

EMPIRICAL INVESTIGATION OF GOVERNMENT GREEN PROCUREMENT (GGP) PRACTICES IN MALAYSIA

Khairul Naim Adham^a, Chamhuri Siwar^b

^{a, b} Institute for Environment and Development (LESTARI), National University of Malaysia (UKM)

^a Corresponding author: naimadham@gmail.com

©Ontario International Development Agency ISSN: 1923-6654 (print)

ISSN 1923-6662 (online). Available at <http://www.ssrn.com/link/OIDA-Intl-Journal-Sustainable-Dev.html>

Abstract: Malaysian Government procurement plays an important role as a catalyst to economic development. However, as a rapidly developing countries, due consideration must be given to environmental conservation during the development process to avoid environmental degradation. For this reason, Malaysian government can use its immense purchasing power of 24-33 percent of GDP to minimize environmental impacts by implementing government green procurement (GGP) which is seen as a powerful tool to protect the environment. In the context of Malaysia, GGP is refers to the procurement of supplies, services and works by the public sector that takes into account environmental criteria to conserve and minimize the impact on the environment, accelerate the national economy and promote sustainable development. GGP is relatively a new concept in Malaysia and there is no such policy, regulation and legal framework with regards to GGP at this point of time. This study is one of the first attempts to empirically investigate the practice of GGP in Malaysia. This study is crucial to identify opportunities and barriers in implementing GGP in Malaysia and the findings will be expected to assist the Malaysian government to formulate strategies and adopt an appropriate approach to effectively implement the GGP.

Keywords: government procurement, green procurement, government green procurement (GGP), sustainable development

INTRODUCTION

Impressive socioeconomic development in Malaysia has significantly impacted the environment [1]. There was a reduction in the number of clean rivers and number of good air quality days in Malaysia compared to that in 2008 [2]. In addition, although Malaysia contributes only 0.7 percent to global carbon dioxide (CO₂) emissions, Malaysia's emission intensity levels were higher than the global average in the energy sector [3]. Major sources of pollution include improper discharge from sewerage treatment plants, agro based factories, livestock farming, land clearing activities and domestic sewage [4]. Hence, the issue of environmental degradation must be addressed to avoid more severe environmental damage. One of the initiatives that can be implemented is government green procurement (GGP). GGP is in line with the Plan of Implementation of the World Summit on Sustainable Development in Johannesburg to promote government procurement policies for the development and diffusion of environmentally sound goods and services [5]. The use of government purchasing power for environmental protection is being promoted under various names such as green public procurement (GPP) and environmentally-preferable purchasing (EPP) [6]. Other related terms used in various literatures include environmental responsible public procurement, sustainable public procurement, and environmental product procurement [7].

According to [8], GPP is the approach by which Public Authorities integrate environmental criteria into all stages of their procurement process, thus encouraging the spread of environmental technologies and the development of environmentally sound products, by seeking and choosing outcomes and solutions that have the least possible impact on the environment throughout their whole life-cycle. For the purpose of this study, the term GGP is used because a government procurement term is widely used in the Ministry of Finance Malaysia (MOF) instructions and regulations and is consistent with the Ministerial Functions Act 1969. GGP has been defined as the procurement of supplies, services and works by the government that takes into account environmental criteria to conserve and minimize the impact on the environment, accelerate the national economy and promote sustainable development. Environmental criteria in this peculiar refer to products, equipment or systems that minimize degradation to the environment, have zero or low green house gas (GHG) emission, safe for use and promote healthy and improved environment for all forms of life, conserve the use of energy and natural resources, and promote the use of renewable resources [9].

Despite the importance of public procurement, the number of studies that investigate the role of government towards sustainable supply is still small [10, 11, 12] and very little is known about the extent of green procurement practices in Malaysia. This study is one of the first attempts to empirically investigate the practice of GGP in Malaysia. This study will enhance the exploratory study conducted by [13], by focusing on environmental and economic dimensions, a more representative and balanced sample size and perform inferential statistical analysis. This study will answer the following questions (i) Have environmental aspects been integrated into the current government procurement practices in Malaysia? If so, what level is its execution? (ii) What are the opportunities and barriers in the implementation of GGP in Malaysia? (iii) How do GGP practices can be implemented in Malaysia? What kind of strategies can be used? What are the benefits expected?

GOVERNMENT PROCUREMENT AND SUSTAINABILITY

Government or public procurement refers to the acquisition of goods and services by government or public sector organizations [14]. In the context of Malaysia, government procurement refers to the procuring of supplies, services and works in accordance with the MOF instructions and regulations [1]. Government procurement is one of

the key economic activities [15] and has become a promising tool to foster sustainable consumption and production over the last decade [16]. Government procurement plays a crucial role because it involves huge expenditure and the government can potentially use its purchasing power to achieve national development agenda. Estimates indicate that public expenditure corresponded to approximately 8-25 percent of gross domestic product (GDP) for Organization for Cooperation and Development (OECD) member countries [17] and 16 percent for European Union (EU) [18]. The Malaysian public sector expenditure as a percentage of GDP is approximately 24-33 percent and this amount is higher than some other countries [1]. Public expenditure in Malaysia is projected to continue to grow driven by an increase in expenses for supplies and services [19] and the implementation of socio-economic development programs and projects, particularly for improving public transport, rural infrastructure, eradicate poverty, reduce crime and providing basic services like education and health [20].

With severe resource depletion, environmental degradation and increasing awareness of the consumers about the environmental problems, Malaysian government can play a vital role by increasing the level of environmental requirements in its supplier selection and regulate legal framework to enable GGP [21]. According to [22], effective implementation of GGP is urgently required and can potentially give greater impacts in the developing countries where many of them are facing both severe constraints on the availability of resources and complicated environmental challenges. Public procurement among others can be a lever to deliver broader government objectives such as develops a general awareness of sustainability issues [10], becomes the catalyst for sustainable development [16, 23], encourage the innovation and production of environmentally sound products [18, 24], supports environmental and social objectives, and supports domestic markets [16]. A demand for environmental friendly products and services from the government may also set an example for the private sector and create markets for more sustainable products and services [10].

GOVERNMENT GREEN PROCUREMENT

GGP has been implemented in many countries throughout the world and has been recognized as an effective mean of reducing environmental impacts. Many governments have introduced GGP policies to ensure they include environmental considerations in their government procurement decisions. The implementation of the GGP can demonstrate the government's commitment in conserving the

environment that can be emulated by the society as a whole. However, at this point of time GGP is still a new concept in Malaysia [6, 25, 26] and most of the green procurement practices are undertaken by foreign firms, while many local industries, especially small and medium enterprises (SMEs) are still lagging behind and yet to adopt the practices [25, 26, 27]. It is noticed that the companies who are involved are mainly the large companies with headquarters in the United States of America, United Kingdom, Japan and other European countries [25]. Nevertheless, there are a few government-linked companies (GLCs) that have taken such proactive steps in implementing green procurement practices [28].

Benefits associated with the implementation of GGP are not limited to only environment benefits but also can result in economic and social benefits. Scientific studies on the potential of GGP in the EU found that if all public authorities across the EU demanded for green electricity, it will save about 60 million tons of CO₂ which is equivalent to 18 percent of the EU's greenhouse gas reduction commitment under the Kyoto Protocol. The same amount of savings can be achieved when the public authorities opted to build structures that have high environmental quality. The study also found that if all public authorities across the EU were to require more energy-efficient computers, it will lead the whole market to use energy-efficient computer and this move will save 830,000 tons of CO₂. In addition, if all public authorities were to use efficient toilets and taps in their building, it will save water consumption by 200 million tons which is equivalent to 0.6 percent of total household consumption in the EU [18].

Study in Austria, Denmark, Finland, Germany, Netherlands and United Kingdom by [29], found that GGP has the potential to reduce CO₂ emissions in which GPP contributes to an average reduction of 25 percent in CO₂ emissions in 2006/2007 when GPP performed on 10 product groups namely cleaning products and services; construction; electricity; catering and food; gardening, IT office equipments; paper; textiles, transport and furniture. In contrast to common perception, the study also found that GGP can result to decreased costs instead of increased. The use of environmental criteria can lead to an average reduction of around 1 percent in the overall cost for public sector. The reason behind this is that higher purchasing prices of green products are compensated by lower operating costs.

MALAYSIAN GOVERNMENT PROCUREMENT

Government procurement is an important component in Malaysia's administrative system and has been

regarded as a vital tool to achieve socioeconomic and development objectives. During the 10th Malaysia Plan (10MP; 2011-2015), government procurement has been identified as one of the key opportunities to increase the level of Malaysian innovation and to drive small and medium enterprises (SMEs) to develop products in areas that are beneficial to the nation and have larger commercial potential. Malaysia's success in introducing electronic passports in the global arena which were produced by local vendors is one example of how government procurement can catalyze innovation [30]. Hence, the Malaysian government procurement must improve its processes and must change along with current and future business requirements [31]. The MOF is the Federal Government financial authority [32]. In the case of State Governments, the financial authority is vested with the respective Chief Ministers, and the respective State Financial Officers with directions from the respective Chief Ministers, whereas in Local Authorities and Statutory Bodies, it is vested with the respective Chairpersons and the Councils or the Board of Directors [33].

All government agencies must comply to the government procurement laws and regulation including Financial Procedure Act 1957 (Amendment 1972) (Act 61), Ministerial Functions Act 1969 (Act 2), Government Contracts Act 1949 (Revised 1973) (Act 120), Delegation of Powers Act 1956 (Act 358), Treasury Instructions, Treasury Circular Letters, Federal Central Contract Circulars, Treasury Circulars, Treasury Instruction Letters, Manual and Guidelines [1]. In addition, any individual, company and corporate body that intends to participate in the government procurement of supplies and services must register with the MOF and for works, they must register with the Contractors Service Centre (Pusat Khidmat Kontraktor; PKK) and the Construction Industry Development Board Malaysia (CIDB), which are agencies under Ministry of Works [33, 34, 35].

The principal policies of Malaysian government procurement emphasis on (i) Promoting the growth of local industries through the maximum use of local materials and resources; (ii) Encouraging and supporting the participation of Bumiputera (indigenous) entrepreneurs in line with the national aspiration to create a Bumiputera Commercial and Industrial Community (BCIC); (iii) Enhancing the capacity of institutions and local industries through the transfer of technology and expertise; (iv) Stimulating and encouraging local industries and services such as freight and insurance; and (v) Accelerating the country's economic growth.



Source:[1]

Figure 1: Malaysian government procurement

In general, the policies are based on the principle of public accountability, transparency, best value for money, open and fair competition, and fair dealing. Meanwhile, the specific objectives of government procurement include (i) Ensuring continuous supply of products and services to meet the government needs from the best and reliable sources; (ii) Ensuring that procurement practices are efficient, effective and ethical in manner to achieve the best value for money without compromising the aspects of quality, delivery and other price and non-price factors; (iii) Stimulating and encouraging the growth and development of local industries through the optimal usage of local resources and materials; (iv) Developing and revitalizing the local industries through the transfer of technology and expertise in accordance to the nation's needs; and (v) Encouraging alternative sources and a variety of sources through the development of supplier/vendor [1, 33].

To achieve the objectives set, several strategies have been implemented such as (i) Priority to local products and services in which products and services can only be imported when there is no local resources; (ii) Price

preference to local products and services, (ii) Procurement through central contracts for common products and services, (iii) Procurement via the use of contracts from other Ministries/Departments; (iv) Transfer of technology through offset programs and industrial cooperation; (v) Priority to Bumiputera companies; (vi) Price preference to Bumiputera companies; (vii) Priority for Bumiputera manufacturers and producers; (viii) Development of local service industries such as the use of local insurance services, transport and banks; (ix) Reduction of Malaysian currency outflow through the use of Malaysian Ringgit in the local tender; and (x) Usage of Free On Board (FOB) price for imported products and services [34, 35]. Government procurement can be implemented through various methods such as Direct Purchase, Quotation, Tender, Federal Central Contracts/Panel Contracts, Emergency, Requisition, Communal Work, Consulting Services, the use of Contract from other Ministries/Departments, Procurement through Technical Department, Petty Cash and Direct Negotiation [1]. In short, the policies, principles, objectives and strategies of Malaysian government procurement are shown in Fig. 1.

Table 1: Issues and challenges in implementing GP

| Sources | Issues & Challenges |
|---------|---|
| [6] | <ul style="list-style-type: none"> • Absence of national eco-labeling scheme • Capacity building in green purchasing • Green technology, eco-products database • Environmental legislation database • Promotions and exhibitions • Lack of consensus building (government-private sector partnership) |
| [8] | <ul style="list-style-type: none"> • Perception that environmentally friendly products would be more expensive • Lack of knowledge about the environment and how to develop environmental criteria • Lack of management support (including money and time), strategic focus and organizational policy strongly promoting GPP • Lack of practical tools and information (e.g. handbooks, internet tools) • Lack of training for public procurement officers |
| [25] | <ul style="list-style-type: none"> • Lack of incentive for companies to implement green procurement • Lack of awareness on the green procurement concept • Business requirements • Unable to perceive its benefits |
| [37] | <ul style="list-style-type: none"> • Cost and revenue (high cost of environmental program, uneconomical recycling and reusing) • Lack of management commitment • Lack of buyers and suppliers awareness • Perception that environmentally friendly products would be more expensive • Loose environmental regulation |
| [40] | <ul style="list-style-type: none"> • Lack of knowledge and incorrect information • Lack of common standards • Real, perceived, and hidden costs associated with green procurement • Market and technical uncertainties (stability of market demand for green products/services) |
| [41] | <ul style="list-style-type: none"> • Lack of guidelines • Lack of information about products, their functionalities and price • Uncertainty of legislation |
| [42] | <ul style="list-style-type: none"> • Lack of money for countries with high level commitment • Lack of environmental know-how for those with low-level commitment |
| [43] | <ul style="list-style-type: none"> • Lack of administrative resources (including environmental know-how) • High cost of green product and services • Concern for legal challenge by unsuccessful bidders • Refraining from using environmentally related award criteria by the public procurement officers' |
| [44] | <ul style="list-style-type: none"> • Lack of uniformity in green production definition and evaluation criteria (lack of scientific concepts in the current green procurement policy, no uniform standard or criteria for green products, limited green products list) • Insufficient resources for GGP (those involve in green procurement do not have procurement experiences and lack of procurement related knowledge, insufficient financial resources, information infrastructure for green procurement system is lagging behind) • Relying on a single method – administrative means (lack of legal enforcement power, lack of legal and economic means) |
| [45] | <ul style="list-style-type: none"> • Poor environmental protecting awareness • Incomplete environmental and procurement legal system • Lack of knowledge and tool for identifying the green product • Not considering environmental factor into bid evaluation |
| [46] | <ul style="list-style-type: none"> • Low level of awareness among businesses and consumers • Lack of available finance for green services companies • Limited supply of green products and services |

Source: [6], [8], [25], [37], [40], [41], [42], [43], [44], [45] & [46]

ISSUES AND CHALLENGES OF IMPLEMENTING GOVERNMENT GREEN PROCUREMENT

Previous studies have suggested that there are several issues and challenges related to the implementation of GGP. The issues and challenges that influence the practice of GGP in one country might be different in another probably due to differences in socio-economic, demographic and cultural. According to [36], sustainable practice may vary systematically across the public sector according to differences in the emphasis of policy and particular constraints that specific organization faces. [36] have conducted empirical study on sustainable procurement in United Kingdom public sector which is based on four aspects that influence the degree of sustainable procurement implementation namely familiarity with policies, perceived inefficiencies/costs of policies, organizational incentives/pressures, and supplier availability/resistance. Their analysis of barriers for sustainable procurement practice suggests that financial constraints were the biggest limitation. A study by [37] also found the most serious obstacles that hinder green purchasing efforts were due to costs and revenues. Other important barriers include informational issues and absence of support from top management [38].

[13] have conducted a pilot study on sustainable procurement practices in Malaysian public and private sector organizations and they found that financial issues, lack of knowledge and top management commitment were the most significant barriers. Nonetheless, as an exploratory study, their study poses risks of response bias due to its small sample size (48 samples) and sample that are not well balanced between public and private sector organizations [over sample of public-based organizations (85 percent) and under sample private-based organizations (15 percent)]. Their study can be improved with emphasis on environmental and economic dimension (as sustainable procurement has yet to be implemented in the Malaysian public sector) and the scale items used must be reviewed as some of them (such as minority and women owned business enterprise (MWBE) program, minimum wage, etc.) are not related to the present government procurement practices in Malaysia. [39] have conducted the study on drivers for green purchasing adoption among EMS 14001 certified companies in Malaysia and they found that external pressures (from regulatory bodies and customers) and expected business benefits are the main criteria for green purchasing adoption. However, their findings may

not reflect the overall government suppliers because only a small number of government suppliers that have contracts with government obtained ISO 14001 certification. ISO 14001 certified firms have generally had higher degree of environmental awareness. Other important issues and challenges in implementing green procurement as highlighted by [6], [8], [25], [37], [40], [41], [42], [43], [44], [45] and [46] are summarized in Table 1.

Given the lack of previous research related to GGP in Malaysia, there is a great need for an empirical study to be undertaken to identify issues and challenges in implementing GGP from the government procurers' and suppliers' perspectives. This study will emphasis on 7 factors that may influence GGP implementation namely (i) Lack of environmental knowledge; (ii) Lack of environmental concern; (iii) Perceived costs efficiency and business benefits; (iv) Product/supplier availability; (v) Organizational incentives/pressures; (vi) Perceived benefits of policy/regulations; and (vii) Perceived lack of practical tools.

MATERIALS AND METHOD

In achieving the objectives of the study, both quantitative and qualitative methods will be adopted. The study is divided into four parts as shown in Fig. 2.

Part 1 will provide an overview of the GGP in Malaysia and give an indicator of the magnitude of environmental consideration in the current procurement practices. This part will use document analysis beginning with examining the Malaysian government direction and initiatives towards GGP, evaluate environmental consideration in the current public procurement legislations and regulations, and assess environmental consideration in current procurement practices. Government documents namely 10th Malaysia Plan (10MP; 2011-2015) [4], Government Transformation Program (GTP) [47], Economic Transformation Program (ETP) [46], New Economic Model (NEM) [48], National Green Technology Policy (NGTP) [9], National Policy on Climate Change (NPCC) [49] and Federal Government Annual Budget [50] will be analyzed in order to identify the government direction and initiatives. Apart from that, the current legal framework and procedures in relation to procurement viz. Financial Procedure Act, Treasury Instruction, Treasury Circular Letter and Treasury Contract Circular will be analyzed to evaluate environmental consideration in the current public procurement legislations and regulations.

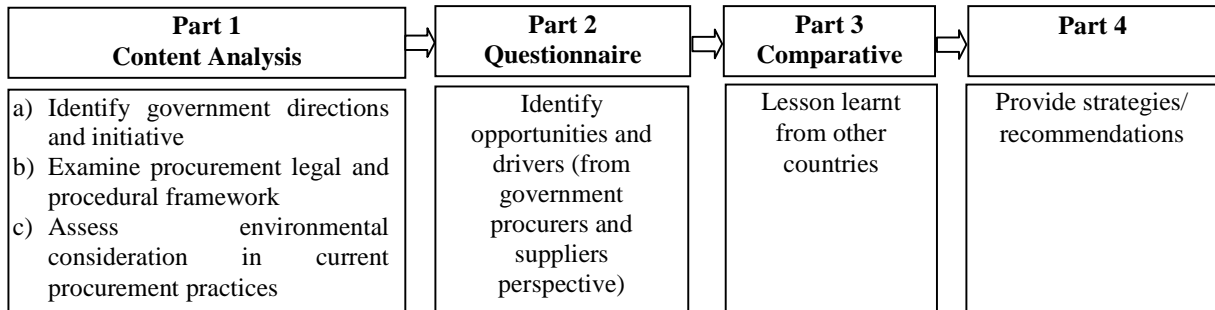


Figure 2: Structure of the study

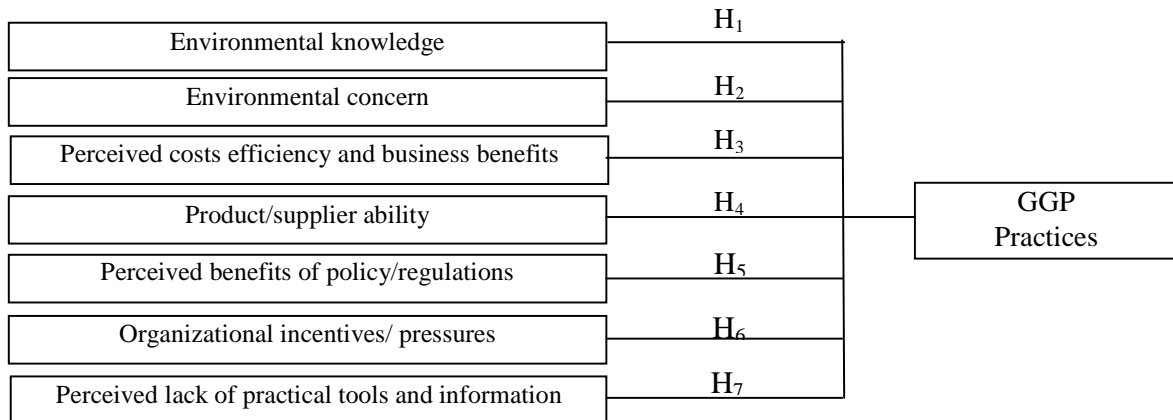


Figure 3: Framework of the study

Table 2: Malaysian government commitments towards GGP

| Documents | Commitments |
|-----------|---|
| [4] | <ul style="list-style-type: none"> • There will be a push towards green technology through the National Green Technology Policy, in preparation for green products and services becoming the preferred choice for public procurement (p. 83) • Ministry of Energy, Green Technology and Water (KeTTHA) together with SIRIM Berhad, will develop a national eco-labeling scheme and standards for our products and services that match international standards. This will in turn support the government's green procurement initiative as well as assist local manufacturers to export their products. Increased labeling of environmentally friendly goods and services such as Energy Efficiency Star Rating, Low Carbon Footprint Products and Green Building Index will increase Malaysia's competitiveness (p. 299) |
| [9] | <ul style="list-style-type: none"> • Short-term goals: 10th Malaysia Plan (ii) Widespread availability and recognition of Green Technology in terms of products, appliances, equipment and systems in the local market through standards, rating and labeling programs, (p. 7). • Mid-term goals: 11th Malaysia Plan (i) Green technology becomes the preferred choice in procurement of products and services, (ii) Green Technology has a larger local market share against other technologies, and contributes to the adoption of Green Technology in regional market, (ii) Increased production of local Green Technology products (p. 10) • Long-term goals: 12th Malaysia Plan and beyond (ii) Widespread adoption of Green Technology reduces overall resource consumption while sustaining national economic growth, (v) Malaysia becomes a major producer of Green Technology in the global market (p. 10) |
| [50] | <ul style="list-style-type: none"> • Boost demand for green products and services. Government will take the lead in raising efficiency and growing the green technology industry. First, the KeTTHA will set efficiency targets stipulating that all ministries must reduce electricity and water consumption by 10 percent per year from 2011 to 2013. Second, KeTTHA will set the target across ministries that 50 percent of the goods and services purchased by the public sector should be eco-labeled by 2020. To this end, a green public procurement policy shall be put in place by October 2011, to give preference to local producers, establish buying guidelines for eco-labeled products and specify the required energy efficiency certification for specific products (p. 417) |
| [51] | <ul style="list-style-type: none"> • A more efficient procurement process will address wider issues covering long-term economic and social viability, environmental impact, and the residual contingency risks that government may have to bear (p. 93) |
| [53] | <ul style="list-style-type: none"> • 2010 - give priority to environmentally-friendly products and services that comply with green technology standards in government procurement (p. 19) |

Source: [4], [9], [50], [51] & [53]

Environmental consideration in the current procurement practices will be measured by analyzing the technical specifications of information and communication technology (ICT) equipments via tender process from the period of January to December 2011. ICT equipments were chosen because they have large potential to enhance environmental performance across the economy and society [51] and the Malaysian government has introduced Green IT Guideline for public sector in August 2010 [52]. The sample will be taken from government's procurement information center (MyProcurement) website. As of July 2011, there are 34 technical specifications which are related to ICT equipments. Evaluation will be based on 3 criteria namely (i) well-specified criteria (two or more environmental aspects), (ii) not-well specified (unclear/minor environmental aspects), and (iii) no environmental criteria (no consideration/not mentioned). The above method has been proven efficient to give a good general assessment of GPP's status [8].

Part 2 will identify opportunities and barriers in implementing GGP from the government procurers' and suppliers' perspectives. A survey will be conducted using an online questionnaire. Five points Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) will be used. The questionnaire will be reviewed by an expert and a pre-test will be conducted to ensure its validity and efficacy. This study investigates 7 variables namely environmental knowledge, environmental concern, perceived costs efficiency and business benefits, product/supplier availability, organizational incentives/pressures, perceived benefits of policy/regulations, and perceived lack of practical tools and information. The framework of this study is shown in Fig. 3 and this study hypothesizes that H_1 , H_2 , H_3 , H_4 , H_5 , H_6 and H_7 have significant relationship with GGP practices.

The target population is senior government procurers in all 24 government ministries in Malaysia (the population size is approximately 201) and top management of government suppliers that obtained government contract via tender in 2010 and 2011 (as on July 2011, the population size is approximately 441). Stratified proportionate random sampling technique will be used. The sample size will be determined using Cochran's sample size [53, 54] as Eq. 1.

$$n_o = \frac{(t)^2 * (s)^2}{(d)^2} \quad (1)$$

Value for selected alpha level of .025 in each tail is (t), estimate of standard deviation in the population is (s) and acceptable margin of error for mean being

estimated is (d). Cronbach's alpha and construct reliability to determine reliability of measures, descriptive (frequency distribution, percentages, mean, standard deviation and charts) and inferential (correlation, multiple regression, structural equation model) statistics will be conducted. Additionally, a comparative study will be carried out in **Part 3** to identify appropriate approaches and practices by other countries that have successfully implemented the GGP. Finally, **Part 4** will provide recommendations and strategies.

FINDINGS

Based on the preliminary analysis in Part 1(a), although the implementation of GGP in Malaysia is yet to be adopted as national policy, the Malaysian Government has shown its commitment as in Table 2 towards the implementation of GGP with the target that 50 percent of the goods and services purchased by the public sector will have eco-label certification by the year 2020 [30]. In addition, Malaysian Government has committed to give priority to eco-friendly products and services that comply with green technology standards in government procurement as stated in [50] and has announced a Malaysia Green Labeling Program to ensure that businesses make credible claims about their products and to raise awareness among both consumers and manufacturers about eco-friendly products and services [55].

Government has implemented various initiatives towards the implementation of GGP such as Green Technology Financing Scheme (GTFS), Eco-Labeling Program (ELP), Malaysia Green Directory (MGD), Low Carbon Cities Framework (LCCF) and Assessment System, and International Conference and Exhibition Green Technology and Eco-Products (IGEM) [30]. Part 1(b), 1(c), 2, 3 and 4 of this study are still ongoing.

CONCLUSION

Although GGP is relatively a new concept in Malaysia, the Malaysian government has shown commitment towards its implementation as outlined in the [4], [9], [50], [51] and [53] with a target of 50 percent of products and services purchased by the public sector will have eco-label certification by the year 2020 [32]. However, there is no specific policy, legal framework and regulations for GGP at this point of time [1]. This study will enhance the knowledge and understanding of GGP and identify opportunities and barriers in implementing it. At the government level, the findings of the study will assist the government in formulating strategies towards the implementation of GGP in a more systematic and effective means. Meanwhile, at the suppliers' level, the findings will help suppliers to make adaptations in fulfilling government's requirements. As overall, it

is expected that the implementation of GGP in Malaysia will benefit the economic and social development of Malaysia and thus improve its people's quality of life. The implementation of GGP will help Malaysia to achieve the target reduction in CO₂ emissions intensity by 40 per cent of GDP by 2020 compared to levels in 2005 as had been pledged by the Government during the United Nations Climate Change Conference; COP15) in Copenhagen in 2009. At the same time, the use of green products and services is expected to improve energy efficiency for 40 percent by 2020 which will result in cost savings of RM295 billion. In addition, the implementation of the GGP will contribute to the growth of green technology industry that will create a number of high skilled jobs in the green sector [50].

ACKNOWLEDGMENTS

This study is sponsored by the Malaysian government under the Federal Training Award Scheme.

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September, Kuala Lumpur

ABOUT THE AUTHORS

Name: Khairul Naim Adham

He is an Administrative and Diplomatic Officer with the Government of Malaysia. He has served in Ministry of Housing and Local Government, Ministry of Internal Security and Ministry of Home Affairs. He holds a Diploma in Public Management, Bachelor of Horticultural Science (University Putra Malaysia) and Master of Science (Science Philosophy and Science & Technology Policy Studies)(University of Malaya). He is currently pursuing his PhD in Environment and Development at the Institute for Environment and Development (LESTARI), National University of Malaysia (UKM) under the Federal Government Training Award Scheme.

Mailing address: Institute for Environment and Development (LESTARI), National University of Malaysia (UKM), 43600 UKM Bangi, Selangor Malaysia

Tel: +6017-3177207

Fax: +603-89255104

E-mail: naimadham@gmail.com

Name: Professor Emeritus Chamhuri Siwar

He is a Principal Research Fellow at the Institute for Environment and Development (LESTARI), National University of Malaysia (UKM). His expertises are in economics, business management and accounting for environmental economics, agricultural economics and environmental management. He holds Bachelor of Economics (University Kebangsaan Malaysia), Master of Agricultural Economics (University of Leeds, UK) and Master of Agriculture and Resource Economics (Iowa State University, USA).

Mailing address: Institute for Environment and Development (LESTARI), National University of Malaysia (UKM), 43600 UKM Bangi, Selangor Malaysia

Tel: +6013-3357727

Fax: +603-89255104

E-mail: csiwar@ukm.my