

Establishing a Strategic Framework of Green Procurement for the Malaysian Construction Industry

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Abstract

Resource depletion has become the main issues in the last decades. The fact that world population increased into 7 billion in the year 2013, natural resources has become a crucial element in creating better quality of life through physical infrastructure development. In order to decrease the emission of carbon up to 20 percent in the year 2020, green procurement is believed to be one of the solution minimize the environmental impact through its nature of procuring service or product which can be controlled from the initiation steps until its demolition. The current problem in Malaysian construction industry is that it is at the junction in determining the growth of this sector. Megatrend in the global scale had influenced it through risk management, sustaining profitability, sustaining corporate social responsibility and growing bureaucracy, green procurement is believed to be the solution to the construction industry to grow steadily thus contributes to the nation's economic and social growth. Most of the data that will be obtained are primary data, using document analysis, questionnaire and focus group that will be conducted to the respective bodies in construction industries. This research will be detailed up on its elements and the sub elements of the strategic framework within each element. It also will be tested in the real construction industry. Finally, this strategic framework will be validated to be used in the current industry. The anticipated finding is that to fill the knowledge gap by introducing a green procurement strategic framework for the industry restructuring a new type of procurement method.

Keywords: Green Technology, Green Procurement, Malaysian Construction Industry

1.0 Introduction

The introduction of green procurement has emerged as a powerful way to stimulate more sustainable consumption and production for the society at large (Sustainable Innovation Briefs, 2008). This is due to the significant share of the world annual GDP which is associated with expenditure by the government. In some sectors, the government procurement tends to be the most important or one of the most important. Sector such as defence, health, construction and energy are being focused by the government since innovation had become the biggest asset for attracting investors throughout the world. Construction industry, as one of the biggest sector in nation economy through green procurement can help to drive the growth of the sector through innovation, value for money and cost effectiveness in maintenance of a project from the initial steps and redefine the value of money through life cycle of a project itself. According to the (Sustainable Innovation Briefs, 2008), green procurement is the selection of product and services that minimised the environmental impact. It requires the organization or client to carry out an assessment of the environmental impact of a product at the stages of its life cycle. This mean considering the environmental cost of securing raw material, manufacturing, transporting, storing, handling, using and disposing the product. This also means the conventional procurement step is still relevant with an innovation of environmental criteria and standard based on the client, the organization or the government.

2.0 Review of Green Procurement in Construction Industry

Construction industry is a major consumer of non-renewable resources and a massive producer of waste, and the operation of buildings is responsible for around half of the total CO₂ emissions. Based on recent study in developed countries, 30-40% of natural resources were exploited by building industry, 50% of energy used for heating and cooling in buildings, almost 40% of world consumption of materials converts to built environment and 30% of energy use due to housing (Bourdeau, 1999).

Simultaneously, the green procurement defined as the purchase of products and better services by one or more natural preference programs established federal green procurement. To avoid waste and pollution, these programs require executive agencies to consider environmental impacts, along with price, performance, and traditional

factors other when making purchasing decisions(Terrell, 2012). In regards of various organisation in the world, green procurement is known with many names including Sustainable Purchasing, Green Purchasing, and Environment Preferable Purchasing(Wozniacki, 2012)

In this instant, various international or regional organization and network have been active in promoting green procurement through their own programmes. Mostly through awareness-rising, toolkit development and capacity building activities that further will become a spreading innovation of environmental technology (Sustainable Innovation Briefs, 2008). These include the EOCD and the European Commission, Japan based organisation IGP (Green Purchasing Network), the North American Green Purchasing initiative of the Commission for Environment Cooperation (CEC NAGPI) and the United Nations Environment Programme (UNEP)(Sustainable Innovation Briefs, 2008).

Among the countries and sub national level, each nation have their own objective whether to pursue the social goal such as to reduce unemployment by creating new field of expertise, cost effectiveness in governmental transparency and to use the market power to influence manufacturer to shift rapidly into production of cleaner technologies. Through green procurement, construction industry will not be rigid as a conventional infrastructure management, but as a bigger influence to decrease the environmental impact through it eco-friendly services and product that has been monitored and coordinate from the inception stage of the project. Strategic framework must be develop as the head start of the idea in implementing green procurement in long term holistically.

The work done so far in 'green' procurement only scratches the surface of the soles of sustained yield Indeed, the notion of sustainable public procurement is growing rapidly with more interest and more governments around the world and experience more concrete emerging (Terrell, 2012).

Green procurement ideas, although it is small idea of project implementation method, it is a very critical idea whereby the client can choose and reject the contractors, suppliers and the registered professional consultant based on the criteria listed in tender document. This later will affect the macro scale of procurement system in construction industry thus the physical environment.

2.1 Green procurement in Malaysian Construction Industry

In respective to construction industry, Malaysian construction is at a crossroad, deciding which way to go. The fact of 11.2 percent of GDP annually is consumed by the sector and need to be maintained to ensure the sustainable profitability to the nation itself (Flanagan, 2013). There are trends in construction industry and Malaysia had been influence by megatrends currently. However, these trends had offer tremendous possibility to the sector and the government must respond positively.

In Malaysian context, green procurement refers to the procurement of products, services and works that takes into account the environmental criteria and standards to preserve the environment and natural resources to reduce/minimise the negative impact to human activity (Malaysia Green Technology Corporation, 2012).

Green procurement relatively a very new concept in Malaysia which is promoted in various names such as green public procurement (GPP), and environmental preferable purchasing (EPP) (International Green Purchasing Network, 2010). Despite of the importance of green procurement in many sector, the role played by the government is still small and very little known about the extent of green procurement in Malaysia (Preuss, 2007) and (Walker H., 2009).

The green procurement had extended into developing countries since the consumer awareness on environmental protection had increased (Ramli, 2009). Malaysian government had to respond positively to this challenge. The establishment of various bodies as government initiatives such as the Eco Labelling by Standards and Industrial Research Institute of Malaysia (SIRIM) in 1996, Energy Rating by Malaysian Energy Commission on electrical appliances and will be follow by the Carbon Footprint by SIRIM, Water Efficiency Rating by SPAN and 'Green Tag' program by Malaysian Green Technology Cooperation (Nor'Aini, 2012). The establishment of Ministry of Energy, Green Technology and Water (KeTTHA) to coordinate and monitor *MyHijauProgram* also had created coordination among government agencies in building the nation capacity toward sustainability development. Agencies had been established to ensure the green product is standardize, which will influence the green market thus the construction industry indirectly.

However, the success of government procurement transformation in Malaysia is dependent on the effectiveness of its initiatives. It requires comprehensive transformation, involving commitment of all parties and across sectors. It is also crucial that the initiatives being understood and can be implemented effectively (Khairul Naim Adham,

2012). While according to (Geng Y, 2008), effective implementation of green procurement is urgently required and potentially give greater impact on the developing countries due to constrain of resources and complicated environmental changes. Green procurement is believed globally as a powerful tool of government to control and monitor the eco-friendly product and service to encourage more sound environmental support in the market.

The Ministry of Energy, Green Technology and Water (KeTTHA) had established its capacity building through steps by encouraging small entrepreneur, eco labelling, and data directory to boost the green procurement implementation in government and as a framework for the private sector (Nor'Aini, 2012). In *MyHijau* programme, objective, strategy and mechanism had been establish but unfortunately, strategic framework for green procurement framework is not yet complete since the framework of its own procurement method is still in vague meaning although the mechanism and strategy had been built by the government and some of the initiatives had been implemented (Malaysia Green Technology Corporation, 2012) (Nordin, 2012). This is because the green purchasing, in general terms of green procurement is relatively new to Malaysian market and very much on ad-hoc practice. Much of the concept does not subscribe to any particular environmental concept (Green Purchasing Network Malaysia, 2003).The capacity building framework is still beyond reach which is the network of green procurement in construction industry will be establish to fulfil the way forward of green procurement itself. The lack of research and innovation in construction industry and also inability to evaluate and articulate green technology implementation cost and benefit influences the capacity building (Hamid, 2012) .

On the life cycle of project procurement, the lack of application is the composition of Malaysian workforce and supply. Life cycle rated criteria, vendor rate performance, and smart consumption tools is much need in establishing a base for the strategic framework. There is also lack of life cycle rated procurement criteria, green procurement pricing strategy, supplier collaboration program as compared to develop country (Lisa, 2010). At micro scale, each and every steps of project management life cycle must be install with green initiative if possible as all of the stages are crucial and interlink each other. The stakeholders in the project management life cycle comprises the clients, contractors, local authorities, project design team including project managers, architects, planners, landscape architect, engineers, and other profession need to reconsider and install this method alongside of their project life cycle. The project life cycle comprises inception, developing design and engineering specification, tendering, construction and close out have its sub elements. These sub elements is the crucial parts as it is the stages that can be reform as the feasible green procurement initiation at practical level on each construction project. As the construction industry being look at national level, it is actually being develop at micro level, which is the project management that involves these parties in each project. It is believed that if these parties, with the system of life cycle of the project being reform into green procurement will increase the chance of achieving sustainable development holistically.

3.0 Research Methodology

This study will apply an exploratory research design which is a non-experimental research design to achieve the desired research aim and objectives. It then can explore the procurement policy and system interaction towards procurement methods and categories, the perceived benefits that the environment and industry obtain and thus establish a network for human interaction towards a sustainable construction and development. For data collection, this study will apply the mixed-method by a combination of qualitative and quantitative data. Using content analysis, focus group and questionnaire to analyse, establishing the element and sub elements, and validation, it is believed that strategic framework of green procurement can be structured and use in the current construction industry.

However, this study is only focusing on public strategic development thus, the government initiative itself. Since the government had started this initiative in 2009, it is believed that the government is the pioneer and driver that develop the awareness and spark collaborative cross sector in their structure. Private sector as the micro scale driver is limited in this study as the green procurement itself is very new to the industry. While this study is conducted, the terminology of green procurement is believed rarely understood by micro players of construction industry. This limitation is acknowledgement of the limitation awareness in implementation as well as information availability in project management level. These factors become the frontier of this study.

4.0 Data Analysis

At this stage, the analysis of all primary data of Journal Research, Journal proceeding, books, and government blueprints and secondary data collected will be used to establish the main element and sub elements of the framework. These stages will clearly suggest the possible strategic framework theme, the element possible to be

outlined, the sub element that will support the each other's element and validation process. The data will be summarized and analysed using the Atlas ti, supported by focus group and enhance by validation through questionnaire. Using Atlas. ti software, data of content analysis is translated into diagram of strategic framework. Through this, the green procurement in Malaysian context data is adapted on both micro scale which is the lifecycle of project management and macro scale including legislation, promotion construction industry standard involve as well as the level of awareness and implementation.

5.0 Conclusion and Recommendation

This study had explain and visualized a very brief the domain of both macro level and micro level strategic framework if green procurement idea must be implement in the construction industry. Strategy building on government sector became the pioneer creating the foundation of awareness later translated into action by industry player. The strategic framework is intended as the way forward of greening holistically construction industry in Malaysian context.

In addition, it is hope that this strategic framework becomes the tools as well as head start of guidance to industry player visualizing challenges and issues predicted in the future. Green procurement implementation both government and private sector is hope can leverage this framework as their strategic planning of appreciating environment, thus, the foundation of new chapter in green technology in construction that related with business strategic management.

It also hope that this strategic framework filled the knowledge gap especially on macro level start up plunging into green procurement in government sector. On life cycle of project management, green initiatives not only being seen as in design stages, but also on service by contractors.

One notable absence is the need of further study on micro level, awareness, implementation in construction project management. Micro players including client, consultant, contractor, and facility managers need to absorb this idea and awareness creation is needed as part of continuous professional development if this industry wants to compete globally.

It is intended that the findings of this research will add to the body of knowledge on the role of strategic framework for government procurement in redefining the value for money of a construction project that relate closely to the environment consent. In the aspect of green procurement, it will reemphasize the holistic value of capital investment and environmental concern later will bring into a holistic view of profit in construction industry of green economy. The sector will be seen more flexible than before. Moreover, it will become a new field that can open up endless possibilities to innovation of socioeconomic profile to the construction industry as well as the nation. It also will support and enrich the theory and model of sustainable city through green initiatives and become one of the big leaps of government to monitor and control facility management throughout the country in the concept of sustainability. In smaller scale, it will help the local authority and public organizations to generate greater awareness and more strategic framework for sustainable city through standard eco products and services.

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