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Managers' Awareness on Green Public Procurement (GPP): A Case of Malaysian Public Enterprises

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Abstract
Purpose: This study aims to investigate managers' awareness on Green Public Procurement (GPP) practices in Malaysian public enterprises and how managers' characteristics influence Green Public Procurement (GPP).
Design/methodology/approach: The data were obtained from 229 questionnaires collected from procurement officers of Malaysian public enterprises in 2012. The variables tested were awareness, education level, age, and working experience.
Findings: The results reported that educational level influences managers' awareness towards Green Public Procurement (GPP).
Research limitations/implications: This finding provides an indispensable information about the state of managers' awareness on GPP practices in public enterprise.
Practical implications: This paper will allow public sector procurement professionals to make thoughtful decisions on products and service purchases with a focus on environmental and societal consequences to achieve sustainable development.
Originality/value: This paper tends to shed light on the key managers' characteristics to develop an awareness of implementing Green Public Procurement (GPP) in Malaysian public enterprises.

Keywords: Managers, Green Public Procurement, Public Enterprise, Malaysia

Introduction

Green Public Procurement (GPP) is an approach of purchasing with a concern on environmental and social aspects associated to products or services. Government spending has a substantial share of gross domestic product (GDP) in each country around the world. Government procurement has been recognised as a significant instrument for encouraging more environmentally sound goods and services. Hence, country governments are called for to promote public procurement policies. In addition, the implementation of public procurement is aimed to pursue social objectives, such as reduce unemployment rate, raise the labour standard, and provide employment opportunities for disabled persons. Therefore, GPP has been acknowledged as an effective tool in minimising environmental impacts and social problems.
GPP initiative is considered a new concept in Malaysia (Adham & Siwar, 2012a). Past studies revealed that green procurement implementation in Malaysia is still not prioritised (Alqadami et al., 2020). Most of the green procurement practices are undertaken by foreign firms and large companies (Abidin, 2010), while many local industries, especially small and medium

enterprises (SMEs) are still lagging behind and yet to adopt the practices (Eltayeb & Suhaiza, 2009). Prior studies from a large body of literature have examined various driving factors that influence environmental and social awareness. Among the many other factors, individual characteristics are found to be associated with this matter. Managers in an organisation play an important role in making decisions, including decisions related to environmental and social issues. Their awareness of this issue can directly promote and support the implementation of green procurement. Thus, this study aimed to explore managers' perceptions on the awareness of GPP in a Malaysian public enterprise. In addition, this study also examined the influence of managers' characteristics on the awareness towards GPP. This study can be the pioneer in helping policy makers to strengthen policies and guidelines related to GPP practices among Malaysian public enterprises from the managers' perspective.

Literature Review

In 2015, the Organisation for Economic Co-operation and Development (OECD) has published a report on best practices for sustainable procurement (Going Green: Best Practices for Sustainable Procurement). According to the report, the first dimension of GPP practices is setting a GPP legal and policy framework (OECD, 2015). This report showed the importance of having an appropriate legal and policy framework to ensure the successfulness of GPP implementation. This is consistent with Gelderman's et al. (2006) move in introducing a conceptual model of the influences upon sustainable purchasing implementation. According to their study, they suggested that the existence of sustainable purchasing policy pressures the organisations to involve with sustainable purchasing.

In the United Kingdom, the main objective of its public procurement policy is to support the delivery of best value for money services in public procurement. Therefore, the GPP in UK is set up based on a set of guiding principles which include the elements of transparency, competitiveness, accountability, efficiency, legality, and integrity (HM Treasury, 2000). In the United States of America, the GPP framework does not only focus on environmental purchasing, but has gone an extra length by including non-discrimination and equal opportunities into the policy (McCrudden, 2004). This is in line with its constitution where there are federal policies promoting procurement from women and minority-owned businesses. The policy also encourages purchasing from aboriginals. The emphasis on non-discrimination is also practiced by the Canadian Federal Government, where its public procurement policies also focus on ensuring procurement opportunities from aboriginal businesses. Besides, its Policy on Green Procurement (2006) also required all government bodies to formulate green procurement targets and all employees involved to be trained in green procurement (Brammer & Walker, 2011).

Meanwhile, in the east, Korea introduced The Act on Encouragement of Purchase of Green Products in 2005. The Act elaborates the products and services applicable for GPP, where the products/services must be certified or meet the underlying criteria set by the Korea Eco-label. Besides, the products/services must also be certified or meet the quality certificate for recycled products, and comply with other environmental criteria set by the Ministry of Environment (OECD, 2015).

In Malaysia, the Government is committed to improve its procurement process and GPP is part of the transformation agenda (Adham & Siwar, 2012b). GGP in Malaysia refers to the procurement of supplies, services, and work by the government which consider environmental criteria to conserve and minimise the impact on the environment, accelerate the national economy, and promote sustainable development (Adham & Siwar, 2012a).These commitments have been outlined in the 10th Malaysia Plan (10MP), the New Economic Model (NEM), the Economic Transformation Programme (ETP), the NGTP, the National Renewable Energy

Policy and Action Plan (NREPAP), the Small and Medium Enterprises Master Plan (SMEMP), and the Federal Annual Government Budget in 2010 (GGP Guidelines for Government Procurer, 2014). The aspirations were further continued in 11th Malaysian Plan, where it is targeted that by 2020, GGP will contribute at least 20% of government procurement (11th Malaysia Plan, 2015).

The application of environmental criteria for specific products is vital in GGP. Therefore, in 2014, GGP Guidelines for Government Procurer was introduced to support the GGP implementations. The Guidelines have outlined four criteria in the selection of products and services, which are availability of standards, readiness of local suppliers, environmental impacts, and budgetary considerations. Procuring products and services that comply with national and international standards is vital to promote green products and services. In the 10th Malaysian Plan (10th MP), the Government has targeted that 50 percent of the goods and services procured by the Government will have eco-label certification by year 2020. The GGP Guidelines for Government Procurer (2014) has listed six product groups and services, which are cleaning services, ICT equipment, energy efficiency indoor lighting, paper, paints/coatings, and fibre cement (Kahlenborn et al., 2014).

The successfulness of GPP practices is not possible without the commitment from the top management of various government agencies. Ahsan and Rahman (2017) found that among the critical challenges in GPP practices is lack of support from senior management. Hence, it is vital to create awareness among government managers regarding the importance of GPP practices. In 2020, El Haddadi, Moueabit, and El Haddadi conducted a survey on 86 government officers, mainly in public purchasing entities and control bodies in Morocco. In this study, only 59 percent of the respondents understood the concept of GPP and just 30.5 percent of them affirmed the existence of policy/practices aligned with environmental protection guidelines in their organisations (El Haddadi et al., 2020). The absence of appropriate policies will distort the implementation of GPP. Hence, sufficient policies should be formulated by managers in order to encourage the implementation of GPP. In formulating the policies, top management and government officials must re-evaluate their own personal values and commitment of environmental issues (Alnuaimi & Khan, 2019).

Hypothesis Development

Age is one of the most demographic characteristics discussed in research related to green management concept. A study by Liu (2019) reported that executive age is significantly positively correlated with green supply chain management practices. In particular, the study found that older executives are more proactive in implementing green supply chain management. In contrast, Mansi and Pandey (2016) did not provide any evidence of a significant difference between young and mature procurement professionals in their green procurement practices. Their analysis of the age of procurement professionals did not establish any effect on the green procurement practices. Based on the above-mentioned discussion, the first hypothesis is presented:

H_1 There is a significant relationship between managers' age and awareness on GPP.

Prior studies have suggested that education is vitally important in nurturing an awareness of green concept (Abidin, 2010). Education provides knowledge which is among the key successes of implementing GPP (Alqadami et al., 2020). In addition, Robichaud and Anantatmula (2011) suggested that relevant education helps to create awareness and capabilities in green projects. These are consistent with Liu's (2019) report that educational level of executives is significantly positively associated with green supply chain management

practices. Educational level reflects the manager's cognitive abilities, such as learning, judgment, adaptability, and the ability to acquire various resources. The lack of knowledge is among the main obstacles in any green project (Varnäs et al., 2009). Therefore, the level of education may give impact on the awareness towards GGP. Therefore, building upon the literature, this study hypothesises the following:

H_2 There is a significant relationship between managers' level of education and awareness on GPP.

Mansi and Pandey (2016) reported that executives who have a longer working tenure would be positively associated with green procurement practices. They suggested that the length of the working tenure is a measurement of their awareness or knowledge of green procurement practices and environmentally friendly activities. This finding is in line with Liu (2019) who revealed that the term of senior management is significantly positively correlated with green supply chain management practices. The longer a senior manager is appointed, the more likely he or she is to make strategic decisions based on the long-term interests of the company, including in green initiative engagement. With longer working experience, there is a greater opportunity for the senior managers to acquire knowledge and experience with their role and responsibility (Manner, 2010). Based on the existing literature, the following hypothesis is presented:

H_3 There is a significant relationship between managers' working experience and awareness on GPP.

Method

39.2 percent of the sample of the study or 229 out of 584 questionnaires were distributed to the procurement officers in Malaysian public enterprises in 2012. The procurement officers were considered managers as they were part of the procurement team that played the role and responsibilities in managerial matters. Malaysian public enterprises include statutory and non-statutory bodies or known as government-linked companies. Even though both categories have different objectives, they are responsible to support all the government aspirations including encouraging sustainable development. The questionnaire for the survey was adapted from Adham and Siwar (2012a). The dependent variable was the managers' awareness on GPP which was measured using five scales rated from 1 'Strongly Disagree' to 5 'Strongly Agree'. Meanwhile, the independent variables were managers' characteristics which included education level, age, and working experience.

Findings

Descriptive Statistics

From the descriptive statistics as shown in Table 1, 55.5 percent respondents were females, mostly between the age of 31 and 35 years old. In terms of education level, 52.8 percent were bachelor degree holders, 22.7 percent diploma holders, and 9.2 percent were post graduates, i.e., master's degree or PhD. In terms of working experience, the distribution of sample for each age category was quite consistent with 32 percent worked less than five years, 35 percent worked for six to ten years, meanwhile another 33 percent worked for more than ten years.

Table 1: Descriptive Statistics

Criteria	Category	Frequency	Percentage
Gender	Male	102	44.5
	Female	127	55.5
Age Group	25 years and below	24	10.5
	26 to 30 years	68	29.7
	31 to 35 years	76	33.2
	36 years and above	61	26.6
Education Level	Certificate	35	15.3
	Diploma	52	22.7
	Bachelor Degree	121	52.8
	Post Graduate Degree	21	9.2
Working Experience	Less than 5 years	73	32
	6 to 10 years	80	35
	More than 10 years	76	33

In order to observe the managers' awareness of the green products' existence, the study examined the respondents' awareness of the existing environmental logos. Table 2 presents four types of logos that were displayed in the questionnaire, which are the Recycle logo, the SIRIM Eco-Label logo, the MyHijau Label logo, and the GreenTAG logo. The Recycle logo is a globally used logo to indicate that the product is recyclable (recycle, reduce, and reuse). Another internationally recognised logo is GreenTAG logo which indicates that the product is certified by Global GreenTAG Sdn. Bhd., a certification body recognised by the Ministry of Energy, Green Technology, and Water Malaysia. Furthermore, products certified by GreenTAG are eligible for MyHijau programme, Malaysia's official green recognition scheme endorsed by the government to certify products and services that meet both local and international environmental standards. As for SIRIM Eco-Label, it is a certification given by SIRIM Bhd (formerly known as Standard and Industrial Research Institute of Malaysia) for products that follow environmentally-friendly criteria.

In Table 2, the results of the survey indicated that most of the respondents were aware of the Recyle logo and the SIRIM Eco-Label logo's existence (97.8 and 72.9 percent, respectively). However, the level of awareness on the existence of the MyHijau Label logo and the GreenTAG logo was very low. Only 21.4 percent of the respondents were aware of the My Hijau Label's existence and only 17 percent of the GreenTAG logo.

Table 2: The Awareness of the Existing Environmental Logos

Environmental Logos		Yes		Not Sure		No	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Recycle logo		224	97.8%	4	1.7%	1	0.4%
SIRIM Eco-Label		167	72.9%	35	15.3%	27	11.8%
MyHijau Label		49	21.4%	117	51.1%	62	27.1%
GreenTAG		39	17.0%	119	52.0%	70	30.6%

As mentioned by Ahsan and Rahman (2017), lack of support from the top management is one of the challenges in practicing GPP. Table 3 shows the findings of managers' awareness regarding elements related to GPP. This study discovered that the level of awareness among government managers was only moderate, where for most of the question, the average score was only between 3 and 4 (out of 5 Likert Scale). The highest mean was only 3.81, which examined the awareness of the procurement policy's existence. Meanwhile, the lowest score was 3.36, which investigated the awareness on environmental laws and regulations related to green procurement. These results indicated that awareness level of the GPP among the government managers was at moderate level.

Table 3: Managers' Awareness of GPP

Awareness on GPP	Minimum	Maximum	Mean	Std. Deviation
I am aware with the environmental laws and regulations related to green procurement.	1	5	3.36	0.914
I am aware with the potential liability of disposal of hazardous materials during the procurement process.	1	5	3.59	0.793
I am clearly aware of the procurement policies.	1	5	3.81	0.804
I am aware of the procurement laws, regulations, and policies that can be applied.	1	5	3.76	0.750
I am aware of the procurement policies that can be exempted.	1	5	3.54	0.808

Table 4 presents the multiple regression results which tested on the relationship between education level, age, and working experience with the awareness of GGP. The value of R^2 was only at 0.022, which could be considered very low. This indicates that there are other possible factors that influence the variation of GPP awareness.

Table 4: The Relationship between Awareness on GPP and Managers' Characteristics

Variables	Unstandardised Coefficients		Standardised Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.979	0.181		21.959	0.000
Education level	0.100	0.050	0.134	2.013	0.045*
Age	-0.030	0.070	-0.046	-0.435	0.664
Working Experience	-0.020	0.084	-0.025	-0.238	0.812
R Square 0.022 *Significant at $p < 0.05$					

The result showed that there is a significant positive relationship between education level and the awareness of GGP. This finding is consistent with studies by Alqadami et al. (2020), Liu (2019), Abidin (2010), as well as Robichaud and Anantatmula (2011). Education background is a useful indicator of knowledge and skill. Those with higher education level are exposed to structured academic and non-academic systems which equip them with cognitive abilities such as learning, judgment, adaptability, and the ability to acquire various resources. Therefore, these will create their awareness and capabilities in various aspects including green concept. Besides, those in higher education studies are also exposed to sustainable concept (Abidin, 2010).

However, no such relationship is observed for age and working experience with the awareness of GGP. This result supports a study by Mansi and Pandey (2016) which also revealed no significant association between age and green procurement. Meanwhile, Goto et al. (2019) argued that age is not a good predictor of environmental concerns as it has inconsistent or non-existent effects. They too suggested that political and value orientations are better predictors of environmental concerns and actions than age. Therefore, age is not a predictor for the awareness among managers of GGP. However, this result is in contrast to several prior studies such as Liu (2019) who revealed the influence of age on green supply chain management practices. Wiernik et al. (2016) and Liu et al. (2014) argued that age has a positive relationship with environmental concerns, suggesting that older people engage in environmental concerns more frequently. The possible reason for these inconsistent findings could be due to the different contexts and the respondents' different countries which may also impact the different values of the individuals' green practices.

Working experience in this study is defined as the total number of years working in the organisation. The finding showed no significant influence of working experience on the awareness of GPP. Therefore, this study provided no evidence that working experience can be seen as a measurement of their awareness or knowledge of GPP. Nevertheless, there are past studies that reported a significant relationship between working experience and environmental concerns, such as green procurement (Mansi & Pandey, 2016), green supply chain management Liu, 2019), and corporate social performance (Manner, 2010). The possible explanation on these inconsistent results is that the awareness of and interest in GPP would also be influenced by individual preferences.

Conclusion

The aim of this study was to investigate the awareness of GPP among managers in a Malaysian public enterprise and to determine the understanding of how managers' characteristics influenced the awareness of GPP. The descriptive result showed that managers' awareness of GPP was at a good level. The initiatives developed by the Malaysian government have created a foundation of awareness that will trigger the need for action by every industry player. For instance, the government of Malaysia has established a long and also a short action plan that

encourage the practice of GPP. The MyHijau Program under the Ministry of Science, Technology & Innovation (MOSTI) and the Malaysia Green Technology and Climate Change Centre (MGTC), for example, are effective platforms to encourage GPP. The finding also revealed that education level was related to the awareness of GPP among managers in the public enterprise. Education is seen as vitally important in nurturing awareness of GPP. Thus, it is likely that GPP will be enhanced with education.

This study has implications on procurement scholars and the government agency who approach the sustainability crisis by integrating education system at each level to expose and educate sustainability issues, including GPP. While this study delivers some important implications on and contributions to the literature of GPP, it also presents some limitations. This study is limited to the investigation of managers' perceptions on the general awareness towards GPP. Thus, future studies need to look at specific awareness perspectives such as awareness of GPP policy, evaluation, and green products. Moreover, future research may also benefit from measuring the actual GPP practices in terms of commitment and capabilities. The present study is also limited to examination of managers' characteristics only; age, education level, and working experience. Hence, it would be more interesting to extend the dimensions of demographic characteristics.

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