Factors Influencing Contractors’ Commitment to Execute Environmental Management Practices

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ABSTRACT

Environmental practices have significant impact to the project and contractor’s environmental performance. In Malaysia, there are several factors that contribute to the lack of environmental practices implementation at construction site. The factors are; the perception of immediate adversaries associated with the environmental practices, being opportunistic towards construction business, lack of awareness and knowledge on green aspects as well as risk-averse culture of the industry. As the project executor, it is the responsibility of the contractors to ensure the activities conducted at construction site do not post hazards to the environment and people. Despite facing such challenges, their commitment to build and to protect the environment is essential. This paper conceptualizes the factors influencing contractor’s commitment to execute environmental management (EM) practices. This study will provide essential insight in understanding the way commitment for EM practices is stimulated and further reinforced for continuous improvement of EM practices implementation.

INTRODUCTION

The unsustainable ways of construction practices in Malaysia [1] has led to many unfavourable consequences. Although construction activities only last for a short period of time, the impact that they are causing are direct and irreversible. To address this issue, researchers have suggested that environmental objective should co-exist harmoniously with other project objectives [2]. In other words, fulfilling the objectives of one project will not be at the expense of environmental well-being at site. However, in reality this agenda found to be difficult to be fulfilled. Having perception that environmental practices are challenging, lack of awareness, knowledge and understanding on the importance of environmental issues, being opportunist in construction business as well as risk-averse culture are the cause of the lukewarm response to the implementation of environmental practices at construction site. This paper highlights the factors influencing contractors’ commitment to execute environmental practices during construction phase is also discussed.

Construction phase, contractor and the environment:

Construction phase is a process where the client’s conceptual idea and design is transformed into real facility or infrastructure. It is a period when the awarded contractor takes possession of the construction site to carry out and complete the scope of work as specified in the contract document. Being project executor, contractors have huge roles and responsibilities to perform construction works in a proper manner and with good management practices. They are obliged to produce the construction end product as the quality specified, within the allocated budget and time. From the point of view of a client, these are the three well-accepted objectives that contractors must deliver [2]. To carry out and complete the construction works, it also requires a team effort. The director and his board members, middle management and project management staff hold joint-accountability to the company’s responsibilities for the project.

There are diverse ranges of off-site and on-site construction activities involved during construction phase. These activities may vary from project to project, depending on the scope of work and services required by the project owner. Construction site is a working space where these activities take place. Its boundary is usually...
marked with a suitable fencing to indicate the approved working area [3]. While carrying out the on-site physical activities, it is also become the responsibility of the contractors to ensure their work do not post hazards to the environment and people on and within the vicinity of the site. Many reports claimed that efforts taken in protecting and conserving the environment are seen being taken very flexibly [1]. Focus was only centred on the attempt to achieve the project as well as the company’s objective and little attention was given on the effort of minimising the impact of construction activities on the environment.

Environmental impact of construction site activities in Malaysia:

Construction site involves various physical activities that have direct and irreversible impact on the environment. The impact can be classified into three main aspects; the impact due to excessive extraction of resources, the direct impact of construction activities (i.e. physical and social disruption) and the impact due to hazardous production and emission of construction by-product.

i. **Resources depletion.** Construction activities involve massive consumption of natural resources (i.e timber, aggregate, water and fuel), used as construction material and energy. At present, Malaysia is highly depending on fossil fuel as the main source of energy for transportation and electricity [4, 5]. Over-dependence and inefficient use on these resources may lead to its depletion and interruption of its supply.

ii. **Physical and social disruption.** Issues of deforestation, landslide, soil erosion, mud flows, flood and water pollution in Malaysia are reported to cause due to inefficient and misconduct of the on-site construction activities [2]. These have caused chaotic disruption of existing ecology, habitats of the flora and fauna, human settlements and historical features.

iii. **Hazardous emission and waste generation.** Construction site activities involve heavy traffic movement, mobilisation of construction equipment and waste disposal. These activities have emitted huge amount of greenhouse gasses, released the airborne particles and unpleasant odours, transmitted excessive sound, generated toxic and hazardous waste which has led to serious problem of global warming, pollution (air, water and land contamination), ecological disturbance and health problems in Malaysia [6, 7].

Environmental Management (EM) practices at construction site:

Environmental management (EM) is an important project management aspect that guides the contractors to minimize the impact of construction activities on the environment [8]. There are a range of entry-points for contractors to get started to manage the environment. It ranges from a simple to a more structured approach; business policy, environmental policy, company’s method of statement and procedures, industry’s guideline or a complete management system like EMS 14001:2004[9, 10]. Regardless of the complexities of the effort, [11]any action taken by the company to protect the environment illustrates their commitment to the environment. At present, current EM system gives emphasis on the role and management effort at corporate level. The goal of environmental protection at on-site construction level disconnect from the corporate level. The directions at site operational level also still remained vague. Commitment from both management levels is an important intra-organisational management aspect. Such importance is to ensure that environment is considerably protected through the implementation of EM practices at construction site [12].

Factors influencing the contractors’ commitment for implementing EM practices at construction site:

This research accentuates the important of the contractor’s commitment at two level of management. Commitment at corporate level will ensure a strong policy and sufficient supporting system of EM [10] while personal commitment [13] at construction site will ensure EM is persistently implemented. Factors influencing contractors’ commitment is classified into two main aspects; the internal and external factors. The internal factors include factors within their organisation that exert impact on the approach and operation of EM. In the other hand, the external factors are factors that contractors have least control over the matter.

The internal factors are; 1) **Personal characteristic**–attribute that define the individual; age, gender, education and years of employment. Personal characteristics of contractors are important factors that shape their effort and motives towards EM [14];2) **Role related** –A clearly define role helps to avoid role ambiguity and conflict[15]; 3) **Environmental task characteristic** –attribute of a task that intrinsically motivate individual to perform a task [16]. Good feeling about the environmental effort will have substantial impact on the contractor’s attitude and behaviour which translate into high environmental commitment4) **Peer influence** –Peers may affect performance by acting as role model [17]. The ability of contractor’s employee to work among peers affects their emotion and working efficiency [15] 5) **Supervisory supportiveness** –The friendliness quality shown by the senior supervisor established the subordinate’s respect, trust and the sense of belongings [15]. This lead to higher in productivity towards the environmental goal set [18];6) **Supervisory pressure**– Legitimate and moderate pressure lead to performance effectiveness[15]. Supervisory instruction influence on persistent EM implementation at construction site as employees perceive the request as legitimate; 7) **Organisational characteristic** – attributes that define the organisational technical and financial capability; 8) **Organisational goal, policy and strategy** –describe the company’s vision towards integrating environmental issues in business.
strategy [10]. A clear goal, policy and strategy could help contractors to assume their role commitment in minimising the impact of construction activities on-site.

The external factors are; 1) Project characteristic – attributes that define the project’s direction towards environmental protection have influence on contractors’ environmental responsibility at site; 2) Rules and regulation-Legislation is able to shape good environmental behaviour[10]. Implementation of EM by contractors is important as a risk-reduction exercise. 3) Project team influence –The degree of which EM is implemented depends on how each of project team members perceives the importance of environmental issues [15]. Each of them has different influential power according to their distinctive role and function [19].

Implementation of environmental friendly construction site activities requires commitment from contractors. Different companies may have different enabling factors which are deemed important to be studied. This study, focused in Malaysia, will provide comprehensive insight on how EM can be stimulated and improved in the local context.

**Methodology:**

A two-phase investigation will be conducted, which includes survey and interview. In the survey, the importance of the factors influencing contractors’ commitment for EM practices will be identified. The second set of data collection follows by gathering the information of the actual EM practices practised on-site. The two-tier approach is intended to investigate the disparity exist between the perceived and actual implementation at site [20]. Based on this gap, suggestion for possible improvement could be made.

**Summary:**

Integrating commitment of the contractors will have huge effect on the company’s participation and the industrial performance in reducing environmental impact during construction phase. By identifying factors that foster commitment within contractors’ organisation, this study aim to investigate the way commitment for EM practices is stimulated and further reinforced for continuous improvement of EM practices implementation.

**REFERENCES**