



Moving the Construction Sector towards Sustainable Development:
 Industry Engagement in Developing Corporate Sustainability
 Initiatives for SMEs in Construction Sector in Hong Kong

Recommendation Paper



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Forward

This recommendation paper presents the views from the participating stakeholders collected through the engagement process and proposed that specific Corporate Sustainability (CS) were developed to guide stakeholders of the construction supply chain, in particular, Public Organisations, Architects, Developers and main contractors, in order to move towards sustainable development. A supplementary guidebook is designed and targeted for construction SMEs and construction workers in promoting CS awareness and uptake of CS among the construction sector.

Executive Summary

Construction industry is one of the main pillars of the economy in Hong Kong. The industry mostly consists of private and public building development, structure and facilities boosted by the Ten Mega Infrastructure since 2007. Other general trades of construction works consist of decoration, repair and maintenance, and construction work at minor work locations such as site investigation, demolition, structural alteration and other additional work types. In particular, building maintenance work for ageing buildings is becoming a public concern after the building collapse in Ma Tau Wai Road in early 2010. All of these construction activities involve a wide range of stakeholders such as private developers, Government, public organisations, main contractors, subcontractors (including Small and Medium Enterprises (SMEs), skilled and general workers, construction consultants as well as construction related associations and unions. To enhance a sustainable future of the construction industry, the upstream construction actors (private developers, Government, public organisations and main contractors) are considered critical in promoting the uptake of CS with sufficient human and financial resources available.

The success of construction project is mostly depending on the ability of the main contractor to select a diverse and fragmented group of appropriate subcontractors to execute the project within time, cost and quality as traditional performance indicators. Typically these subcontractors are small and medium enterprises (SMEs), which often provide short-term workers, construction materials and equipment to larger-scale main contractors. The market is highly competitive and works are performed according to tight project deadlines. On the other hand, these construction SMEs increasingly have to cope with Corporate Sustainability (CS) demands from the main contractors to those supply chains they belong. To understand SMEs' awareness and capacity in adopting CS, the stakeholder engagement process in form of focus groups have been conducted to obtain opinions from the industry on challenges that they face in uptaking CS alongside with the types of support they require to enhance the implementation of CS. Our collective efforts represents the views from the construction stakeholders including public organisations, construction related

associations, trade unions, developers, main contractors and subcontractors SMEs or suppliers SMEs in the decision making process for developing CS initiatives. Key CS issues are found and categorised into 3 strategic areas of focus:

- (1) manpower sustainability and employee caring;
- (2) procurement practice and subcontracting practice and
- (3) environment, health and safety. This is followed by 3 discussion forums and surveys with the construction stakeholders to discuss the current challenges and what SMEs' needs to move forward in those areas.

Generally, SMEs pay a relatively passive role in the sustainable construction and they very much rely on professional knowledge and guidance of CS from upstream supply chain partners such as main contractors. It is revealed that there is evidence of some awareness and good environmental practice among the construction SMEs, this segment of the business community remains notoriously difficult to influence in the CS adoption due to the existing barriers of the value added supply chain; diverse trades of construction SMEs; short-term project based business relationships and the complexity of multilayer subcontracting. In addition, they all have a number of hurdles such as but not limited to meeting short project completion schedule, inadequate trainings, insufficient technological support and capital resources dedicated to CS practice.

The recommendations identified to encourage the public organisations, developers, main contractors and construction related associations in helping SMEs to uptake CS are:

Manpower Sustainability and Employee Caring

- Promote a positive image of the construction industry in attracting a sustainable workforce
- Provide long term employment of construction workers through setting up a project-by-project workers/ SMEs referral system
- Secure sufficient funding for encouraging youngster and new entrants in joining and remaining in the industry
- Develop more suitable platforms for workers to find jobs
- Provide more paid training and education on multi-skills development of construction workers by trade associations
- Coordinate and offer comprehensive range of insurance programme to construction SMEs by trade councils and associations
- Nurture employee caring culture to attract and retain construction workers of construction SMEs

Construction Procurement and Subcontracting Practices

- Modify building code to include CS criteria to both public and private works and stated as a mandatory requirement in the procurement process
- Include CS provision in the construction contract
- Apply alternative sustainable procurement approach to avoid over emphasis on tendering price
- Develop standard works contract for the use of construction SMEs, integrating construction and design management approach in the construction process to promote environment, health and safety awareness and practice

Environment, Health and Safety

- Provide adequate safety and environment trainings to all subcontractors
- Promote proactive safety and environment culture to the construction SMEs
- Provide complementary facilities for waste recycling, implementing safety and environment incentive scheme on an individual level or organisational penalty and reward system

Community Caring

- Engaging the community prior and during the construction project aiming to explain the potential impacts, benefits and outcome at different phase(s) of the project.

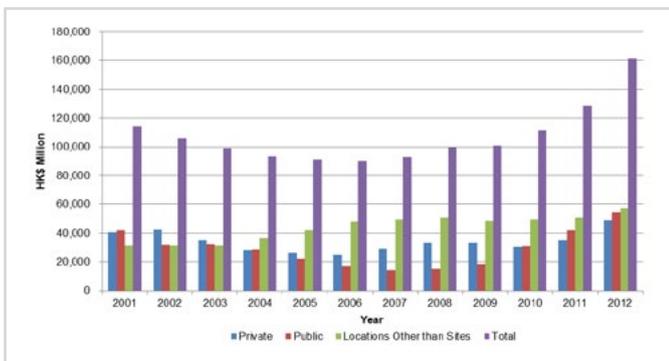
(Please note that the above points do not intend to be an exhaustive list of areas of recommendations. However, this list provides guidance in common areas of CS and other issues may arise and which are not captured in this document.)

1 The Current Situation of the Construction Industry in Hong Kong

Construction industry is a significant part of the economy in Hong Kong. As an important sector, the industry embraces all the construction activities of major infrastructures and real estate properties including new construction, repairing and alterations of any existing structures. This involves a wide range of construction stakeholders such as private developers, Government, public organisations, main and subcontractors (including Small and Medium Enterprises (SMEs)¹), skilled and general workers, construction consultants as well as construction related associations and unions.

As illustrated in the graph below, the overall gross value of construction work performed by the main contractors (in nominal terms) has been growing since 2007. The public sector has become one of the main driving force for the growth of the construction industry with over 300%, which drove up the overall construction activity by more than 75% to a total gross value of HK\$161 billion by the end of 2012, accounting for more than 3.5% of the GDP in Hong Kong².

Gross Value of Construction Works Performed by Main Contractors in Hong Kong



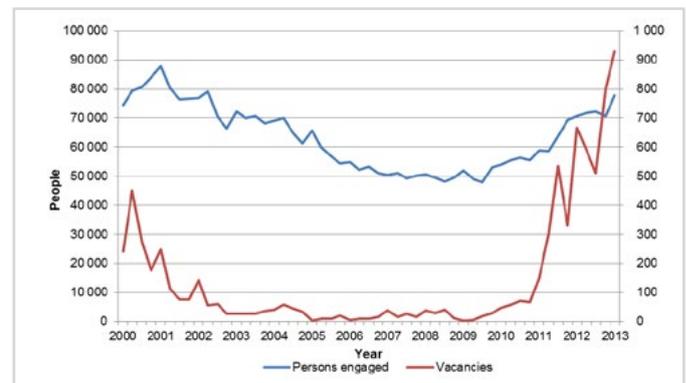
Source: Census and Statistics Department, HKSAR Government

The rise in public expenditure on infrastructure has mainly been driven by the Ten Mega Infrastructure Projects and transport infrastructure projects, such as the Guangzhou-Shenzhen-Hong Kong Express Rail Link and the Hong Kong-Zhuhai-Macau Bridge. Further public expenditure on housing is also anticipated to increase, by providing at least 75,000 public rental housing units and 17,000 home ownership flats in the next 5 years³.

By increasing the supply of land, new infrastructure and residential development projects are rolled out in new development districts such as north east New Territories (NENT), Kai Tak, West Kowloon, Tung Chung and reclamation outside Victoria Harbour⁴. The demand for construction services particularly from the public sector, will remain high.

The construction industry is also playing an instrumental role in shaping the employment structure. As of the latest available figure in March 2013, there are more than 77,000 manual workers being hired in 1,228 construction sites, representing nearly 2% of the total workforce in Hong Kong with a 10.1% increase comparing to the same period in 2012. The number of vacancies in the construction sites of Hong Kong is also increasing rapidly since 2011, which have reflected the strong growth of the industry⁵.

Persons Engaged and Vacancies of Construction Sites in Hong Kong



Source: Census and Statistics Department, HKSAR Government

Behind the enormous construction industry is a small number of local main contractors accompanied by a widespread subcontracting, the presence of a large number of overseas contractors, with a substantial proportion of companies being both developers and contractors.

Under such circumstances, most actual construction works are dominated by SMEs which act as subcontractors to the main contractors, and those with less than HKD10 million in annual gross value of construction work account for as high as 97% of the construction industry⁶. In the current practice, the client would establish a construction project team to provide the necessary competence and expertise to finalise the design and specification, the client will undertake a tendering process to select a main contractor. An expectation of the construction process is usually set by the client and the message would then deliver to the main contractors and then cascade down to each level of the subcontractors. CS can be seen as one of the requirements that the contractors and subcontractors have to fulfill in public works and public housing projects. In most cases, the main contractor will take care of employment of subcontractors and the procurement of materials including but not limited to ground works, steel fabrication or mechanical and electrical products and services.

In recent years, CS has already been emerged as a global trend in the construction industry. All of these factors such as economic, social and environmental impacts of the construction sector would have to be considered in accelerating the uptake of CS in the local context. A number of emerging sustainability issues is arising locally in recent years, which includes the aging workforce, shortage of skilled labour and new entrants, skill mismatch, biased procurement procedures, unequal labour contract, aggravating safety issues and lack of environmental awareness. All these issues result in a poor image of the construction industry as a whole. Support and guidance are recommended from Government, public organisations, private developers, construction consultations, main contractors and construction related associations to gauge construction SMEs towards sustainable construction.

Nevertheless, efforts have been ongoing since 2001 attempting to set a clear vision of the construction industry. The vision of “construct for excellence” was discussed in 2001 by the construction industry review committee⁷ was articulated for continuous performance in a market-driven environment. Strategic issues have been recognised as;

- (1) fostering a quality culture;
- (2) achieving value in construction procurement;
- (3) nurturing a professional workforce;
- (4) developing an efficient, innovative and productive industry;
- (5) improving safety and environmental performance;
- (6) devising a new institutional framework to drive the industry;
- and
- (7) implementation of a change programme for the industry.

Many recommendations are linked to short time frames ranging from 2-5 years. In 2007, construction Industry Council (CIC) was established under the support of the Development Bureau of the Hong Kong SAR Government to foster long-term strategic development of the construction industry and to convey the industry's needs and aspirations to the Government, as well as providing a communication channel between construction companies and the Government. At present, the ‘Enhanced Construction Manpower Training Scheme’ is offered to satisfy the demand of major infrastructural projects, railway construction, urban renewal, maintenance and building construction as well as the environmental protection projects.

Therefore, it is considered essential to probe into the existing and potential sustainability issues of the construction sector in Hong Kong in order to formulate necessary actions for achieving long term sustainability in the coming decade.

¹ SMEs Contractor SMEs in this project are defined as a company which consists of 20 to 50 staff members.

² Census and Statistics Department, HKSAR, 2012 Economic Background and 2013 Prospects, http://www.hkeconomy.gov.hk/en/pdf/er_12q4.pdf

³ Policy Address 2013, <http://www.policyaddress.gov.hk/2013/eng/index.html>

⁴ Hong Kong: The Facts (New Towns and New Major Urban Developments), HKSAR Government http://www.gov.hk/en/about/abouthk/factsheets/docs/towns&urban_developments.pdf

⁵ Hong Kong's Construction Industry Vision 2020, June 2012, Hong Kong Construction Association

⁶ TDC research (2012) <http://hong-kong-economy-research.hktdc.com/business-news/article/Hong-Kong-Industry-Profiles/Building-and-Construction-Industry-in-Hong-Kong/hkip/en/1/1X000000/1X003UNV.htm>

⁷ Hong Kong Report (CIRC, 2001) Construction for Excellence, Construction Industry Review Committee

2

Key Influencing Factors of Corporate Sustainability in Construction SMEs



To understand the current situation and hurdles for the industry to achieve sustainable development from SMEs' perspective, a series of engagement activities with private developers, construction consultants, main contractors, subcontractors (including SMEs), skilled and general workers, construction associations and public organisations, including 6 focus groups, 3 discussion forums and 42 surveys were conducted from November 2012 to September 2013. Supplement with desktop research, the major hurdles are identified as follows:

2.1 Construction Procurement and Subcontracting Practices



a. Over emphasis on tendering prices

The topic of procurement system is exceedingly important in promoting CS. The traditional procurement practice of the construction industry is controversial. There is a tendency to view the lowest price as the best value during contractor selection process, whereby other key factors are of lesser importance: quality, experience, resources, compliance with specifications, insurance coverage, environment, health and safety performances, etc.. For large construction projects, the tendency of the project owner(s) to award contract at the lowest price still exists, making the profit margins low and thus neither contractors and subcontractors have incentive to perform the work exceeds statutory standards, nor deliver better work quality than the minimum contractual requirement. On the other hand, some contractors might try to increase their profit margins by cutting corners.

b. Complex and multi-tiers of subcontracting layers

Under the complex nature of the construction works, subcontracting is a long-standing practice among construction industry that provides flexible use of resources and wise utilisation of skill sets of workers. It has always been regarded as an important part of the construction industry, particularly in building construction where the production process is divided into a number of discrete activities. These tasks or activities are often carried out sequentially and may require specialised trades of workers. One of the benefits of this system is that it allows indirect employment to cope with fluctuations of demand for labour. Therefore, it is considered advantageous in many aspects such as better efficiency of subcontractors' operation due to specialised skills required at different construction stages.

However, the multi-layer subcontracting practice has been considered as one of the major factors for poor quality of work and poor safety and health performance of the construction industry. "Pay when paid" and "pay if paid" clauses are normally found in the work contracts between contractors and subcontractors. Contractors routinely try to shift the burden of nonpayment to

subcontractors and the "pay when paid" clauses are the standing reason for the contractors to delay the time for payment to the subcontractor. This undesirable circumstances can be prevented from open communications and coordination among client, main contractors and subcontractors. The complex subcontracting layers also make the accountability uncertain once accident or defect occurred. Construction SMEs noted that subcontractors usually bear the full incidental risk during the construction stages, e.g. technical feasibilities of the construction works, work schedules, and costs.

c. Disputes and claims resolutions

Disputes and claims for damages and additional unpaid work outside the contract scope due to work changes are common problems in the industry, particularly for some minor works without formal work contracts. However, the resolution of disputes are complicated and time-consuming and possibly result in construction schedule delays. In some cases, resolution actions can only be commenced when the construction works have been completed. These practice caused an acute effect on the operation schedule and a financial burden to the construction SMEs due to weaker administrative support and cash flow to handle the prolonged legal procedures which can last for years.



2.2 Manpower Sustainability and Employee Caring



a. Shortage of manpower supply

With the commencement of a number of major infrastructure projects and large demand of old buildings repair and maintenance works, there are major concerns in terms of the shortage of construction consultants (especially for engineers) as well as skilled and general workers in the last few years. There is insufficient new entrants, particularly for workers, as the construction industry was traditionally regarded as “grassroots works”. The age profile of existing construction works revealed that there is aging problem of the workforce – 40% of registered construction workers aged 50 or above. An aging workforce could mean losing the experienced, older workers that the companies count on to bring new workers up to speed. On the positive note, the aging of the population has the potential to reshape not only who works, but also how work can be performed. In the last few years, some efforts has been underway aiming to attract new entrants by the construction associations. However, the industry is not yet able to attract sufficient number of new entrants due to negative image of the industry: short-term, insecure and uncertain workloads, risky job nature in terms of health and safety and site conditions, no formal contract, irregular or late salary payment, temporary workplace and poor working conditions. A few participants pointed out that workers who worked in the construction industry because they have no choice as they are less-educated, most of them do not want their children to work in the industry.

Measures have been commenced by CIC in the last few years by providing a higher training allowances and placement services to the new entrants⁸. Together with the support of the Government, specific training courses, trade testing functions and employment fairs have been conducted aiming to attract interested youngsters into the industry. However, there are inadequate number of young people willing to join the industry. The young people may not consider construction work as their career priority since they felt the current pay level cannot justify the hard work required. This is a pressing issue as the physical demands for the work are relatively difficult to meet by aging workers and thus work safety of these workers should be prioritised. The manpower issue is also interrelated to the accident rate. Few major accidents can potentially result in an immediate drop of new-entrants. Therefore, safety and health performance at work have to be improved in order to restore confidence of new entrants and their close families. More positive image for the construction industry is essential too.

b. Mismatch of skills

Workmanship has a direct impact on the quality of construction works and most of the construction works require specialised trade skills. However, the problem of skill mismatch of the construction

workers is significant. The Construction Industries Employees’ General Union recognised that there was a wrong division of workers in different fields; in fact, 60% of construction workers are registered as “General Workers” under the Construction Workers Registration Scheme while “Skilled / Semi-skilled workers” contributed to less than 40% of the total number of registered construction workers⁹. Under the unstable mode of employment, most construction workers are reluctant to attend training courses to develop capabilities and enhancing their skill-sets. Construction SMEs have limited resources and time to provide or participate in employees’ training and so their competency base remain fairly weak.

c. Caring for the employee

The working conditions of construction workers are challenging, workers have to work at height, opened or enclosed space, at the same time subjected to high temperature and sudden change of weather. They are exposed to dusts, noises and chemicals on a daily basis. Improving the working environment for the construction workers and understand that they are the most valuable assets is fundamental for the industry. In addition to the tight working schedule and lack of job security, the workers are not motivated in improving their work quality.

Construction SMEs found it to be a burden to provide insurance coverage for their workers. Some of the insurance companies reject the insurance applications of high risk related specialised trade such as tower crane operations. Construction SMEs face challenges in purchasing high workers’ insurance by project which usually costs HKD100,000 or above. A number of stakeholders pointed out that most workers whose suffered from injuries would return to work after recuperating for a couple of days and they would not request compensation because they are concerned about their job security.

Apart from health and safety issues, the unstable mode of employment, pays and benefits of construction workers are of concern to them. The mode of their employment at lower subcontracting levels are usually temporarily and employment decision are made verbally. Formal employment contracts are not mandatory hence the workers’ pays and benefits are not secured.

⁸ CIC, Training for New-Entrants to The Construction Industry, <http://www.hkcic.org/eng/courses/newentrants.aspx?langType=1033>

⁹ CIC Conference on Manpower Sustainability, 28 September 2012

2.3 Community Caring

a. Unprepared for the community concerns

Construction sites are traditionally regarded as bad neighbours, producing excessive noise disturbance and pollution to the community. However, delays of construction works completion dates and weak communication process with the local communities are commonly seen and complaints are thus received. A number of construction SMEs who work for the building renovation works requested for support for mitigation measures to reduce environmental impact to the community.

2.4 Environment, Health and Safety (EHS)

a. Low environmental awareness of the subcontractors

Construction activities are perceived as polluting, noisy and generate large amount of wastes. The construction processes often have environmental impacts and environmental management has become a critical issue in recent decades in view of increasing public aspirations. Though the Government has been taking some initiatives in promoting construction pollution control like dust and noise mitigation as well as waste reduction and recycling, concerted effort targeting construction SMEs might be required. Enhanced promotion in green building technologies and construction waste reduction are also important too while recycling (which includes reuse of materials) is mandated by legislation.

b. Environmental protection issues has been client-led initiatives

For many years, environmental protection in the construction sector has been a client-led initiative. The client will work with their main contractors only to promote environmental awareness. Subcontractors are taking a relatively passive role in adopting environmental solutions. As many of the construction projects are cost-oriented and have to be completed in tight schedule, the project owners always place environmental protection measures with a lower priority. In addition, the environmental awareness of construction workers in SMEs is still low and there is large obstacle for construction workers to carry out waste separation and recycling at minor works, alternations and building works sites due to limited spaces.

c. Ineffective health & safety monitoring

Under the subcontracting practices of construction work, main contractors bear the responsibility to monitor the health and safety performances of its subcontractors. However the fragmentation of construction works inhibits a comprehensive monitoring approach in handling site health and safety issues

and resulting in a lax control of safety performances of the subcontractors. The safety officer has a crucial role in ensuring safety rules and regulations are being followed and safety measures are in place at construction sites. However, concerns are raised that some safety officers could not perform their duties independently. Their safety advice might be hindered by the tight work schedule and limited budgets. Furthermore, the penalties to safety violation are found to be unreasonably low and lacks deterrent.

The safety awareness and culture of construction workers still needs improvement particularly for smaller scale projects like renovations where safety regulations are often flouted. The tight working schedule is also being one of the factors contributing to the safety risks of workers and therefore a reasonable time-frame for projects should be set up for giving workers sufficient time for consideration of precautionary measures.

The Government has implemented a number of safety initiatives to improve the safety performance of the construction industry over the past decades. The Pay for Safety Scheme (PFSS) is one of the effective safety measures launched in the 1990s and has been widely adopted in the public works contracts. The PFSS enabled any sum payable for carrying out safety measures to be identified in the construction contract hence encouraged the main contractors to consider and implement necessary safety measures during the construction stage. Under PFSS, payment is to be made to the main contractor when they comply with each of the stipulated safety items. Nevertheless, it is a common practice for the main contractors to shift their responsibilities on safety compliances to its subcontractors without financial supports.

Some of the stakeholders pointed out that safety considerations for building maintenance work are not being considered thoroughly during the building design stage by construction consultants and owners. Apart from construction workers of minor works, E&M contractors, property management personnel and cleaning contractors would be seriously affected.

With the foreseeable acceleration of the amount and scales of construction works in Hong Kong, the challenges and problems encountered by the local construction industry today demand immediate attention in order to cope of surging demand. Possible ways to achieve sustainable development of the industry will be suggested and discussed below.

3 The Way Forward



To address the CS challenges to construction SMEs discussed above, this paper consolidates the recommendations collected during stakeholder engagement for further development of suitable strategies and mechanisms in moving the construction sector towards sustainable development.

3.1 Nurturing a Sustainable and Professional Workforce



A positive image creates a positive future of the construction industry. Enhancement of the industry image in the eyes of the public would be required to reverse the perception of 3Ds (dirty, disorganised and dangerous). Construction is integral to the economic development of Hong Kong and construction workers should have matching pride.

Most participants considered that importing foreign workers is not a long term solution, a sustainable workforce should be developed locally to the growth and success of the local construction industry. The Government, public organisations, construction related associations and developers have the role to play in driving the positive image of the industry. For example, a construction career advancement roadmap can be established, guaranteeing stable income and benefits prospect for the trainee in the training scheme. Stringent industrial safety standards should be enforced to attract youngsters and persuade parents from the construction

industry to allow their children to join the industry. More publicity work is recommended to be conducted in a more aggressive way to recruit more youngsters in the job fairs, secondary schools and other technical colleges. It is recommended that a more effort secured to recruit and train new workforce with more funding support. To maintain a sustainable workforce, more suitable platforms or channels for current and new workers to find jobs are needed so that they are aware of the number of opportunities available for them to choose from. Public organisations, developers and main contractors can set up a project-by-project referral system to provide work opportunities for both construction workers and construction SMEs in a medium to long term basis. For those foreign workers that were imported, it is recommended that sufficient language support is needed on-site to engage those immigrants and ethnic minorities.

3.2 Enhanced Training Scheme to Upgrade Workers' Skill after Employment



Provision of Government-funded scheme for "train after employment" is essential to upgrade the skills of the workers. In general, it was reflected that the trainees' technique are still immature after attending the short training courses. To develop highly skilled workers, experienced workers should contribute to the training and development scheme by acting as mentors in the training initiatives.

For example, it was suggested that more on-job training should be provided to the entrants to brush up their skills. More funding for providing sponsorship to construction SMEs to join the training programme is recommended as meontors. In addition, greater use of machinery in replacing manpower should be encouraged in some building procedures and wider use of precast construction methods can certainly help to reduce the number of manual procedures onsite. Skilled workers will be retrained to be multi-skilled so that skill transfer process can facilitate more job opportunities for them. It is recommended that more

training courses to be organised through trade association. It's of importance to mobilize the young members of construction association and trade associations in putting their heads together on discussing the construction sustainability issues and see how they view the sustainable construction issues in the future.

3.3 Full Insurance Programme for Construction SMEs



Insurance premium for death and work related injury remains high and the choice for workers' insurance is limited. It is recommended that a more extensive coverage of work-related injury programme and income protection insurance package should be provided for workers through group self-insurance scheme. For example, adequate insurance against periods of sickness or unemployment should be sought, the use of an agreed list of providers of medical treatment should be provided; the use of panel doctors which may be the exclusive source of all medical evaluations performed; a light duty, modified job or return to work programme should be considered; a 24 hour health care coverage plan and a vocational rehabilitation or retraining programme and retirement benefits should be provided. It is also recommended that workers will

be subsidised on their insurance premium under organisations such as Hong Kong Construction Industry Employees Generation Union. The additional cost incurs from the insurance package will be added in the contract sum of the construction project. A good insurance cover is of critical importance in attracting and retaining workers in the construction industry. It is recommended that modification of mandatory legislation is necessary to urge employers in purchasing adequate employees' insurance to the workers.

3.4 Enhancing Employee Caring Culture



Construction related associations can assist the Government, public organisations, developers and main contractors to understand and respond to the needs of the construction SMEs, develop benchmarking or index scheme for employees caring of the construction sector and incorporate the training system with salary increment for the construction workers. Regular review can be conducted by main contractors to understand the current expectation(s) of employees by promoting active discussion with them and clarifying how staff are affected onsite. The construction manager onsite can work with staff to make sensible, practical improvements; and regularly reviewing the situation to ensure that continual improvements. Grievance procedure and mechanism is recommended to be in place to provide a channel for workers to voice out their dissatisfaction and concerns on a daily basis. Details of the employees' expectations in construction SMEs are suggested as follows:

- develop workers-friendly access to work areas
- provision of drinking water facilities
- provide sufficient rest room/ rest areas for frontline workers
- sufficient changing room equipped with shower facilities
- provide laundry washing and drying facilities
- comprehensive work insurance scheme
- encourage work-life balance
- workplace with adequate ventilation
- provision of short sleeves, light weight uniforms (adequate for changing)
- provision of PPEs (such as goggles, ear plugs, protective mask, protective gloves and safety belts)
- long-term job opportunities
- offer more encouragement and rewards to good performers
- fringe benefits to their employee and their direct family members
- promote five-day work week by shift operations
- on time full salary payment by cash/ bank transfer
- training should be provided on paid workdays

3.5 Fostering an Effective Procurement Procedure



Lowest bids on construction works should no longer be the only determining factor in the construction procurement process. It should be recognised that best value does not necessarily equate to the lowest tender price. The tendering process should not be solely based on the “lowest bid”, but other sustainability performance indicators such as but not limited to leaner construction methods, use of recycled content materials, material conservation and resource efficiency, energy conservation and energy efficiency, water conservation, land and soil conservation, solid waste reduction and recycling of C&D (Construction and Demolition) waste, air pollution control, health and safety record, comprehensive salary and MPF payment system, incident record and environmental management system requirements have to be taken into consideration in the Government and developers’ procurement process. Green Building Schemes such as BEAM Plus and LEED can be promoted to incentivize the adoption of precast, modular or other less waste producing methods. Credits can be given for using recycled content materials and for recycling of C&D waste. This encouraged the entire supply chain to meet the recycling targets.

Government, public organisations and associations can work together to set up standard system to deduce marks for tender bidders who have a bad records of the sustainability performance indicators. As part of the construction industry norms, tender bidders will be disqualified with extremely low prices. Standard works contract and standard employment contract can be formulated for industry to follow suit. Developers and main contractors can collaborate to set up a fair and transparent system of quality and safety performance for subcontractors such that those can be reviewed during the procurement process. A contractor SMEs’ fund can be set up to offer loan or financial support to the SMEs for disputes and arbitrations. Lessons can be learnt from some public work contracts where initiatives have taken place to develop 2 to 3 envelopes’ tender assessment system with fair consideration on technical, environmental, safety and price aspects in recent years. It was suggested that the proposed list of subcontractors should be submitted as part of the tendering documents and evaluation will also be based on their years of experience and track records.

Construction projects are often procured on a straightforward lump-sum basis. Under a lump sum contract, the contractor might seek to increase the contract price where possible in order to increase project profitability. The alternative risk-sharing approach, partnership should be encouraged so that all the project participants can work as one team to achieve shared project objectives rather than in competition with each other. By doing

this way, better project outcomes could be achieved while sharing risks among client, main contractors and subcontractors. The use of target cost contract should be promoted as this approach incentivises the main contractors to be innovative and to undertake continuous improvement as he stands to take a share of any resulting savings. In this way the contractor and the client become much more aligned in their objective; to deliver the project to scope and at the lowest cost. Special attention should be placed to subcontractors, they should be rewarded if they have contributed to meet the clients’ requirements. Main contractors should be awarded based on wider adoption of target cost approach. Public sector clients could play a critical role in driving the construction industry to improve its operations.

Additional CS criteria can be incorporated in the building code. More stringent regulatory measures should be in place to evaluate environmental, health and safety performance. More sophisticated design guideline specifying the use of environmental, health and safety codes will be helpful to all stakeholders. In addition, making this as a priority and requirement in the procurement practice will foster behavioural change. Incentive mechanisms can be placed to motivate contractors and subcontractors in embedding sustainability practice. Incentives for leaner construction by changing codes and use of precast or modular methods are encouraged.

3.6 Building a Safer and Healthier Work Environment



A number of participants pointed out that health and safety provisions can be included in the construction contract. Details of the clauses can be included as sustainability specifications and evaluation criteria, contract terms and conditions of performance measures. Provision of incentives will be useful to encourage the inclusion of safety consideration at building design stage. 3-envelope tendering system can be developed with submission of a separate proposal of health and safety measures. And main contractors who have a record of fatal accidents are prohibited to bid work tenders for a period of time.

Modification of the current safety and environment incentive scheme is required to impose heavier penalties on industrial accidents and bad environment health and safety practices.

Some of the participants suggested that the penalty and reward system for either individual or organisational level or combined with the "The Pay for Safety Scheme" (PFSS) / "Pay for Safety and Environment Scheme" (PFSES) can be developed and encouraged in driving subcontractors' safety and environmental performance. It was suggested that the safety and environment incentive programmes should include cash, prizes, awards or other forms of recognition to workers for performance and the subcontractors should be the ones who should receive the reward instead of the main contractors. The positive safety and environment actions while workers are working, the company encourages them to report safety observations (including near-misses cases) so that the incidents would be reported. Using the reporting information, management can then begin to address the concerns to prevent accidents. The penalty system was also suggested to be integrated

with the construction safety training certification (green card) system where points would be deducted when the individual has violated the construction safety and environmental protection standards. The enforcement process will require all foreman or above to be the safety supervisor.

Adequate safety trainings can be provided to all contractors and subcontractors. More trainings on safety and environmental related new regulations and legislation can be provided to all contractors and subcontractors. The safety training system can be implemented with increment of salary as encouragement to the individuals. The structure of the safety trainings can be concentrating on the provision and use or maintenance of personal protective equipment, communication and instruction, workers' safety training, safety supervision, frequency of accident, reinforcement on safe behaviour and safety knowledge on work standard and regulations. But the quality of the safety training courses will need to be monitored regularly.

Applying construction and design management approach to promote health and safety is crucial. It is vitally important for the construction consultants such as architects to identify potential hazards and factor in safety measures or provisions for future maintenance during the building design stage. Incentives for the developers, main contractors and subcontractors can be set up to consider safety measures for future maintenance needs at both design and maintenance stage of the buildings. After hazards are identified, detailed methods and operation plan should be adopted to reduce risks during construction, commissioning, maintenance and demolition process.

3.7 Moving Towards an Environmentally Responsible Industry



As mentioned in the previous section on health and safety, a proactive safety and environment culture to the construction SMEs can be promoted. All parties in the construction sector should recognise that lives of the workers onsite still remain the most valuable asset than any savings in time and money that could be made by cutting corners. Very often, environmental health and safety elements are considered as costly elements in the construction industry. Therefore the environmental measures need to be spelled out more explicitly on work contract.

Current initiatives include PFSS and PFSES are the major safety and environment initiative launched by the HKSAR within the public

sector since 1996. It aims to encourage the safety awareness by taking the contractor's pricing for safety and environment-related items out of the competitive bidding. Promoting the current scheme is desirable to drive best practice in the construction industry. More work will need to be done to embed the organisational safety culture and promote safety and environment scheme to the SME contractors. Regular unannounced inspections are favourable to reinforce their proactive safety and environmentally responsible culture. Government can consider in specification of recycled materials aims to promote the recycling of C&D waste and expand the market for recycled materials. The Waste Recycling Law can be set as a mandatory requirement for recycling of specific

materials and implemented in conjunction with the ban of landfill for those particular materials. Waste and recycling license will be established as a legislative framework for promoting C&D recycling infrastructure and business development for recycled C&D waste materials. For demolition projects, main contractors and their subcontractors can be required to separate and recycle specific construction wastes and to submit a site demolition plan together with the registration of demolition operators, noise regulations and countermeasures for hazardous waste such as asbestos. Assuming all the C&D waste is sorted, sufficient outlets can be promoted for reuse or for recycled materials. Government can take the lead in developing trade channels and attracting new business to Hong Kong and licensing of recycling and alternatives to landfill need to be given priority. Subsidizing the aggregate recycling is one way to promote recycling of inert materials and processing into secondary recycled aggregates. A C&D waste sorting fund can be developed to subsidize sorting equipment or machineries and support anti fly-tipping campaigns.

Environmental impacts shall be minimised by considering the whole life cycle of the construction process. More frequent communication between the design and planning team is desirable to avoid construction waste due to incorrect installations. Environmental consideration can be incorporated in the design stage that use the least amount of materials or green materials. It is recommended that green procurement guideline for the construction sector will need to be developed to provide comprehensive coverage of the green products. Project managers can improve the process of construction, which includes transfer of materials to and from the construction site, to be performed by the subcontracted workers, such as by planning for waste sorting and recycling. A number of participants suggested that provision of centralized recycling facilities can be set up for all contractors, facilitate the recycling of construction waste by designating areas for collection of construction waste and considered reusing some of the demolished construction materials. Main contractors and subcontractors can be coordinated in achieving project waste reduction goals. Site Waste Management Plan should be prepared, estimated, implemented and review construction site environmental impacts. Primitive ways to reduce environmental impacts are considered during construction works and separation of recyclable waste can be carried out whenever and wherever possible.

Workers shall be paid on all environment related training days in addition to their skills and health and safety training as a job requirement. Training scheme can be modified to provide more support such as bearing the cost of environmental health and safety equipment and training costs to the construction SMEs.

3.8 Foster a Community Caring Culture

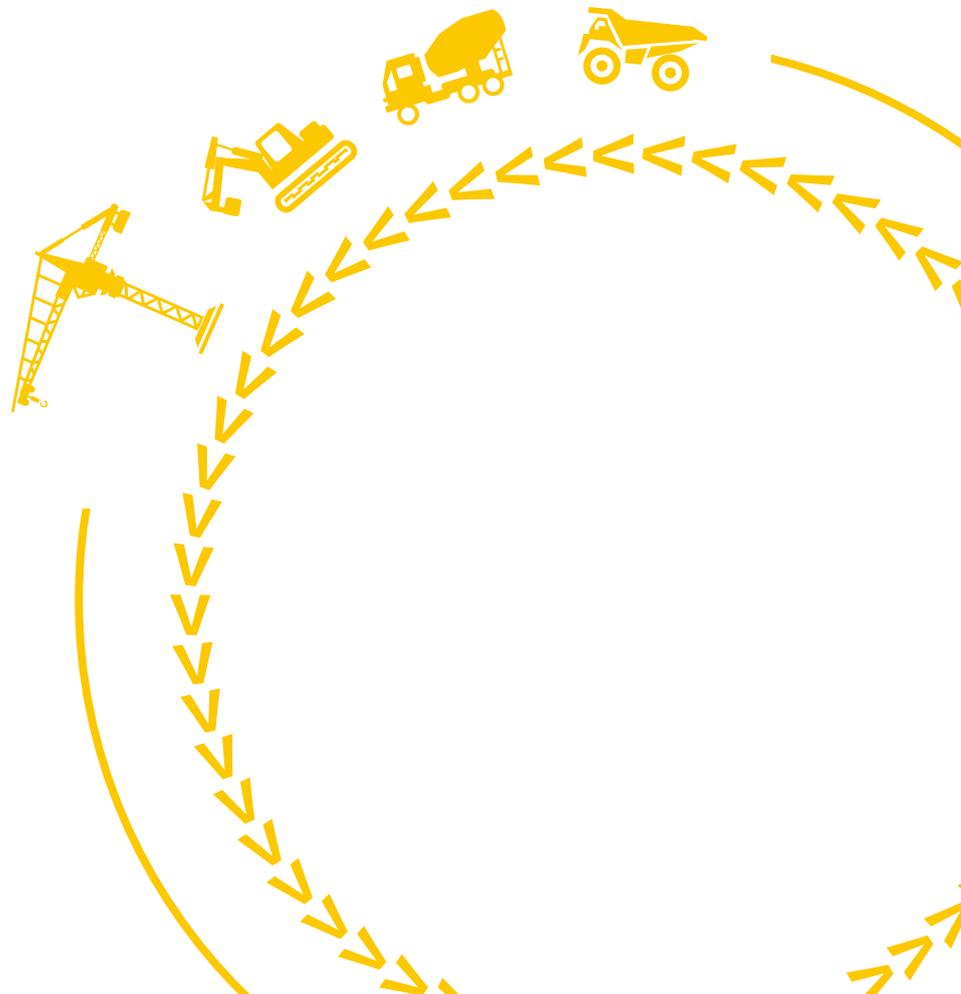


It is vital for the construction companies to understand the needs and concerns of local community before the commencement of the construction projects or during the construction period through community meetings. Particularly for building maintenance work, by appointing a community caring ambassadors or corporate responsibility (CR) person can be beneficial in communicating with the community stakeholders about the benefits and the potential impacts of the project and organizing community activities. For example, construction works on public roads can be coordinated to minimize the frequency of construction work and nuisance. Earlier bilingual notices can be issued to the local community well before the start of the construction project. Make the best use of hoardings to separate the work areas from the public. Both contractors and construction SMEs can investigate ways to reduce the onsite working process and adopt primitive devices to minimize environmental nuisances.

4

Conclusion

To conclude, there appears to be a potential for construction SMEs to adopt the CS concept in Hong Kong. Only with well-planned, properly taught implemented skills and knowledge-based training can the construction sectors put the best possible bricks into place to rebuild the industry. The construction industry must act with one heart and one vision to tackle these deep-seated problems in Hong Kong. There is a need to sustain the current efforts in promoting CS combined with the injection of new talent in sustaining the construction industry in the future. In order to accelerate improvements across the entire industry, the Government, public organisations, construction related associations, developers and main contractors are the most important drivers for construction SMEs in moving towards CS. It's crucially important that all construction stakeholders work together more closely to steer forward manpower development, facilitate adoption of partnership approach and promote good practices of environment, health and safety.



5

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