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“Rethinking Built Environment: Towards a Sustainable Future”

Organiser:
**Research, Industrial Linkages, Community
& Alumni Network (PJIM&A)**

Co-organiser:
**Department of Built Environment Studies & Technology (JABT),
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Internal Environmental Policy Based on Green Procurement for Construction Project.

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Abstract

Industries around the world must move towards green operation to minimise environmental degradation impacts. Construction sector is one of the contributors to environmental degradation, and thus, prompting the government to introduce approaches and initiatives to manage the environmental issues. Government intervention is crucial to steer the industry towards a greener direction. The government's enforcement in terms of policies and guidelines on sustainable construction are the most effective way in persuading the industry. Green procurement is one of the initiatives introduced; however, there is a missing link on how the construction stakeholders can utilise green procurement to support the shift towards a green approach. Thus, this article aims to review the currently available Malaysian government's policies and guidelines, and provide justifications on the adoption of green procurement as one of the environmental policies for construction projects. This paper sets the groundwork for future environmentally friendly construction research in Malaysia, mainly in green procurement practices. The fact that green procurement for the construction industry is still very new in Malaysia, this article will contribute towards the body of knowledge and create awareness on the usefulness of green procurement.

Keywords: *Green procurement, construction industry, green policies, energy efficiency, implementation*

1.0 Introduction

Due to the ever-increasing need to be a more developed nation, the Malaysian government has given a fair focus on its economy. One of the main areas of concern is the construction sector. Maskuriy et al. (2019) stated that the outcomes indicate a firm connection between economic growth and the construction field in all states of Malaysia. The construction sector's financial contribution considerably supports the gross domestic product. This research plays a significant role in the construction sector and its benefits on Malaysia's economy through reviews on the criteria and processes involved in green procurement.

Currently, Malaysia has many policies implemented, all which encourage the enhancement of the construction industry, such as Sustainable Development Goals (SDGs) and the Eleventh Malaysia Plan. The government will eventually update the policy during the transition towards the Twelfth Malaysia Plan and the Construction Industry Transformation Programme (CITP). The importance of green procurement is further backed up by the Sustainable Development Goals of 2015 (UN, 2020) that is still ongoing as of the commencement of this study. The Sustainable Development Goals (SDG) are a set of goals signed and ratified by most United Nations (UN) members, including Malaysia. Ibrahim et al. (2010) stated that the government gave a lot of attention to the Construction Industry due to its multiple parties' involvements, such as suppliers, manufacturers, owners, consultants, contractors, etc. Construction procurement, being one of the project's guidelines, can be the important medium of change to integrate green practices.

Therefore, it is crucial to emphasise and address green procurement requirements in the construction industry. As highlighted in the SDG, the particular target in relation to green procurement is under goal number 12 (Responsible Consumption and Production), namely, target 12.7, which promotes sustainable public procurement practices and as per national policies and priorities. Increasing the implementation of green procurement, in turn, will significantly benefit the country and help in achieving the SDGs (UN, 2012).

2.0 Problem Statement

The “Carrot and Stick” motivation approach is based on the principles of reinforcement to induce good behaviour. According to Ojo et al. (2014), the hesitation of clients and developers to adopt green practices is because of lack of legal enforcement. Moreover, green procurement adoption in other countries such as Hong Kong is not mandatory; therefore, the developers are yet to acknowledge the need of adopting green procurement in their construction projects.

In terms of incentives to implement green procurement in a construction project, financial allocation and top management commitment are still lacking. Furthermore, lack of in-house expertise and experience in ascertaining green services and products lead to hesitation in adopting green procurement. In many construction companies, the integration of green procurement policy elements into the existing corporate policy is also one of the significant factors that impede the adoption of green procurement (Green Council, 2010). Policymakers should consider the incentives as the “carrot” to encourage more individual firms to adopt environmental initiatives (Shen et al., 2016).

The government’s role in ensuring successful implementation of green procurement in construction projects is crucially important. Some authors argued that the most important step towards green procurement successful implementation is to devise mandatory environmental policies and regulations (Diabat & Govindan, 2011; Yang & Zhang, 2012). Non-mandatory policies and regulations will further hinder the implementation of green procurement among construction players. Thus, this paper aims to review legislative provisions related to the development of green procurement in Malaysia and highlight how green procurement can be one of the environmental policies for a construction project.

3.0 Methodology

In line with the objective of this paper, qualitative synthesis is used as the methodology for this paper. Also, to guide the literature review of this paper, keywords used were ‘Green Procurement’, ‘Policy’ and ‘Push Factors or Driver or Motivation’ from the Scopus and Web of Science’s websites. All articles are in English and the selected fifteen main articles were reviewed as pilot articles. Accordingly, the snowball technique was adopted in order to find more evidence to support the main findings (Centre for Review & Dissemination, 2009). The next section provides the entailing result and discussion, focusing on the involved components and stages in project development.

4.0 Findings and Discussions of Qualitative Review

The synthesis of findings was discussed in two (2) topics: environmental policy objectives and justification on the green procurement as key policy.

4.1 Environmental Policy Objectives of Green Growth

Thorough and effective government intervention is needed in the form of incentives and mandates. The carrot and stick approach provides benefits and challenges for government bodies, the development and construction sectors and real estate industries. According to Olubunmi et al. (2016), in the light of environmental, social, and economic advantages of green buildings, incentives are required to drive the adoption of green buildings by building sector stakeholders. Kenley et al. (2011) mentioned that rewards and incentives can be used as a foundation to further develop an evaluation framework. The

incentives include “pre-qualification process, multi-factor tender evaluation, performance selection incentives, finance and payment systems, incentives contracts, contract types and delivery models, tax incentives, and regulation and monitoring”. Moreover, the successful implementation of green procurement is related to the pre-tender and post-contract award practices.

Developer and builder incentives are the approaches that the government can custom fit for the construction firms. The advantages of these incentives are that they contribute to the worker's energy-saving and productivity in emerging sustainable green procurement within the construction industry. Companies voluntarily enforced legislations, market driven sustainable development and incentive packages for construction firms practicing sustainability in their project execution are the best combination approaches for the government to implement (Samari et al., 2013). Financial and non-financial incentives will also support sustainable procurement implementation (Ruparathna & Hewage, 2015).

According to Benson and Jordan (2015), environmental policy is fundamental in managing the relationship between humans and the natural environment for their common benefit. Environmental policies are synonymous with pollution control, loss of natural habitat, waste management and lowering the natural hazards impact (Conelly et al., 2012). Moreover, environmental policy covers many matters for example energy, food production, transportation, human safety and health, consumer choices, biological species survival and international security (Benson & Jordan, 2015).

Environmental awareness is essential, but it is still insufficient towards environmental policy enforcement. Definitions of obtained targets and objectives from the environmental policy need to be definitively clear and reasonable. To implement this, it is essential to have a suitable set of instruments and institutions capabilities. As supported by Wong et al. (2016), implementing standard quality green procurement as sustainability initiatives will enhance the marketability and competitiveness of their portfolios. Government support was found to be the moderator on the relationship between adhocracy culture and sustainable construction (Bamgbade et al., 2018). Environmentally sustainable development construction requires a holistic thinking and decision making, and more innovative solutions that enhance sustainability resulting in mutually benefitting outcomes for all stakeholders. A dedicated effort especially by government and government linked companies are strongly called upon. (Sim et al., 2016).

The federal government is the key catalyst to create a green market for products and services. It is one of the largest purchasers of goods and services in a country, where it represents a large share of the market, including construction being one of the industries. The government has prepared a Construction Industry Transformation Programme (CITP 2016-2020) to spearhead and provide a blueprint to transform Malaysia's construction industry. The CITP underlined four strategic thrusts. The second thrust highlighted that the strategic plan for practices is inefficient and leads to environmental degradation, as the traditional way of delivering a project is not based on a sustainable path therefore demanding a new, greener project delivery approach. Since CITP has ended in 2020, the nation is currently focusing to continue the environmental agenda with National Construction Policy 2030 (NCP2030) under the Ministry of Works Malaysia. The NCP 2030 strives to continue promoting environmentally friendly construction materials and strengthen the waste management system. The NCP2030 initiatives also cover the digitalisation of construction and vital elements in providing quality infrastructure towards environmental sustainability.

Various green policies were introduced in Malaysia as listed in Table 1.0. These policies indicate the government’s initiatives to ensure successful sustainable development implementation.

Table 1. Green Policies in Malaysia

Green Policies in Malaysia	
National Policy on the Environment	2002
National Green Technology Policy	2009
National Policy on Climate Change (NPCC)	2010
Economic Transformation Programme (ETP)	2010
New Economic Model (NEM)	2011-2020
Small and Medium Enterprises Master Plan (SMEMP)	2012-2020
National Steering Committee (NSC) & National Working Committee (NWC)	2013

Minimum Energy Performance Standards (MEPS)	2013
Sustainable Development Goals	2015 - 2030
National Energy Efficiency Action Plan (NEEAP)	2016 - 2025
Malaysian Plan (11MP)	2016 - 2030
Mid Term Review of Eleventh Malaysia Plan (11MP)	2016 - 2030
Construction Industry Transformation Programme (CITP)	2016 - 2030
National Sustainable Consumption and Production Blueprint	2016 - 2030
JKR Strategic Plan - Theme 4	2016 - 2020
Green Technology Master Plan (GTMP) Malaysia	2017 - 2030
National Renewable Energy Policy and Action Plan (NREPAP)	2019
National Low Carbon Cities Masterplan	2020
Putrajaya Greencity	2025
National Construction Policy 2030	2030

4.2 Justification of Green Procurement as Important Policy for Construction Project

Construction industry procurement is relatively complicated compared to procurement of other goods and services. The construction procurement aims to provide both parties with a specific path to follow in accomplishing the contractual arrangement between the project client and the contractor—however, the parties involved in the procurement vary throughout the construction supply chain providers. The parties are divided into two categories (Ayuso et al., 2011; Freeman, 1984), first is the internal stakeholder such as consultants, architects, engineers, surveyors, suppliers, and sub-contractors. The second category is known as external stakeholders such as the local authorities, government, and financier. Every decision made by the client will affect all stakeholder’s delivery. Ayuso et al. (2011) suggested that both internal and external stakeholders will influence the green direction of the project or organisation.

Construction procurement features facades of stages that have a cascading effect from one step to another. The earlier stage, starting with the planning stage, is crucial because the decision made at this stage will impact the execution of subsequent stages such as design, construction, and building life cycle stages. The primary considerations in construction procurement planning are the project scopes including cost, procedure, and duration (Watermeyer, 2012). These three considerations are the most common project objectives. Procurement also helps to provide the governing rules and guidelines of project delivery procedures (Watermeyer, 2012).

Due to the infamous impact of construction activities on the environment, attempts to introduce green-related practices to the construction stakeholders were made a few decades ago. However, the less encouraging response from industry players dampened the attempt by the government and the green experts. The stakeholders commonly highlighted two main rejection factors: the environmentally friendly products and activities are viewed as being costlier than the conventional approach and lack of knowledge on the benefits of going green (Raouf & Al-Ghamdi, 2019). Another opinion is that the attempts to integrate green practices in project delivery is gridlocked by the low level of awareness on the importance of adopting green practices among the players (Zhou, Tam & Qin, 2018).

Government’s environmental policies shall be the carrot and stick to accelerate the adoption of green practices (AlNuaimi & Khan, 2019; Shen, Zhang & Zhang, 2017) (Refer Figure1.0), but green procurement mainly focuses on the project's environmental direction instead. According to a study conducted by Zhou, Tam and Qin (2018) in Mainland China, the low implementation of green practices may be caused by the lack of enforcement by the authorities or availability of specific requirements to guide the stakeholders. Thus, green procurement could be an important internal project policy that determines the direction of the project in the view of the environmental impacts. Green procurement provides the guideline to initiate green practices, and the decision can be made early during the project inception and planning stage. The clients' awareness on environmental protection can improve the positive view of environmental subjects (Shen, Zhang & Zhang, 2017). By directing the procurement project delivery towards green-focused, the stakeholders throughout the supply chain will be more alert on the importance of green practices.

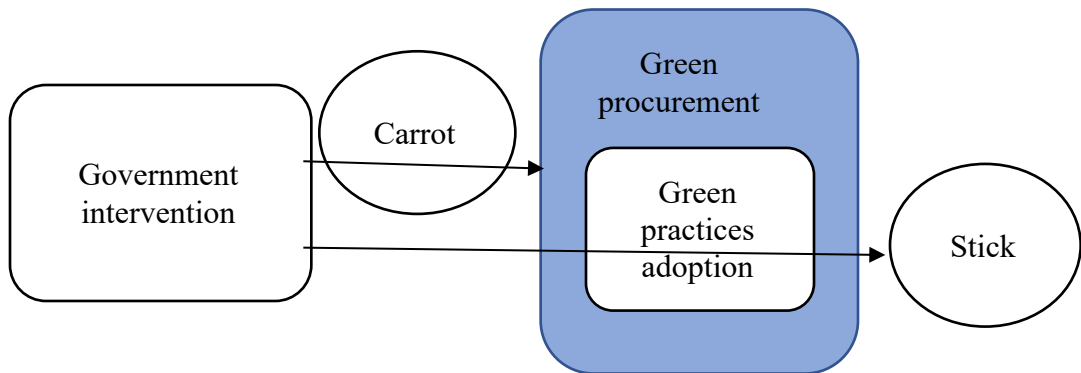


Figure 1. Green Procurement as Internal Environmental Policy for Effective Green Practices Adoption

Initiating green-related practices in a project can be very challenging. Thus, the project’s client must determine the level of commitment of green practices to meet the mandatory government requirements. The client team could decide which green practices will be adopted and rank them based on priority within the project's capability. For instance, the client’s design team should also determine the project's mandatory environmental criteria and provide the list of agreed green building materials for the project. The client’s project team also needs to decide the extent of green adoption for the project and consider using the rating or assessment tool, such as Green Building Index (GBI) or Malaysian Carbon Reduction and Environmental Sustainability Tool (MyCREST). At this stage, the project team must define the green procurement requirement for the project based on the client's needs and project capability. The decision will help the team in planning the project procurement that will determine the project delivery. In a nutshell, the incorporation of green practices must be well defined and documented as part of the project's delivery.

5. Conclusion

Environmental issues have been increasingly considered as a key measure of procurement performance in building development. The availability of green techniques is considered critical to the implementation of green procurement, as it provides a guideline for the project team to adopt and follow. Although there are significant barriers to the development, adoption, and implementation of green procurement practices for a construction project, proper education can facilitate the understanding of the implications related to green procurement execution (Bohari et al., 2020). Government intervention in terms of policy formulation and enforcement will help to drive the adoption of green practices and green procurement adoption will be the internal policy driver for the project itself.

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Tarikh : 20 Januari 2023

Prof. Madya Dr. Nur Hisham Ibrahim
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Kelulusan daripada pihak tuan dalam perkara ini amat dihargai.

Sekian, terima kasih.

“BERKHIDMAT UNTUK NEGARA”

Saya yang menjalankan amanah,

SITI BASRIYAH SHAIK BAHARUDIN
Timbalan Ketua Pustakawan

nar

Setuju.

27.1.2023

PROF. MADYA DR. NUR HISHAM IBRAHIM
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