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

<table>
<thead>
<tr>
<th>Land Sale Record</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
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<tbody>
<tr>
<td>Annual Land Sales (sqm)</td>
<td>46,356</td>
<td>152,445</td>
<td>258,984</td>
<td>296,621</td>
<td>384,065</td>
</tr>
<tr>
<td>% of total Land Area of HK</td>
<td>0.004%</td>
<td>0.014%</td>
<td>0.023%</td>
<td>0.027%</td>
<td>0.035%</td>
</tr>
</tbody>
</table>


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

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

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


The imbalance of supply and demand in the private domestic market has lead 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


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

![Price Indices Graph](note)


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

![Rent Indices Graph](note)

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

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

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

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


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. Whist 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, Lantou 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

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

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.
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 2013. 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


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 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 ramifications 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.
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


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&gid=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.
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](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.
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/uksi/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 strive to 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.
References


