.gov.hk/gia/general/201404/16/P201404160610.htm>

The Labour Advisory Board released a new arrangement in Aug 2014 to simplify the application procedures in relation to the importation of foreign workers. The new policy allows foreign labour applications to be scrutinized by the Labour Department rather than the Labour Advisory Board prior to examination by the Labour Department. The revised procedure will cut the application time for importing workers from 7.5 months to less than 6 months. If the government itself were to apply directly to the Labour Advisory Board, rather than to leave it to individual contractors the procedure could be even quicker. Figure 11 illustrates the old and revised systems and the new procedure.

Figure 11: Comparisons of Three Systems of Application for Importation of Foreign Workers



Note: Adapted from “Fast-track plan to hire foreign workers for construction projects after rail link delay”, South China Morning Post Hong Kong, Retrieved from <http://www.scmp.com/news/hong-kong/article/1487667/government-consider-directly-importing-foreign-workers-selected?page=all> on 19 April 2014

The CIC set up a Task Force on Short-term Labour Supply (the Task Force comprises representatives of the Hong Kong Construction Association, the Hong Kong Federation of Electrical & Mechanical Contractors Ltd., the HKCIEGU, the Federation of Hong Kong Electrical and Mechanical Industries Trade Unions, Construction Site Workers General Union of the Hong Kong Confederation of Trade Unions, MTR Corporation Ltd, the Housing Authority and the Development Bureau). The Task Force has identified 26 trades suffering manpower shortages, the application procedure for importation of foreign labor will mainly focus on these trades. As the government also has the duty to protect local labour, the most appropriate measure for the time being is to make use of the existing SLIS mechanism in processing the applications case by case and monitor the situation closely.

Proposed measure 2: Enhance the training of local workers

In the medium to long term, government should continue to strive to meet the manpower demand by training and re-training local workers, and attracting more new entrants to join the construction industry. The CIC’s training costs have amounted to about \$ 350 million. The Legislative Council (<http://www.legislation.gov.uk/ukxi/1964/1079/contents/made>) revealed that an additional training budget has already been earmarked for 2014. The actual measures started in 2008-09, with the CIC obtaining approvals from the Legislative Council for allocating funding of \$ 100 million and \$ 220 million in 2010 and 2012 respectively to enhance the training resources of the local construction workforce. The CIC has implemented various initiatives, including the Enhanced Construction Manpower Training Scheme (ECMTS), to enhance the skill levels of local workers. From the commencement of ECMTS in September 2010 to end-November 2012, the CIC has already completed four phases, trained over 2,000 personnel, about 60% aged below 35, indicating that ECMTS has been effective in attracting many young people to join the construction industry. To ensure better employment opportunities for the trainees, since the end of December 2012, the Legislative Council has required relevant public

works contractors to employ graduate trainees of ECMTS. In 2013, around 5,500 trainees participated in various courses organized by the CIC to produce semi-skilled workers, and approximately 3,200 of those have graduated. More similar schemes should be formulated and implemented to encourage more young people to join the industry.

Proposed measure 3: Better Use of Available Labour Resources

In practice, contractors may resort to optimizing the use of the existing labour available to tackle the problem of labour shortage. Such measures may include borrowing labour from other contractors, rescheduling work and resource usage levelling, paying extra to labourers to work overtime and on holidays, multiple shifts, etc. In the long term, more mechanization, the wider adoption of technologies such as prefabrication, better management of critical activities, and hiring labour with multiple skills could be the right way forward. More labour-saving methods and mechanization should be adopted, because requiring workers to work overtime and on holidays would cause them physical fatigue leading to reduced productivity and an increased predisposition to site accidents.

Proposed measure 4: Monetary Reward

Monetary pay almost forms the only reward package of construction workers in Hong Kong. There may not be much intrinsic reward coming from job satisfaction. Workers have to endure the grueling heat under the hot sun, and sometimes be exposed to other elements of the nature whilst working on site. To many workers, reward is all about pay, and pay only because the “self-employed” do not enjoy insurance and other fringe benefits.

According to HKCIEGU, the compound growth rate of Hong Kong construction workers daily payroll during Quarter three of 2009 to Quarter three of 2013 is around 5.5%, and it was also released that the average payroll of most construction occupations in 2013 rose over 5%. The payroll of some types of works even doubled that of Quarter three of 2007. It is worth to note that soaring up payroll of workers will also result in increasing construction cost. However, Hong Kong may have come to such an economic development stage that construction labour has become a scarce resource as her populace has become more educated thus aspiring for white-collar works. That being the case, end users ultimately have to pay for the high construction costs.

Proposed measure 5: Learning from Other Countries

Dainty et al. (2005) studied how a sample of small to medium-sized contractors in the UK responded to labour and skill shortage problems in the UK. They found that the poor image of the industry was the primary factor causing young people to be unwilling to join the industry. This image problem is much more pronounced than in other employment sectors (Strategic Forum, 2002). Other than this, they listed a number of factors, which bear close resemblance to the current situation in Hong Kong, including the demographic decline, the casualization or externalization of labour, the proliferation of sub-contractors and labour-only sub-contracting in particular, as well as the intense competition among contractors because clients demand their projects to be executed at lowest possible costs, within shortest possible times. More often than not, contractors are required to absorb design time within the construction period on site. The consequence is a construction industry that can be characterized as one of low cost, low skill and low productivity (Harvey, 2001).

Direct employment of labour was encouraged by the UK government. For examples, companies investing in apprentice training would pay less in levy payments to the CITB (Dainty et al. 2005). However, on the whole, the initiatives were not very successful. Contractors do stiveto keep their employees, especially their older workers, considered to be more committed and dedicated to their work. The methods include offering other benefits in addition to salaries, profit sharing and bonus schemes, and even company partnerships. Firms also collaborated with each other in sharing their labour resources and combining their recruitment efforts.

Ness and Green (2013) comment that it is important to understand that there are different varieties of capitalism, and that there is a clear distinction between the liberal market economies and the coordinated economies. Dainty and Loosemore (2012) suggest that the UK situation “contrasts markedly with Germany for example, where a social partnership exists with a wage structure based on hours worked and qualifications rather than output. Britain's division of labour has led to a reduction in the depth of training, to the increasing fragmentation of the construction process and ultimately to lower levels of productivity relative to its Western European counterparts.”

Bosch and Phillips (2003) also contend that co-ordinated economies (social market economies) have a greater degree of regulation of the capital and labour markets, with a tendency for financial institutions to provide long-term capital for industry development. The conditions necessary for the creation of an industry-specific labour market have been provided, in which construction workers develop ties to the industry enabling construction firms to be able to rely on a stable work force. According to Ness and Green (2013), they (Bosch and Phillips, 2003) “have described how construction industries in the advanced capitalist economies have taken divergent paths in response to the common challenges of competition, volatile demand, and ageing labor forces”.

It must be emphasized that practices pertaining in other western countries might not be applicable or transferrable to the case Hong Kong. What has worked elsewhere might not solve the problems of the construction industry in Hong Kong. It is however, proposed, that, to reform the construction industry in Hong Kong, there is a need to learn what we can from overseas and consider all factors influencing the industry. Finally, the measures should be compatible with the specific political and economic structures as well as the special conditions of Hong Kong.

Summary

Shortage of land and labour resources, and escalating imported building materials prices are the major problems being suffered by the Hong Kong construction industry. With the increasing investment on infrastructure and real estate development, these shortage difficulties are not easy to address. The limited land supply and robust demand for housing and infrastructure in Hong Kong, also brought about by the quantitative easing that the US and Europe have adopted, has caused soaring prices for private housing and other commercial properties. Affordability for residents has been considerably diminished, and nothing less than social stability is at stake. As far as land supply is concerned, the Hong Kong government has come up with a supply-led strategy and has proposed six measures including reclamation outside Victoria Harbour, rock cavern development, redevelopment of former quarries, rezoning land use, redevelopment and land resumption to increase land supply and improve land use.

Prices of imported building materials have been continuously rising, being attributable to the fixed exchange rate system that Hong Kong adopts, and growing inflation rates. This has led to higher construction costs. Without a change in the exchange rate regime and because Hong

Kong is a small open economy, there does not seem much that can be done. However, better and more timely market intelligence may help contractors source supplies of materials more effectively.

Labour is considered to be the major influential factor since the Hong Kong construction industry is still labour-intensive.. To address the shortage and aging of construction labour, we need to selectively import skilled workers, enhance local training, improve local worker benefits, reduce accidents and improve the image of the construction industry to attract more young people to join the industry. We also need to address the issues of casual labour employment and its bad effects, with the aim of eliminating excessive and particularly “non-value-added” subcontracting.

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