

CONTRADICTION OF IMPLEMENTATION ENVIRONMENTAL MANAGEMENT SYSTEM IN CONSTRUCTION PROJECT DEVELOPMENT-PENANG CASE STUDY

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ABSTRACT

The purpose of the study is to analysis the skimpy reasons of implementing environment management system (EMS) in construction industry. The survey revealed the construction industry agreed in unanimously the advantages of EMS to the industry and perceived the core objective of EMS is to minimize harmful environmental impacts from construction. However, it is surprisingly to know there is very low rate for the construction industry to practice for EMS. Thus, it is a good intention to understand the inside story for not practice of EMS in construction industry. The study was carried out in Penang with the survey aimed those developers registered with REHDA community. Essentially, governments play the important role for the mission success. Majority of construction industry avoid incorporating EMS in their construction project. Perhaps, this matter can be settled based on government coercive rules and regulations for EMS implementation by those project stakeholders in construction industry.

Keyword: Environment Management System (EMS), Construction Industries, Environment, Penang.

1.0 Introduction

Environmental degradation is a price to pay for the rushing growth of a country development. Neither developed country nor developing country can avoid for environmental degradation problem due to their over zealous for modernization and industrialization. This rapid development with no stringent practice of environmental conservation measures strategy often sacrifices the environmental principles compensated with economic profit.

Although Malaysia trajectory missions to become a fully industrialized country through achieving the vision of 2020; however, the condition of Malaysia's environment has been exploited and degraded severely by irresponsible parties (Khairul et al., 2014). These can be seen through the symptoms of pollution in many aspects, such as problems of deforestation, pollution of inland and marine waters, soil and coastal erosion, overfishing and coral reef destruction, along with air pollution, water pollution and the problem of waste disposal (Asian Development Bank, 1997). Inevitably, development is necessary for a nation progression in view of for its trajectory vision to become a developed country. Unfortunately, the development which been carried out often manifested in projects the scarce initiative action for environmental conservation (Chan, 2012).

In fact, the interaction between the human development activities and the ecological footprint cause the production of hazards and disasters occurrence. Nonetheless, the pace of human development activities had prevalence the repristination of the ecological succession. In other words, human development activities had propelling the degradation of the environment quality. Thus, the economic development must be balanced by the initiative of environmental protection and conservation actions.

The negative impact of construction industry into the environment can be attributed to the lack of implementation of environmental management system (EMS) whereby reflected in the cause and effect of the direct correlation relationship of human interaction with the environment. A few of the proven cases had been reported the negligence of EMS in other states of Malaysia. The example issues of such as illegal dumping getting burgeoning at the overall country (Yahaya and Larsen, 2008); 30 tons of construction wastes was dumped illegally in tropical mangrove swamp near Bandar Hilir, Malacca and construction debris problem near roadside at Section 17, Petaling Jaya (The Star, 2011; The Star, 2012).

Even though they do understand comprehensively the environmental management can help the project performance prevail over the whole project cycle with minimise the impacts of construction activities on the environmental, but yet there is the scarce case of the construction firms willing to practise proactively. Therefore, this paper with the purpose to identify the reasons inside the story for the low rate practices of EMS with the proven of survey results have shown the industry awareness the benefits to practice of EMS.

The intent of this study is to summarize the necessary elements of an EMS, the potential benefits and costs, and the importance for construction firms to implement such systems. However, the most important is to identify the reasons of the construction firms lack to practice the EMS.

2.0 Problem Statements

The impact of construction activities on the environment comprise of the effect of unbalanced ecology, change of living environment, production of construction byproducts and sewage, depletion of natural resources and energy over-consumption. The destruction is unavoidable as long as there is the development progression. The construction activities inevitably bring the side effects of environmental risks such as: deforestation, environmental pollution, waste production, health and safety hazards, and etc.

The adverse effects of construction development can compromise the environment because of the reasons such as: ample needed of material and resources usage, methods used of construction, space possession, building elevation and layout positioning and building structural design. The obvious effect of imbalanced ecological environment had compromised the ecology ecosystem which caused the change of natural environment. The cascade effect of this scenario can even affect the surrounding region and quality of life and the worst is causing the significant loss of livelihood.

Furthermore, the cause of deforestation by the construction activities because of the excessive use of hardwood in the example for such as: site hoarding, formwork for building structural build and building interior materials resources. The health and safety risk in the construction site might threaten the life of workers. Moreover, the compensation cost for people mishap due to inferior construction environment might cause the increasing of project cost and give a negative effect on construction productivity. The encouragement of adoption the EMS in construction project is expected to be an effective strategic to buffer the impact of construction on environmental. However, there is contradictory condition that the infinitesimal of construction company practice of EMS but yet with the good perception towards EMS.

3.0 Literature Review

Malaysia is located in South-East Asia just north of the Equator and comprises the Peninsula and Sabah Sarawak on the Borneo Island. It is separated by the South China Sea which known as West and East Malaysia respectively. It consists of 13 states and three federal territories and has a total landmass of 329,847 square kilometres. Meanwhile, among the 13 states, Penang state is located in the north-western part of the Malaysia country where tucked in between the much larger of Kedah and Perak states along Peninsular Malaysia's west coast. Penang is a metropolitan city and is one of the most developed among the states in Malaysia. However, Penang only occupied six percent of the population in Malaysia but yet contributed 36% of Malaysia's foreign direct investment (FDI) in 2010 (Lim, 2011).

The development of Penang propelled by its prosperous growth of real estate market plus its abundance of attractive tourism hotspots had lead the burgeoning tourism industries. These scenarios have given rise to a host of construction opportunities. Formerly, the state's gross domestic product (GDP) increased from RM1.3 billion in 1970 to RM21 billion in 2009, of which 39 percent was contributed by the manufacturing industry and a substantial 57 percent from the services sector (OECD, 2011). But in the recent year by looking into the construction sector, Penang state had ranked the fifth-largest value of contracts awarded in Malaysia.

The transformation progress of the state was stimulant by the Penang Chief Ministers. Penang had undergone the fourth time of chief ministers swapping since the year of independence, 1957 till the current year. There are Wong Pow Nee (1957-1969) who is the first State Chief Minister, Lim Chong Eu (1969-1990) is the second State Chief Minister, then followed by Koh Tsu Koon (1990-2008) for being the third State Chief Minister, and the fourth State Chief Minister is Lim Guan Eng (2008 till the present) (Wan Fairuz et al., 2013). According to the recorded data in the Construction Industry Development Board Malaysia (CIDB), the total amount was up to RM6.59bn (\$2.06bn) worth of projects for which spread over to 479 contracts (Oxford Business Group, 2015). The historical of economic development in Penang can show the overall picture of the evolution in industrial sector.

The well established construction sector in Penang is induced by the development of infrastructure and transportation projects; residential and non-residential of projects development. The paradigm shift of development plan in Penang has changed into construction sector because of plunging demand for the manufacturing sector in the recent year (Mok, 2015). However, the burgeoning development of construction sectors are harmful to the environment for which might give the impact detrimentally. The significance impacts of construction industries into the environment are attributed by the huge exploitation of natural resources and by creating pollutants and wastes as construction byproducts. The statistically data recorded the construction industry consumed approximately 45-50 percent proportional of the global energy usage; approximately 50 percent of worldwide water usage; and approximately 60 percent of the total usage of raw materials (Willmott Dixon Group, 2010).

Hendrickson and Horvath (2000) verified the construction activities could give significant impacts on the natural environment. This inevitably the development of construction sector in Penang (a part of state in Malaysia) not excluded for its contribution to environment catastrophe. Unfortunately, these harmful emissions of construction byproducts had caused the serious impact into

the environment by thus give the cascade impact on the ecological system that had threatened all living creatures in the Earth planet. This coincide with the justification of the Christini et al. (2004) with advocated the minor impact on the environment can threat the environment cause a health problem and bring to an end will lead to costly settlement.

Moreover, the impact of global climate change had caused the suffering of extreme climatic events locally, especially the facing of bad weather in frequently. The example cases such as: the formation of mini tornadoes in Kedah in year 2014 (Oh, 2014). The increased rainfall and storm winds in certain areas; and the flooding strikes with heavy rain and high tides happened in some areas of Penang. However, the most worrisome part is the rise of sea level with just a few centimeters would capable to flood the large parts of the Penang Island. All these consequences can be attributed to mainly root-cause due by human being irresponsible attitudes, especially lack of practicing the environment management system (EMS) in their respectively manufacturing facilities. Even though Malaysia have not been threaten by the dire projections of the impacts of climate change as some other countries are already facing, but it is the right time to take the precautionary principles and undertake the efforts to preserve the environment plus with the purpose to increase the capability to withstand for such changing as well.

Environment management is not, as the phrase suggests, the management of the environment as such but rather the management of the humankind's interaction with the impact on the environment. Environment management is therefore not the conservation of the environment solely for the environment's sake, but rather the conservation of the environment for humankind (Schaltegger et al., 2003). Environment management involves the management of all components of the biophysical environment, both living and non-living. There is the close relationship amongst all living creatures and their habitats. For the human environment, the relationships involved much complicated, whereas comprised the social, cultural, economic and bio-physical environment (Alejandro et al., 2013).

The purpose for environment management is to reduce the impact of environmental issue by using the standard system or protocol measure based on the objective criteria. Meanwhile, the environment management system (EMS) is commonly used to manipulate the organisation's impact on the environment. An EMS which applied in an organisation typically same in format for which may consists of policies, goals, information systems, task lists, data collection and organization, emergency plans, audits, regulatory requirements, and annual reports (Initch et al. 1998; Stapleton et al. 2001, Christini et al, 2004).

Many and variety environment management system have been introduced in many regions and countries. The example of the environment programmes that aid in monitoring and controlling their environment management performance are such as: toxic release inventory data; Construction Pollution Index (CPI); Occupational Safety and Health Administration statistics; Reduce, Reuse and Recycle (3R) program; and documentation on programs such as U.S. National Environmental Performance Track (NEPT). However, the most recognised example of EMS is International Organisation of Standardization (ISO) 14001 standard. This ISO 14001 is been used as the standard of framework to develop an EMS in the International Organization of Standardization's ISO 14000 series.

This ISO 14001 standard defines the EMS as "a management tool enabling an organization of any size or type to control the impact of its activities, products or services on the environment" (ISO 2002). The organizations implement such systems in order to maintain their compliance with environmental regulations, lower environmental costs, reduce risks, train employees, develop indicators of impact, and improve environmental performance (Christini et al., 2004). Generally, the system helps the organizations to develop a framework of work procedures and the strategies to improve the environment performance with the objectives to fulfill are listed following:

- Positive prevention, optimum utilization of performances and cost reduction.
- Compliance with environmental legislation.
- Promoting awareness of pollution prevention.
- Formulating contingency plans.
- Enhancing training and management
- Improving the corporate reputation and image.

(Adapted from: Wever, G.1996)

The establishment of environment management system is frantic demand due to the reasons such as: increasing consciousness toward environment conservation, the statutory requirements of government policies and regulations, the pressure from consumers and environmentalist, the realization of the danger of imbalance ecosystem can have life-threatening and deterioration effects (Bragança, 2007). However, there are plenty of benefits the companies can gain after implemented EMS effectively (Christini et al., 2004) and those experienced benefits are listed following:

- Improved regulatory compliance requirements;
- Open markets and reduced trade barriers;
- Reduction in liability and risks;
- Enhanced credibility among customers and peers;
- Reduction of harmful impacts to the environment;
- Prevention/reduction of pollution and waste, many times resulting in cost savings;
- Improvements in site and project safety by minimizing injuries related to environmental spills, releases, and emissions;
- Improved relationships with stakeholders such as government agencies, community groups, and investors; and
- Establishment of a system for continued environmental improvement.

(Christini et al., 2004)

During the early year of millennium, the topic of environmental management systems is still new to the construction industry (Christini et al., 2004). However, the trend had changed as the construction sector was in the top five of industrial sectors for ISO 14001 certificates with the prominent number of over 40,000 organisations in worldwide construction sectors that have received ISO 14001 certification (ISO, 2014). Nowadays, China is become the leading country to have received most ISO 14001 certifications with over 110,000 that prevailing the other countries (ISO, 2014). According to Christini et al. (2004), Japan was leading the world with over 8,000 certifications during the year of 2001. However, this tendency was taken over by China although Japan yet still in the top five ranking of the countries to have the most ISO 14001 certifications.

Compared among the regional of the country, East Asia and Pacific have received the most ISO 14001 certification with over 150,000 of organisations possessed it. Meanwhile, the Europe has less than 34% of the certification and is well behind the East Asia and Pacific with have approximate 120,000 of certification (ISO, 2014). Meanwhile, particular for Malaysia country itself, the tendency to obtain the ISO 14001 certification getting increase gradually, it was over 2000 certifications at year 2014 but only a few hundred in approximately for the year 1999 (ISO, 2014).

By taking some example benefits of certain countries gained after their adoption of ISO 14001 in the execution for construction project, these industry were revealed this EMS had given the advantages to their particular organisations for which distributed worldwide. Firstly, the public housing sector in Hong Kong found that each project obtained benefit from the environmental assessment and assisted in the method for measuring project performance (Pun et al., 2001). Secondly, Powers (1995) defined the phrase of "green passport" meant a firm's acceptance of the ISO 14000 series standards might provide them opportunities to do business multinationally whenever the companies adopted the Standard and incorporated into their policies and procedures. In contrary, the United States (U.S.) faced negatively impacted of international competitiveness in construction industry sectors because of the U.S. has limited representation in the international community for standardization due to low adoption of ISO 14000 series standards (Yates and Anifos, 1997).

Thirdly, another evidence of key benefits to gain after implement ISO 14001 in the U.S. construction industry were improvement of company reputation, to have a good rapport with regulators, increase the opportunity in market competitiveness, and helped the organisation to save the money during the operational (Valdez and Chini, 2002). Lastly, Tse (2001) justified the benefits obtained in Hong Kong construction firms for with implementing an ISO 14001 EMS. Some aspects of benefits are eventually same with other organisations in different countries and the explanation of how manipulation of ISO 14001 had fruitful the organisations did associate in writer's justifications. The example benefits of such as: cost savings through the aids of energy efficiency and waste minimisation, increased the company credibility in the competitive advantages by providing multifaceted services, improved occupational health after compliance with the stated environmental and health regulations, helped to lower insurance costs, and granted with the chance to involve in upper management environmental decisions.

The evidence of example benefits experienced by the organisations in different countries indeed have the persuasive power to encourage other organisations of construction industries the adoption of ISO 14001 EMS in order to achieve the sustainable objectives, particular in environment element. However, there is a contradictory scenario of the EMS implementation in Penang construction industry. By using a case study approach, the authors have taken the efforts to investigate the adoption of ISO 14001 EMS in Penang's construction industry.

The occurrences of climate change problem have resulted due by the low implementation of EMS approaches. In fact, construction industries have been agreed unanimously the major contribution to climate change problems. However, the case study revealed the low rate of ISO 14001 EMS adoption in Penang's construction organisations. But based on the perspective views of those construction stakeholders, it was incredibly prejudiced as majority respondents ideally have positive perception on the ISO 14001 EMS implementation in construction industries. Thus, it is necessary to identify obstacles and limitation for construction firms in Penang to adopt ISO 14001 EMS and will elaborate in the discussion section. This in turn can provide the constructive of strategies solution to overcome the problem with associated improvement in environmental impact and enhance the project performance processes.

4.0 Research Methodology

A questionnaire was adopted in order to assess the impact of construction industries development on the environment. The response of questionnaire is based on the perspective view of housing developers. The coverage of the survey area focused in Penang which located at the North part of Peninsular Malaysia. Total developers registered in Real Estate Housing Developers' Association (REHDA) are 78 companies. However, the sample size of the respondent which based on the REDHA in the region's population is 43 of project stakeholders. The adopted formula for sample size (n) calculation is $n = \frac{N}{1 + \frac{N}{n}}$ (Sediary, 1994).

Where, n = sample size; $n_1 = S^2/v^2$; N = total population; v = standard error of the sampling distribution (0.05); S = standard deviation in population at a confidence level of 95%, $S^2 = (p) * (1 - p) = (0.5) * (0.5) = 0.25$.

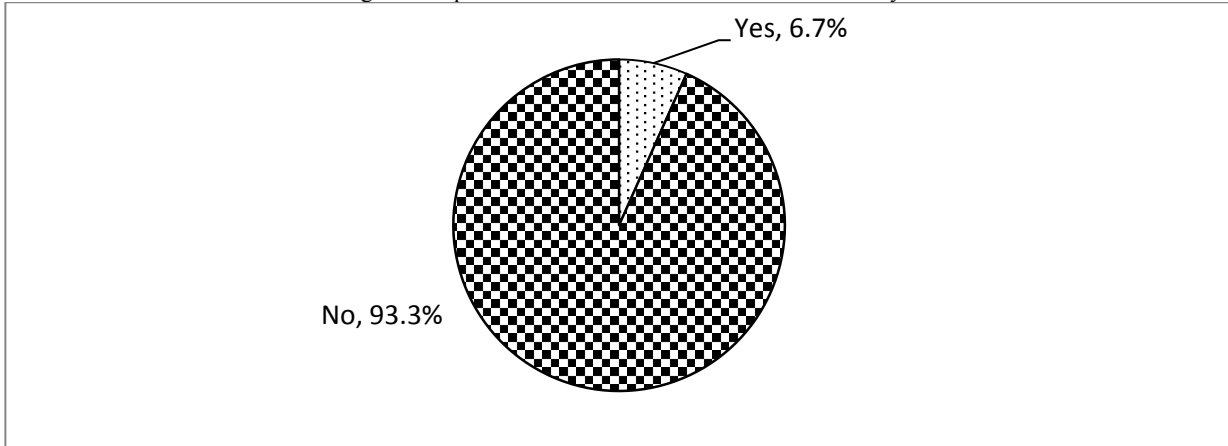
The questionnaire using five-point Likert scale and respondents were asked to assign appropriate rating to reflect their views on the listed variables. Statistical Package for the Social Science (SPSS) version 16.0 for Windows was used to data analysis. The data show a significance <0.05 . The sample data were subjected to parametric and non-parametric correlation tests. The statistical significance for standard probability of between 0 and 0.1 is for examining the direct relationship between the impact of construction industries development and environment matters are exactly true. The sample size of this survey is very small although 38 percent response rate was achieved. Hence, the respondents represent a good sample of developers in Penang and their information adequately represents the population.

5.0 RESULT FINDINGS

5.1 Probability ratio for Implementation of ISO 14001 EMS in Construction Industry

The finding of this survey revealed majority of construction company not implement the EMS. The result reflected in **Figure 1** for which 93.3% from the total of sampling population not practice the EMS in their construction project.

Figure 1 Implementation of EMS in Construction Industry

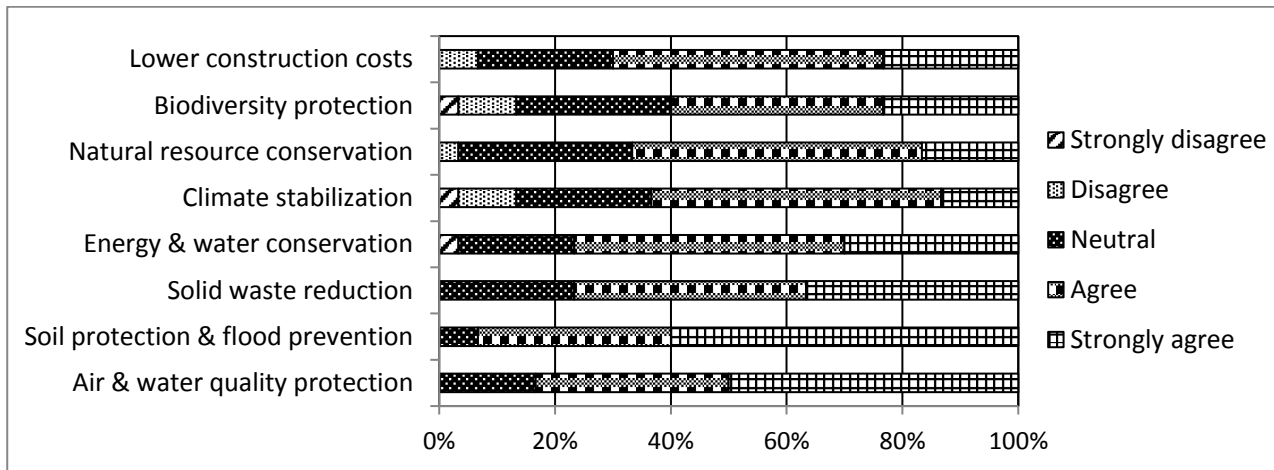


Source: Given by the Author.

5.2 The Effect of Implementation EMS into Environment and Construction Industry

However, there are positive perception of EMS practice to the environment and the company. Based on the surveyed results in **Figure 2**, majority of the project stakeholders comprehended the advantages of EMS implantation can help to preserve and conserve the environment. This can see through their feedback in survey, e.g.: protection of air and water quality; soil protection and flood prevention; solid waste reduction; conservation of energy and water; climate stabilization; natural resource conservation; biodiversity protection; and lower construction costs.

Figure 2 The Effect of Implementation EMS into Environment and Construction Industry

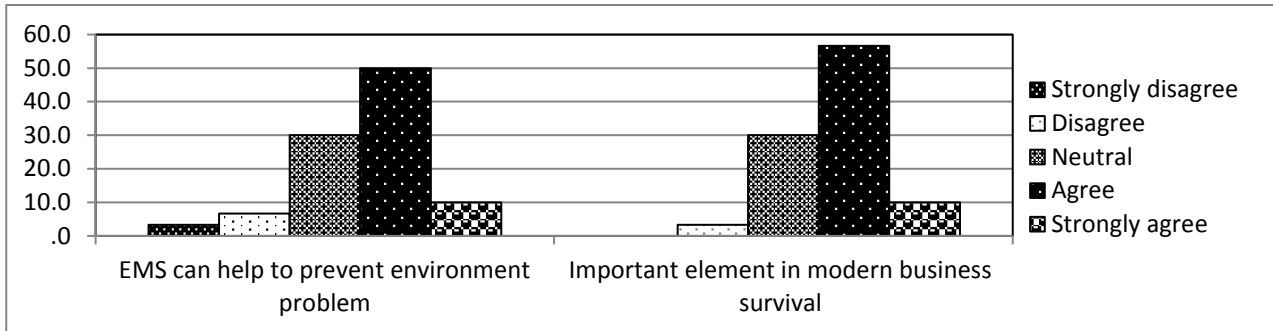


Source: Given by the Author.

5.3 The benefits of Implementation EMS

Secondly, the respondents also agreed unanimously the practice of EMS can help to improve to their company performance except of the benefits to the environmental ecosystem. The result in **Figure 3** reflected those stakeholders grasped the ideas of the implementation EMS to the companies. More than half of them agreed EMS can help to prevent the environment problem occurrence for which concurrent with the feedback results in Figure 2, the effect of EMS implementation into environment. Other than that, they agreed EMS can help to improve the company performance in a sustainable way with thus can give a good reputation to their companies indirectly. Therefore, EMS can consider as an important element for the construction industry in this modern age for business survival.

Figure 3 The benefits of Implementation EMS

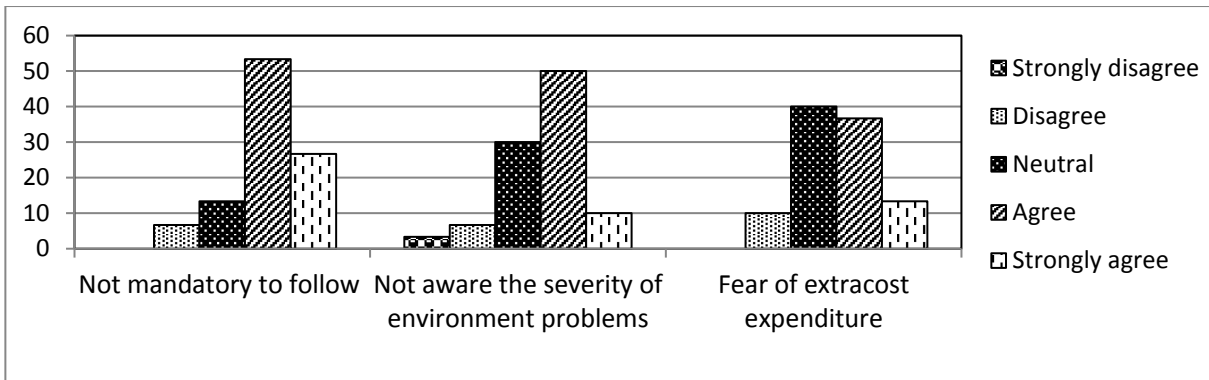


Source: Given by the Author.

5.4 The Reasons not Implementation EMS in Construction Industries

However, it is surprisingly to know there were very low in rate for the EMS practicing in construction industries even though those project stakeholders appreciated the advantages of EMS rendered to the companies as well as to the whole environment. The survey results reflected in **Figure 4** demonstrate the reasons for not incorporate the practice of EMS into their project. The primary reasons are such as: not mandatory requirement by the government to the construction industries to follow of this system, since it was a optional choice, the company may opt to not implement; majority respondents not aware the severity of environment problem; and the fear of the extra cost expenditure into the project that thus demotivate the EMS implementation in their companies.

Figure 4 The Reasons not Implementation EMS in Construction Industries



Source: Given by the Author.

The survey finding can be concluded the dilemma and contradictory phenomena in construction industry that is worthful to contemplate. It is astonishing to reveal a low practice of EMS in construction project with realized its plenty of benefits can be provided particular to the industry development and minimise the negative impact to the environment. Based on those surveyed, they are absolutely believed this EMS is important; however, nearly all of them not have a strategy for involvement and not intention to adoption as well. Thus, a discussion of the contradictory of implementation EMS in construction industry has been developed to investigate the root cause of problems existence.

6.0 Discussion

Based on the survey results represented in Section 5.0 Result Findings, it was contradictory phenomena for the perspective of those construction stakeholders onto the Environment Management System (EMS) with their realistic practicing in the field. The results implicated the low rate of ISO 14001 EMS but positive cognition for the advantages provided by the adoption of ISO 14001 EMS. Thus, it is worthwhile to interpret the major obstacles and limitations for the construction firms to establish EMS in their organisations.

The objective of the client in construction project is the hope to achieve the desire outcome in terms of cost, time and quality. However, the aspect of cost, time and quality are micro factors to influence the company economy level in short-term. Eventually, the environment is macro factors which give an impact to the economy development in long term effect. Since the influences of environment might not be observed within the shorten time, it will become unwillingness to a company to take an initiative to implement the EMS approaches in project development. Except there is a significance impact of environmental influences into their project, only then the company will execute for environmental management principles into their projects. [Ofori et al. \(2002\)](#) who identified that cost-benefit is their primary concern included they implementation of ISO 14000 EMS. The reason they seek for certification just because to fulfil the requirement of clients or end-purchasers' demands. These can be attributed to the lack of, the motivations for the practitioners to implement EMS in construction firms for achieving sustainability.

Although majority of the construction projects have the assessment of environment risks and environment management activities at the planning and design stages of the projects, but the efforts are meaningless. This is because the potential impacts of construction activities are much more salient and apparent after the completion of projects. There is the available of environment regulations or policies imposed by authority bodies such as: Environment Protection Department, Labour Department and Urban Services Department. However, the application of these regulations and policies usually use to represent as an outcome of reports. But no proactive efforts are taken to mitigate or restrict the happening of environmental problems. Thus, the construction stakeholders might have the mindset of impracticalities of the ISO 14001 EMS adoption into their project performance.

The environment auditing process is not an effective way to avoid the impact of construction on environment problem. The auditor who is under the supervision of the client has to make the report according to the client's instructions. Except there is an external examiner to monitoring for this auditing process for avoiding fabricated declaration report. Moreover, the reluctant of the construction project to employ this environment management approach because of its complicated process and flooding with abundant paper work. There is variety of guidance and legislation to comprise of different aspects issues such as air and water pollution, waste control, recycle, reuse and reduce management, handling for dangerous substances, health and safety. For example, in the JRK 20800 Standard Specification for Building Works published by the Malaysian Public Works Department (PWD) (PWD, 2005), there will be at least 100 British Standards are referred to in different sections.

Even the standardization work for construction project in Europe will take many years to complete (Bakkmoen, 1996). As the life cycle assessment and environmental label system are proposed along with EMS in the series of ISO 14000, the requirement for construction practitioners implementing EMS to assess the life cycle of each type of material is time consuming and costly due to construction process itself is complicated and dynamic of the characteristics (Lam et al., 2010). Apart from that, the implement of EMS required enormous demand for resources to develop and maintain the database. All these had demotivated the construction industry to practice with the hope to reduce their burdening work since the construction project intrinsically was not an easy task to manage and execute.

Moreover, the construction professional might view the need for environment concern is additional burden in term of time and cost. The environmental management has to spend extra cost in facilities aspects in order to protecting the environment, the cost to invest in innovation research for the new methods and techniques for environment conservation. These additional cost can cause the extra cost impose in the Preliminaries Bill of tender documents. The effect for the amounts spend in environment management will give a cascade impact on the company other expenditure on their payroll and profit margin which indirectly affect the company business performance in the future. These consistency scenarios happened in Singapore as stated by Ofori et al. (2000), they noted the financial incentives should be one of the crucial concerns for the implementation of EMS by the stakeholders in Singapore.

People are opinionated think that environment supply free and nil in costing because their superficial thinking. This is how their argument go "if things have no labour work input or do not go to market for exchange, they have no value in pricing" (Kliman, 2006). This concurrently agreed by Conway (1990) who points out "the natural environment has long been regarded as 'free'. It has zero-priced supply because no market place for what it provided really exists, except as water purification or some coastal area storm protection schemes". In the consequences, this misperception had lead people exploiting the natural resource to the maximum degree without paying a price in infallible believing. Such kind of irresponsible action had given faulty scenario of a nation prosperity development. Even the example EMS practitioners in Hong Kong did recognise the existence of such constraints and this might be attributed to not well establish of the sense of corporate social responsibilities (Lam et al., 2010).

7.0 Conclusion

Majority companies not to practise for environment management system approach had been proven with the significance reasons justified in the finding discussion, although construction firms knew there are plenty of advantages for implementing environment management system as a primary key to protect the environment. Moreover, the pollution problem has an irreversible effect on the environment, the environment pollution will get accelerate if the measure efforts to protect the environment is scarce and inadequate. By the end of the day, the remedial work will be greater and ever much complicated.

Toward this end, the government should implement the enforcement policy of environmental protection to coercive those construction stakeholders to follow the rules and regulations in order to minimize the destructive impact on environment which due to construction development. Except government forcing rules for regulatory compliance, Darnall et al., (2008) advocated market and social pressures will be the coercive tactics to prompt the construction organisations to adopt EMSs even though lack of complementary resources and capabilities to enhance their continual environmental improvement over time. Other than that, there should have one-stop service to synthesizing all the environment regulations for construction industry so that the entire project stakeholders can implement in collaborative method within the integral organisation (Chartered Institute of Building, 2014).

Last but not least, there is a good saying can be concluded "Prevention is better than cure". The cooperation between the government and construction industry should be taken in order to ensure the efficiency practice of environment management system. Everyone should have civil consciousness to our environment with take the responsibility. For those have destroyed the natural environment have to pay for the price to conscientious to the whole society because environmental value is not own by any individual or business.

Many researchers (Ball, 2002; Eccleston and Smythe, 2002; MacDonald, 2005; Ofori et al., 2002 and Robert, 2000) recognize that organizations do not guarantee optimal environmental outcomes solely by adopting EMS but moving towards to adopt

EMSs in individual firms is rather to be a good strategy to preserve the environment, even not obtained the ISO 14001 certification. This is to ensure the contradictory scenario of environmental management practice in construction industry can be minimised by the initiative to implement the EMS in pragmatically.

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