

Contracting for Community Development: A case study based perspective of a public sector client initiative in Hong Kong

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Abstract

The construction industry is known to be an important contributor towards the gross domestic product of many countries. Moreover, the health of the construction industry is positively correlated to the economic growth of a country and in many economies public sector clients account for a major share of construction works. Given this strength, it is important for public sector clients to initiate innovations aimed at the betterment of the industry. In this context, concern about sustainable development has been a major driver of some innovative initiatives in construction industries worldwide. Furthermore, the Government of Hong Kong regards both sustainability and community development as important criteria when planning and procuring construction projects. This paper is based on a case study of a public sector development project in Hong Kong, and presents the salient features of the procurement and contractual systems adopted in the project, which foster sustainability and community development. The reported interim findings are based on a preliminary document analysis that is part of an ongoing longitudinal case study into the project. The document analysis takes a three-pronged approach in terms of how the procurement and contractual systems foster economic, environmental and social sustainability, and sums up their impact on the community as a whole.

Keywords

Sustainability, Construction Procurement

1. Background

Sustainability, a concept that came to the forefront in the latter decades of the 20th century, has grown in importance with time and is at present a major concern area in terms of natural development because of growth in population and dwindling resources. The importance of sustainability gains is manifold when the focus is on administering a small region like Hong Kong. Hong Kong's population is dependant on a land area of little more than 1,000 square kilometers of which only 5% is developed and 38% consists of designated country parks. The undeveloped parts of Hong Kong are mostly seen as not fit for development, either because of the difficult terrain or the need to preserve the natural environment. At the

same time, Hong Kong’s population has been increasing at high rates, so that satisfying the needs of the growing population and projecting Hong Kong’s status as ‘Asia’s world city’ means a higher demand for modern infrastructure. Modern infrastructure comes with its own perils to the environment. Given these constraints, it is not difficult to appreciate the requirement for the government of Hong Kong to practice sustainable infrastructure development.

In the words of Hong Kong Civil Service Bureau (2004), the government means business in improving the environment and promoting sustainable development. Towards achieving this, Hong Kong has concentrated on the three internationally accepted dimensions of sustainability namely Economy, Environment, and Society along with a fourth dimension named Resource Utilization (SUSDEV21 2004), keeping in mind the resource limitations of Hong Kong. According to CSB (2004), “translated into action sustainable development means:

- Finding ways to increase prosperity and improve quality of life while reducing overall pollution and waste;
- Meeting the community’s needs and aspirations without damaging the prospects of future generations; and
- Reducing the environmental burden on Hong Kong’s neighbors and helping to preserve common resources”.

These are broad based national objectives which have to be translated into policy initiatives and strategies at the organizational level and into actions towards achieving the objectives at the micro level. Such translations need to have clear guidelines to assess their impact on achieving the stated objectives. However, Ugwu (2005) based on survey results specific to Hong Kong, suggests that knowledge about these measures has not percolated into middle management level staff and also that there is a lack of knowledge dissemination mechanisms. In essence, this means people who are directly responsible for the works are not aware of the requirements

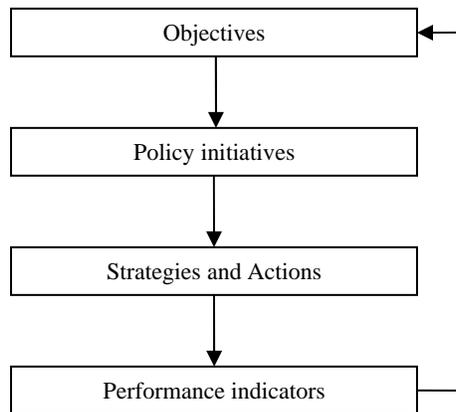


Figure 1: Process – objectives to their realization

Framed in this context, this paper presents a case study of a building project undertaken by an autonomous public sector body highlighting the innovative policy initiatives and strategies that are part of the procurement and contractual systems adopted in the project to foster sustainability and community development. The data reported in this paper is drawn from an ongoing case study undertaken as part of a larger research project and is aimed at developing a Relationally Integrated Value Networks in the construction industry. Data collection methods include extraction from the project documentation and semi-structured interviews with nine project team members. The analysis methodology involves extracting evidence of clear cut policy initiatives, their translation into strategies and actions, their

percolation into project stakeholders and team, and guidelines to assess the impact of strategies adopted. The presence of evidence of action towards achieving all steps of the process as seen in figure 1 is noted as enhancing the probability of achieving the objectives whilst evidence to the contrary is seen as an area to be addressed in future.

2. Introduction to the Case Study

The case study presented involved development of a public housing estate consisting of over 2,300 flats constructed to the required rental standards, a lift tower connecting the existing housing estate and the new development, a bus stop, a neighborhood elderly centre, a drainage reserve and associated external works. All works were contracted out on a traditional approach based on Government of Hong Kong General Conditions of Contract for Building Works (1993 Edition) with additional special conditions to cater for the six Guaranteed Maximum Price (GMP) packages involved (superstructure, specialist external works, plumbing and drainage, fire services and water pump, electrical installation and bus stop). The six GMP packages make up slightly higher than 30% of the overall project cost. The shared savings ratio for GMP packages was 50/50 between the employer and the contractor, of which the contractor is entitled to only the first 15% of the contractor share of savings. The rest of the 85% of savings is to be shared with the GMP sub-contractors on a pro-rata basis of the percentage value of the cost savings attributable to the works of the contractor and GMP sub-contractors. Contractor selection was based on strict pre-qualification criteria and tenders were invited and administered on a two-envelope basis.

3. Implementing Sustainability Policy Initiatives

This section of the paper highlights the innovative policy initiatives utilized in the project towards achieving sustainability objectives with respect to the four dimensions of sustainability stated above and links them up with implemented procurement and contract strategies directed at achieving the same.

3.1 Implementing Economic Sustainability Policy Initiatives

Economic sustainability means economic activity that is conducive to, and supports, sustainable development. There is a proven linkage of the construction industry to the wider economy (Turin, 1969; Drewer, 1980, Moavenzadeh, 1984, Ofori, 1988). In the context of Hong Kong, the property sector combined with the construction industry accounts for an average of 14% of the Gross Domestic Product (Secretary for Housing, Planning and Lands, Hong Kong, 2002) and the housing sector forms a major part of both the property market and construction industry. In this regard, it is imperative that the government plays a major role in enhancing investment into development of new housing projects which not only provide employment fuel to drive the economic and social growth of Hong Kong but also assure a basic necessity for the lives of citizens. However, it is also true that government's role is not of a property developer and so market intervention by the government needs to be kept to a minimum to provide sustainable economic environment.

In this regard, the thrust of Government's housing policy is to provide subsidized public rental housing (PRH) to low-income families which cannot afford private rental housing. There are policy level targets in terms of average waiting time for PRH, annual production rate determined by actual demand and home ownership rate. These are to be met by the concerned statutory body which in this case is the client of the project that is presented in this case study. In meeting these targets, the client provides a steady stream of construction projects injecting a stabilizing element into the construction sector, and this in itself is a primary contributor towards providing sustainability to both the industry and economy.

The construction industry of Hong Kong, as in many other countries, is notorious for its 'pay when paid' clauses for subcontractors. These clauses which add additional risks (Ahmed et. al. 1999) accompanied with delayed payments (Grove 2000) to subcontractors has resulted in failure of many subcontractors and

is a serious problem for their employees affecting both the reputation and sustainability of the sector. On a project-by-project basis, the client in question has itself faced delays due to work stoppages resulting from payment problems for subcontractors. Measures like wages protection scheme and stringent contract conditions mandating prompt payments to subcontractors with provisions for direct payment were introduced to avoid the problems referred to above. Contract conditions being piloted in this project, if subsequently proven to be successful and legally viable, are expected to make a big difference in diminishing the financial problems faced by subcontractors thereby promoting a more sustainable industry.

3.2 Implementing Environmental Sustainability Policy Initiatives

The project's primary objective in terms of environmental sustainability was to enhance the percentage of green areas. Also, right from the briefing stage there was a major thrust on piloting some of the resulting products of in-house research. The briefing document for design reflects these requirements and this has resulted in several green initiatives that are being piloted in this project, of which the important ones are:

(a) Vertical green panel system in the form of modular prefabricated external cladding. These panels are to be used both on vertical surfaces as well at roof areas. Being used for the first time, they are being piloted at the construction site during the construction stage to test out the most optimal soil mix and plant species mixes for the panels.

(b) Green hoardings in the form of reusable panels to screen dust and noise at construction sites are also being piloted.

(c) Environmental façade

(d) Water saving devices for faucets

In addition, the choice of GMP contracts for work packages where there is scope for innovation is a conscious decision to encourage further improvements. This initiative not only encourages contractor-driven innovations motivated by the sharing of savings, but also transfers buildability risks of piloting new elements of design developed through in-house research and development. Contract conditions make it mandatory to share savings with subcontractors as referred to above and also to encourage subcontractor initiated innovations. Tendering was carried out after pre-qualification and invitation from companies on a list of 'premier league' contractors. These measures combined with tender interviews have assisted in finally selecting a contractor with high commitment to the project's objectives.

The contractor selection process was also based on a two-envelope system, with the marking scheme for evaluation of technical proposals on this project categorized into four main attributes consisting of sub-attributes of which sustainability was one with given assessment criteria and weightings. There was a threshold mark of 60% for the whole of the attribute and each of its sub-attributes. Therefore a score of below 60% for either one of the sub attributes or the attribute as a whole was considered as a failure thereby encouraging the contractors to come up with innovative strategies in each sub-attribute.

Contractors were further encouraged by the imposition of comparatively high percentage weightings towards sustainability issues, and the provision of scope for contractor initiated proposals to be incorporated into the project. Some of the contractor initiated proposals are related to sustainability issues, and one of the incorporated elements is to increase the percentage of pre-cast components in construction (part of Modified GMP package). In addition, a contractor initiated proposal to use hard paving for the whole site during construction, to maintain a clean and dust free working environment, is another landmark for the project.

3.3 Implementing Social Sustainability Policy Initiatives

A contractor initiated corporate social responsibility (CSR) scheme is being piloted in this project and is aimed at enhancing project team engagement with the surrounding community with an aim to foster better relationships. This engagement has taken the form of helping out the surrounding community with required minor construction repair works, workshops, and competitions and so on. This has increased a sense of ownership and belonging towards the project from the community and up until now has resulted in a reduction of complaints as compared to other projects. The wages protection scheme mentioned above and worker welfare schemes initiated by the contractor such as periodic medical check-ups, rest areas and so on are also expected to promote social sustainability.

3.4 Implementing Sustainability Policy Initiatives in terms of resource allocation

The strategy of the client referred to in this paper, in terms of housing provision, till the recent past was predominantly towards promoting house ownership and the maintenance regime was essentially reactive. However, it is now recognized as inadequate to design and construct buildings in the name of sustainability, unless they are actually operated, maintained and used to promote such sustainability. Design, construction, operations and maintenance go hand in hand in terms of sustainability in the built environment. In this context, life cycle cost analysis helps to make trade offs between upfront costs and downstream operation and maintenance costs, although individual ownership precludes taking a holistic approach towards preventive maintenance management. The HK Government's introduction of a Mandatory Building Inspection Scheme is a direct response to the lack of maintenance strategies actually optimizing resource allocation. The clients move towards a pure rental housing strategy, in replacement of its previous rental/ownership schemes, can be seen as a major move to introducing an optimized, life cycle cost based maintenance management system, since the responsibility for maintenance rests with the client itself, thereby encouraging sustainability in terms of resource allocation.

The project has been conceived as a pilot for innovative initiatives in a host of areas such as contracting strategy, green initiatives, in-house research and development initiatives and contractor initiated innovation schemes. Although this does introduce a certain amount of risk to the project (and additional risks require additional resources to tackle them), there is no evidence of the availability of additional contingency funds apart from the budgeted sum for the project and normal contingencies. The contractor initiated schemes are also run from the project's budget, without additional sums either from their corporate budget or assistance from the client. While this desired outcome may be 'made to work' given the evident enthusiasm of all stakeholders undertaking the pilot project, it may prove to be a weak link in the processes in terms of finally achieving the objectives set out for the MGMP scheme.

4 Performance indicators

Performance indicators are necessary to measure the success of sustainability initiatives and actions taken so as to build up a knowledge base for feed back to future projects. In this regard, each policy initiative and action in this project is planned towards achieving certain objectives and targets and the degree of satisfaction of these objectives and targets is the measure of performance. However, not every one of these objectives is quantifiable and so targets have only been set where quantifiable. Examples of such targets are (1) percentage of green area (2) and number of complaints from the community. When they are not quantifiable, indicators of success that are planned to be used with respect to this project are generally in the form of (1) collected end user opinions (2), and gaining of awards and accreditations recognizing these initiatives.

The mere presence of performance indicators assists in translating objectives into actions as these performance indicators have to be communicated to the project team, since they reflect the criteria to measure the project success. Applications for awards and accreditations brings in third party recognition,

and hence acts as an added incentive enhancing the enthusiasm of stakeholders towards achieving the objectives. Furthermore, there has been an effort to inculcate knowledge about achieving these performance indicators through partnering workshops, design meetings and so on. The results were visible in the importance attributed to them by project team members at the interviews. In addition, the commitment of the contractor's team members has been gauged in the tender interviews and this has been reflected in contractor selection thereby enhancing the probability for success.

5 Conclusions

The project, from its conceptual stage, has been carefully thought out in terms of what it has to achieve in terms of sustainability initiatives and the processes to achieve them have been clearly set out with methods to quantify their success. The choice of procurement and contract strategy has been clearly influenced by these objectives. Efforts towards enhancing knowledge about the processes required towards achieving the project objectives shows evidence of success at all levels of the project team. Barring severe unforeseen problems, the project appears to be currently on target to achieve its objectives, after which it is expected that those practices launched on this pilot project that prove successful will be carried on in future projects.

A cautionary note needs to be sounded on the need to provide contingencies for additional resources and risks inherent when innovative initiatives are being introduced. This being a pilot project, it could still achieve success because of the image issues, high stakes involved and the commitment of the stakeholders towards making it a success. However, if successful measures are to be carried into future projects, there appears to be a requirement to make allowance for additional resources.

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